ISSUED BY Shenzhen BALUN Technology Co., Ltd.

RF

TEST REPORT



FOR

Mobile Phone

ISSUED TO Realme Chongqing Mobile Telecommunications Corp., Ltd.

No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China



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Revision History

Version

Issue Date Feb. 11, 2022 **Revisions Content**

<u>Rev. 01</u>

Initial Issue

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

1.2 Identification of the Responsible Testing Location

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

1.3 Laboratory Condition

Ambient Temperature	20°⊂ to 25°⊂
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 v6.6.
- (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	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Address	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing,
Address	China

2.2 Manufacturer Information

Manufacturer	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Address	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing,
Address	China

2.3 Factory Information

Factory	N/A
Address	N/A

2.4 General Description for Equipment under Test (EUT)

EUT Name	Mobile Phone
Model Name Under Test	RMX3472
Series Model Name	N/A
Description of Model	
name differentiation	N/A
Hardware Version	11
Software Version	realme UI V3.0
Dimensions (Approx.)	164.3*75.6*8.5mm
Weight (Approx.)	192g (with battery)





2.5 Technical Information

	2G Network GSM/GPRS/EDGE 850/1900 MHz
	3G Network WCDMA/HSDPA/HSUPA Band 2/4/5
	4G Network FDD LTE Band 2/4/5/7/8/12/13/17/26/66
	TDD LTE Band 38/41
	LTE CA Uplink (UL): CA_7C, CA_38C, CA_41C
Natural and Mindage	5G Network SA: NR n5/n7/n38/n41/n66
Network and Wireless	NSA: DC_2A_n7A, DC_5A_n7A, DC_5A_n66A, DC_7A_n5A,
connectivity	DC_7A_n66A, DC_12A_n66A, DC_26A_n41A, DC_66A_n5A,
	DC_66A_n7A,
	Bluetooth (BR+EDR+BLE)
	2.4G WIFI 802.11b, 802.11g, 802.11n(HT20/40)
	5G WIFI 802.11a, 802.11n(HT20/40), 802.11ac(VHT20/40/80)
	U-NII-1/2A/2C/3, NFC, GPS, GLONASS, BDS, Galileo

The requirement for the following technical information of the EUT was tested in this report:

Bool 11b/g/n(20 MHz): 2.412 GHz - 2.462 GHz fc = 2412 MHz + (N-1)*5 MHz, where - fc = "Operating Frequency" in MHz, - N = "Channel Number" with the range from 1 to 11. 802.11n(40 MHz): 2.422 GHz - 2.452 GHz fc = 2412 MHz + (N-1)*5 MHz, where - fc = "Operating Frequency" in MHz, - N = "Channel Number" with the range from 3 to 9.Modulation TypeDSSS, OFDMProduct TypeMobile Fix LocationAntenna System (eg., MIMO, or Completely Uncorrelated or Completely UncorrelatedN/AAntenna Gain0.91 dBi (In test items related to antenna gain, the final results reflect this figure. This value is provided by the applicant.)About the ProductOnly the WIFI 802.11b, 802.11g and 802.11n (HT20/40) was tested in this report.			
Frequency Range- f_c = "Operating Frequency" in MHz, - N = "Channel Number" with the range from 1 to 11. 802.11n(40 MHz): 2.422 GHz - 2.452 GHz f_c = 2412 MHz + (N-1)*5 MHz, where - f_c = "Operating Frequency" in MHz, - N = "Channel Number" with the range from 3 to 9.Modulation TypeDSSS, OFDMProduct TypeDSSS, OFDMAntenna System (eg., MIMO, Smart Antenna)N/ACategorization as Correlated or Completely UncorrelatedN/AAntenna TypePIFA AntennaAntenna Gain0.91 dBi (In test items related to antenna gain, the final results reflect this figure. This value is provided by the applicant.)About the ProductOnly the WIFI 802.11b, 802.11g and 802.11n (HT20/40) was		802.11b/g/n(20 MHz): 2.412 GHz - 2.462 GHz	
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About the Product		reflect this figure. This value is provided by the applicant.)	
tested in this report.	About the Product	Only the WIFI 802.11b, 802.11g and 802.11n (HT20/40) was	
		tested 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

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

Test Items	Mode	Data Rate	Channel	
Output Power	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
6dB Bandwidth	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Conducted Spurious Emission	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Conducted Emission	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Radiated Spurious Emission	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Band Edge	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9
Power spectral density (PSD)	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	1/6/11	3/6/9

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
Mode	transmission condition continuously at specific channel	
		frequencies individually.

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

	Power level setup in software						
Test Software Version	QRCT4	QRCT4					
Support Units	Description	Manufacturer	Model				
(Software installation media)	Notebook	HP	N/A				
Mode	Channel	Soft	Set				
	1	18.	00				
802.11 b	6	18.	00				
	11	18.	00				
	1	14.	00				
	2	17.					
802.11 g	6	17.	00				
002.11 g	9	17.00					
	10	15.50					
	11	14.50					
	1	14.00					
	2	17.00					
802.11 n20		6 17.00					
002.111120	9						
	10	15.					
	11	14.					
	3	10.					
	4	12.00					
	5	13.50					
802.11 n40	6	13.50					
	7	13.					
	8	12.					
	9	11.	50				



Run software:

W Qualcomm Radio Control Tool File View S	iettings Help								- 14 - 14 -	- @ ×
Targel: MSM_MDM	QPST *	COM: COM 39	*	Disconnect F	Runtime Mode:	# (P)	@ n	Change Boot Mode:	# · ·	A 🗎 O
	Commands								1.1.1.1.1	© 100% © □ ×
🔘 🛅 📄 Un-named	TX ×									
Category WLAN *	TX SETUP			TX REPORT						
Chipset ALL_CHIPSETS *		PHY		Property	PHY					
Commands, Logs and Custom APIs X	RF Mode	PhyA_only	1	Good Packets						
P All	Phy ID	PhyA	·*	ThermCal 1						
> AUTO DETECT CHIP	Tx Mode	Cont. Tx TX99		ThermGal 2						
COMMON	Channel	2412	-	RSSI						
> LEGACY CHIP	Channel2			Throughput						
EGACY CHIP - WCN36XX	TX Power Control	TxPowerForce_CLP	D *	Gain Index						
> MANUAL SELECT CHIP	TX Power(dBm)	18		DAC GAIN						
	HT Mode	CCK	1	PACFG						
	Data Rate	RATE_1Mbps		PDADC1						
	Tx Pattern	PN9_PATTERN	× .	PDADC2						
Platform Configuration X File NV RFC	Short Guard	OFF	× 1	PDADC3						
Ϋ́ρ	Aggregate	1		PDADC4						
	Duty Cycle(0-100%)	10		LateslMeasPwn	Oul1					
	Activity									© 100% © ×
	QRCT QMSL									
	9 H 🗔 NO	Status Polling								
	Time Category									Message
		QLIB_FTM_WLAN_TU								
	11:21:56.961 Info	QLIB_FTM_WLAN_TL								
	11:21:56.961 Info	REC: SUCCESS								





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	ANGL C62 10 2012	American National Standard of Procedures for Compliance Testing of			
3	ANSI C63.10-2013	Unlicensed Wireless Devices			

3.2 Verdict

No.	Description	FCC PART No.	Test Result	Verdict
1	Antenna Requirement	15.203	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)	15.247 (d)	ANNEX A.4	Pass
6	Conducted Emission	15.207	ANNEX A.5	Pass
7	Radiated Spurious Emission	15.209; 15.247 (d)	ANNEX A.6	Pass
8	Band Edge(Restricted-band band-edge)	15.209; 15.247 (d)	ANNEX A.7	Pass
9	Power spectral density (PSD)	15.247 (e)	ANNEX A.8	Pass
10	Receiver Spurious Emissions	N/A	N/A	N/A Note 2

Note ¹: Please refer to section 5.1.

