

FCC REPORT

Certification

Applicant Name:

FRTEK CO., LTD.

Address: 11-25, Simin-daero 327beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, Republic of Korea

Date of Issue:

December 19, 2018

Location of test lab: HCT CO., LTD., 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

Report No.: HCT-RF-1810-FC017-R2

FCC ID:	2AFEG-1900-33		
APPLICANT:	FRTEK CO., LTD.		
Model:	ISO1900-65FRT-01		
EUT Type:	INOVA 2W	INOVA 2W	
Frequency Range:	Band Name Broadband PCS	Downlink (MHz) 1 930 ~ 1 995	
Output Power:	33 dBm		
Date of Test:	September 27, 2018 ~ October 10, 2018		
FCC Rule Parts:	CFR 47 Part 2, Part 24		

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance.

Az.

Report prepared by : A Ram Han Engineer of telecommunication testing center Approved by : Jong Seok Lee Manager of telecommunication testing center

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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-1810-FC017	October 18, 2018	- First Approval Report
HCT-RF-1810-FC017-R1	December 13, 2018	- Change applicant address information
HCT-RF-1810-FC017-R2	December 19, 2018	 Correct reference standard of radiation test diagram Correct input OBW tabular data error Correct EUT frequency band in product information



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1. GENERAL INFORMATION

1.1. APPLICANT INFORMATION

Company Name	FRTEK CO., LTD.
Company Address	1001, Doosan Venture Digm, 415, Heungandaero, Dongan-Gu, Anyang-Si, Gyenggi-do, 431-755 Korea

1.2. PRODUCT INFORMATION

EUT Type	INOVA 2W	
Power Supply	AC 88 ~ 132 V	
Frequency Range	Band Name Broadband PCS	Downlink (MHz) 1 930 ~ 1 995
Tx Output Power	33 dBm	
Antenna Specification	Manufacturer does not provide an antenna.	

1.3. TEST INFORMATION

FCC Rule Parts	CFR 47 Part 2, Part 24
Measurement Standards	KDB 935210 D05 v01r02, ANSI C63.26-2015
Test Location	HCT CO., LTD. 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA



2. FACILITIES AND ACCREDITATIONS

2.1. FACILITIES

The SAC (Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA.

The site is constructed in conformance with the requirements of ANSI C63.4 (Version: 2014) and CISPR Publication 22.

Detailed description of test facility was submitted to the Commission and accepted dated April 02, 2018 (Registration Number: KR0032).

2.2. EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."



3. TEST SPECIFICATIONS

3.1. STANDARDS

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 2 and Part 24.

Description	Reference	Results
AGC threshold	KDB 935210 D05 v01r02 3.2	Compliant
Out-of-band rejection	KDB 935210 D05 v01r02 3.3	Compliant
Input-versus-output signal comparison	§2.1049	Compliant
Mean output power and amplifier/booster gain	§2.1046, §24.232	Compliant
Out-of-band/out-of-block and spurious emissions	§2.1051, §24.238	Compliant
Spurious emissions radiated	§2.1053	Compliant



3.2. ADDITIONAL DESCRIPTIONS ABOUT TEST

Except for the following cases, EUT was tested under normal operating conditions.

: Out-of-band rejection test requires maximum gain condition without AGC.

The test was generally based on the method of KDB 935210 D05 v01r02 and only followed ANSI C63.26-2015 if there was no test method in KDB standard.

EUT was tested with following modulated signals provide by applicant.

Band Name	Tested signals
Broadband PCS	WCDMA, LTE 5 MHz, LTE 10 MHz, LTE 15 MHz, LTE 20 MHz

The frequency stability measurement has been omitted in accordance with section 3.7 of KDB 935210 D05 v01r02.

: It can be confirmed through input-versus-output signal comparison test that EUT does not alter the input signal.

