ISSUED BY Shenzhen BALUN Technology Co., Ltd.

RF

TEST REPORT



FOR

LAPTOP

ISSUED TO E&S INTERNATIONAL ENTERPRISES, INC.

7801 HAYVENHURST AVE. VAN NUYS, CA 91406



	Report No.:	BL-SZ2140809-603
	EUT Name:	LAPTOP
Tested by:	Model Name:	GWTN141-10 (refer section 2.4)
Ye Hongji	Brand Name:	Gateway
Date Jun 20.201	Test Standard:	47 CFR Part 15 Subpart C
A RALLING		(refer section 3.1)
CALON A	FCC ID:	2AYPE-GWTN141-TLKA
Approved by		
Wei Yanquan	Test Conclusion:	Pass
(Chief Engineer)	Test Date:	Apr. 26, 2021 ~ May 10, 2021
Date Date	Date of Issue:	Jun. 30, 2021
p		

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Revision History

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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,
	Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number +86 755 6685 0100	

1.2Identification 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 CN1			
	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

Manufacturer	E&S INTERNATIONAL ENTERPRISES, INC.
Address	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	GWTN141-10	
	GWTN141-10BK, GWTN141-10BL, GWTN141-10PR, GWTN141-	
Series Model Name	10GR, GWTN141-10**	
	(* can be 0-9, a-z, A-Z)	
Description of Model		
name differentiation	Only with different shell colors.	
Hardware Version	N14TRB110	
Software Version	20H1	
Dimensions (Approx.)	N/A	
Weight (Approx.)	N/A	



2.5 Technical Information

	Network an	d Wireless	WIFI 802.11a, 802.11b, 802.11g, 802.11n, 802.11ac and 802.11ax
	connectivity		Bluetooth (BR+EDR+BLE)
I The rea			hnical information of the EUT was tested in this report:
1110104			802.11b/g/n/ax(20 MHz): 2.412 GHz - 2.462 GHz
			$f_c = 2412 \text{ MHz} + (N-1)^{*5} \text{ MHz}$, where
			$- f_c = "Operating Frequency" in MHz,$
			- N = "Channel Number" with the range from 1 to 11.
	Frequency	Range	802.11n/ax(40 MHz): 2.422 GHz - 2.452 GHz
			$f_c = 2412 \text{ MHz} + (N-1)^*5 \text{ MHz}$, where
			$- f_c = "Operating Frequency" in MHz,$
			- N = "Channel Number" with the range from 3 to 9.
	Modulation		DSSS, OFDM
	Product Ty	ре	⊠ Portable
	· · · · · · · · · · · · · · · · · · ·	F -	☐ Fix Location
			Cyclic Delay Diversity (CDD) for 802.11n
	Antenna S		Basic methodology with NANT transmit antennas, each with the
	MIMO, Sm	art Antenna)	same directional gain <i>GANT</i> dBi for 802.11b/g
	Categoriza	tion as	5 5
	-	or Completely	Categorization as Correlated
	Uncorrelate	• •	
	Antenna	Main Antenna	
	Туре	Aux. Antenna	PIFA Antenna
	Antenna	Main Antenna	2.5 dBi (In test items related to antenna gain, the final results
	Gain	Aux. Antenna	reflect this figure. This value is provided by the applicant.)
		For power	
		spectral	2.5 dBi
		density(PSD)	Formulas: Directional gain = GANT + Array Gain, Array Gain = 10
		measurement	<i>log(NANT/NSS) dB. NSS</i> =2, GANT set equal to the gain of the
		s	antenna having the highest gain.
		For power	2.5 dBi
	Total	measurement	Formulas: Directional gain = GANT + Array Gain, <i>Array Gain</i> = 0,
	directiona		GANT set equal to the gain of the antenna having the highest
	l gain s For		gain.
		Conducted	2.5 dBi
		Out-of-Band	Formulas: Directional gain = GANT + Array Gain, <i>Array Gain</i> = 10
	and Spurious Measurement		<i>log(NANT/NSS) dB</i> . <i>NSS</i> =2, GANT set equal to the gain of the
			antenna having the highest gain.
		S	
	About the Broduct		Only the WIFI 802.11b, 802.11g, 802.11n (HT20/40) and
	About the Product		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
	ССК	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	Mode Data Rate		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
	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	5/0/9
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
Dewer and stral density (DCD)	11b/11g/11n20/11n40/	1/6/6.5/13.5/4/8	1/6/11	3/6/9
Power spectral density (PSD)	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:

		\boxtimes	Special software is used.
	Mode		The software provided by client to enable the EUT under
			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				
			Sot	ft Set	
Mode	Channel	Main	Aux.	MIMO-Main	MIMO-Aux.
		Antenna	Antenna	Antenna	Antenna
	CH1	16.5	16.5		
802.11 b	CH6	16.5	16.5		
	CH11	16.5	16.0		
	CH1	15.5	15.5	15.5	15.5
802.11 g	CH6	15.5	15.5	15.5	15.5
	CH11	15.5	15.0	15.5	15.0
	CH1	13.5	13.5	13.5	13.5
802.11 n20	CH6	13.5	13.5	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	12.0	12.0	12.5	12.0
	CH9	12.0	12.0	12.5	12.0
	CH1	13.5	13.5	13.5	13.5
802.11 ax20 (SU)	CH6	13.5	13.5	13.5	13.5
	CH11	13.5	13.5	13.5	13.5
	CH3	12.5	12.5	12.5	12.5
802.11 ax40 (SU)	CH6	12.5	12.5	12.5	12.5
	CH9	12.5	12.5	12.5	12.5



Run software:

Image: Section of the sectin of the section of the section of the section of the	File View AT@ Help		
 Harrison Peak Bluetooth Modulated Tx Transmit power (chain A): Transmit power (chain B): Sine wave Continuous Rx Rx sensitivity Actual power tal Send Packets Settings Transmit Mode: Off Burst Unlimited Destination MAC Address: FF:FF:FF:FF:FF:FF Packet count: Disable Regulatory information Current MCC: US MCC: US Set MCC Short guard interval Ber Emulation Bisable Frame Stize: 15.26 dBm Short guard interval Ber Emulation 	🕮 🗟 📕 🔛 🕴 Remote add	ress: localhost	Remote port: 8751 Disconnect
Calibrate TX TX calibrated Sisable Calibration	Work mode navigator 🗗 🗙 Work mode navigator 🗗 🗙 Harrison Peak Bluetooth Continuous Rx Continuous Rx Rx sensitivity Actual power tał	Power mode Image: Power control Image: Power control	Transmit chains: ✓ A (1) ✓ B (2) Band: 2.4 GHz ✓ 5 GHz Band width: 20 MHz ✓ Channel: 1/2412 MHz ✓ Control Ch.: ✓ ✓ Frame settings ✓ Rate: 6 Mbps ✓ Transmission Mode: SISO ✓ Duty cycle: 99% ± Inter Frame Interval: 40(us) ± Frame Size: 1528 (bytes) 「 Short guard interval.
		Calibrate TX IX calibrated	✓ Disable Calibration



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:	Note ¹ : Please refer to section 5.1.			

Note²: 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	2020.06.08	2021.06.07
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2020.06.09	2021.06.08
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2020.06.09	2021.06.08
LISN	SCHWARZBECK	NSLK 8127	8127-687	2020.06.09	2021.06.08
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%

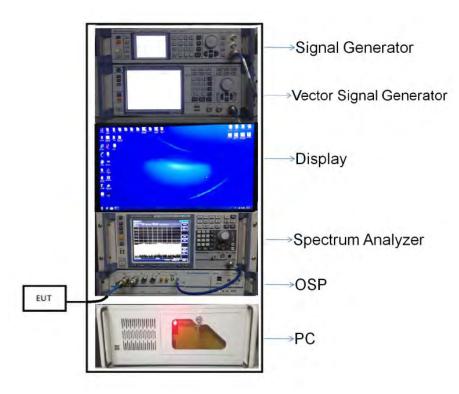


4.4 Description of Test Setup

4.4.1 For Antenna Port Test

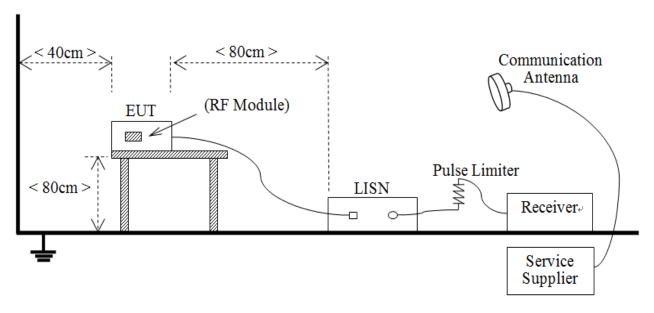
Conducted value (dBm) = Measurement value (dBm) + cable loss (dB)

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)

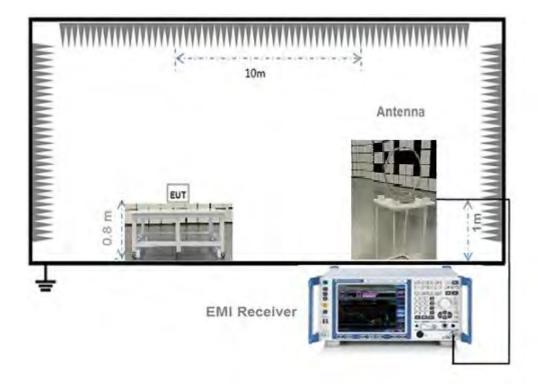




(Diagram 2)

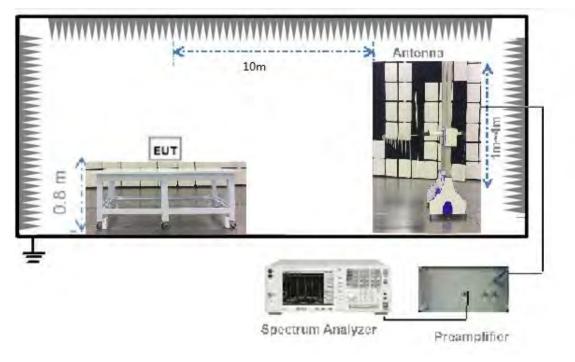


4.4.3 For Radiated Test (Below 30 MHz)



(Diagram 3)

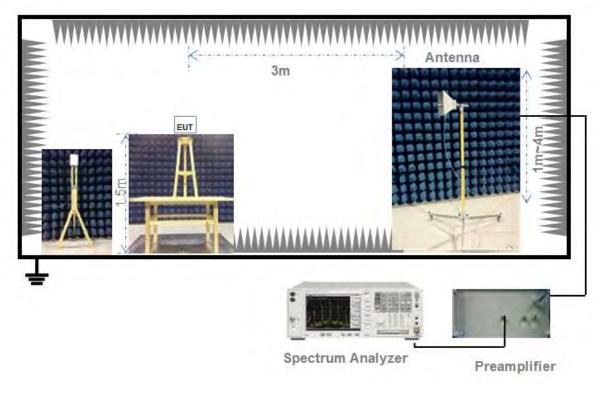
4.4.4 For Radiated Test (30 MHz-1 GHz)



(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 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	8.35230	8.44320	98.92%
802.11g	2.08333	2.17222	95.91%
802.11n-20 MHz	7.92308	8.01923	98.80%
802.11n-40 MHz	7.93180	8.02270	98.87%
802.11ax-20 MHz (SU)	7.89770	8.00000	98.72%
802.11ax-40 MHz (SU)	7.92040	8.02270	98.72%





Peak Power Test Data

Main Antenna

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Vordiot			
Channel	dBm	mW	dBm	mW	Verdict			
Low	20.00	100.00	30					Pass
Middle	19.61	91.41		30 1000	Pass			
High	19.15	82.22			Pass			

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Vordiot	
Channel	dBm	mW	dBm	mW	Verdict	
Low	23.55	226.46	30		Pass	
Middle	23.19	208.45		1000	Pass	
High	22.89	194.54			Pass	

802.11n-20 MHz Mode:

Chappel	Measured Output Peak Power		Limit		Verdict		
Channel	dBm	mW	dBm	mW	Verdict		
Low	21.43	139.00	30	30 1000			Pass
Middle	21.13	129.72			Pass		
High	20.88	122.46			Pass		

802.11n-40 MHz Mode:

Channal	Measured Output Peak Power		Limit		Vordiot										
Channel	dBm	mW	dBm	mW	Verdict										
Low	20.31	107.40	30	30 1000											Pass
Middle	20.11	102.57			Pass										
High	20.15	103.51			Pass										

802.11ax-20 MHz (SU) Mode:

Channel		Measured Output Peak Power		Limit		Vordiot		
Channel		dBm	mW	dBm	mW	Verdict		
Low		22.67	184.93	30				Pass
Middle		22.38	172.98		1000	Pass		
High		22.58	181.13			Pass		

802.11ax-40 MHz (SU) Mode:

Channel	Measured Output Peak Power		Limit		Vardiat	
Channel	dBm	mW	dBm	mW	Verdict	
Low	21.98	157.76	30			Pass
Middle	21.73	148.94		30 1000	Pass	
High	21.95	156.68			Pass	



<u>Aux. Antenna</u>

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	Verdict
Low	19.75	94.41	30	0 1000	Pass
Middle	19.50	89.13			Pass
High	19.33	85.70			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	Verdici
Low	23.42	219.79	30	1000	Pass
Middle	23.32	214.78			Pass
High	23.11	204.64			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	Verdict
Low	21.37	137.09	30	1000	Pass
Middle	21.32	135.52			Pass
High	21.08	128.23			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	Verdict
Low	20.13	103.04	30		Pass
Middle	20.08	101.86		1000	Pass
High	20.15	103.51			Pass