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



4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

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

Relative Humidity	45% - 55%		
Atmospheric Pressure	100 kPa - 102 kPa		
Temperature	NT (Normal Temperature) +22°C to +25°C		
Working Voltage of the EUT	NV (Normal Voltage) 3.87 V		

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	ROHDE&SCHWARZ	FSV-40	101544	2021.04.01	2022.03.31
Bluetooth Signaling Unit	ROHDE&SCHWARZ	CMW500	142028	2021.06.01	2022.05.31
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2021.06.01	2022.05.31
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2021.06.01	2022.05.31
LISN	SCHWARZBECK	NSLK 8127	8127-687	2021.06.01	2022.05.31
Test Antenna- Loop(9 kHz-30 MHz)	SCHWARZBECK	FMZB 1519	1519-037	2021.04.16	2024.04.15
Test Antenna- Bi-Log(30 MHz-3 GHz)	SCHWARZBECK	VULB 9163	9163-624	2021.08.20	2024.08.19
Test Antenna- Horn(1-18 GHz)	SCHWARZBECK	BBHA 9120D	9120D-1917	2019.07.02	2022.07.01
Test Antenna- Horn (18-40 GHz)	A-INFO	LB- 180400KF	J211060273	2021.07.02	2023.07.01
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	2019.08.08	2022.08.07
Shielded Enclosure	ChangNing	CN-130701	130703		

4.3 Test Software List

Description	Manufacturer	Software Version	Serial No.	Applicable test Setup
BL410R	BALUN	V2.1.1.488	N/A	The section 4.5.1
BL410E	BALUN	V19.8.28.435	N/A	The section 4.5.2&4.5.3&4.5.4&4.5.5



4.4 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.

Parameters	Uncertainty
Occupied Channel Bandwidth	2.8%
RF output power, conducted	1.28 dB
Power Spectral Density, conducted	1.30 dB
Unwanted Emissions, conducted	1.84 dB
All emissions, radiated	5.36 dB
Temperature	0.82C
Humidity	4.1%

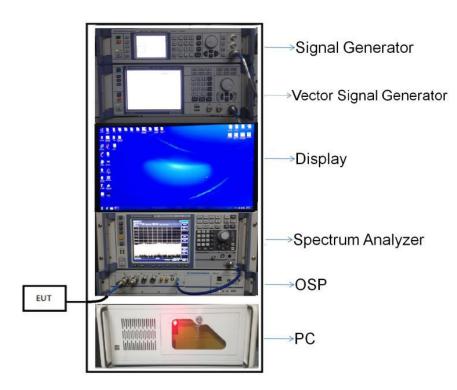


4.5 Description of Test Setup

4.5.1 For Antenna Port Test

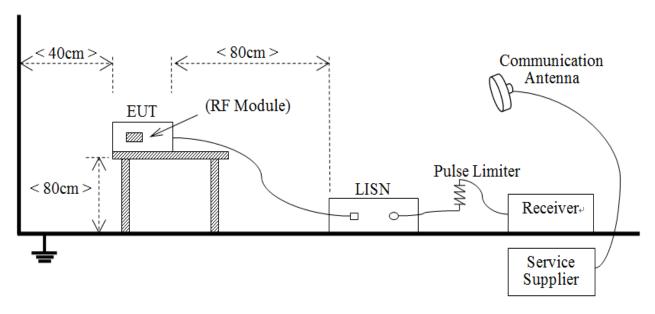
Conducted value (dBm) = Measurement value (dBm) + cable loss (dB)

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)

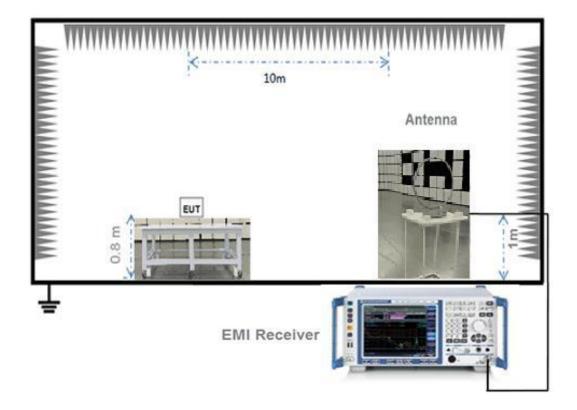




(Diagram 2)

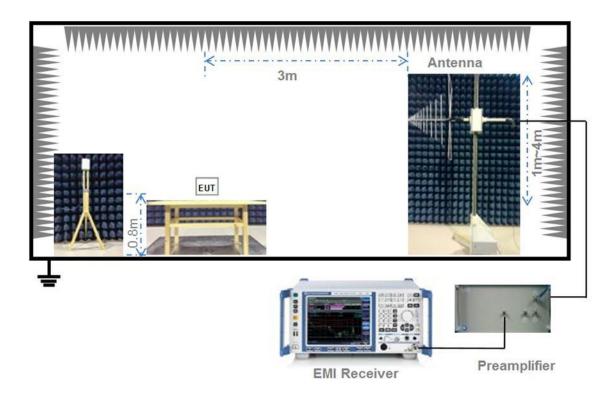


4.5.3 For Radiated Test (Below 30 MHz)



(Diagram 3)

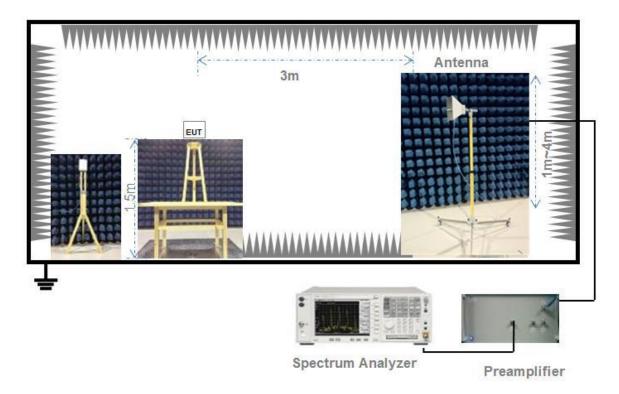
4.5.4 For Radiated Test (30 MHz-1 GHz)





(Diagram 4)

4.5.5 For Radiated Test (Above 1 GHz)



(Diagram 5)



4.6 Measurement Results Explanation Example

4.6.1 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.

4.6.2 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

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)

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 and antennas and antennas and antennas with the signalized across all symbols.

5.2.2 Test Setup

See section 4.5.1 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 $10\log(1/x)$, 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)

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 4.5.1 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)

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 4.5.1 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)

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 4.5.1 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

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 4.5.2 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(d)

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 4.5.3 to 4.5.5 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 \leq 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 \geq 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(d)

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 4.5.1 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(e)

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 4.5.1 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

Duty Cycle

Test Mode	On Time (ms)	On+Off time (ms)	Duty Cycle
802.11b	12.200	12.310	99.11%
802.11g	2.194	2.234	98.21%
802.11n-20 MHz	2.044	2.085	98.03%
802.11n-40 MHz	1.000	1.053	94.97%

Peak Power Test Data

802.11b Mode:

Channel	Measured Out	put Peak Power	Lir	nit	Verdict
Channel	dBm	mW	dBm	mW	Verdict
1	20.92	123.59			Pass
6	20.79	119.95	30	1000	Pass
10	21.19	131.52			Pass

802.11g Mode:

Channel	Measured Out	put Peak Power	Limit		Verdict
Channel	dBm	mW	dBm	mW	Verdict
1	20.48	111.69			Pass
2	23.54	225.94			Pass
6	23.40	218.78	30	1000	Pass
9	23.55	226.46	30 1000	1000	Pass
10	22.44	175.39			Pass
11	21.54	142.56			Pass

802.11n-20 MHz Mode:

Channel	Measured Out	put Peak Power	ower Limit		Limit Verdict		Vordiot
Channel	dBm	mW	dBm	mW	Verdict		
1	20.74	118.58			Pass		
2	23.64	231.21			Pass		
6	23.19	208.45	30	1000	Pass		
9	23.32	214.78	30 1000	Pass			
10	22.20	165.96				Pass	
11	21.28	134.28			Pass		



802.11n-40 MHz Mode:

Channel	Measured Out	put Peak Power	Lir	nit	Verdict									
Channel	dBm	mW	dBm	mW	Verdici									
3	17.91	61.80	30			Pass								
4	19.04	80.17			Pass									
5	20.54	113.24												Pass
6	20.37	108.89		30 1000	Pass									
7	20.52	112.72				Pass								
8	19.44	87.90			Pass									
9	18.44	69.82			Pass									



Average Power Test Data

802.11b Mode:

Channel	Measured Out	leasured Output Peak Power		nit	Verdict
Channel	dBm	mW	dBm	mW	Verdict
1	17.94	62.23			Pass
6	17.84	60.81	30	1000	Pass
10	18.18	65.77			Pass

802.11g Mode:

Channel	Measured Out	asured Output Peak Power		nit	Verdict
Channel	dBm	mW	dBm	mW	Verdici
1	13.95	24.83			Pass
2	17.00	50.12		1000	Pass
6	16.83	48.19	20		Pass
9	17.02	50.35	30	30 1000	Pass
10	15.97	39.54			
11	15.03	31.84			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict		
	dBm	mW	dBm	mW	Verdict		
1	14.15	26.00	30		Pass		
2	17.02	50.35					Pass
6	16.61	45.81		1000	Pass		
9	16.74	47.21			Pass		
10	15.61	36.39				Pass	
11	14.72	29.65			Pass		

802.11n-40 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict	
	dBm	mW	dBm	mW	Verdict	
3	11.08	12.82			Pass	
4	12.27	16.87			Pass	
5	13.75	23.71			Pass	
6	13.53	22.54	30	1000	Pass	
7	13.73	23.60			Pass	
8	12.64	18.37				Pass
9	11.65	14.62			Pass	



A.2 Bandwidth

<u>Test Data</u>

802.11b Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
1	9.100000	13.903000	≥500
6	8.650000	13.741000	≥500
11	8.150000	13.668000	≥500

802.11g Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
1	16.150000	17.268000	≥500
2	16.400000	17.347000	≥500
6	16.000000	17.205000	≥500
9	15.800000	17.247000	≥500
10	15.850000	17.179000	≥500
11	15.850000	17.147000	≥500

802.11n-20MHz Mode:

Channel	6 dB Bandwidth	99% Bandwidth	6 dB Bandwidth
	(MHz)	(MHz)	Limits (kHz)
1	16.850000	18.314000	≥500
2	16.000000	18.385000	≥500
6	16.950000	18.313000	≥500
9	15.800000	18.347000	≥500
10	16.200000	18.327000	≥500
11	16.350000	18.281000	≥500

802.11n-40MHz Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
3	35.800000	36.311000	≥500
4	35.800000	36.341000	≥500
5	35.750000	36.254000	≥500
6	35.800000	36.286000	≥500
7	35.750000	36.297000	≥500
8	35.750000	36.256000	≥500
9	35.750000	36.301000	≥500



Test plots

6 dB Bandwidth



802.11b CHANNEL 6 enter Freq 2.437000000 GHz PNC:Fast →→ #Atten: 36 dB Avg Type: Log-Pwr Avg|Hold: 50/50 Frequency Auto Tur 8.65 MH 0.637 d Ref Offset 1.49 dB Ref 25.00 dBm MALLY JALAL Center Free 2Δ3 -X3 137000000 GH M Start Free personal a M Stop Free 2.4570000 Center 2.43700 GHz #Res BW 100 kHz CF Stej 00000 MH Ma Span 40.00 MHz ep 100.0 ms (801 pts) VBW 300 kHz 4.0000 #Sw 2.437 50 GHz 9.542 dBm 8.65 MHz (Δ) 0.637 dB 2.432 90 GHz 0.942 dBm N 1 f Δ3 1 f (Δ) F 1 f Freq Offs OH

802.11b CHANNEL 11



802.11g CHANNEL 1



802.11g CHANNEL 2





802.11g CHANNEL 6



302.11g CHANNEL 9



802.11g CHANNEL 1

Avg Type: Log-Pwr Avg|Hold: 50/50 Auto Tun 5.85 MH -1.120 d Ref Offset 1.53 dB Ref 25.00 dBm \$1 Center Free 2∆3 2.457000000 G Xr Start Fre 2.437000000 G Stop Free 2.477000000 GH enter 2.45700 GHz Res BW 100 kHz Span 40.00 MHz 100.0 ms (801 pts) CF Step 4.000000 MHz VBW 300 kHz #Sweep Ma uto N 1 f Δ3 1 f (Δ) F 1 f 2.458 25 GHz 6.003 dBm 15.85 MHz (Δ) -1.120 dB 2.449 35 GHz -1.503 dBm Freq Offset 0 Hz