The tests results included actual loss value for attenuator and cable combination as shown in the table below. : Input Path

Correction factor table			
Frequency (MHz)	Factor (dB)	Frequency (MHz)	Factor (dB)
1 500	1.793	2 250	2.205
1 550	1.899	2 300	2.215
1 600	1.946	2 350	2.305
1 650	1.907	2 400	2.317
1 700	1.829	2 450	2.247
1 750	1.878	2 500	2.384
1 800	1.865	2 550	2.442
1 850	1.923	2 600	2.496
1 900	1.886	2 650	2.483
1 950	2.031	2 700	2.287
2 000	2.033	2 750	2.427
2 050	1.996	2 800	2.307
2 100	2.100	2 850	2.504
2 150	2.072	2 900	2.466
2 200	2.193		



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: Output Path

Correction factor table			
Frequency (MHz)	Factor (dB)	Frequency (MHz)	Factor (dB)
2	31.154	4 000	33.844
10	30.706	5 000	33.971
30	30.632	6 000	34.270
50	30.615	7 000	34.290
100	30.698	8 000	34.165
200	30.848	9 000	34.791
300	31.205	10 000	37.064
400	31.388	11 000	36.286
500	31.497	12 000	35.465
600	31.613	13 000	35.388
700	31.747	14 000	37.352
800	31.764	15 000	36.335
900	31.792	16 000	36.429
1 000	31.843	17 000	36.201
1 500	32.321	18 000	37.106
1 900	32.458	19 000	38.137
2 000	32.621	20 000	39.472
2 100	32.655	21 000	42.846
2 200	32.741	22 000	45.727
2 300	32.771	23 000	40.024
2 400	32.917	24 000	42.947
2 500	33.016	25 000	43.045
2 600	33.069	26 000	43.172
2 700	32.887	26 500	43.650
3 000	33.301		



3.3. MEASUREMENTUNCERTAINTY

Description	Reference	Results
AGC threshold	-	±0.87 dB
Out-of-band rejection	-	±0.58 MHz
Input-versus-output signal comparison	OBW > 5 MHz	±0.58 MHz
Mean output power and amplifier/booster gain	-	±0.87 dB
Out-of-band/out-of-block and spurious emissions	-	±1.08 dB
Spurious emissions radiated	f ≤ 1 GHz	±4.80 dB
	f > 1 GHz	±6.07 dB

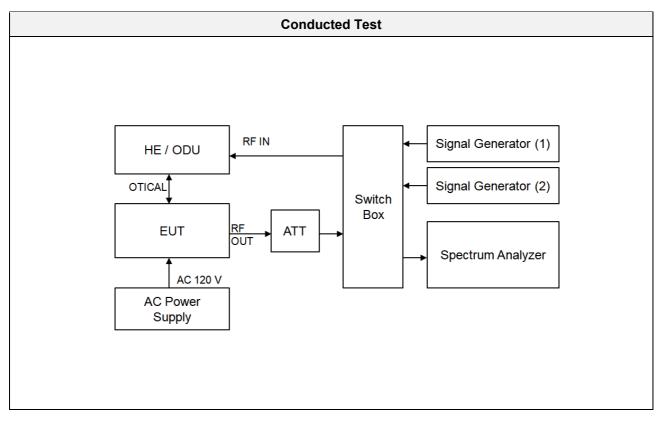
* Coverage factor k = 2, Confidence levels of 95 %

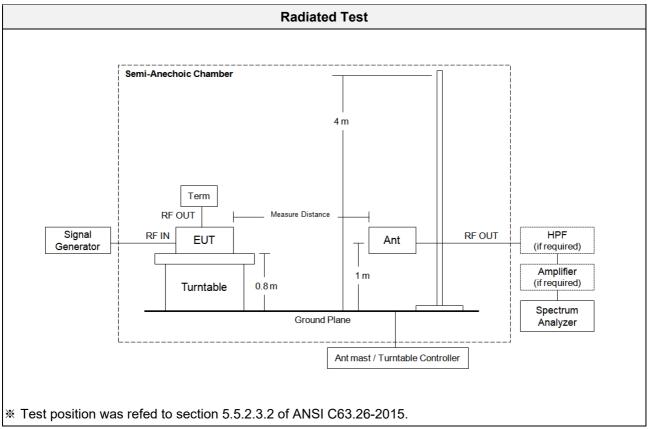
3.4. STANDARDS ENVIRONMENTAL TEST CONDITIONS

Temperature	+15 ℃ to +35 ℃
Relative humidity	30 % to 60 %
Air pressure	860 mbar to 1 060 mbar