802.11ax-20 MHz (SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	Verdict
Low	22.62	182.81	30		Pass
Middle	22.63	183.23		1000	Pass
High	22.87	193.64			Pass

802.11ax-40 MHz (SU) Mode:

Channel	Measured Output Peak Power		Limit		Vordiot
	dBm	mW	dBm	mW	Verdict
Low	21.91	155.24	30		Pass
Middle	21.81	151.71		1000	Pass
High	21.98	157.76			Pass





MIMO-Main Antenna

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	Verdict
Low	23.51	224.39	30	1000	Pass
Middle	23.24	210.86			Pass
High	22.91	195.43			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	Verdict
Low	21.92	155.60	30		Pass
Middle	21.65	146.22		1000	Pass
High	21.37	137.09			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	Verdict
Low	20.80	120.23	30	1000	Pass
Middle	20.65	116.14			Pass
High	20.57	114.02			Pass

802.11ax-20 MHz (SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	Verdict
Low	22.71	186.64	30	1000	Pass
Middle	22.48	177.01			Pass
High	22.62	182.81			Pass

802.11ax-40 MHz (SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	verdict
Low	22.18	165.20	30	1000	Pass
Middle	21.92	155.60			Pass
High	22.03	159.59			Pass





MIMO-Aux. Antenna

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	verdict
Low	22.01	158.85			Pass
Middle	21.96	157.04	30	0 1000	Pass
High	21.71	148.25			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict	
Channel	dBm	mW	dBm	mW	Verdict	
Low	19.94	98.63				Pass
Middle	19.85	96.61	30	1000	Pass	
High	19.62	91.62			Pass	

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	18.54	71.45		30 1000	Pass
Middle	18.59	72.28	30		Pass
High	18.66	73.45			Pass

802.11ax-20 MHz (SU) Mode:

Channal	Measured Output Peak Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	21.15	130.32			Pass
Middle	21.10	128.82	30	1000	Pass
High	21.33	135.83			Pass

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	20.47	111.43			Pass
Middle	20.39	109.40	30	1000	Pass
High	20.42	110.15			Pass



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

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	25.83	383.24			Pass
Middle	25.66	367.90	30	1000	Pass
High	25.36	343.69			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdici
Low	24.05	254.22			Pass
Middle	23.85	242.82	30	1000	Pass
High	23.59	228.71			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	22.83	191.68		30 1000	Pass
Middle	22.75	188.42	30		Pass
High	22.73	187.48			Pass

802.11ax-20 MHz (SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	25.01	316.95			Pass
Middle	24.85	305.84	30	1000	Pass
High	25.03	318.64			Pass

Channel	Measured Output Peak Power		Limit		Verdict		
Channel	dBm	mW	dBm	mW	Verdict		
Low	24.42	276.63					Pass
Middle	24.23	264.99	30	1000	Pass		
High	24.31	269.74			Pass		



Average Power Test Data

Main Antenna

802.11b Mode:

Channel	Measured Output Average Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	15.51	35.56			Pass
Middle	15.29	33.81	30	1000	Pass
High	15.31	33.96			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	14.23	26.49			Pass
Middle	13.93	24.72	30	1000	Pass
High	14.06	25.47			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	Verdict
Low	12.61	18.24	30	1000	Pass
Middle	12.35	17.18			Pass
High	12.35	17.18			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	11.30	13.49			Pass
Middle	11.24	13.30	30	1000	Pass
High	11.14	13.00			Pass

802.11ax-20 MHz (SU) Mode:

Channel	Measured Outp	ut Average Power	Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	12.42	17.46		1000	Pass
Middle	12.24	16.75	30		Pass
High	12.28	16.90			Pass

Channel	Measured Outp	Measured Output Average Power		nit	Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	11.52	14.19		1000	Pass
Middle	11.44	13.93	30		Pass
High	11.37	13.71			Pass



Aux. Antenna

802.11b Mode:

Channel	Measured Output Average Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	15.35	34.28	30	1000	Pass
Middle	15.28	33.73			Pass
High	15.01	31.70			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	Verdici
Low	14.04	25.35		1000	Pass
Middle	13.99	25.06	30		Pass
High	13.75	23.71			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	Verdict
Low	12.31	17.02	30	1000	Pass
Middle	12.30	16.98			Pass
High	11.96	15.70			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Average Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	10.97	12.50	30	1000	Pass
Middle	10.97	12.50			Pass
High	11.03	12.68			Pass

802.11ax-20 MHz (SU) Mode:

Channel	Measured Outp	red Output Average Power		nit	Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	12.22	16.67		1000	Pass
Middle	12.13	16.33	30		Pass
High	12.31	17.02			Pass

Channal	Measured Output Average Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	11.22	13.24			Pass
Middle	11.13	12.97	30	1000	Pass
High	11.22	13.24			Pass



MIMO-Main Antenna

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	14.21	26.36		1000	Pass
Middle	13.93	24.72	30		Pass
High	14.03	25.29			Pass

802.11n-20 MHz Mode:

Channel	Measured Outp	ut Average Power	Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	12.64	18.37		1000	Pass
Middle	12.35	17.18	30		Pass
High	11.90	15.49			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Average Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	11.41	13.84	30		Pass
Middle	11.19	13.15		30 1000	Pass
High	11.26	13.37			Pass

802.11ax-20 MHz (SU) Mode:

Channel	Measured Outp	ut Average Power	Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	12.37	17.26			Pass
Middle	12.20	16.60	30	30 1000	Pass
High	12.27	16.87			Pass

Channel	Measured Output Average Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	11.49	14.09			Pass
Middle	11.38	13.74	30	30 1000	Pass
High	11.33	13.58			Pass



MIMO-Aux. Antenna

802.11g Mode:

Channel	Measured Output Average Power		Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	13.90	24.55	30	30 1000	Pass
Middle	13.92	24.66			Pass
High	14.01	25.18			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	12.23	16.71			Pass
Middle	12.22	16.67	30	30 1000	Pass
High	12.33	17.10			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	10.76	11.91			Pass
Middle	10.72	11.80	30	30 1000	Pass
High	10.82	12.08			Pass

802.11ax-20 MHz (SU) Mode:

Channal	Measured Outp	ut Average Power	Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	12.11	16.26			Pass
Middle	12.06	16.07	30	30 1000	Pass
High	12.23	16.71			Pass

Channel	Measured Output Average Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	11.04	12.71			Pass
Middle	10.95	12.45	30	30 1000	Pass
High	11.27	13.40			Pass



<u>MIMO</u> 802 11g Mod

802.1	l1g	Mode:	

Channel	Measured Outp	ut Average Power	Limit		Verdict
Channel	dBm	mW	dBm	mW	verdict
Low	17.07	50.91			Pass
Middle	16.94	49.38	30	30 1000	Pass
High	17.03	50.47			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Lir	nit	Verdict
Channel	dBm	mW	dBm	mW	Verdict
Low	15.45	35.08	30		Pass
Middle	15.30	33.85		30 1000	1000
High	15.13	32.59			Pass

802.11n-40 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
Channel	dBm	mW	dBm	mW	verdict
Low	14.11	25.75	30		Pass
Middle	13.97	24.96		30 1000	Pass
High	14.06	25.44			Pass

802.11ax-20 MHz (SU) Mode:

Channal	Measured Outp	ut Average Power	Limit		Vordiot
Channel	dBm	mW	dBm	mW	Verdict
Low	15.25	33.51			Pass
Middle	15.14	32.67	30	1000	Pass
High	15.26	33.58			Pass

Channel	Measured Outp	ut Average Power	Limit		Verdict
Channel	dBm	mW	dBm	mW	verdict
Low	14.28	26.80			Pass
Middle	14.18	26.19	30	1000 Pass	Pass
High	14.31	26.98			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:

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

802.11g Mode:

Channel	6 dB Bandwidth	99% Bandwidth	6 dB Bandwidth
	(MHz)	(MHz)	Limits (kHz)
Low	15.218994	17.424023	≥500
Middle	15.218994	17.366136	≥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	15.168945	18.292330	≥500
Middle	15.168945	18.350217	≥500
High	15.218994	18.292330	≥500

802.11n-40MHz Mode:

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

Channel	6 dB Bandwidth	99% Bandwidth	6 dB Bandwidth
	(MHz)	(MHz)	Limits (kHz)
Low	15.469238	19.102750	≥500
Middle	15.969971	19.160637	≥500
High	17.071289	19.044863	≥500



802.11ax-40 MHz (SU) Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	33.971191	37.600000	≥500
Middle	35.121826	37.500000	≥500
High	35.972412	37.500000	≥500

Aux. Antenna

802.11b Mode:

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

802.11g Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	16.470703	17.771346	≥500
Middle	16.470703	17.887120	≥500
High	16.470703	17.713459	≥500

802.11n-20MHz Mode:

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

802.11n-40MHz Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	36.472656	36.500000	≥500
Middle	36.422607	36.600000	≥500
High	36.422607	36.500000	≥500

Channel	6 dB Bandwidth	99% Bandwidth	6 dB Bandwidth
Channel	(MHz)	(MHz)	Limits (kHz)
Low	19.023682	19.334298	≥500
Middle	18.923584	19.392185	≥500
High	19.023682	19.450072	≥500



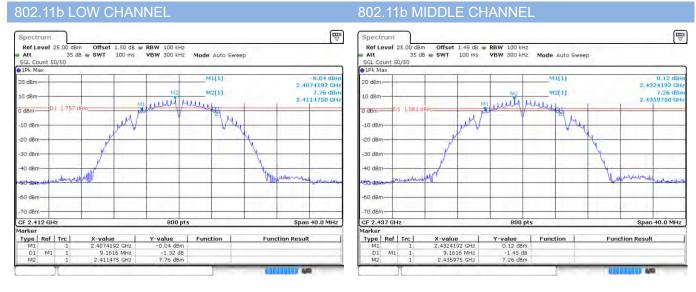
802.11ax-40 MHz (SU) Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	37.973633	37.900000	≥500
Middle	37.873535	37.900000	≥500
High	37.973633	37.900000	≥500

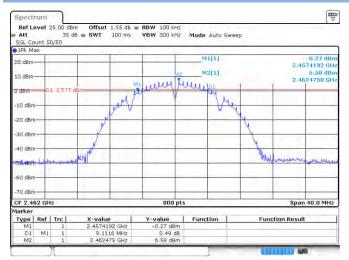
Test plots

<u>6 dB Bandwidth</u>

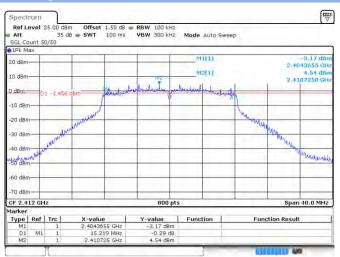
Main Antenna



802.11b HIGH CHANNEL

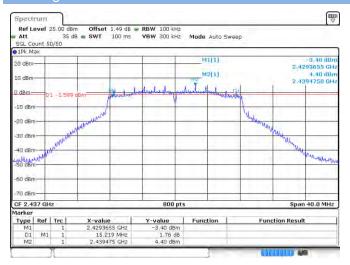


802.11g LOW CHANNEL

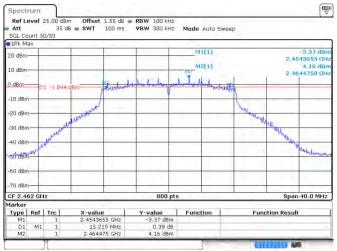




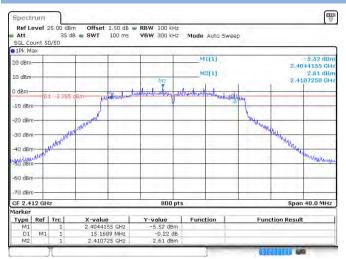
802.11g MIDDLE CHANNEL



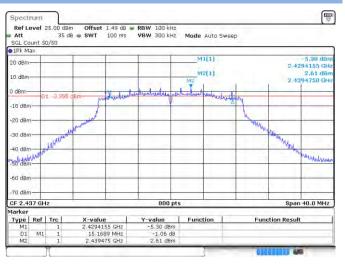
302.11g HIGH CHANNEL



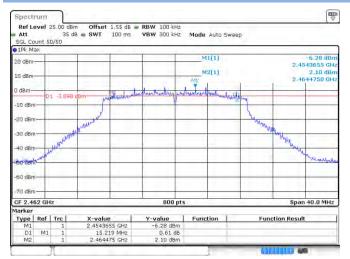
802.11n-20 MHz LOW CHANNEL



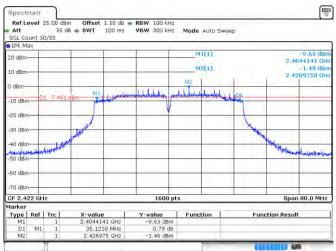
802.11 n-20 MHz MIDDLE CHANNEL



802.11n-20 MHz HIGH CHANNEL

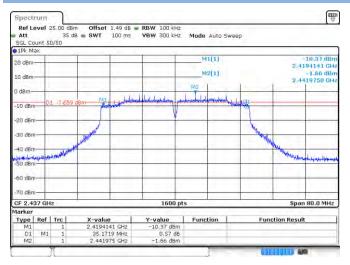


802.11n-40 MHz LOW CHANNEL



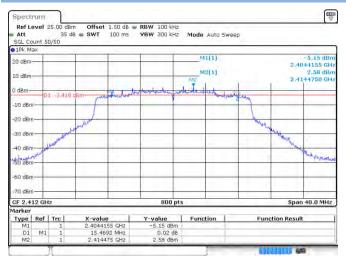


802.11n-40 MHz MIDDLE CHANNEL

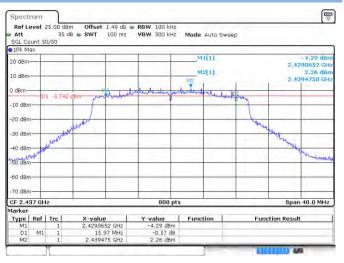


₩ Spectrum Ref Level 25.00 dBm Offset 1.51 dB RBW 100 kHz Att 35 dB SWT 100 ms VBW 300 kHz Mode Auto Sweep SGL Count 50/50 9 1Pk Max M1[1] -8,92 d8 2.4344141 G 20 dBn -2.12 dBn 2.4569750 GH M2[1] 16 dBm dBm Mi Julabalad 01 -8.123 -10 dBm-20 dBn 30 dBm 40 dBm 50 dBm orde Lund 60 dBm -70 dBm 1600 pts Span 80.0 MHz CF 2.452 GHz X-value 2.4344141 GHz 35.1719 MHz 2.456975 GHz Y-value Type Ref Trc Function Function Result D1 M1 M2 -1.51 dB -2.12 dBm