802.11n-20 MHz CHANNEL 1





802.11n-20 MHz CHANNEL 2





802.11n-20 MHz CHANNEL 6



02.11 n-20 MHz CHANNEL

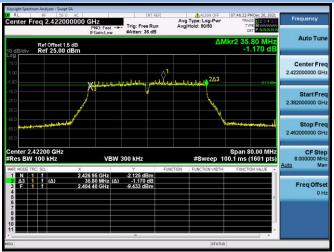


802.11n-20 MHz CHANNEL 11



802.11n-40 MHz CHANNEL 3

802.11n-20 MHz CHANNEL 10



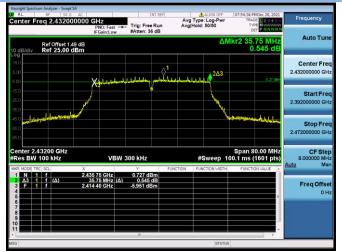


802.11n-40 MHz CHANNEL 4

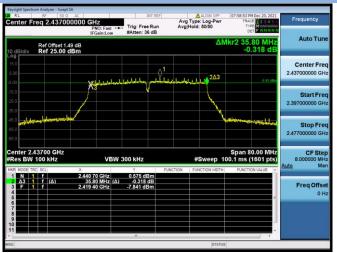




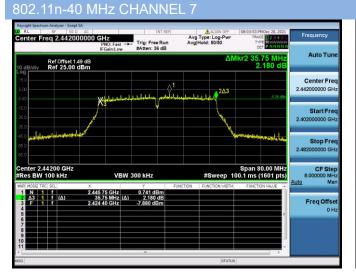
802.11n-40 MHz CHANNEL 5



02.11n-40 MHz CHANNEL

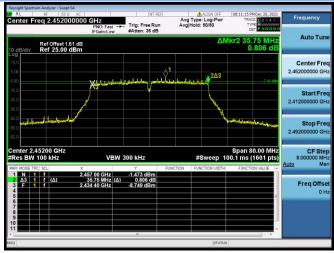


802.11n-40 MHz CHANNEL 8



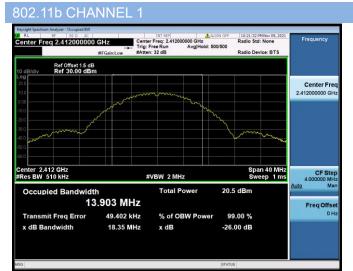


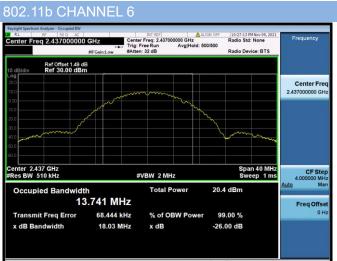
802.11n-40 MHz CHANNEL 9





99% Bandwidth

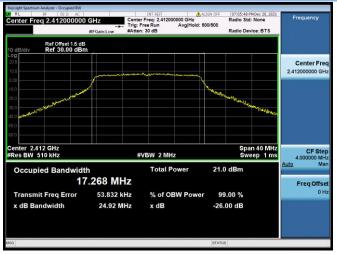




802.11b CHANNEL 11



802.11g CHANNEL 1



802.11g CHANNEL 2





802.11g CHANNEL 6



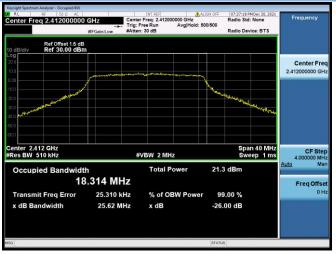
802.11g CHANNEL 9



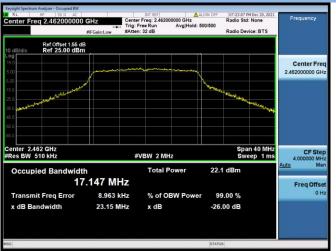
802.11g CHANNEL 10



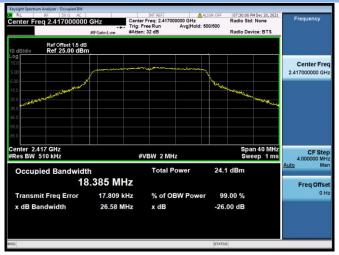
802.11n-20 MHz CHANNEL 1



802.11g CHANNEL 11



802.11n-20 MHz CHANNEL 2





802.11n-20 MHz CHANNEL 6



02.11 n-20 MHz CHANNEL 9



DIT REF Center Freq: 2.46200000 GHz Trig: Free Run AvgiHold: 500/500 #Atten: 30 dB

07:43:02 PM Dec 20, 202 Radio Std: None

> Span 40 MHz Sweep 1 ms

21.8 dBm

Center Freq

2.462000000 GH

CF Ste 4.000000 Mi

Freq Offse

uto

Radio Device: BTS

802.11n-20 MHz CHANNEL 11

enter Freq 2.462000000 GHz

Center 2.462 GHz #Res BW 510 kHz

Occupied Bandwidth



Ref Offset 155.dB Log Ref 30.00 dBm Job Image: State of the state of th

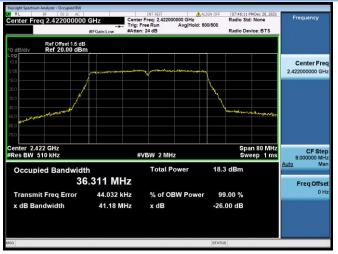
#VBW 2 MHz

Total Power

18.281 MHz Transmit Freq Error -1.561 kHz % of OBW Power 99.00 % x dB Bandwidth 25.14 MHz x dB -26.00 dB

802.11n-40 MHz CHANNEL 3

802.11n-20 MHz CHANNEL 10



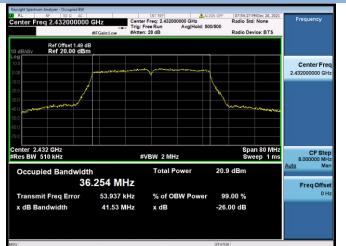
802.11n-40 MHz CHANNEL 4





802.11n-40 MHz CHANNEL 5

802.11n-40 MHz CHANNEL 7



02.11n-40 MHz CHANNEL 6



802.11n-40 MHz CHANNEL 8





802.11n-40 MHz CHANNEL 9





A.3 Conducted Spurious Emissions

<u>Test Data</u>

802.11b Mode:

	. Measured Max. Out of	Limit (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict	
1	-48.93	10.00	-10.00	Pass	
6	-49.36	9.91	-10.09	Pass	
11	-44.32	10.33	-9.67	Pass	

802.11g Mode:

	Measured Max. Out of	Limit (
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict
1	-48.16	4.68	-15.32	Pass
2	-48.40	7.87	-12.13	Pass
6	-46.54	7.72	-12.28	Pass
9	-49.59	7.86	-12.14	Pass
10	-48.87	6.00	-14.00	Pass
11	-49.08	5.88	-14.12	Pass

802.11n-20MHz Mode:

	Measured Max. Out of	Limit (Limit (dBm)			
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict		
1	-48.55	4.52	-15.48	Pass		
2	-48.70	8.14	-11.86	Pass		
6	-48.56	7.66	-12.34	Pass		
9	-48.09	7.73	-12.27	Pass		
10	-48.60	6.69	-13.31	Pass		
11	-47.71	4.88	-15.12	Pass		

802.11n-40MHz Mode:

	Measured Max. Out of	Limit (Limit (dBm)			
Channel	Band Emission (dBm)	Carrier Level	Calculated 20 dBc Limit	Verdict		
3	-48.50	-1.87	-21.87	Pass		
4	-48.68	-0.58	-20.58	Pass		
5	-49.26	1.09	-18.91	Pass		
6	-48.73	0.84	-19.16	Pass		
7	-46.39	0.89	-19.11	Pass		
8	-47.33	-0.16	-20.16	Pass		
9	-48.32	-1.18	-21.18	Pass		



Test Plots

larker 1 2.4115	00000000 GHz PNO: F	ast C Trig: Free Run	F Avg Type: Log- Avg Hold:>1/1		Peak Search
0 dB/div Ref 16	.00 dBm	LOW INTERL 20 OD	1	Mkr1 2.411 50 GHz 10.004 dBm	NextPe
6.00 4.00	ann		marray May	un and a start of the start of	Next Pk Rig
24.0 14.0 - MARINA	na n			hans	Next Pk L
4.0					Marker De
enter 2.41200 G Res BW 100 kHz		#VBW 300 kHz	Swe	Span 30.00 MHz ep 2.880 ms (601 pts)	Mkr→
KR MODE TRC SCL 1 N 1 F 2 3 4 5 6	× 2.411 50 GF	Y 10.004 dBm	FUNCTION FUNCTION	FUNCTION VALUE	Mkr→Refl
8					Mo

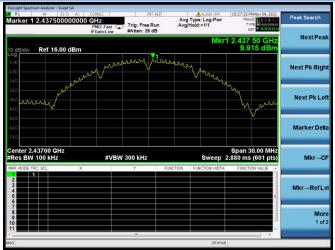
802.11b CHANNEL 1, SPURIOUS 30 MHz ~ 3 GHz

C CORREC 000 GHz PNO: Fast C	Trig: Free Run	Avg Type: Log-Pwr Avg Hold:>1/1	10:24:09 PM Nov 09, 2021 TRACE 2 3 4 5 0 TYPE MWWWWW DBT P N N N N	Marker
IFGain:Low	#Atten: 26 dB	Mk		Select Marker
			-10.00 dBn	Norma
				Delta
روه مردان المراجع مردان المراجع مردم مردم مردم مردم مردم مردم مردم مرد		Lan marting and the second second	1 Lawrence and the second	Fixed
#VBV	1/0///		Stop 3.000 GHz 83.9 ms (1001 pts)	OI
2.652 5 GHz	-58.451 dBm			Properties
				Mor 1 of
	100 GHz PNO: Fast IFGain:Low #VEV	Trig: Free Run IFGaint.ow #Atten: 28 dB # # # # # # # # # # # # #	100 GHz Avg Type: Log-Pwr PRO: Fast: Cog Type #Avg Type: Log-Pwr PRO: Fast: Cog Type #Avg Type: Log-Pwr Avg Type: Log-Pwr Avg Type: Log-Pwr Avg Type: Log-Pwr Avg Type: Log-Pwr Mten: 26 dB Mten: 26 dB Mten: 26 dB Mten: 26 dB </td <td>DIO GHz Trig: Free Run Avg Type: Log-Put Trucc Bis 4 as the second s</td>	DIO GHz Trig: Free Run Avg Type: Log-Put Trucc Bis 4 as the second s