3.5. TEST DIAGRAMS







4. TEST EQUIPMENTS

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Agilent	N9020A / Spectrum Analyzer	09/05/2018	Annual	MY46471250
Agilent	N5182A / Signal Generator	08/09/2018	Annual	MY50140312
Agilent	N5182A / Signal Generator	08/30/2018	Annual	MY46240523
Agilent	8498A / Attenuator	09/06/2018	Annual	51162
KEITHLEY	S46 / Switch	N/A	N/A	1088024
Deayoung ENT	DFSS60 / AC Power Supply	04/05/2018	Annual	1003030-1
Innco system	CO3000 / Controller(Antenna mast)	N/A	N/A	CO3000-4p
Innco system	MA4640/800-XP-EP / Antenna Position Tower	N/A	N/A	N/A
Emco	2090 / Controller	N/A	N/A	060520
Ets	- / Turn Table	N/A	N/A	N/A
Rohde&Schwarz	- / Loop Antenna	04/19/2017	Biennial	1513-175
Schwarzbeck	VULB 9168 / Hybrid Antenna	04/06/2017	Biennial	760
Schwarzbeck	BBHA 9120D / Horn Antenna	06/30/2017	Biennial	9120D-1300
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	04/25/2017	Biennial	BBHA9170124
Rohde&Schwarz	FSP / Spectrum Analyzer	09/19/2018	Annual	836650/016
Wainwright Instruments	WHKX10-900-1000-15000-40SS / High Pass Filter	07/20/2018	Annual	5
Wainwright Instruments	WHKX10-2700-3000-18000-40SS / High Pass Filter	07/20/2018	Annual	3
CERNEX	CBLU1183540 / Power Amplifier	01/03/2018	Annual	24613
CERNEX	CBL06185030 / Power Amplifier	01/03/2018	Annual	24615
CERNEX	CBL18265035 / Power Amplifier	01/10/2018	Annual	22966



5. TEST RESULT

5.1. AGC THRESHOLD

Test Requirement:

KDB 935210 D05 v01r02

Testing at and above the AGC threshold is required.

Test Procedures:

Measurements were in accordance with the test methods section 3.2 of KDB 935210 D05 v01r02.

In the case of fiber-optic distribution systems, the RF input port of the equipment under test (EUT) refers to the RF input of the supporting equipment RF to optical convertor; see also descriptions and diagrams for typical DAS booster systems in KDB Publication 935210 D02

Devices intended to be directly connected to an RF source (donor port) only need to be evaluated for any over-the-air transmit paths.

a) Connect a signal generator to the input of the EUT.

b) Connect a spectrum analyzer or power meter to the output of the EUT using appropriate attenuation as necessary.

- c) The signal generator should initially be configured to produce either of the required test signals.
- d) Set the signal generator frequency to the center frequency of the EUT operating band.

e) While monitoring the output power of the EUT, measured using the methods of ANSI C63.26-2015 subclause 5.2.4.4.1, increase the input level until a 1 dB increase in the input signal power no longer causes a 1 dB increase in the output signal power.

f) Record this level as the AGC threshold level.

g) Repeat the procedure with the remaining test signal.

Output power measurement in subclause 5.2.4.4.1 of ANSI C63.26

a) Set span to 2 × to 3 × the OBW.

b) Set RBW = 1% to 5% of the OBW.

- c) Set VBW \ge 3 × RBW.
- d) Set number of measurement points in sweep $\ge 2 \times \text{span} / \text{RBW}$.
- e) Sweep time: auto-couple
- f) Detector = power averaging (rms).

g) If the EUT can be configured to transmit continuously, then set the trigger to free run.

h) Omit

i) Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To



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accurately determine the average power over multiple symbols, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.

j) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function, with the band/channel limits set equal to the OBW band edges. If the instrument does not have a band or channel power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

Test Band	Link	Signal	Center Frequency (MHz)	AGC Threshold Level (dBm)	Output Level (dBm)	
		WCDMA	1 962.50	-20	33.29	
	oadband PCS Downlink	LTE 5M	1 962.50	-20	32.83	
Broadband PCS		nd Downlink	LTE 10M	1 962.50	-20	32.76
		LTE 15M	1 962.50	-20	32.78	
		LTE 20		1 962.50	-20	33.15

Test Results:



5.2. OUT-OF-BAND REJECTION

Test Requirement:

KDB 935210 D05 v01r02

Out-of-band rejection required.