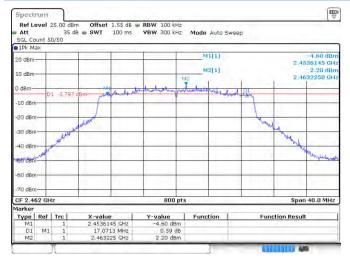
802.11ax-20 MHz (SU) LOW CHANNEL



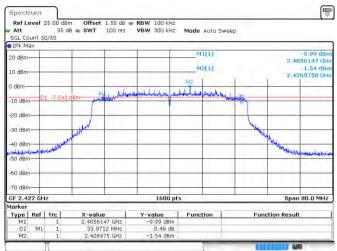
802.11ax-20 MHz (SU) MIDDLE CHANNEL



802.11ax-20 MHz (SU) HIGH CHANNEL

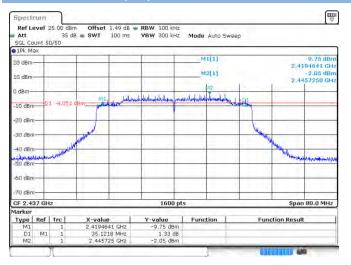


802.11ax-40 MHz (SU) LOW CHANNEL





802.11ax-40 MHz (SU) MIDDLE CHANNEL

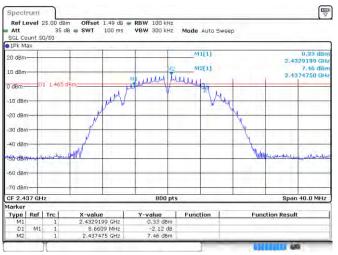


ttt ▽ Spectrum Ref Level 25.00 dBm Offset 1.51 dB RBW 100 kHz Att 35 dB SWT 100 ms VBW 300 kHz Mode Auto Sweep SGL Count 50/50 9 1Pk Max MI(1) 9.23 d 20 dBn -9,23 dBr 2,4344141 GH -2,21 dBr 2,4644750 GH M2[1] 16 dBm dBmin A marked of more thanks w. Munh 01 -8,210 -10 dBm-20 dBn 30 dBm 40 dBm 50 dBm--60 dBm -70 dBm 1600 pts Span 80.0 MHz CF 2.452 GH X-value 2.4344141 GHz 35.9724 MHz 2.464475 GHz Y-value Type Ref Trc Function Function Result -9.23 dBm -0.44 dB -2.21 dBm D1 M1 M2

Aux. Antenna



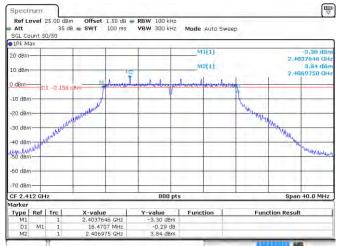
802.11b MIDDLE CHANNEL



802.11b HIGH CHANNEL

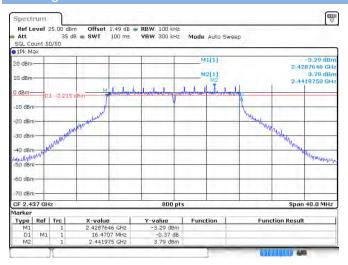


802.11g LOW CHANNEL

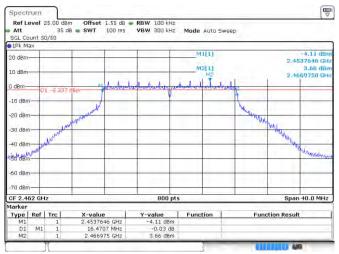




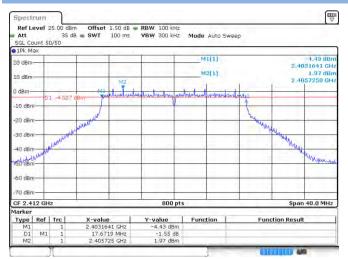
802.11g MIDDLE CHANNEL



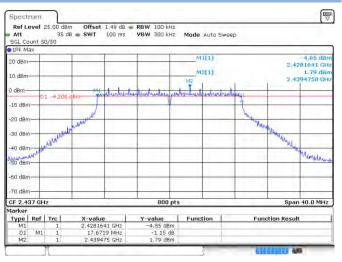
302.11g HIGH CHANNEL



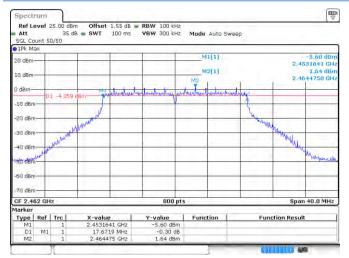
802.11n-20 MHz LOW CHANNEL



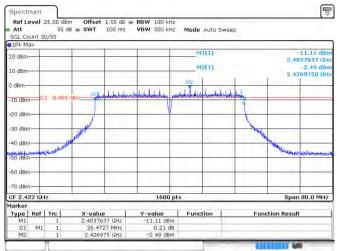
802.11 n-20 MHz MIDDLE CHANNEL



802.11n-20 MHz HIGH CHANNEL

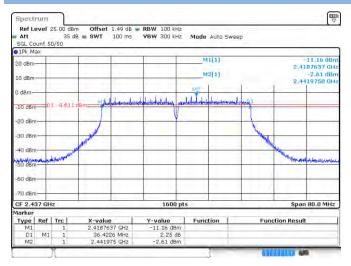


802.11n-40 MHz LOW CHANNEL



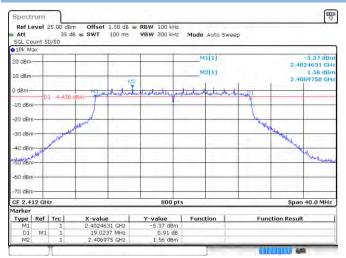


802.11n-40 MHz MIDDLE CHANNEL

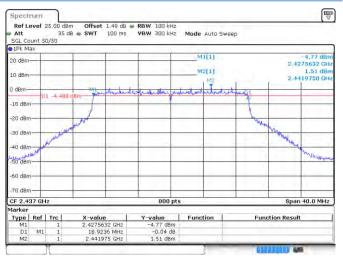


Spectrum Ref Level 25.00 dBm Att 35 dA 0 dBm Offset 1,51 dB RBW 100 kHz 35 d8 SWT 100 ms VBW 300 kHz VBW 300 kHz Mode Auto Sween SGL Count 50/50 9 1Pk Max MI[1] 11.15 di 20 dBn 2.43 M2[1] -2.52 dBr 2.4569750 GH 16 dBn M2 dBm 1. Halakakahadreanty Jalah 11 -8 524 -10 dBm-20 dBn 30 dBm 40 dBm Shutylant 60 dBo 70 dBm 1600 pts Span 80.0 MHz CF 2.452 GHz X-value 2.4337637 GHz 36.4226 MHz Type Ref Trc Y-value -11.15 dBr Function Function Result -11.15 dBm 1.93 dB -2.52 dBm D1 M1 M2 36.4226 MHz 2.456975 GHz

802.11ax-20 MHz (SU) LOW CHANNEL



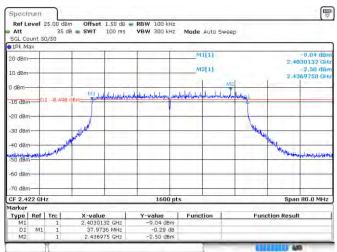
802.11ax-20 MHz (SU) MIDDLE CHANNEL



802.11ax-20 MHz (SU) HIGH CHANNEL



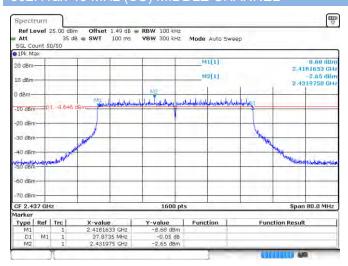
802.11ax-40 MHz (SU) LOW CHANNEL





802.11ax-40 MHz (SU) MIDDLE CHANNEL

302.11ax-40 MHz (SU) HIGH CHANNEL



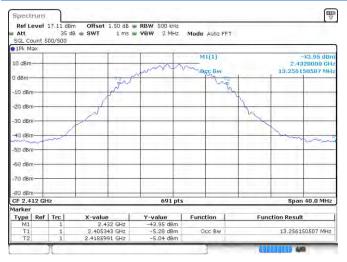
Att SGL Co	unt 5		i8 e SWT	1.51 dB 4 100 ms	RBW 100 ki VBW 300 ki		Auto Sw	eep	
• 1Pk M 20 dBm 10 dBm	+						1(1) 2(1)	Mal	-8,76 dBr 2,4330132 GH -2,60 dBr 2,4669750 GH
0 dBm-	0	1-8.599	dBm Milu	hilling		and a hard and a hard and a	1	wheel which I	
-20 dBn -30 dBn								t	
-40 dBn -50 dBn	-	Ald a market	al and a second s					X	tappene and the second second second
-50 dBn									
-70 dBm	n	-							
CF 2.4	52 GH	z			1600	pts	-		Span 80.0 MHz
Marker Type	Ref	Tec I	X-valu	. 1	Y-value	Fund	tion 1	Func	tion Result
M1 D1 M2	M1	1 1	2.43301	32 GHz 36 MHz	-8.76 dB -0.26 d -2.60 dB	m IB		Func	cion result



99% Bandwidth

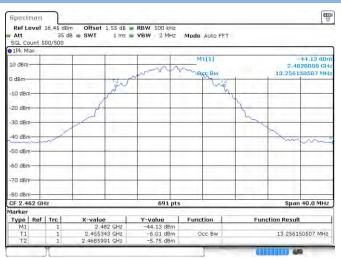
Main Antenna

802.11b LOW CHANNEL



₽ Spectrum Ref Level 16.89 dBm Offset 1.49 dB RBW 500 kHz Att 35 dB SWT 1 ms VBW 2 MHz Mode Auto FFT SGL Count 500/500 1Pk Max 43.71 dB 10 dBn 2.4570000 GI 13.314037627 MH dBr S -10 dBm 20 dBm 30 dBm-40 dBm-50 dBm 60 dBn 70 dBm 80 dBn Span 40.0 MHz CF 2.437 GH 691 pt Y-value 13.71 dBm arkei Type Ref Trc X-value 2.457 GHz 2.4302851 GHz 2.4435991 GHz Function Function Result 43.71 dBm -6.32 dBm -5.34 dBm 13.314037627 MHz Occ Bw T1 T2 640

802.11b HIGH CHANNEL

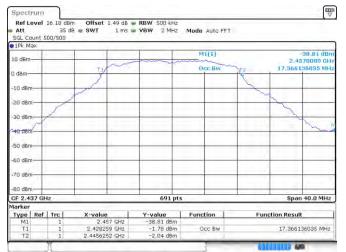


802.11g LOW CHANNEL

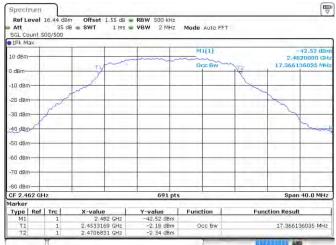
802.11b MIDDLE CHANNEL

₽ Spectrum Ref Level 17,01 dBm Att 35 dB SGL Count 500/500 P1Pk Max Offset 1.50 dB = RBW 500 kHz SWT 1 ms = VBW 2 MHz 35 dB . SWT Mode Auto FET MI[1] 40,68 dB 10 dBm-2.4320000 GI 17.424023155 MH Occ By dBm 10 dBm 20 dBm 30 dBm to dem-SA dBm -60 dBm 70 dBm 30 di Span 40.0 MHz CF 2.412 GHz 691 pts X-value 2.432 GHz 2.403259 GHz 2.4206831 GHz Y-value Type | Ref | Trc | Function Result Function 17.424023155 MHz -1.50 dBm -1.93 dBm Occ Bw

802.11g MIDDLE CHANNEL



802.11g HIGH CHANNEL





802.11n-20 MHz LOW CHANNEL

SGL Co			8 e SWT 1 m	s 🖝 VBW 2 MHz	Mode Auto FF	T	
10 dBm-	ak T		Ī		MI[1]		-40,30 dBr
0 dBm—			The second		Occ. Bw	24	2.4320060 GH 18.292329957 MH
-10 dBm	-	_		_		1	
-20 dBm	_						
-30 dBm		1					~
	5					-	
49 dBn							200
-50 dBm	-					-	
-60 dBm	-			_		-	
-70 dBn							
-70.050							
-80 dBm	-	-		-		-	
CF 2.4	12 GH	z	-	691 pt	5		Span 40.0 MHz
larker				1	1		
Type M1	Ref	1 1	X-value 2,432 GHz	-40,30 dBm	Function	Fun	ction Result
T1		1	2.4027959 GHz	-2.44 dBm	Occ Bw		18.292329957 MHz
T1 T2		1	2.4027959 GHz 2.4210883 GHz		Occ Bw		18.292329957