802.11b CHANNEL 1, SPURIOUS 2 GHz ~ 25 GHz

arker 1 21.0037	50000000 GHz PNO: Fast IFGain:Low	Trig: Free Run #Atten: 26 dB		ALIGN OFF Type: Log-Pwr Hold:>1/1	TRAC	MNov 09, 2021 E 1 2 3 4 5 E MWWWWWW ET P N N N N N	Peak Search
dB/div Ref 16.0	00 dBm			Mkr1	21.003	75 GHz 30 dBm	Next Pea
500 3.00 4.0						-10.00 dBm	Next Pk Rig
4.0					1		Next Pk Le
i4.0	turnen testat yr aritektet	۲۰۰۰ میلیند میکور می مرابع		and the second	anna a	~~~~	Marker De
tart 2.00 GHz Res BW 100 kHz	x	300 kHz Y	FUNCTION	Sweep	2.198 s (5.00 GHz 4001 pts)	Mkr→C
1 N 1 f 2 3 4 5	21.003 75 GHz	-48.930 dBm				-	Mkr→RefL
6 7 8 9 0							Mo 1 o
a				STATUS			······

802.11b CHANNEL 6 CARRIER LEVEL







802.11b CHANNEL 6, SPURIOUS

30 MHz ~ 3 GHz

arker 1 2.56044000000	PNO: Fast	INT REF A Trig: Free Run Av	ALIGN OFF vg Type: Log-Pwr vg Hold:>1/1	10:28:06 PM Nov 09, 2021 TRACE 2 2 4 5 0 TVPE MWWWWWW DET P N N N N N	Marker
dB/div Ref 16.00 dBm	IFGain:Low 1	Atten: 26 dB	Mk	1 2.560 4 GHz -58.276 dBm	Select Marker
00 00 40				-10.09 dBm	Norma
1.0					Delta
	underlight strengt and and and	مىلىرى بىرى بىرى بىرى يەرىي بىرى بىرى بىرى بىرى بىرى بىرى بىرى ب	at a set of the second second	1 Julion marines	Fixed
rart 0.030 GHz Res BW 100 kHz	#VBW 3	00 kHz	and a substant of the substant	Stop 3.000 GHz 3.9 ms (1001 pts)	or
N 1 f 2	.560 4 GHz -5	8.276 dBm			Properties
					More 1 of 2

802.11b CHANNEL 11 CARRIER LEVEL



802.11b CHANNEL 11, SPURIOUS 30 MHz ~ 3 GHz



802.11b CHANNEL 6, SPURIOUS



802.11b CHANNEL 11, SPURIOUS 2 GHz ~ 25 GHz





802.11g CHANNEL 1 CARRIER LEVE

RL RF larker 1 2.41325	50 Ω AC CORREC 500000000 GHz PNO: Fast IFGain:Low	Trig: Free Run #Atten: 26 dB	Aug Type: Log-Pwr Avg Hold:>1/1	07:06:10 PM Dec 20, 2021 TRACE 2 3 4 5 1 TYPE MWWWWW DET P NNNNN	Peak Search
o dB/div Ref 16.	00 dBm		Mkr	1 2.413 25 GHz 4.683 dBm	NextPea
600 4.00	mhartrahar	tan han han parties	hanhanhashardhy		Next Pk Righ
24.0 94.0 pp://www.www. 14.0				manner	Next Pk Le
54.0					Marker Del
enter 2.41200 GH Res BW 100 kHz	#V		Sweep	Span 30.00 MHz 2.880 ms (601 pts) FUNCTION VALUE	Mkr→C
1 N 1 f 2 3 4 5	2.413 25 GHz	4.683 dBm			Mkr⊸RefL
7 8 9 00					Mor 1 of
			STATU		

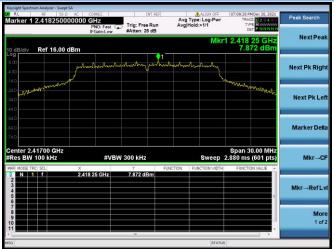
802.11g CHANNEL 1, SPURIOUS 30 MHz ~ 3 GHz

larker 1 2.52908000	AC CORREC 0000 GHz PNO: Fast	Trig: Free Run	Avg Type: Log-Pwr Avg Hold:>1/1	07:06:52 PM Dec 20, 2021 TRACE 2 3 4 5 TYPE MWWWWW	Marker
	IFGain:Low	#Atten: 26 dB			Select Marker
0 dB/div Ref 16.00 dl	Bm		IVIP	r1 2.529 1 GHz -57.567 dBm	1
og 5.00					
.00					Norma
4.0				-15.32 dBm	
4.0					Delt
4.0				U 1	
4.0		and the Manuscription of the	the provision of the second way	Victorianterio	Fixed
4.0					TIACU
tart 0.030 GHz				Stop 3.000 GHz	
B BIM 400 LUL-	#VB	W 300 kHz	Sweep 2	83.9 ms (1001 pts)	01
Res BW 100 kHz	wierzenia w				
KR MODE TRC SCL	x 2.529 1 GHz	Y FU -57.567 dBm	UNCTION FUNCTION WIDTH	FUNCTION VALUE	¥
KR MODE TRC SCL			UNCTION FUNCTION WIDTH	FUNCTION VALUE	Properties
KR MODE TRC SCL			UNCTION FUNCTION WIDTH	FUNCTION VALUE	Properties
RF, MODE TRC SCL			UNCTION FUNCTION WIDTH	FUNCTION VALUE	Properties
KR MODE TRC SCL			FUNCTION WIDTH	FUNCTION VALUE	Properties Mor 1 of:

802.11g CHANNEL 1, SPURIOUS 2 GHz ~ 25 GHz

RL RF 58Ω Marker 1 21.1015000	AC CORREC 000000 GHz PNO: Fast C IFGain:Low	Trig: Free Run #Atten: 26 dB	ALIGN OFF Avg Type: Log-Pwr Avg Hold:>1/1	07:07:08 PM Dec 20, 2021 TRACE 2 3 4 5 TYPE MWWWWW DET P NNNNN	Peak Search
0 dB/div Ref 16.00 d	Bm		Mkr1	21.101 50 GHz -48.157 dBm	Next Pea
4.00					Next Pk Righ
24.0				-15,32 dBm	Next Pk Le
34.0 44.0				1	NextPkLe
	and particular			<u>ستة طنته</u>	Marker Del
itart 2.00 GHz Res BW 100 kHz	#VB	W 300 kHz		Stop 25.00 GHz 2.198 s (4001 pts)	Mkr→C
INR MODE TRC SCL	× 21.101 50 GHz	48.167 dBm	UNCTION FUNCTION WIDTH	FUNCTION VALUE	k.
3					Mkr→RefL
7					Moi 1 of
1				-	10

802.11g CHANNEL 2 CARRIER LEVEL





802.11g CHANNEL 2, SPURIOUS

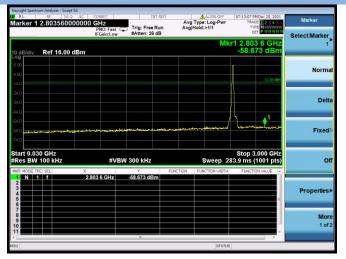
	\sim	 GHz	

larker 1 2.67367000000	PNO: Fast (Trig: Free Ru	Avg Type: Log-Pwr n Avg Hold:>1/1	07:09:52 PMDec 20, 2021 TRACE 1 2 3 4 5 TYPE MWWWWW	Marker
0 dB/div Ref 16.00 dBm	IFGain:Low #Atten: 26 dB		cr1 2.673 7 GHz -58.114 dBm	Select Marker
og 5 00 .00			-12.13 (0)=	Norma
4.0				Delta
4.0 4.0 4.0	and the second	مىرىم ئەتلەر بىلەر يەتلەر يىلىرى بەر يەتلەر يەت ئىلىرى بەر ئەتلەر يەتلەر يە	1 minutes and a second	Fixed
tart 0.030 GHz Res BW 100 kHz	#VBW 300 kHz	Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts)	Of
1 N 1 f 2 3 4 5 6	2.673 7 GHz -58.114 dBm		E E	Properties
7				More