Test Procedures:

Measurements were in accordance with the test methods section 3.3 of KDB 935210 D05 v01r02.

Adjust the internal gain control of the EUT to the maximum gain for which equipment certification is sought.

- a) Connect a signal generator to the input of the EUT.
- b) Configure a swept CW signal with the following parameters:
 - 1) Frequency range = ± 250 % of the passband, for each applicable CMRS band.

2) Level = a sufficient level to affirm that the out-of-band rejection is > 20 dB above the noise floor and will not engage the AGC during the entire sweep.

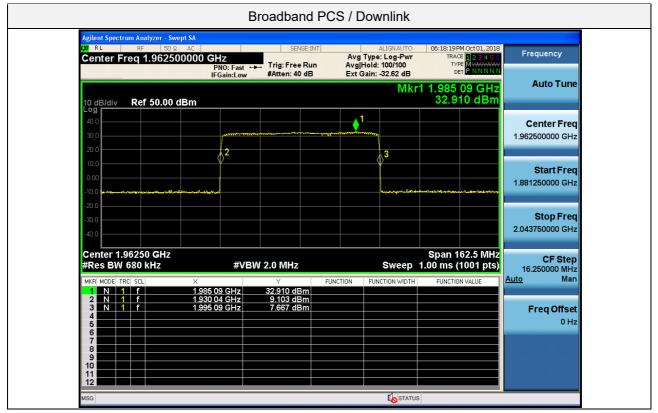
- 3) Dwell time = approximately 10 ms.
- 4) Number of points = SPAN/(RBW/2).
- c) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation.
- d) Set the span of the spectrum analyzer to the same as the frequency range of the signal generator.
- e) Set the resolution bandwidth (RBW) of the spectrum analyzer to be 1 % to 5 % of the EUT passband, and the video bandwidth (VBW) shall be set to \ge 3 × RBW.
- f) Set the detector to Peak Max-Hold and wait for the spectrum analyzer's spectral display to fill.
- g) Place a marker to the peak of the frequency response and record this frequency as $f_{0}. \label{eq:general}$
- h) Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the −20 dB down amplitude, to determine the

20 dB bandwidth.

- i) Capture the frequency response of the EUT.
- j) Repeat for all frequency bands applicable for use by the EUT.



Test Results:





5.3. INPUT-VERSUS-OUTPUT SIGNAL COMPARISON

Test Requirement:

§2.1049 Measurements required: Occupied bandwidth.

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the specified conditions of § 2.1049 (a) through (i) as applicable.

Test Procedures:

Measurements were in accordance with the test methods section 3.4 of KDB 935210 D05 v01r02.

a) Connect a signal generator to the input of the EUT.

b) Configure the signal generator to transmit the AWGN signal.

c) Configure the signal amplitude to be just below the AGC threshold level (see 3.2), but not more than 0.5 dB below.

d) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation.

e) Set the spectrum analyzer center frequency to the center frequency of the operational band under test.

The span range of the spectrum analyzer shall be between 2 times to 5 times the emission bandwidth (EBW) or alternatively, the OBW.

f) The nominal RBW shall be in the range of 1 % to 5 % of the anticipated OBW, and the VBW shall be \ge 3 × RBW.

g) Set the reference level of the instrument as required to preclude the signal from exceeding the maximum spectrum analyzer input mixer level for linear operation. In general, the peak of the spectral envelope must be more than [10 log (OBW / RBW)] below the reference level.

Steps f) and g) may require iteration to enable adjustments within the specified tolerances.

h) The noise floor of the spectrum analyzer at the selected RBW shall be at least 36 dB below the reference level.

i) Set spectrum analyzer detection function to positive peak.

j) Set the trace mode to max hold.

k) Determine the reference value: Allow the trace to stabilize. Set the spectrum analyzer marker to the highest amplitude level of the displayed trace (this is the reference value) and record the associated frequency as f_0 .

I) Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the -26 dB down amplitude. The 26 dB EBW (alternatively OBW) is the positive frequency difference between the two markers. If the spectral envelope crosses the -26 dB down amplitude at multiple points, the lowest or highest frequency shall be selected as the frequencies that are the furthest removed from the center frequency at which the spectral envelope crosses the -26 dB down amplitude point.



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m) Repeat steps e) to I) with the input signal connected directly to the spectrum analyzer (i.e., input signal measurement).

n) Compare the spectral plot of the input signal (determined from step m) to the output signal (determined from step I) to affirm that they are similar (in passband and rolloff characteristic features and relative spectral locations), and include plot(s) and descriptions in test report.

o) Repeat the procedure [steps e) to n)] with the input signal amplitude set to 3 dB above the AGC threshold.

- p) Repeat steps e) to o) with the signal generator set to the narrowband signal.
- q) Repeat steps e) to p) for all frequency bands authorized for use by the EUT.



Test Results:

Tabular data of Output Occupied Bandwidth

Test awBand	Link	Signal	Center Frequency (MHz)	99 % OBW (MHz)	26 dB OBW (MHz)
		WCDMA	1 962.50	4.038 3	4.511
		LTE 5M	1 962.50	4.497 1	4.925
Broadband PCS	Downlink	LTE 10M	1 962.50	8.961 2	9.643
		LTE 15M	1 962.50	13.470	14.27
		LTE 20M	1 962.50	17.878	18.83

Tabular data of Input Occupied Bandwidth

Test Band	Link	Signal	Center Frequency (MHz)	99 % OBW (MHz)	26 dB OBW (MHz)
		WCDMA	1 962.50	4.170 9	4.687
	Broadband PCS Downlink	LTE 5M	1 962.50	4.518 0	5.025
		LTE 10M	1 962.50	9.010 6	9.906
		LTE 15M	1 962.50	13.542	14.80
		LTE 20M	1 962.50	17.932	19.80

Tabular data of 3 dB above the AGC threshold Output Occupied Bandwidth

Test Band	Link	Signal	Center Frequency (MHz)	99 % OBW (MHz)	26 dB OBW (MHz)
		WCDMA	1 962.50	4.031 5	4.503
		LTE 5M	1 962.50	4.494 6	4.892
Broadband PCS	Downlink	LTE 10M	1 962.50	8.981 9	9.610
	LTE 15M	1 962.50	13.484	14.29	
		LTE 20M	1 962.50	17.825	18.86



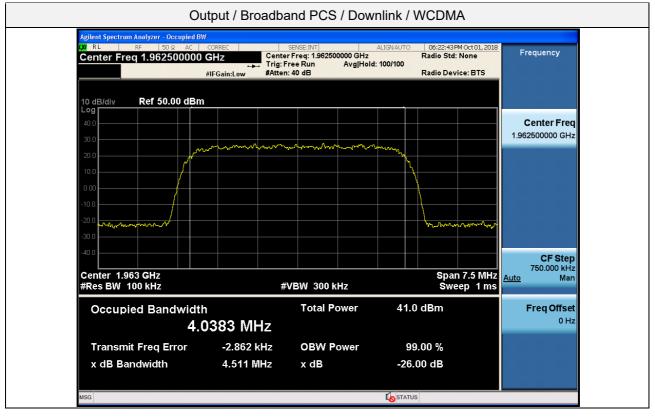
Measured Occupied Bandwidth Comparison

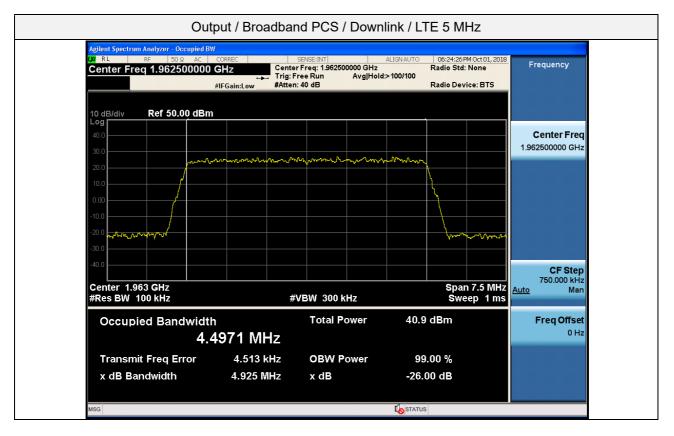
Test Band	Link	Signal	Variant of Input and output Occupied Bandwidth (%)	Variant of Input and 3 dB above the AGC threshold output Occupied Bandwidth (%)
		WCDMA	-3.755	-3.926
		LTE 5M	-2.404	-2.821
Broadband PCS Downlink	LTE 10M	-3.168	-4.070	
		LTE 15M	-3.369	-4.380
		LTE 20M	-4.137	-4.339