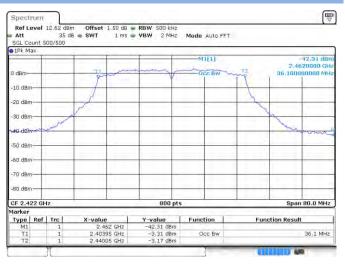
802.11 n-20 MHz MIDDLE CHANNEL E Spectrum Ref Level 14,25 dBm Offset Att 35 dB SWT SGL Count 500/500 Offset 1.49 dB = RBW 500 kHz SWT 1 ms = VBW 2 MHz Mode Auto FFT M1[1] 41.19 dB 10 dBm-2.4570000 GI 18.350217077 MH Ra dBm 10 dBm 20 dBm 30 dBn AD-DP -50 dBm -60 dBm -70 dBm 80 dBm CF 2.437 GH 691 pts Span 40.0 MHz X-value Y-value Function 2.457 GHz -41.19 dBm -41.19 dBm 2.427759 GHz -3.60 dBm Occ Bw 2.4461462 GHz -3.40 dBm -3.40 dBm Type Ref Trc Function Result 18.350217077 MHz 640

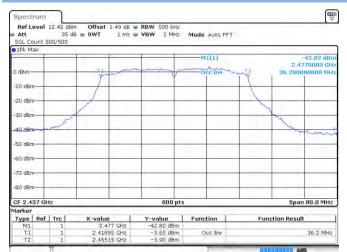
802.11n-20 MHz HIGH CHANNEL

802.11n-40 MHz MIDDLE CHANNEL

Att	unt 5				RBW 500 kHz VBW 2 MHz	Mode Auto FF	т		
10 dBm	ах		i i	-	1 1	M1(1)			-43.05 dBm
TO OBIU					marine in	m			20000 GH
0 dBm-	-		TYT			Occ Bw	14	18.2921	29957 MH
-10 dBr	+			-			1		-
-20 dBm	-	~	5	-			7	1	
-30 dBm		1ª					1.1.1	my -	
-SU UBII	P	-		1				1	2
40 dBm	4						-		-
-50 dBm	-				-		-		-
60 dBm	-				_		-		
70 dBm				_			_	-	
-BO dBn									1
CF 2.4	52 GH	z		_	691 pt			Spar	140.0 MHz
larker									
	Ref	Trc	X-value	-	Y-value	Function	Fun	ction Resul	t
M1	-	1	2.48		-43.05 dBm	Over Duy		10.0000	00017 1414
T1 T2		1	2.452853		-3.04 dBm -3.11 dBm	Occ Bw		18.2923	29957 MHz

802.11n-40 MHz LOW CHANNEL





802.11n-40 MHz HIGH CHANNEL





Function Result

19.160636758 MHz

802.11ax-20 MHz (SU) LOW CHANNEL

Ref Level Att SGL Count	35 d		VBW 2 MHz	Mode Auto FFT		
10 dBm		y		MI[1] Occ Bw	-12	-41.07 dBn 2:4320000 GH 19:102749638 MH
-10 dBm	-		-			
-20 dBm	مر ا				1.1.1	m
-40 dBm						
-50 dBm —					-	
-60 dBm						
-70 dBm						
CF 2.412 G	Hz		691 pts	-	-	Span 40.0 MHz
farker Type Rel	Trc	X-value	Y-value	Function	Fur	iction Result
M1 T1 T2	1 1	2.432 GHz 2.4024486 GHz 2.4215514 GHz	-41.07 dBm 1.52 dBm 1.01 dBm	Occ Bw		19.102749638 MHz

802.11ax-20 MHz (SU) MIDDLE CHANNEL ₽ Spectrum Ref Level 14,46 dBm Offse Att 35 d8 = SWT Offset 1,49 dB = RBW 500 kHz SWT 1 ms = YBW 2 MHz Mode Auto FFT SGL Count 500/500 91Pk Max MI[1] 41.02 di 10 dBm-2.457 11 C BW 19.160636758 N dBn -10 dBm 20 dBm 30 dBm 19 d8m -50 dBm -60 dBm -70 dBm 80 dBm CF 2.437 GH 691 pts Span 40.0 MHz X-value 2.457 GHz 2.4274486 GHz 2.4466093 GHz Y-value Function

41.02 dBm 1.09 dBm -0.13 dBm

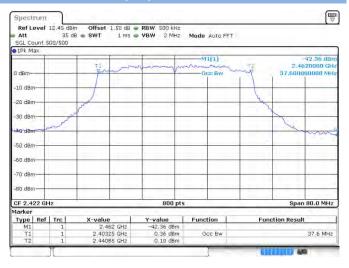
Occ Bw

802.11ax-20 MHz (SU) HIGH CHANNEL

Att SGL Co	unt 5		e e swt		RBW 500 kHz VBW 2 MHz	Mode Auto F	ET	
10 dBm	3X		ī —	1	1	M1[1]		-42,56 dBm
10 dBm-			The	-	mount	min	inine a	2.4820000 GH
0 dBm-			T	1.1		Occ Bw	Y	19.844862518 MH
a dente			1					
10 dBm	-				_			
	- 11		~				~	
20 dBm	-		1	-				Mar Internet
		1	1					
-30 dBm		6	-				-	2
10.10	1					and the second s		
40 dBm							-	m
50 dBm	_				_			
00 00.								
-60 dBm	-			-	+ +			
			1.2.1.1.1					
-70 dBm	-		-	-	-			
				1				
-80 dBm		-						
CF 2.4	2 GH	z			691 pts	5	*	Span 40.0 MHz
larker	-			_		0		
Type	Ref	Trc	X-value		Y-value	Function	Fun	ction Result
M1		1		82 GHz	-42.56 dBm			
T1 T2		1	2.45250		1.93 dBm 0.79 dBm	Occ Bw		19.044862518 MHz

802.11ax-40 MHz (SU) LOW CHANNEL

Type Ref Trc



802.11ax-40 MHz (SU) MIDDLE CHANNEL





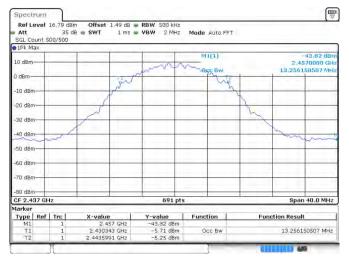


<u>Aux. Antenna</u>

802.11b LOW CHANNEL

SGL Coun		8 🖷 SWT 1 ms 🕯	VBW 2 MHz	Mode Auto FF	т	
10 dBm			hann	M1[1]		-43,98 dBn 2,4320060 GH 13,256150587 MH
0 dBm		ign		Lie	1	
-10 dBm			1		Y	L ' '
		~			Z	
-30 dBm	1				1	
-40 dBm	m					~~~~~~
50 dBm-					-	
60 dBm-						
-70 dBm					-	
-80 dBm					-	
CF 2.412 Marker	GHz		691 pts	ć – ř	~	Span 40.0 MHz
Type R	f Trc	X-value	Y-value	Function	Fune	ction Result
M1 T1 T2	1 1	2.432 GHz 2.405343 GHz 2.4185991 GHz	-43.98 dBm -5.58 dBm -5.18 dBm	Occ Bw		13.256150507 MHz

802.11b MIDDLE CHANNEL



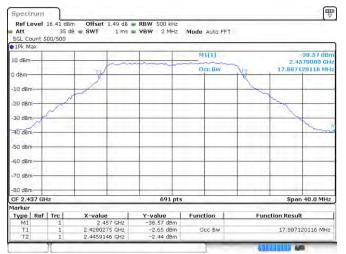
802.11b HIGH CHANNEL

		00/500				Mode Auto FF			
10 dBm	1				m	MI[1]		2.48	44,13 dBn 20060 GH
0 dBm-				TEN	~	1 his	2		
-10 dBm	-			J.			5		
-20 dBm			1				A		_
-30 dBm			1				L		_
			Y						
-40 dBm	in	~						- m	
-50 dBm	-	_	-		-		-		_
-60 dBm		_			_				_
								1	
-70 dBn		_		-	-			1	
-80 dBn	-	_	-	-					
CF 2.4	52 GH	z			691 pt	5		Span	40.0 MHz
Type	Def	Test	X-value	1	Y-value	Function	Free	ction Result	
	Ker					Function	Fun	ction Result	
M1 T1	-	1	2.45540	82 GHz	-44.13 dBm	Occ Bw		13.19826	3386 MH
T2		1	2.46859	91 GHz	-5.45 dBm	1			

802.11g LOW CHANNEL



802.11g MIDDLE CHANNEL



802.11g HIGH CHANNEL





802.11n-20 MHz LOW CHANNEL

SGL Co	unt 5	35 d	8 e SWT		RBW 500 kHz VBW 2 MHz		to FFT			_
10 dBm	4X		I I		T	M1(1	1	-		42.72 dBn
0 dBm-			130			Occ I	aw I	V2		20060 GH 29797 MH
-10 dBm				-				1	-	-
-20 dBm		-	<u> </u>					1		
-30 dBm	-	2							2	
-40 detr	1									1
-50 dBm	_							_	-	
-60 dBm	-							_	_	
-70 dBm	-		-	_				_		
-80 dBm	_	_		_				_	1	
CF 2.4	12 GH	z			691 pt	s	-		Span	40.0 MHz
Marker Type	Def	Trc	X-value	- 1	Y-value	Function	. 1	Frank	tion Result	
M1	Ref	1		2 GHz	-42.72 dBm	runction		Punc	cion Result	
T1		1	2,402622		-3,35 dBm	Occ I	Des 1		10 0020	39797 MHz

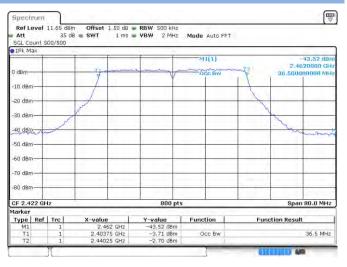
Att	14.16 dB 35 d			Mode Auto FF1	ni i	[#
SGL Count	500/500				_	
10 dBm-			1	_M1[1]		-41.05 dBr
		- man	min	min	-	2.4570060 GH
0 dBm		13/		Occ Bw	V2	18.697539797 MH
			_		X	
-10 dBm		-F			1	
					1	1
-20 dBm	P				-	121
1. Sec. 1.	pl.					5
-30 dBm-	1					
-10-dBm-						m.
-ac-ubin-	1					
-50 dBm					_	
50 00.11						
-60 dBm					-	
-70 dBm-	-					
					_	
-80 dBm			-		-	
CF 2.437 0	Hz	1 1	691 pt	s	-	Span 40.0 MHz
larker				C		
Type Re		X-value	Y-value	Function	Fur	iction Result
M1	1	2.457 GHz	-41.05 dBm			
T1 T2	1	2.4276223 GHz 2.4463198 GHz	-3.28 dBm -3.42 dBm	Occ Bw		18.697539797 MHz

802.11 n-20 MHz MIDDLE CHANNEL

802.11n-20 MHz HIGH CHANNEL

Att SGL Co			8 🖷 SWT	1 ms	VBW 2 MHz	Mode Auto FF	T	
10 dBm	ak T		1	-	Ĩ.	MI[1]		-42,41 dBn
TO GENI			-	man		min	~	2.4820000 GH
0 d8m-	-		Ta			Occ Bw	1 V2	18.697539797 MH
10 dBm	4	_		_			1	
-20 dBm	_	1	1				3	
30 dBm		5		1.000			1.0.00	
	N						1.1.1.1	
40 dBm								
50 dBm		-	-		-		-	
60 dBm	-				_		_	
70 dBn								
70 ubn								
-80 dBm		-					-	
CF 2.40	52 GH	z	-		691 pt	5	-	Span 40.0 MHz
larker								
Туре	Ref		X-value		Y-value	Function	Fu	nction Result
M1 T1	T.L.T.	1		32 GHz	-42.41 dBm -3.26 dBm	Occ Bw		18.697539797 M
T2	_	1	2.45262		-3.12 dBm	OCC BW		10:09/539/9/ MH2

802.11n-40 MHz LOW CHANNEL



802.11n-40 MHz MIDDLE CHANNEL



802.11n-40 MHz HIGH CHANNEL

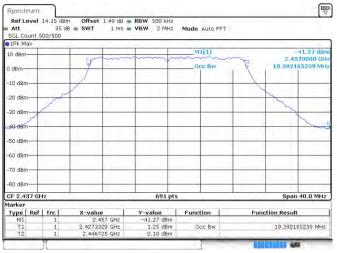




802.11ax-20 MHz (SU) LOW CHANNEL



802.11ax-20 MHz (SU) MIDDLE CHANNEL



802.11ax-20 MHz (SU) HIGH CHANNEL

Att SGL Co	unt 5	35 d			RBW 500 kHz VBW 2 MHz	Mode Auto F	FT	
Pk Ma	ak I		ī	T	-			
10 dBm-		_	1100	han	m	MI[1]		-42,73 dBn 2.4820000 GH
0 dBm-	- 1		1			Occ Bw	V.	19,450072359 MH
n ánu-				-				
-10 dBm	-		1					
			1					
-20 dBm	-	1	1	1	-			1
30 dBm		P						
SU UBILI	X						1.2	1
40 dBm	r	_		-			-	
area.								
-50 dBm	-		-	-	-			
60 dBm			100 m m m					
OU UDIN								
-70 dBm	-		-		-		_	
				1				
-80 dBm		-						
CF 2.40	2 GH	z			691 pt	s		Span 40.0 MHz
larker					2000	0.000		100 C 10 C 10 C
Type	Ref		X-value		Y-value	Function	Fu	nction Result
M1	_	1		82 GHz	-42.73 dBm	1		
T1 T2		1	2.45233		1.44 dBm 1.09 dBm	Occ Bw		19.450072359 MHz