802.11g CHANNEL 6 CARRIER LEVEL

RL RF larker 1 2.43825	PN	Z O: Fast	INT RE	Avg	ALIGN OFF Type: Log-Pwr Hold:>1/1	07:12:24 PM Dec 20, TRACE 2 2 TYPE MWW	5	Peak Search
0 dB/div Ref 16.		iain:Low	#Atten: 26 dB		Mkr	1 2.438 25 G 7.724 dE	12	NextPeal
og 5.00 4.00	John	mhodh	Northanyour	1 hontunation	harristy			Next Pk Righ
14.0 24.0 94.0 94.0						mangana	74 4	Next Pk Le
54.0								Marker Del
enter 2.43700 GH Res BW 100 kHz	x		300 kHz Y	FUNCTION	Sweep	Span 30.00 M 2.880 ms (601 p FUNCTION VALUE	1Hz ots)	Mkr→C
N 1 f 2 3 4 5 6	2.438 26	5 GHz	7.724 dBm				8	Mkr⊸RefL
								Mor 1 of
							F.	

802.11g CHANNEL 6, SPURIOUS 30 MHz ~ 3 GHz

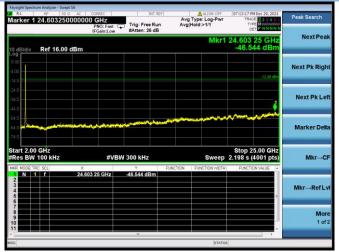


802.11g CHANNEL 2, SPURIOUS



802.11g CHANNEL 6, SPURIOUS

2 GHz ~ 25 GHz





802.11g CHANNEL 9 CARRIER LEVEL

RL RF 50 arker 1 ∆ 2.45325		Trig: Free Run #Atten: 26 dB	Aug Type: Log-Pwr Avg Hold:>1/1	07:17:19 PM Dec 20, 2021 TRACE 1 2 3 4 5 TYPE MWWWWWW DET P NN NN N	Peak Search
dB/div Ref 16.00	dBm		Mkr	1 2.453 25 GHz 7.865 dBm	Next Pea
.00	Murthowhout	walnut water	har han har		Next Pk Righ
4.0 14.0 14.0					Next Pk Le
4.0 4.0 4.0					Marker Del
enter 2.45200 GHz Res BW 100 kHz	x		Sweep	Span 30.00 MHz 2.880 ms (601 pts) FUNCTION VALUE	Mkr→C
N 1 f	2.453 25 GHz	7.865 dBm		.e	Mkr→RefL
7 8 9 0 1				-	Moi 1 of
a			STATUS	•	

802.11g CHANNEL 9, SPURIOUS 30 MHz ~ 3 GHz

RL RF 50 Ω AC arker 1 2.69976000000		INT REF	Avg Type: Log-Pwr Avg Hold:>1/1	07:17:53 PM Dec 20, 2021 TRACE 2 3 4 5 0 TYPE MWWWWWW	Marker
		tten: 26 dB	_,	DET PNNNN	Select Marker
dB/div Ref 16.00 dBm	8		Mk	r1 2.699 8 GHz -58.587 dBm	1
9				1	Norm
.0				-12.14 dBn	
0					Delt
.0					
0)	والوسولة المسارية والاستجار	the second second second		barren whomen war	Fixed
.00					
art 0.030 GHz tes BW 100 kHz	#VBW 300	kHz	Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts)	o
R MODE TRC SCL X		Y FUNCTIO	N FUNCTION WIDTH	FUNCTION VALUE	
	2.033 6 GHZ -06.1				Properties
				E	Toperaco
					Mor
					1 of

802.11g CHANNEL 9, SPURIOUS 2 GHz ~ 25 GHz



802.11g CHANNEL 10 CARRIER LEVEL

RL RF 50 arker 1 2.455750		Trig: Free Run #Atten: 26 dB	Avg Type: Log-Pwr Avg Hold:>1/1	07:20:09 PM Dec 20, 2021 TRACE 2 3 4 5 TYPE MWWWWW DET P NIN N N	Peak Search
dB/div Ref 16.00	0 dBm		Mkr	1 2.455 75 GHz 6.004 dBm	NextPeak
00	manshandund	1 איז	hardendarden		Next Pk Righ
4.0 4.0 4.0 4.0	not t			and all all all all all all all all all al	Next Pk Lef
4.0					Marker Delta
enter 2.45700 GHz Res BW 100 kHz		W 300 kHz	Sweep	Span 30.00 MHz 2.880 ms (601 pts)	Mkr→CF
2 1 f 2 3 4 5 6 6	2.455 75 GHz	6.004 dBm	PONCTION VIDTH	FUNCTION VALUE	Mkr→RefLv
9 0 1					Mor 1 of:
a			STATUS		



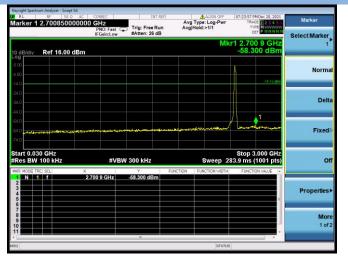
802.11g CHANNEL 10, SPURIOUS 30 MHz ~ 3 GHz

RL RF	50.0 AC	CORREC	INT 5		ALIGN OFF Type: Log-Pwr	TRAC	MDec 20, 2021	Marker
TK01 1 2.00		PNO: Fast C IFGain:Low	Trig: Free Ru #Atten: 26 dE	in Avg	Hold:>1/1	TYP		Select Marker
dB/div Ref	16.00 dBm				Mk	r1 2.684 -58.24	4 4 GHz 40 dBm	1
0						٨		Norma
0							-14 00 cBm	
0								Delt
							4	
al and the second second	abi, astastaj s _{ant} anjambi	ىتىغۇلەرتى مى <mark>يا</mark> غۇرىي	an an tradina min	and the second	mennegand	- www.sormed	1 Vermetrister	Fixed
art 0.030 GH	z		W 300 kHz	det get get an	Sweep 2	Stop 3	.000 GHz	
art 0.030 GH es BW 100 H	iz KHz X		W 300 kHz -58.240 dBm	FUNCTION		Stop 3. 83.9 ms (.000 GHz	
art 0.030 GH es BW 100 H	iz KHz X	#VB\	Y		Sweep 2	Stop 3. 83.9 ms (.000 GHz 1001 pts)	Fixed O Properties
art 0.030 GH es BW 100 F	iz KHz X	#VB\	Y		Sweep 2	Stop 3. 83.9 ms (.000 GHz 1001 pts)	0

802.11g CHANNEL 11 CARRIER LEVEL

RL RF arker 1 2.46325	PN	Z O: Fast	INT RE	Avg	ALIGN OFF Type: Log-Pwr Hold:>1/1	07:23:32 PM Dec 20, 2021 TRACE 1 2 3 4 5 TYPE MWWWWW DET P N N N N	Peak Search
dBidiy Ref 16.	IFG 00 dBm	ain:Low	#Atten: 26 dB		Mkr	1 2.463 25 GHz 5.883 dBm	Next Peal
og i 00 i 00	promotion	adradas	rontony and	1 halipoles	many		Next Pk Righ
4.0 4.0 4.0	anana a					mulaway	Next Pk Le
i4.0 i4.0 i4.0							Marker Delt
enter 2.46200 GI Res BW 100 kHz KR MODE TRC SCL	x		300 kHz Y	FUNCTION	Sweep	Span 30.00 MHz 2.880 ms (601 pts) FUNCTION VALUE	Mkr→C
N 1 f 2 3 4 5 6	2.463 25	GHz	5.883 dBm				Mkr→RefL
7 8 9 0 1							Mor 1 of
							<u> </u>