* Change in input-output OBW is less than ± 5 %.

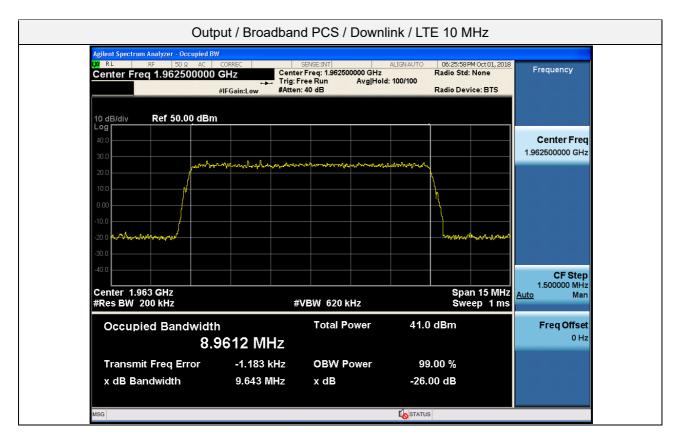


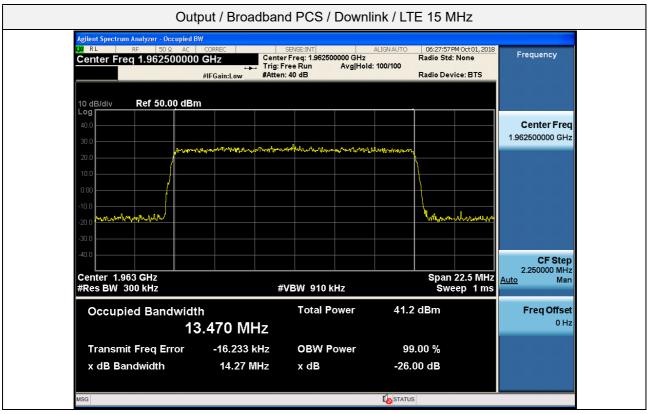
Plot data of Occupied Bandwidth



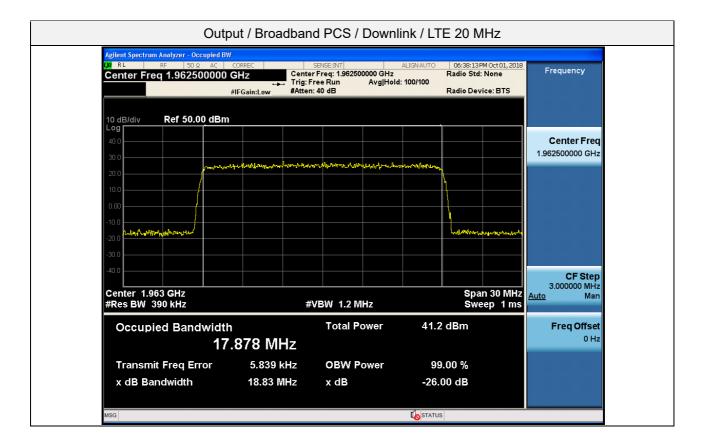