802.11ax-40 MHz (SU) LOW CHANNEL



802.11ax-40 MHz (SU) MIDDLE CHANNEL



802.11ax-40 MHz (SU) HIGH CHANNEL





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 (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-41.36	7.55	-12.45	Pass
Middle	-44.19	7.16	-12.84	Pass
High	-45.18	6.89	-13.11	Pass

802.11g Mode:

Channel	Measured Max. Out of	Limit (
	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-47.33	4.89	-15.11	Pass
Middle	-49.96	4.58	-15.42	Pass
High	-50.26	4.31	-15.69	Pass

802.11n-20MHz Mode:

Channel	Measured Max. Out of	Limit (
	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-49.25	3.06	-16.94	Pass
Middle	-50.45	2.67	-17.33	Pass
High	-50.21	2.45	-17.55	Pass

802.11n-40MHz Mode:

	Measured Max. Out of	Limit (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20	Verdict
			dBc Limit	
Low	-50.72	-1.45	-21.45	Pass
Middle	-50.81	-1.66	-21.66	Pass
High	-50.20	1.61	-18.39	Pass

	Measured Max. Out of	Limit (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20	Verdict
			dBc Limit	
Low	-50.31	2.59	-17.41	Pass
Middle	-49.68	2.44	-17.56	Pass
High	-50.43	2.67	-17.33	Pass



802.11ax-40 MHz (SU) Mode:

Channel	Measured Max. Out of	Limit (
	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-49.84	-1.41	-21.41	Pass
Middle	-49.02	-1.37	-21.37	Pass
High	-50.86	-1.78	-21.78	Pass

Aux. Antenna

802.11b Mode:

Channel	Measured Max. Out of	Limit (
	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-43.41	7.51	-12.49	Pass
Middle	-43.97	7.40	-12.60	Pass
High	-46.26	6.96	-13.04	Pass

802.11g Mode:

Channel	Measured Max. Out of	Limit (
	Band Emission (dBm)	Carrier Level	Calculated 20	Verdict
			dBc Limit	
Low	-49.56	3.96	-16.04	Pass
Middle	-50.18	3.83	-16.17	Pass
High	-50.78	3.82	-16.18	Pass

802.11n-20MHz Mode:

Channel	Measured Max. Out of	Limit (
	Band Emission (dBm)	Carrier Level	Calculated 20	Verdict
			dBc Limit	
Low	-50.53	2.06	-17.94	Pass
Middle	-49.88	1.97	-18.03	Pass
High	-50.42	1.48	-18.52	Pass

802.11n-40MHz Mode:

Channel	Measured Max. Out of	Limit (
	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-49.81	-2.49	-22.49	Pass
Middle	-50.58	-2.64	-22.64	Pass
High	-50.03	-2.53	-22.53	Pass



802.11ax-20 MHz (SU) Mode:

Channel	Measured Max. Out of	Limit (
	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-50.84	1.67	-18.33	Pass
Middle	-50.00	1.56	-18.44	Pass
High	-49.66	1.93	-18.07	Pass

802.11ax-40 MHz (SU) Mode:

	Measured Max. Out of	Limit (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-50.91	-2.41	-22.41	Pass
Middle	-49.62	-2.58	-22.58	Pass
High	-50.80	-2.35	-22.35	Pass

MIMO-Main Antenna

802.11g Mode:

	Measured Max. Out of	Limit (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20	Verdict
		Carrier Lever	dBc Limit	
Low	-50.43	4.95	-15.05	Pass
Middle	-50.34	4.76	-15.24	Pass
High	-50.07	4.54	-15.46	Pass

802.11n-20MHz Mode:

	Measured Max. Out of	Limit (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20	Verdict
		Carrier Lever	dBc Limit	
Low	-50.77	3.16	-16.84	Pass
Middle	-48.87	2.98	-17.02	Pass
High	-50.10	2.61	-17.39	Pass

802.11n-40MHz Mode:

	Measured Max. Out of	Limit (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-50.08	-1.65	-21.65	Pass
Middle	-50.31	-1.78	-21.78	Pass
High	-50.37	-1.62	-21.62	Pass



802.11ax-20 MHz (SU) Mode:

	Measured Max. Out of	Limit (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-49.71	2.66	-17.34	Pass
Middle	-50.19	2.56	-17.44	Pass
High	-50.82	2.80	-17.20	Pass

802.11ax-40 MHz (SU) Mode:

	Measured Max. Out of	Limit (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-50.43	-1.77	-21.77	Pass
Middle	-50.50	-1.66	-21.66	Pass
High	-50.09	-1.47	-21.47	Pass

MIMO-Aux. Antenna

802.11g Mode:

	Measured Max. Out of	Limit (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20	Verdict
		Carrier Lever	dBc Limit	
Low	-51.96	2.66	-17.34	Pass
Middle	-51.32	2.61	-17.39	Pass
High	-51.10	2.40	-17.60	Pass

802.11n-20MHz Mode:

	Measured Max. Out of	Limit (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20	Verdict
		Carrier Lever	dBc Limit	
Low	-51.96	0.60	-19.40	Pass
Middle	-50.22	0.57	-19.43	Pass
High	-50.61	0.24	-19.76	Pass

802.11n-40MHz Mode:

	Measured Max. Out of	Limit (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-51.49	-4.09	-24.09	Pass
Middle	-51.44	-4.17	-24.17	Pass
High	-51.87	-4.00	-24.00	Pass





802.11ax-20 MHz (SU) Mode:

	Measured Max. Out of	Limit (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-51.83	0.16	-19.84	Pass
Middle	-52.14	0.17	-19.83	Pass
High	-51.59	0.55	-19.45	Pass

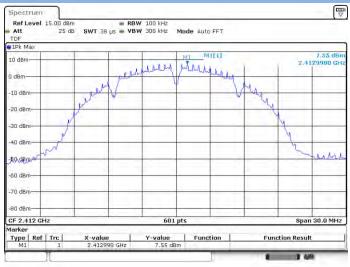
	Measured Max. Out of	Limit (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
Low	-51.95	-3.99	-23.99	Pass
Middle	-51.44	-4.09	-24.09	Pass
High	-51.86	-3.78	-23.78	Pass



Test Plots

Main Antenna





802.11b LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz

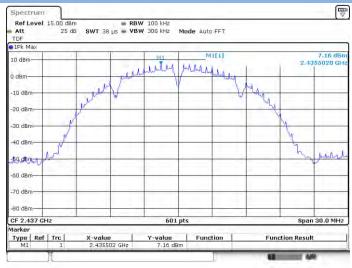
Ref Le Att TDF	vel 15.00 dBr 25 d		 RBW 100 kHz VBW 300 kHz 	Mode Auto Sweep	C	
🛾 1Pk Ma	×	-	-			
10 dBm-	1			M1[1]		-53.74 dBm 909.70 MHz
					1	909,70 MHz
0 dBm—	1				-	
-10 dBm-					_	
-10 0511	01 -12.450) dBm				
-20 dBm-	-				-	
-30 dBm-					_	
-40 dBm-	-		_		-	
-S0 dBm-	-	14		_	-	
-60 dBm-	uning and a high strong	alerande operation of the second s	Mary Underweiter Harrison	anonating at the mail and a constant	4 Martin Martin Martin	Toply and we sound had so
-70 dBm-						
-80 dBm-	-		-			
Start 30	0.0 MHz	1.	1001 ;	ots		Stop 3.0 GHz
Marker	31.22				-	
Type M1	Ref Trc	X-value 909.7 MHz	-53,74 dBm	Function	Fund	tion Result

802.11b LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

Att TDF	evel 1	5.00 dBn 25 dB			3W 100 kHz 3W 300 kHz	Mode Au	to Sweep				
P1Pk M	ах	_	· · · · · · · · · · · · · · · · · · ·	0							
10 dBm					-	M	1[1]			41.36 dBn 82540 GH	
1				p = 0			(1	1.02340 GH		
0 dBm-	-										
10.10	÷		-								
-10 dBn	Q1	-12.450	dBm								
-20 dBn			_			_	-			-	
1.											
-30 dBn	-	_	-		-				-		
-40 dBn	61	1								1.1	
G GBN										1.1.1.1	
- O dBn		10.00	-			-	1 It				
ور المار الم	-	-	4 Lundimote	والمروبيل والفاسي	a support to the paper	and a starting	A LAND AND	-	- Harristan Party	-	
-60 dBn			Ser Contraction			1					
-70 dBn	-	_									
								I contract of		1.1.1.1	
-80 dBn		-					-				
Start 2	.0 GHz		1		4001	pts			Stop	25.0 GHz	
Marker	5.333	100		· · · · · · · · · · · · · · · · · · ·	Sec. 10.		1000				
Type M1	Ref	Trc 1	X-valu	e 54 GHz	-41.36 dBr	Func	tion	Fun	tion Result	¢	



802.11b MIDDLE CHANNEL CARRIER LEVEL



802.11b MIDDLE CHANNEL, SPURIOUS

30 MHz ~ 3 GHz

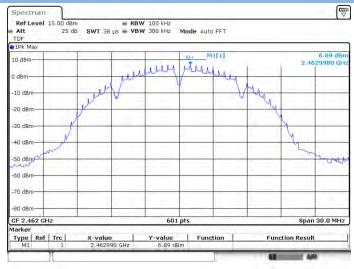
Ref Leve Att TDF	el 15.00 dBm 25 de			3W 100 kHz 3W 300 kHz	Mode Auto	o Sweep			
1 Pk Max	-		0		_				
10 dBm	-		1		MI	II Y			54,46 dBn 10850 GH
0 dBm	-	_			-		-		
-10 dBm	01 12.940	dBm		-	_				
-20 dBm					-		_		
-30 dBm	-			-	-				
-40 dBm									
-50 dBm-				-	-	_	-	1	
-60 dBm-	a frier faith hatty so the	(for the second second second	* hor actual and the	ninanahitainpultul	R.London all March March	anniniperior to the	mintermed	Toporthangester	- With Provident and the second
-70 d8m-		-			_			_	
-80 dBm—								_	
Start 30.0 Marker) MHz		A	1001	pts			Sto	p 3.0 GHz
Type R	of Trc	X-valu	e [Y-value	Functio	n I	Funct	ion Result	

802.11b MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

Ref L		15.00 dBn			BW 100 kHz BW 300 kHz	Mode Au	to Ewoon			
TDF	_	25 0	awi 2	30 115 .	BH SOUTHE	Mode Au	to Sweep			
1Pk M	ax	_	1	-	T		10			-44.19 dBn
10 dBm	+				-	M	1111			.87140 GH
0 dBm-	-	_			-				-	
-10 dBn		1 -12.840				_				
-20 dBm		1 12,840	ubin		-				_	
-30 dBm	-								-	-
-40 dBm		12								
-50 dBri	in the second	-	A	The A suid is			-	and the state of the state of		وبالبنط تشريس
-60 dBrr			- Watershiph	New Constitution	and a fraction of the	Management of the				
-70 dBn	-+-	-	-	-	-	-				
-80 dBn						1				
Start 2	.0 GH	z			4001	L pts			Stop	25.0 GHz
larker		-				1		-		
Type M1	Ref	Trc 1	X-valu	714 GHz	Y-value -44.19 de	Func	tion	Fund	tion Result	t .



802.11b HIGH CHANNEL CARRIER LEVEL



802.11b HIGH CHANNEL, SPURIOUS

30 MHz ~ 3 GHz

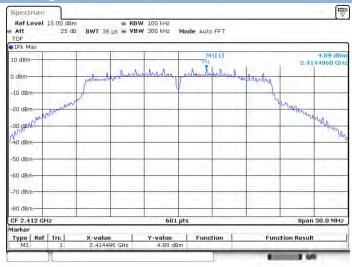
Att	el 15.00 dBm 25 dB			BW 100 kHz BW 300 kHz	Mode Au	ito Sweep			
🔵 1Pk Max			~						
10 dBm-	-			-	M	1111			52.91 dBn 01650 GHi
								1 1	01000 Gri
0 dBm		-		-		-			-
-10 dBm-		-							
-10 0511	01 -13.110	dBm		-			-		
-20 dBm								-	
-30 dBm	1								1 - 1
-40 dBm									1
-50 dBm			MI				-		
-60 dBm-	down housed of the second	alauniningente	al water water	maliphalian	dear with the da	auf-distance-say	presponsible	Muserman	hansted-lighter are
-70 dBm		-							
-90 dBm					_	_			
Start 30.0) MHz		(a e)	1001	pts			Sto	p 3.0 GHz
Marker	2.000.00		10 million - 10 million	10 M 10		100.00	-0.2	1.	