802.11g CHANNEL 11, SPURIOUS 30 MHz ~ 3 GHz



802.11g CHANNEL 10, SPURIOUS

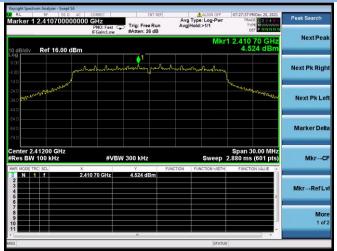


802.11g CHANNEL 11, SPURIOUS 2 GHz ~ 25 GHz

Tegen Starten August and August ALIGN OFF Avg Type: Log-Pwr Avg|Hold:>1/1 Peak Sear NextPea Akr1 21.187 75 G -49.080 dE Ref 16.00 dBm Next Pk Righ Next Pk Lef **∮**¹ Marker Delt Start 2.00 GHz #Res BW 100 kHz Stop 25.00 GH eep 2.198 s (4001 pt #VBW 300 kHz Mkr→CF SI 21.187 75 GHz Mkr→RefLv More 1 of 2



802.11n-20 CHANNEL 1 CARRIER LEVE



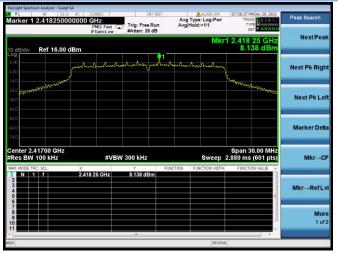
802.11n-20 CHANNEL 1, SPURIOUS 30 MHz ~ 3 GHz

RL arker 1	RF 50 2.790860	000000 GHz	ast 😱 Trig: Free Ri	Ave	ALIGN OFF Type: Log-Pwr Hold:>1/1	07:28:06 PM Dec 20, 202 TRACE 2 3 4 TYPE MWWWW DET P NNN	Marker
		IFGain:		8			Select Marker
dB/div	Ref 16.00	dBm			Mk	r1 2.790 9 GH -58.172 dBr	z 1
.00							
00							Norma
4.0						-15,48 dB	
4.0							Delt
4.0							
4.0					andrewson	Turmenal	
10 - Apartalian 10	hungernikurn	an squares		a dia mandri a dia m			Fixed
tart 0.03	0.047					Stop 3.000 GH	
	100 kHz		#VBW 300 kHz		Sweep 2	83.9 ms (1001 pts	5) 0
R MODE TR		× 2.790 9 GH	y -58,172 dBm	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	
2		2.790 9 GP	-36.172 dBm				
4							Properties
6							0.0
8							Mo
0							1 of
					STATUS	F	

802.11n-20 CHANNEL 1, SPURIOUS 2 GHz ~ 25 GHz



802.11n-20 CHANNEL 2 CARRIER LEVE





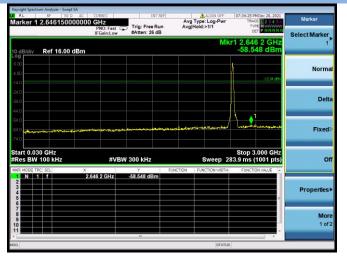
802.11n-20 CHANNEL 2, SPURIOUS 30 MHz ~ 3 GHz

RL RF 50.0 AC	00 GHz	Trig: Free Run	Aug Type: Log-Pwr Avg Hold:>1/1	07:31:18 PM Dec 20, 2021 TRACE 2 3 4 5 TYPE MWWWWWW	Marker
	PNO: Fast IFGain:Low	#Atten: 26 dB	-	r1 2.685 6 GHz	Select Marker
dB/div Ref 16.00 dBm	10			-58.575 dBm	
0					Norma
0				-11.00 dBm	-
0					Delt
	مر المرارد هيداريد به والمقامة مو	an fangan se stande a	an a	1 Inderstand	Fixed
0 		Nepagangang tengkang kang kang kang kang kang kang kan	a manuna an a	and and an and	Fixed
art 0.030 GHz es BW 100 kHz	#VBW	/ 300 kHz			Fixed
art 0.030 GHz es BW 100 kHz MODE TRC SCL 3	0	2004		Stop 3.000 GHz	
art 0.030 GHz es BW 100 kHz	(Y FU	Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts)	
art 0.030 GHz es BW 100 kHz MODE TRC SCL 3	(Y FU	Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts)	o

802.11n-20 CHANNEL 6 CARRIER LEVE

RL RF arker 1 2.43825	PNO		Run Avg	ALIGN OFF Type: Log-Pwr Hold:>1/1	07:33:59 PM Dec 20, 2021 TRACE 2 2 4 5 TVPE MWWWWWW DET P N N N N N	Peak Search
0 dB/div Ref 16.	00 dBm	n:Low PAttern 20	00	Mkr	1 2.438 25 GHz 7.660 dBm	NextPea
og 6 00 4 00	pontertos	Innortherstowny	and have the grade have	huhadung		Next Pk Righ
14.0 24.0 34.0					monorantee	Next Pk Le
54.0						Marker Del
enter 2.43700 GH Res BW 100 kHz	x	#VBW 300 kHz	FUNCTION	Sweep	Span 30.00 MHz 2.880 ms (601 pts) FUNCTION VALUE	Mkr→C
N 1 f 2 3 4 5 6	2.438 25 (GHz 7.660 dB	m			Mkr→RefL
7 8 9 0 1					-	Mor 1 of
					*	<u></u>

802.11n-20 CHANNEL 6, SPURIOUS 30 MHz ~ 3 GHz



802.11n-20 CHANNEL 2, SPURIOUS



802.11n-20 CHANNEL 6, SPURIOUS

2 GHz ~ 25 GHz





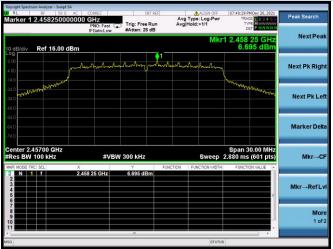
802.11n-20 CHANNEL 9 CARRIER LEVE

OGHZ PNO: Fast IFGain:Low	Trig: Free Run #Atten: 26 dB	ALIGN OFF Avg Type: Log-Pwr Avg Hold:>1/1	07:37:25 PM Dec 20, 2021 TRACE 2 2 3 4 5 TYPE M WWWWW DET P N N N N N	Peak Search
		Mkr	1 2.453 25 GHz 7.727 dBm	Next Pea
haladard	when they realized	harharhardwary		Next Pk Righ
			- wallenger and a second	Next Pk Le
				Marker Del
#VBW	12-140 Statements		Span 30.00 MHz 2.880 ms (601 pts)	Mkr→C
453 25 GHz	7.727 dBm		8	Mkr⊸RefL
				Mor 1 of
	#VEW	#VEW 300 KHz	BOGHZ Fige: Free Run #Atten: 26 dB Avg Type: Log-Pur Avg Type: Log-	O.G.H.z. FRG: Fact FGaint.ow Trig:: Free Run atten: 28 dB AvgType: Log-Put AvgType: Log-Put AvgType: Log-Put AvgType: Log-Put Trip:: Trip:: Free Run atten: 28 dB Mkr1 2.453 25 GHz 7.727 dBm Mkr1 2.453 25 GHz 7.727 dBm

802.11n-20 CHANNEL 9, SPURIOUS 30 MHz ~ 3 GHz

larker 1 2.66412000000	OGHZ PNO: Fast	Avg Type: Log-Pwr Avg Hold:>1/1	07:38:02 PM Dec 20, 2021 TRACE 1 2 3 4 5 TYPE MWWWWWW	Marker
0 dBidiy Ref 16.00 dBm	IFGain:Low #Atten: 26 dB	Mk	r1 2.664 1 GHz -58.037 dBm	Select Marker
			-12.27 dBm	Norma
24.0				Delt
54.0 54.0 74.0	an a	renadar washi interesti interneti inter	- Leniel	Fixed
Start 0.030 GHz Res BW 100 kHz	#VBW 300 kHz	Sweep 2	Stop 3.000 GHz 83.9 ms (1001 pts) FUNCTION VALUE	O
1 N 1 f 2 2 3 4 5 6	2.664 1 GHz -58.037 dBm			Properties
7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9				Mor 1 of