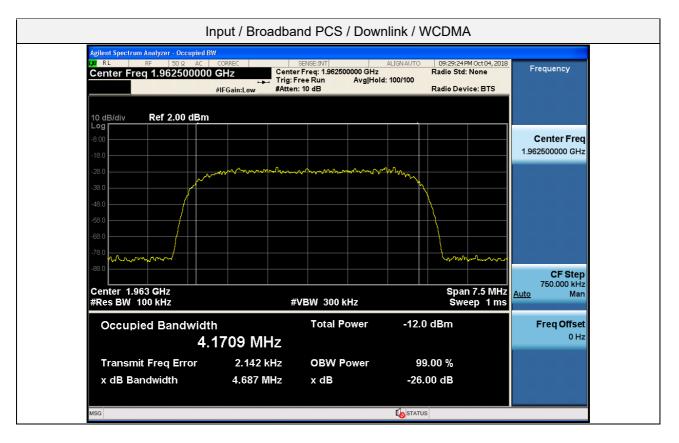


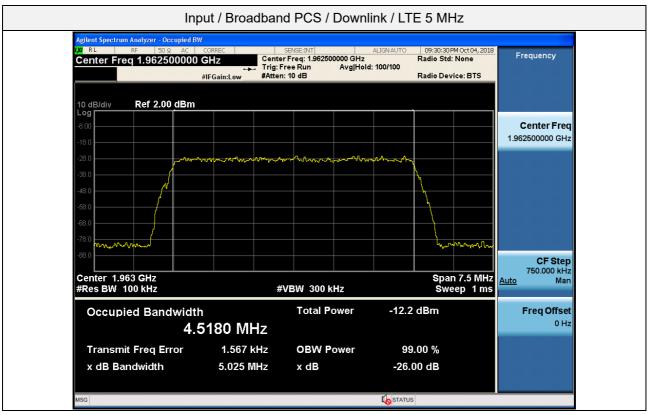




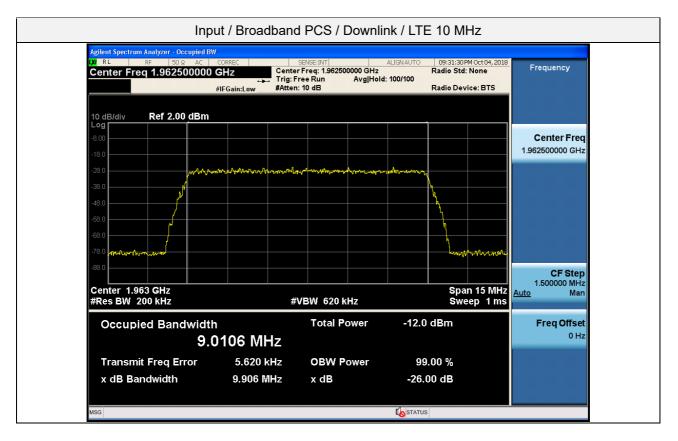


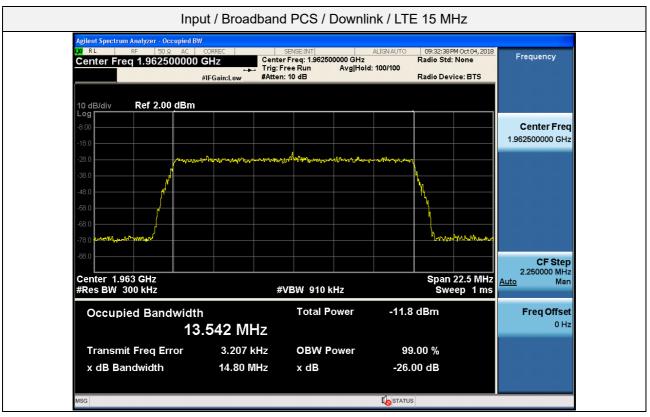