802.11b HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

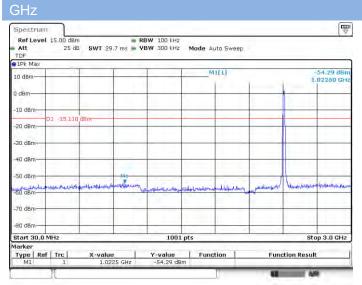
Ref L	evel 1	5.00 dBm 25 dB			BW 100 kHz BW 300 kHz	Mode Au	to Sween			
TDF	_		2.525.5	- 1- T	and set to be	1000	to an ort			
1Pk M	ax	-		1	1	M	111			45.18 dBn
10 dBm										92310 GH
o dam-								_		1
a alongit	111				121	1	2 2 2			1.1
-10 dBn	1-	12.142	100		-					
1		-13.110	dBm-			-				
-20 dBm	0							-		
-30 dBr							_	_		
-40 dBm	- T	n		-	-		-	-		
		· · · ·	_			_				
-50 dBr	Lundin.	HARANA	1	land.	and another a	and the second	upper la la faith and	a pupile of a real	and the state	alut de Maria
-60 dBm		and the second	- washington	AN THINK AND	series since the set	and the second second	The date is the second	and an a state of the		And a start of the
					1					
-70 dBn			-			-				
-90 dBm						_		_		
					-				1	
Start 2	.0 GHz				4001	pts			Stop	25.0 GHz
Marker Type	Paf	Tec 1	X-valu	. 1	Y-value	Func	tion 1	Funz	tion Result	
M1	nei	1		31 GHz	-45.18 dB		ciun	Fund	aton Result	



802.11g LOW CHANNEL CARRIER LEVEL



802.11g LOW CHANNEL, SPURIOUS 30 MHz ~ 3

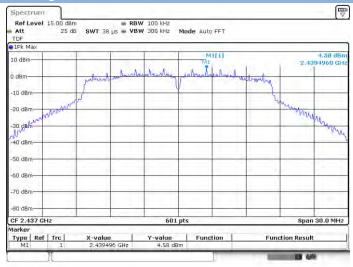


Ref Level 15.00 dBm RBW 100 kHz Att 25 dB SWT 230 ms YBW 300 kHz Mode Auto Sweep Spectrum TDF Pk Max M1[1] 47.33 dBn 82540 GH 10 dBm oldBr 0 dBm 01 15.11 0 dBm n dam 0 dBm T 0 dBm -70 dBm--90 dBm-4001 pts Stop 25.0 GHz Start 2.0 GHz larke Type Ref Trc X-value 4.8254 GHz Y-value -47.33 dBm Function Function Result 11 646

802.11g LOW CHANNEL, SPURIOUS 2 GHz ~ 25



802.11g MIDDLE CHANNEL CARRIER LEVEL



802.11g MIDDLE CHANNEL, SPURIOUS

30 MHz ~ 3 GHz

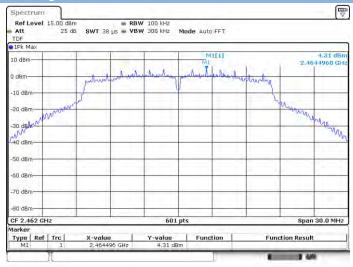
Ref Level Att TDF	15.00 dBm 25 dB			W 100 KHz W 300 KHz	Mode Au	uto Sweep					
1Pk Max			_					_			
10 dBm			1		M	1(1)			-54,19 dBm 1,12040 GHz		
1000		1 · · · · · · · · · · · · · · · · · · ·		10.00				1	12010 511		
0 dBm		-									
-10 dBm	1 1 1 1										
1	51 -15.420	an an				-					
-20 dBm	01 -10/#aŭ	(dest)	_		_						
-30 dBm		-		-	_						
-40 dBm	1000					1.00					
-40 dBm											
-S0 dBm			142								
-60 dBm	La Harristown	understation und	manihould	mananda	in and all	WHILE A Ade .	particular	hundaster	in allowing and		
-60 dBm-			WY	Profession and address of	pro-code in - a		*				
-70 dBm				14.4							
-70 0610											
-90 dBm											
Start 30.0 M	/Hz			1001	pts			Sto	p 3.0 GHz		
Marker						100.00	-0.1				
Type Ref	Trc	X-value		Y-value	Func	tion	Funct	ion Result			

802.11g MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

Ref Le Att TDF	evel 15.		SWT 23		3W 100 kHz 3W 300 kHz	Mode Au	to Sweep			
1Pk Ma	ах			0						
10 dBm-			_	1		M	1111			49.96 dBr 91210 GH
					1		((SIZIU GH
0 dBm-		-								
-10 dBm			_			_				
	01 -	15.420 /0	Bm		-	6				
-20 dBm			-			-				
-30 dBm			_							
-40 dBm		-	-					-		_
-SO dBm	-	1								
Nu della	- Indiana	and the second	and the	-	and an an and store and	- Alexander	-	American	a a landiand	hand an hand
-60 dBm	-		hite-playte de		and successive the					
-70 d8m				1			1.0			
-70 000										
-80 dBm		-								
Start 2	0 GHz	1			4001	pts		-	Stop	25.0 GHz
Marker						-				
Type M1	Ref Tr	1	X-valu	21 GHz	-49.96 dB	Func	tion	Fund	tion Result	



802.11g HIGH CHANNEL CARRIER LEVEL



802.11g HIGH CHANNEL, SPURIOUS

30 MHz ~ 3 GHz

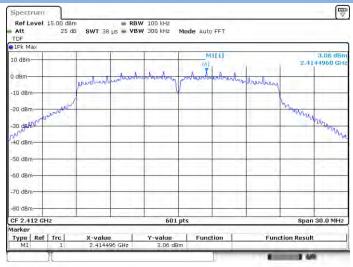
Att TDF	el 15.00 dBm 25 dB			BW 100 kHz BW 300 kHz	Mode A	uto Sweep				
🔵 1Pk Max			-					_		
10 dBm	-				M	111	-54.39 dBm 1.00170 GHz			
							[]	1	l	
0 dBm										
-10 dBm-			-	-						
	01 -15.690	dBm		-	1	_				
-20 dBm									1	
-30 dBm		-								
-40 dBm-		-			-					
-50 dBm			100							
a datama	and an an an an and a start and	-	Internetionent	and an an and and and and		denne a	-	Legalment	- returned where	
-60 dBm				a talan yalan malanan kalana kala	rtfictely show the second	C. C	the state of the s			
-70 d8m-					-			-		
10 0011						1			ni e i	
-80 dBm	-				-	-	-	_		
Start 30.0	MHz			1001	pts			Sto	p 3.0 GHz	
Marker Type R		X-valu		Y-value	Func			ion Result		

802.11g HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

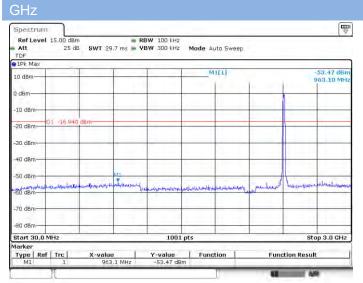
Ref Le Att	vel 15.00 dBn 25 di			BW 100 kHz BW 300 kHz	Mode Au	to Sweep			
1Pk Ma	x		÷	4	_				
10 dBm-	S		-	-	M	1[1]	-50.26 dBn 6,98690 GH		
dBm—	-	-	-	-			-		-
-10 dBm			-	-	_		-		
a0 dBm	01 -15.690	dBm							
30 dBm	-	-					_	_	
40 dBm	_		_	-	_				
SO dBm		MI		-			-		
60 dBm	And a second	· Coloradore	اليواليطريعها المرا	at milestickly be	and the second s	a from the state of the	n an den it we have	Antonia	and a standard
70 dBm			11.11		-			11	1.000
90 dBm						-		-	11
Start 2.	0 GHz			4001	pts		-	Stop	25.0 GHz
larker				1.0.0		1000	0		
Type M1	Ref Trc	X-valu	B69 GHz	-50.26 dB	Func	tion	Fund	tion Result	

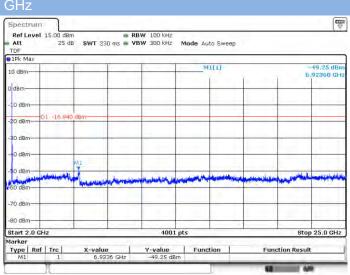


802.11n-20 LOW CHANNEL CARRIER LEVEL



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





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



802.11n-20 MIDDLE CHANNEL CARRIER LEVEL

1Pk Max					_					
10 dBm			-	WIL	M	111	a	2.67 dB 2.4357020 G		
dBm	-	mohint	mante	Munday	whether	whenter	allowhere			
10 dBm	_	-				-		-		
-20 dBm	merin							min		
30 dana (10									Maran Mar	
40 dBm					1					
S0 dBm									-	
-60 dBm	_									
70 d8m										
-80 dBm	-									
CF 2.437 GH	Iz			601	pts			Span	30.0 MH	

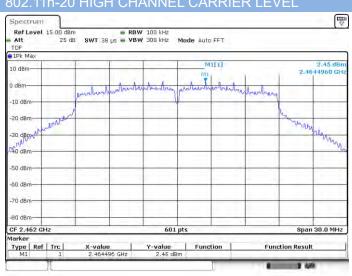
802.11n-20 MIDDLE CHANNEL, SPURIOUS

Ref Level Att	15.00 dBm 25 dB			W 100 kHz W 300 kHz	Mode Au	to Sweep			
TDF 1Pk Max	10.1	1.			2000				
10 dBm			-		м	1(1)			53.37 dBr 11740 GH
0 dBm	-		-			-		-	
-10 dBm	-		-		_	-	-		
-20 dBm-	1 -17.390	dBm	-		_				
-30 dBm			_				_		
-40 dBm	_		-			-			
-50 dBm	1.54		64.1	1	1.00			term	-
-60 dBm	ana ana ang ang ang ang ang ang ang ang	and the second	hu	with the state of	anumental	of high admondate	est and the second second	20 active	- and an a strength of
-70 dBm	-		_			_	-		
-80 dBm	_		-						
Start 30.0 M	1Hz		_	1001 p	ts			Sto	p 3.0 GHz
Marker Type Ref M1	Trc 1	X-value 1.1174 G	1	Y-value	Func	tion	Fund	ion Result	

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

Att TDF	l 15.00 dBm 25 dB			3W 100 KH2 BW 300 KH2	Mode Au	to Sweep	r		
1Pk Max	-	1	1	T T		111		_	58.45 dBm
10 dBm	-				M	111			98690 GH
0 dBm	_						1		
10 dBm-	1						i 1		1
10 0811	01 -17.380	of Detra					1		1
-20 dBm	01 -171300	Gam				-		-	
-30 dBm	-	-		-				-	
-0 dBm		-							
SO dBm-		EM				_			
and the second	atomic that the second	Anna	and the state of the		and works	Williama participanting	mathematic	-	-
-60 dBm		Contraction (see							
-70 d8m	_	-							
-90 dBm									11
Start 2.0 C	Hz			4001 p	ots	-		Stop	25.0 GHz
larker					1		-		
Type Re M1	1	X-value	9 69 GHz	-50,45 dBm	Func	tion	Fund	tion Result	





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

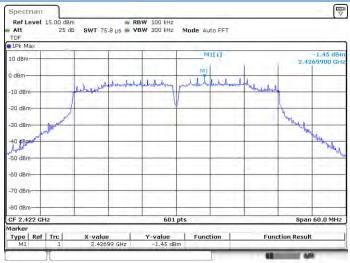
Att	1 15.00 dBm 25 dB			BW 100 kHz BW 300 kHz	Mode A	ito Sweep			
TDF 1Pk Max		-							
10 dBm	-		-	-	M1[1] -53.7 951.7				
0 dBm	-			-			_	h	
-10 dBm	-			-	-	-			
-20 dBm	01 -17.550	dBm		-					
-30 dBm	-								
-40 dBm				-	_	-			
-50 dBm			42						
-60 dBm	Mirroundelleru	enverlighter lineau	Achinectularity		umunidania	non-which have being	of subult one yet	La L	holedoweinen
-70 dBm									
-90 dBm						-			
Start 30.0	MHz	1.	T.	1001	pts			Sto	op 3.0 GHz
Marker Type Re	Trc X-value			Y-value Function			Function Result		

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

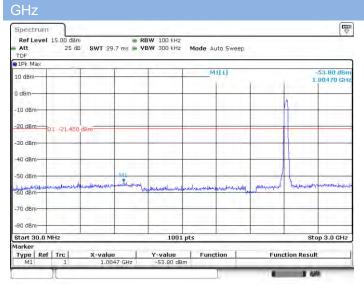
Att TDF	evel :	15.00 dBn 25 df			BW 100 kHz BW 300 kHz	Mode Au	to Sweep				
1Pk M	ах	_									
10 dBm-	-			1	1	MI[I]				-50.21 dBr 6.98110 GH	
					10.000		1.	In the second second		sorro an	
0 dBm-	-		-		-	-		-			
-											
-10 dBm											
-20 dBm	0	1-17.550	dBm	-			-	-			
-30 dBm	-			-				-			
1.5											
-40 dBm					-						
-SO dBm		_	MI		-	_	_				
Aler and	-	Manual Providence	and carding	1 HE LINE	uninger and sea sea and	فالمطلبان	man History	م الم الم الم الم الم الم الم الم الم ال	A HAR BULLING	-	
-60 dBm	-		Bull - Bu	AND A COMPANY	and the second sec		Constant No.				
								(n - 1)		1.000	
-70 dBm											
-80 dBm						-			_		
	-				1			-			
Start 2 Marker	U GH	2	_	-	4001	pts			stop	25.0 GHz	
Type	Ref	Trc X-value		Y-value	Func	Function		Function Result			
M1		1		9811 GHz	-50.21 dB						



802.11n-40 LOW CHANNEL CARRIER LEVEL



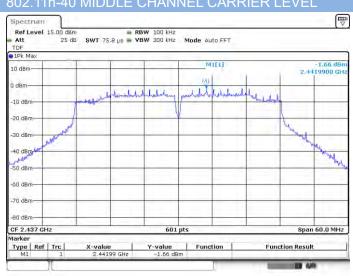
802.11n-40 LOW CHANNEL, SPURIOUS 30 MHz ~ 3