802.11n-20 CHANNEL 10 CARRIER LEVEL



802.11n-20 CHANNEL 9, SPURIOUS 2 GHz ~ 25 GHz





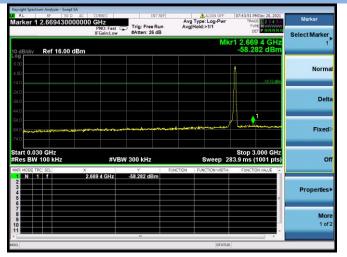
802.11n-20 CHANNEL 10, SPURIOUS 30 MHz ~ 3 GHz

arker 1 2.77010000000	CORREC O GHz PNO: Fast	Trig: Free Run		e: Log-Pwr	07:40:55 PM Dec 20, 2021 TRACE 2 2 3 4 5 TYPE MWWWWW DET P NN NN N	Marker
	IFGain:Low	#Atten: 26 dB		Mkr	1 2.770 1 GHz -58.303 dBm	Select Marker
dB/div Ref 16.00 dBm 99 00 00 00 4.0 00					-13.31 (Em	Norma
1.0						Delt
10 40	narryan y Esty autopean	ter angle the based at his matching	and the strength of the	mund	1 Lorenze de la competitione	Fixed
art 0.030 GHz Res BW 100 kHz R MODE TRC SCL X				Sweep 28:	Stop 3.000 GHz 3.9 ms (1001 pts)	o
N 1 1 2	770 1 GHz	-58.303 dBm				Properties
8						Mon

802.11n-20 CHANNEL 11 CARRIER LEVE

Peak Search	07:43:22 PM Dec 20, 2021 TRACE 2 3 4 5 0 TYPE MWWWWW DET P N N N N N	ALIGN OFF Type: Log-Pwr Hold:>1/1		Trig: Free Run	DRREC HZ PNO: Fast G FGain:Low	00000000		rker 1
NextPea	2.464 50 GHz 4.883 dBm	Mkr		HARTEN: 20 GD	-Gain:Low	.00 dBm	Ref 16.	dB/div
Next Pk Rig		handrag	monthan	mahayum	hustunti	montw		
Next Pk Le	wannanthating						nomente	0
Marker De								0 0 0
Mkr→C	Span 30.00 MHz 2.880 ms (601 pts) FUNCTION VALUE	Sweep 2	FUNCTIO	300 kHz Y		x		es BW
Mkr→RefL				4.883 dBm	50 GHz	2.464	1 f	N
Mo 1 of								
		STATUS						_

802.11n-20 CHANNEL 11, SPURIOUS 30 MHz ~ 3 GHz



802.11n-20 CHANNEL 10, SPURIOUS

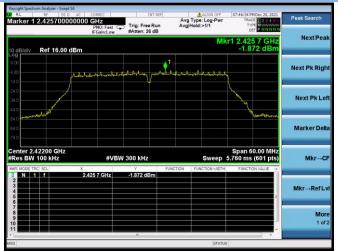


802.11n-20 CHANNEL 11, SPURIOUS 2 GHz ~ 25 GHz

Tegen Starten Augur Fange Starten Sta Avg Type: Log-Pwr Avg Hold:>1/1 Peak Sear NextPea kr1 21.124 50 GH -47.709 dBi Ref 16.00 dBm Next Pk Righ Next Pk Lef •¹ Marker Delt Start 2.00 GHz #Res BW 100 kHz Stop 25.00 GH eep 2.198 s (4001 pt #VBW 300 kHz SI 21.124 50 GHz Mkr→RefLv More 1 of 2



802.11n-40 CHANNEL 3 CARRIER LEVE



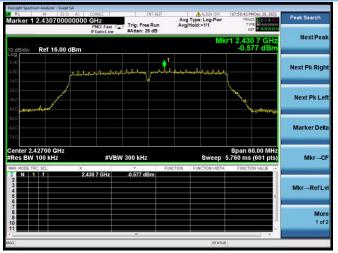
802.11n-40 CHANNEL 3, SPURIOUS 30 MHz ~ 3 GHz

RL RF 50 Q arker 1 2.69894000		Trig: Free Run	Avg Type: Log-Pw Avg Hold:>1/1	TRACE 12345	Marker
	PNO: Fast IFGain:Low	#Atten: 26 dB	Avginoid.> In	DET PNNNN	Select Marker
dB/div Ref 16.00 d	IBm		n N	lkr1 2.698 9 GHz -57.624 dBm	1
°g					
.00				M	Norma
4.0				-21.07 dbm	
4.0					Delt
4.0					
				1	
4.0					i i
4.0 manual indexed of relationships	an second an	ngi inter-aller and a his definition		a Conservation and	Fixed
i4.0 menuntimenutionenteren 14.0	an aite d'airean de la caracter a caracter a caracter a caracter de la caracter de la caracter de la caracter a	ngi inday, shilor, ngh nda di filosofia	ana ang katang katan		Fixed
4 0 .030 GHz		300 kHz		Stop 3.000 GHz 283.9 ms (1001 pts)	
4.0 tart 0.030 GHz Res BW 100 kHz	#VE	BW 300 kHz		Stop 3.000 GHz 283.9 ms (1001 pts)	
4 0 tart 0.030 GHz Res BW 100 kHz RM MODE TRCI SCL 1 N 1 f	#VE		Sweep	Stop 3.000 GHz 283.9 ms (1001 pts)	
4 0 tart 0.030 GHz Res BW 100 kHz RM MODE TRCI SCL 1 N 1 f	#VE	BW 300 kHz	Sweep	Stop 3.000 GHz 283.9 ms (1001 pts)	0
4 0 tart 0.030 GHz Res BW 100 kHz W 100 kHz 1 0 1 1 1 1 2 3 4 5 5	#VE	BW 300 kHz	Sweep	Stop 3.000 GHz 283.9 ms (1001 pts)	0
1	#VE	BW 300 kHz	Sweep	Stop 3.000 GHz 283.9 ms (1001 pts)	OProperties
A 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	#VE	BW 300 kHz	Sweep	Stop 3.000 GHz 283.9 ms (1001 pts)	Fixed Or Properties Mor 1 of

802.11n-40 CHANNEL 3, SPURIOUS 2 GHz ~ 25 GHz

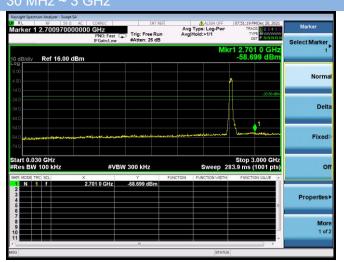


802.11n-40 CHANNEL 4 CARRIER LEVE

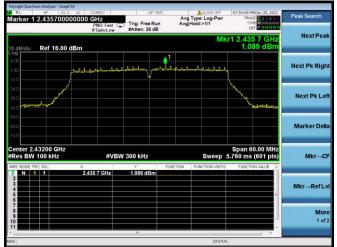




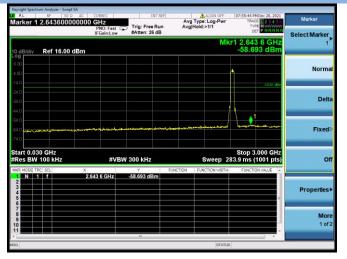
802.11n-40 CHANNEL 4, SPURIOUS 30 MHz ~ 3 GHz



802.11n-40 CHANNEL 5 CARRIER LEVEL



802.11n-40 CHANNEL 5, SPURIOUS 30 MHz ~ 3 GHz



802.11n-40 CHANNEL 4, SPURIOUS



802.11n-40 CHANNEL 5, SPURIOUS

2 GHz ~ 25 GHz