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

Att TDF	al 15.00 dBm 25 dB		0 ms • VB	W 100 KHZ W 300 KHZ	Mode Au	to Sweep			
1Pk Max		-	-					_	
10 dBm	-		1	1	M	1[1]			58.72 dBr 97540 GH
						1	(market)	1	
0 dBm									
0 dBm-							_		
20. dBm-	01 -21.450	dBm				_			
30 dBm-									
30 GBM-									
0 dBm-					_	_			
1.5		Ma							
50 dBm-	. Antication .	J	W. Constraint	C. L. P.	- designed	-	and the second	والمتحليق ال	and the shoe
-60 dBm	and the second second second	- multimeterit	all works with the second	a faith and a start of the star	Change and and	All a state of the	Printer of the second	All and a second	
00 00111									
-70 dBm	-						_		
-90 dBm									1.1
1.1.1.1.1.1.1								1	
Start 2.0	GHz			4001 p	ots	-		Stop	25.0 GHz
larker Type Re	flTerl	X-value		Y-value	Fund	lion 1	Fune	tion Result	
M1	1		54 GHz	-50.72 dBm			Func	cion Result	





802.11n-40 MIDDLE CHANNEL, SPURIOUS

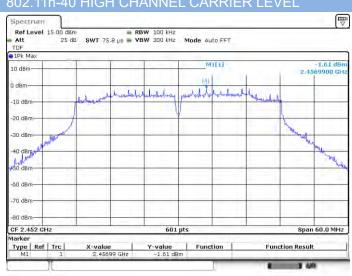


Ref Leve Att TDF	el 15.00 dBm 25 dB			3W 100 KHz 3W 300 KHz	Mode Au	ito Sweep			
1Pk Max					_	_			
10 dBm	-				M	1(1)			-53.76 dBn .07590 GH
0 dBm	-	-							
-10 dBm-			-	-	-	_	-	<u>^</u>	
-20 dBm-	01 -21,660	dBm				_			
-30 dBm				-					
-40 dBm			_						
-SO dBm-	and a second study	الهولاية والمالين	Marine,	(alaman and a second	a south a	and the state	monum	C. MARCONICH	and the phase militar
-60 dBm			UK.	Conservation and the second	term (14000000000000	an work with	- Formation		
-70 d8m									
-90 dBm					1				
Start 30.0	MHz			1001	pts			Ste	op 3.0 GHz
Marker Type R	el Tur l	x-valu	-	Y-value	Func	lan 1	Cum	tion Result	_

802.11n-40 MIDDLE CHANNEL, SPURIOUS

Att TDF	el 15.00 dBm 25 dB			W 100 kHz W 300 kHz	Mode Au	to Sweep			
1Pk Max			T	-		-			
10 dBm-	-	-			M	1[1]			50.81 dBr
1						[]	· · · · · · · · · · · · · · · · · · ·		
0 dBm									
0 dBm-					_			_	
1									
-20 dBm-	01 -21 660	dBm							
0 dBm-		-	-					-	
1.00									
-10 dBm-					-				
- O dBm-	the second second	Ma							
-	and the second sec	Hindurch	and the state of the	manninger	basis a light of the	day an an an an a	فاحتس والمحالج وسق	Name and Address of	-
-60 dBm									
-70 d8m-		-		-				_	-
									1.1.1
-80 dBm									
Start 2.0	GHz			4001	pts			Stop	25.0 GHz
larker	1 - 1	X-valu		Y-value	1		-		
Type R M1	ef Irc		96 GHz	-50.81 dBn	Func	tion	Func	tion Result	





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

Ref Leve Att TDF	al 15.00 dBm 25 dB			BW 100 KHz BW 300 KHz	Mode A	uto Sweep			
🔵 1Pk Max	-								
10 dBm			· · · · · · · · ·	-	M	1(1)			53.96 dBi 08480 GH
				1.1.1.1.1		(· · · · · · · · · · · · · · · · · · ·	(-	00400 Gr
0 dBm	-	-			1			1	
-10 dBm-								1	
-20 dBm-	01 -21 610	dBm			-	-			
20.00									
-30 dBm								1	
-40 dBm	_								_
-50 dBm-	1.000		141				1		
-All dam-	Harrisonadam	- Andrew Andrew	Chembral Chine Co	ahrender breeke	millionstopen	community.	Munahan	President (18	municipan
55.6511									
-70 dBm	-			-		-	-		
-80 dBm									
Start 30.0 Marker	MHz			1001	pts			Sto	p 3.0 GH
Marker	f Trc		1	Y-value	Func			tion Result	

802.11n-40 HIGH CHANNEL, SPURIOUS

Att		15.00 dB/ 25 d			BW 100 kHz BW 300 kHz	Mode Au	to Sweep			
TDF 1Pk M	ax	-	-			_				
10 dBm						M	1[1]	_		-50.20 dBr
TO OPIN							(· · · · · · · · · · · · · · · · · · ·	1	0	92940 GH
0 dBm-	-	_	-		-					-
1 -										
-10 dBn		-	-							
-20 dBm	- 1					-				
-au ubii	0	-21.610) dBm							
-30 dBm			-	-	-			-	-	-
-40 dBm		_			-	-				
-SO dBr		_	M1				-		-	-
- C CDI	and and	بالتقرير بالعانية		al al al al al	-	1. Auguston 1940	-	Multiple lanon	and the lot of the state	ما بالا الدينا الدينا الد
-60 dBm		-	HARL HERE	Mark charter	and a share of the second s				A CONTRACTOR OF CONTRACTOR	
3.0								I		
-70 dBm									1	
-80 dBm			_			-	-	_		
Start 2	.0 GH	z		-	4001	pts	-		Stor	25.0 GHz
Marker							100.00			
Type M1	Ref	Trc 1	X-va	9294 GHz	Y-value -50.20 dB	Func	tion	Fun	ction Result	t



802.11ax-20 MHz (SU) LOW CHANNEL CARRIER



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

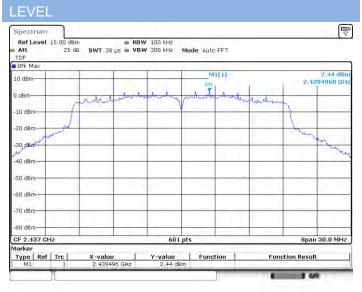
Att TDF	25 d	B SWT 29	1.7 ms 💻 VI	300 kHz	Mode Au	uto Sweep		
1Pk Ma	ax	-		-				-
10 dBm-	-				M	1[1]		-54.27 dBn 1.02250 GH
0 dBm—	-	-		-				
-10 dBm	_	-	_		-			
-20 dBm	01 -17:41	dBm			_		_	
-30 dBm	_		_		_		_	
-40 dBm	_	-				_		
-S0 dBm	-	-			_			
-60 dBm	makerimeter	McBhyte Jaryfeldinnon	tion Standing the	apphilicenterspecture	washing	University	and mildle what	Including and the self the self the self self self self self self self sel
-70 dBm								
-90 dBm					_	-		
Start 3	0.0 MHz	1		1001	pts			Stop 3.0 GHz
Marker	Ref Trc	X-yalu		Y-value	Func			tion Result

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

Att TDF		25 dB		90.10	/BW 300 kHz	Mode Au	to enoop				
P1Pk M	ax	1		The second	1	M	1[1]		-50.31 dBr		
10 dBm-							2		Đ.	96960 GH	
0 dBm-											
		11			121	1	1				
0 dBm		-			-	-		-			
	-	17.410 8	Ann-				-			1	
-20 dBm											
30 dBm		_					_				
30 GBH					1						
- 0 dBm			-		-		_	-			
		N	i.								
-50 dBm	COLUMN STREET	Anna I	1	W. C. h.	710000	and the state of the	manini manda La	CONTRACT ON A	a dette ma	اللاس المرادة	
-60 dBm	10.00	China a state	-	and the standa	ميها فاردائه ومازير أدارتهم	and	and the second sec	Contraction of the second second	A Date of the other		
HOD UDIT											
-70 dBm	-	-	_		-		-			-	
										1.6.1.1.1	
-90 dBm						-	-				
Start 2	art 2.0 GHz 40				400	1 pts			Stop	25.0 GHz	
Marker	12.3			D	1.1	1000	100.00		1000		
Type M1	Ref Tr	1	X-valu	696 GHz	Y-value -50.31 di	Func	tion	Fund	tion Result		



802.11ax-20 MHz (SU) MIDDLE CHANNEL CARRIER



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

30 MHz ~ 3 GHz

	vel 15.00 dBn			BW 100 KHz	122-0.2				
Att TDF	25 di	3 SWT 29	.7 ms 💻 V	BW 300 kHz	Mode Au	ito Sweep			
1Pk Ma	×			~ ~ ~					
10 dBm-	1				M	1[1]			54.64 dBn 98,70 MH
0 dBm—		-					-	-	
-10 dBm-		-						·	
-20 dBm-	D1 -17.560	dBm		-					
-30 dBm-									
-40 dBm-				-					-
-S0 dBm-		-	NP1			_			-
-60 dBm-	matteriating the Associate	mulantities	-an-linerally	and the stand have	NULLILLILLALASIA	be which there are the	and and a straight of the state of the straight of the straigh	Mandle or Berto	sreet.Westweiserlagtende
-70 d8m-									
-80 dBm-					1				
Start 30	.0 MHz			1001	pts	-		Sto	p 3.0 GHz
larker					1		-		
Type M1	Ref Trc	X-value	e L7 MHz	-54.64 dB	Func	tion	Funct	ion Result	

802.11ax-20 MHz (SU) MIDDLE CHANNEL SPURIOUS

2 GHz ~ 25 GHz

Att	vel 15.00 di 25			W 100 kHz						
TDF	25	UD SWI2	30 ms 🖷 VB	W SUU KH2	Mode Au	to Sweep				
1Pk Ma	1×		<u></u>							
10 dBm-		1	1		M	111			49.68 dBr 95240 GH	
						[· · · · ·	1		95240 61	
0 dBm-	-	-			-					
-10 dBm		-			_					
-10 ubm										
-20 dBm	D1 -17.5	60 dBm	-				-			
1.5										
-30 dBm										
-0 dBm	_	-					-		_	
1		114								
-S0 dBm	Altertude					and the second second		-	distant da	
-50 dBm	Non-the state	Martin Balandar Com	a state of the state of the state	الإبر بالدائن خذهام	an where a	Al-second state	Hard and an of the second s	And the second sec	A DA NO. HOURS	
ob dom		1.1.1								
-70 dBm		-				-	-	-		
-90 dBm									11 1 1	
	-	-				1		1		
Start 2. Jarker	tart 2.0 GHz 4001							Stop	25.0 GHz	
	rker ype Ref Trc X-value Y-value				Function			Function Result		



802.11ax-20 MHz (SU) HIGH CHANNEL CARRIER



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

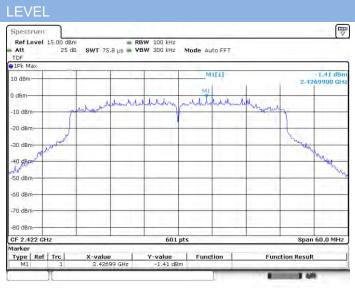
Ref Le Att TDF	evel 15.00 dB/ 25 d			3W 100 kHz 3W 300 kHz	Mode Au	uto Sweep			
PiPk Ma	18		Q						
10 dBm-	-				M	1[1]			-54.02 dBn 942.40 MH
0 dBm—	-	-	-				_	A	
-10 dBm	-	-			_			-	
-20 dBm	01 -17,380) dBm							
-30 dBm					_	_		1	
-40 dBm	_	-			_			-	-
-SO dBm	-	-	11		_				
-60 dBm	nor Mulailly a maile	unicentinenduendu-	and an and an and an and an		ALL ALL ALL AND A	carmadoricher b	- Autober nin Jacable	pt Impollowy	No. Marshallow Strong
-70 dBm									1
-90 dBm									1.1.1.1
Start 3	0.0 MHz	1.		1001	pts			St	op 3.0 GHz
Marker Type M1	Ref Trc	X-value	e	Y-value -54.02 dBn	Func	tion	Func	tion Resu	t

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

1Pk Max										
10 dBm	-		1	-	MI	[1]		-58,43 dBn 6,98690 GH		
0 dBm				-		-	-			
-10 dBm	-		-	-						
-20 dBm	01 -17,380	dBm		-				-		
-30 dBm				-			-	-		
-40 dBm	_	-	-		_		-			
-SO dBm	. المطرد الطبيقين	MI		-		a dall and	and the second second	a state of the second	- la tierles	
60 dBm—	and the second second second	Madeudor yours	all and a second se	and the second days	· ····································	Manage of Manager Street,	Same of the second	Production of the second	and the second second	
-70 dBm	-	-								
-90 dBm		-		-			_			
Start 2.0	2.0 GHz 400					001 pts Stop 25.0 GHz				



802.11ax-40 MHz (SU) LOW CHANNEL CARRIER



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

Att TDF	25 di	n 3 SWT 29		BW 100 KHz BW 300 KHz	Mode Au	uto Sweep			
1Pk Ma	ax	-							
10 dBm-	11-1				M	1[1]			-54,14 dBn .05510 GH
0 dBm—	-	-		-				0	
-10 dBm	-			-	_	-			
-20 dBm	01 -21.410	dBm		-					-
-30 dBm	-			-					
-40 dBm				-	_				
-50 dBm	-		NIS.	-	_				
-60 dBm	week for a fair a flower have a	arrin Melinum and	administer of	upowershimeting the	energial and a second	enderheiden je	and more managed	hechypethie	na follow have been been been been been been been be
-70 dBm				-					
-80 dBm	_	_			_				
Start 3	0.0 MHz			1001	pts			St	op 3.0 GHz
larker	100 million 10		0	Y-value	Func	100.00		tion Resu	

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

TDF 1Pk Max							_		
10 dBm-		-			M	111			49.84 dBr 92940 GH
0 dBm	-				_	-	-	1	
-:0 dBm						-			
20 dBm-	01 -21.410	dBm	_		_				_
-30 dBm			-	-				_	
-0 dBm-			-	-	_		-	_	
-20 dBm		MI	and a set	فيستعادهم	-	la mala sur	and milling and a	hubble	فردادية وماشيس
-60 dBm		- Annana - Anna	No. of the other states of	and the second second second	A MERINA AL	All and the former			
-70 d8m					_				
-90 dBm—	-							_	
Start 2.0	GHz			4001	pts			Stop	25.0 GHz



802.11ax-40 MHz (SU) MIDDLE CHANNEL CARRIER



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

30 MHz ~ 3 GHz

Att	evel 1	5.00 dBm 25 dB			BW 100 KHz BW 300 KHz	Mode Au	to Sweep				
TDF 1Pk M	ax			-	-						
10 dBm			-			M1[1] -53.59 d 1.13820 0					
0 dBm—	-			-				-	1		
-10 dBm	-	_	-	_					A		
-20 dBm	-01	-21.370	dBm							_	
-30 dBm	-					_					
-40 dBm			_				-				
-50 dBm			-	141				-	-	2. 110	
-60 dBm	maily	deres leanst prove	esterned to the dest	in manufacture of the	and the state of the second	ner de la contra de	rimselowersh	an wantering	myknopphient	enemetally	
-70 dBm											
-80 dBm	-		_					_		-	
Start 3	0.0 Mł	Hz		e)	1001	pts			Sto	p 3.0 GHz	
Marker Type M1	Ref	Trc	X-value	32 GHz	Y-value -53,59 dBm	Func	tion	Fund	tion Result		

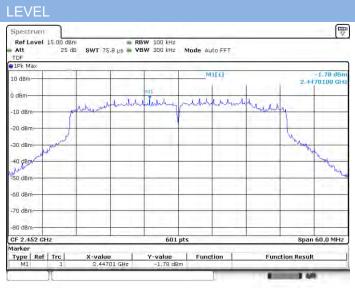
802.11ax-40 MHz (SU) MIDDLE CHANNEL SPURIOUS

2 GHz ~ 25 GHz

Ref Lo	evel 1	5.00 dBr 25 dl			W 100 kHz					
TDF		25 0	s swia	230 ms 🖷 VE	SW 300 KHZ	Mode Au	to Sweep			
1Pk M	ax	_		<u></u>						
10 dBm-	-	M1[1]				1[1]			49.82 dBr 89490 GH	
0 dBm—							1.1	1		
a aont			111		1:1 ····		1	· · · · · ·	1	1.
-10 dBm	-					-	-			
-20 dBm	01	-21.370	dBm		-	_	_			
<0 dBm	-	-			-					
-40 dBm	-			_		_		_		
1.0			M1							
-SO dBm	and all a	Attente	U	to the state of	in house a	وبالمام بلديده	-	autobi theriti.	Lat Lawrence	Luih million
-60 dBm			- Annotativ	No. of Longing				ALL CONTRACTOR		
-70 dBm	-									1
-80 dBm	-	-							-	
Start 2	0 GHz		1		4001	pts			Stop	25.0 GHz
larker					-	100.00				
Type M1	Ref	Trc	X-val	ue	-49.02 dB	Func	tion	Fun	tion Result	



802.11ax-40 MHz (SU) HIGH CHANNEL CARRIER



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

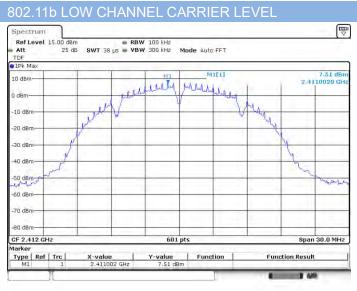
Att	sver 1	5.00 dBm 25 dB			RBW 100 kH: VBW 300 kH:		uto Sweep				
PiPk Ma	ах	-		Q							
10 dBm-					-	M	M1[1] -54. 1.010				
0 dBm—	-	-	-	-	-	-		-			
-10 dBm	+				-				1		
-20 dBm	-01	-21,780	dBm	-	_					-	
-30 dBm			-		-		-				
40 dBm		_	-		-		-				
-SO dBm	+						-			il marte	
60 dBm	(which is a second	de Artanet	politicismic provide	aller for the little the	Unaharrise	during the state	advance/hilling	Han and the set has the	(helin-tillet)	keyed northe landship in	
-70 dBm	+		-		-						
-80 dBm	-								-	-	
Start 3	0.0 MI	łz			100	1 pts			St	op 3.0 GHz	
Type M1	pe Ref Trc X-value Y-value				Func Bm	tion	Fund	tion Resul	t		

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

-50.86 dB 6.99260 G
-
ANN 10 10 10 10 10 10 10 10 10 10 10 10 10
1.0



Aux. Antenna



802.11b LOW CHANNEL, SPURIOUS 30 MHz ~ 3

Spectrum									
Ref Level		Contra D		3W 100 KHz	Sec. 1	0.00			
Att TDF	25 dB	SWT 29	.7 ms 🗯 VI	300 kHz	Mode Au	uto Sweep			
91Pk Max	-							_	
10 dBm			-		M	1[1]	-54.01 dBm 930.50 MHz		
0 dBm			_		_		_	-	
-10 dBm									
-20 dBm-	1 -12.490	d9m-		2			-		
-30 dBm				-				_	
-40 dBm	_						-		
-S0 dBm	-	-	1						
-60 dBm	- In March	karapanenserinte	Manapine and his	and the second second	montesta	unterterdences by	and the survey of	Luna Allalystanis	-isilinedisana
-70 d8m	_				-	-			
-90 dBm					-	-			
Start 30.0 M	Hz		e)	1001	pts			Sto	p 3.0 GHz
Marker					-	1000	- C		
Type Ref M1	Trc 1	X-value	5 MHz	-54.01 dP	Func	tion	Func	tion Result	_

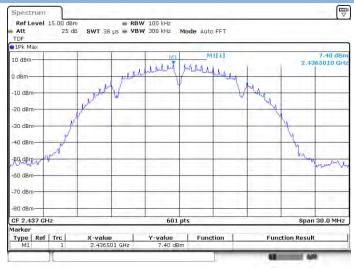
GHZ

802.11b LOW CHANNEL, SPURIOUS 2 GHz ~ 25

1Pk Max			Se			-			
10 dBm			1	1	M	1[1]			43,41 dBn
							1	9	82540 GH
0 dBm	-				-	-	-		
0 dBm					_	-	-		
1.000	01 -12.49	a gaw		20.000				1	1.
-20 dBm	_								
-30 dBm	-	-		-			-	-	
-40 dBm	143	_					-		1.1
	1								
-50 dBm-	With March		Sec. Land	Section 1		Long and Long	al automiter mit	distant	الم الله الم الم
-60 dBm		Mayhowere	- Hardington and state	little and statistically seen	Area and an an	- Contraction of the second	and search love that the	MAN	and a state of the
-70 d8m-									1.000
55 I.							1		1.0.0
-80 dBm Start 2.0 Gl	1-			4001			-	01-	25.0 GHz
Marker	42		-	4001	pts			sto	5 23.0 GHZ
	Trc	X-valu	e	Y-value	Func	tion	Fund	tion Resul	t
M1	1	4.82	254 GHz	-43.41 dBr	n	1			



802.11b MIDDLE CHANNEL CARRIER LEVEL



802.11b MIDDLE CHANNEL, SPURIOUS

30 MHz ~ 3 GHz

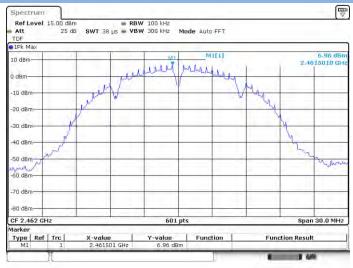
Ref Leve	al 15.00 dBm 25 dB			BW 100 kHz	Mode Au				\ \[\[\]		
TDF	25 46	awr a	(9.7 ms 💻 🕇	DW 300 KH2	Mode Au	to Sweep					
🛾 1Pk Max			2	-							
10 dBm-	-				M1	M1[1]			-53,49 dBn 989,80 MH		
				10.000	1		(1	09.00 00		
0 dBm			-			_			-		
-10 dBm-					_						
-10 0810-	01 -12.600	d9m		-		-					
-20 dBm-		-	-		_	_		-			
-30 dBm		-		-							
-40 dBm	10000					1.00					
-40 UBIN-				1	1			1.1.1	1 - 1		
-50 dBm-			642	-	_		-				
a induring	latine minunal Al	materio	manhallering	And A Market Market	and an internet	er, inder herstenden	annound	Haughans	Alle Anne Ila		
-60 dBm				and the second second							
-70 dBm					-						
10 0010									11.0.1		
-80 dBm-			-	-	_	-					
Start 30.0	MHz		(set	1001	pts	_	-	Sto	p 3.0 GHz		
Marker	larker					100.00		T (T)			
Type R				Y-value -53,49 dBr	Funct	ion	Fund	tion Result			

802.11b MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

Ref L	evel 1	5.00 dBm 25 dB			W 100 kHz W 300 kHz	Mode Au	to Sween			
TDF		20 40	011 23		ere occitent	Moue Au	to Sweep			
1Pk M	ax		-		1 1					
10 dBm		-	-			M	1(1)		43.97 dBn 87140 GH	
1							1.			1
0 dBm-										
-10 dBm			1			_				
	211	-12.600	d9m	1	-	-		1	1	
-20 dBm			-			-				
-30 dBm										
-30 ubn										1
-40 dBm		1			-	_	-			
1.00										
-SO dBr	1 100	and in the second	4	Sec.		The state March	a	alle distant	in and had	والملابع بالالاب
-6D dBm			- hale gitter		principalita in the pill	And the second second	Ale dan and along	A A A A A A A A A A A A A A A A A A A	WV NOT	August Sectores
-70 dBn	-+-		-							1
-90 dBm										
					-	-				
Start 2 Marker	.0 GHz			_	4001	pts			Stop	25.0 GHz
Type	Ref	Trel	X-valu	. 1	Y-value	Func	tion 1	Fund	tion Result	
M1		1		14 GHz	-43.97 dB					



802.11b HIGH CHANNEL CARRIER LEVEL



802.11b HIGH CHANNEL, SPURIOUS

30 MHz ~ 3 GHz

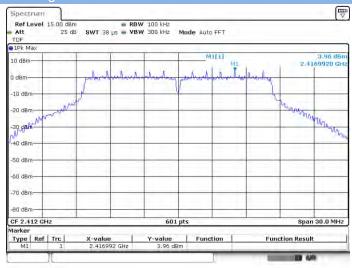
Att TDF	el 15.00 dBm 25 dB			BW 100 KHz BW 300 KHz	Mode Au	uto Sweep				
🔵 1Pk Max			~							
10 dBm				-	M1[1]			-54.34 dBm 1.06990 GH		
							all of the	1 1	ou sou sin	
0 dBm								-	1.1	
-10 dBm-					_					
	01 -13.040	dBm					-			
-20 dBm						-				
-30 dBm						_				
00.0011										
-40 dBm-			-	-	_	-				
-50 dBm		-	1918	-		-				
So abili	لمعين المعادية المعاص	and standardard	- Andrew Tonking	1.000	12.00	a alter	-	Lunhans		
-60 dBm	Change Solerio matters		1	addition and a feel	Manufal and a second	menning times a	Manufactures of			
-70 d8m-					-					
-70,0010										
-90 dBm	-				_	-				
Start 30.0	MHz	1.	4	1001	pts	L		Sto	p 3.0 GHz	
Marker	rker rpe Ref Trc X-value			Y-value	Y-value Function			ion Result	-	

802.11b HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz

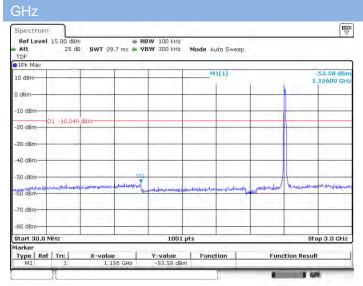
Ref L	evel 1	5.00 dBm 25 dB			BW 100 kHz BW 300 kHz	Mode Au	to Filinge			
TDF	-	25 00	3W1 23	u ms 🖷 🖬	BW SUUKH2	Mode Au	rn 2meeh			
1Pk M	ax	-	_	1	1	1.4	10			46.26 dBn
10 dBm		-	_			141	1111		92310 GH	
dBm-								P		
u ubiji-	11						12 1	1	-	1.1
-10 dBn	-	-13.040	10 V			-		-		
-		-13.040	abm					1		1
-20 dBm						-				
30 dBm										
1.0				-						
-40 dBn	M	1								1.1
-SO dBr		-	-						-	
mand		stige Wes	- Contractor	-	with the provide line in	at a start and a start and a	tin print the work	weenter mit	which the strains	numper production of the
-80 dBm				1.5						
-70 dBm	-	-				_				
								1		1.1.1.1
-80 dBn									1	
1	0 GHz				4001	pts	_		Stop	25.0 GHz
larker	Ref Trc X-value			Y-value	Func	tion 1	Fund	tion Result		
M1	- nul	1		31 GHz	-46.26 dBi		sign	Fun	cion desuit	

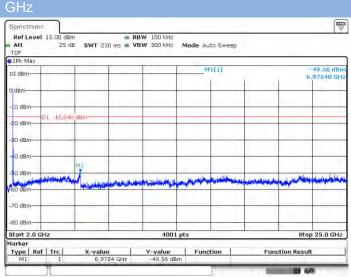


802.11g LOW CHANNEL CARRIER LEVEL



802.11g LOW CHANNEL, SPURIOUS 30 MHz ~ 3





802.11g LOW CHANNEL, SPURIOUS 2 GHz ~ 25