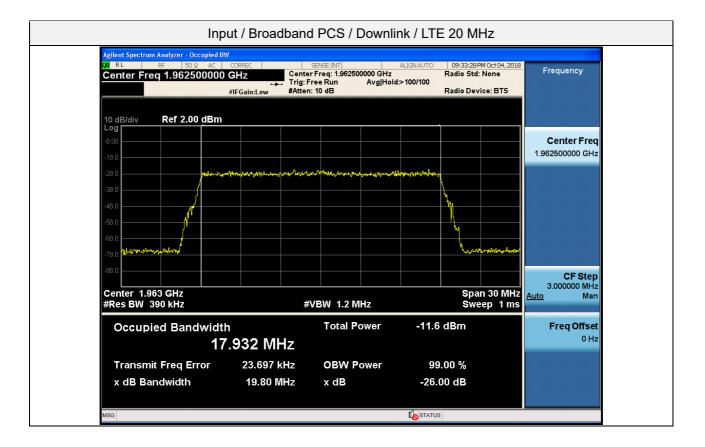






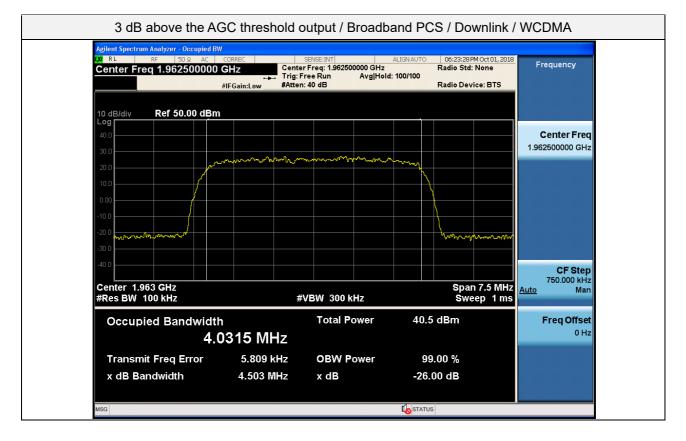


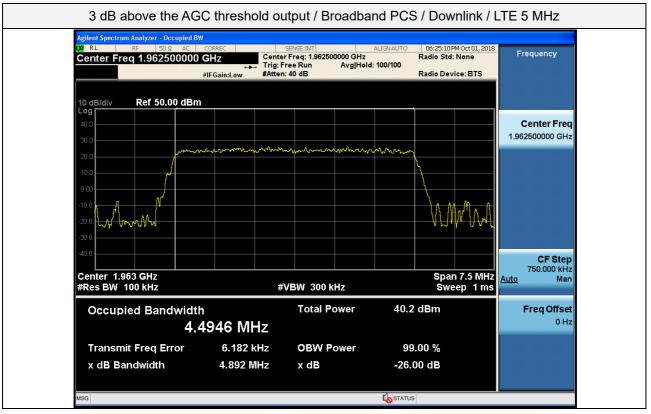




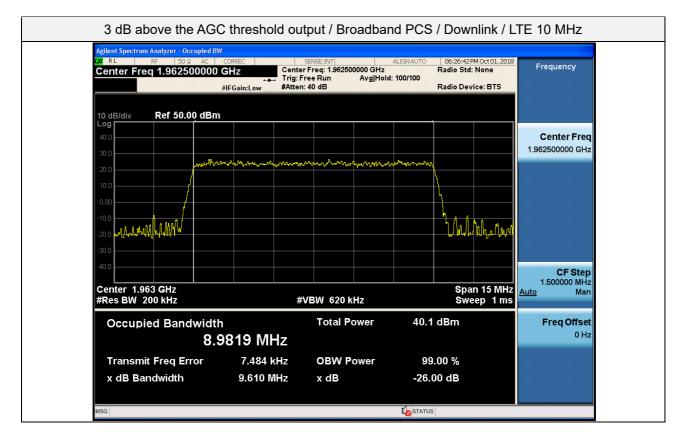


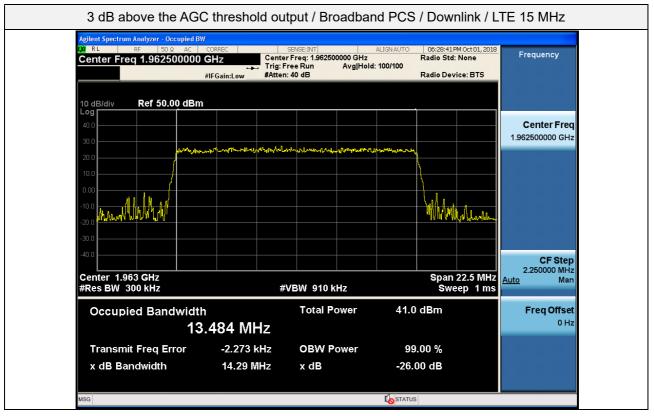




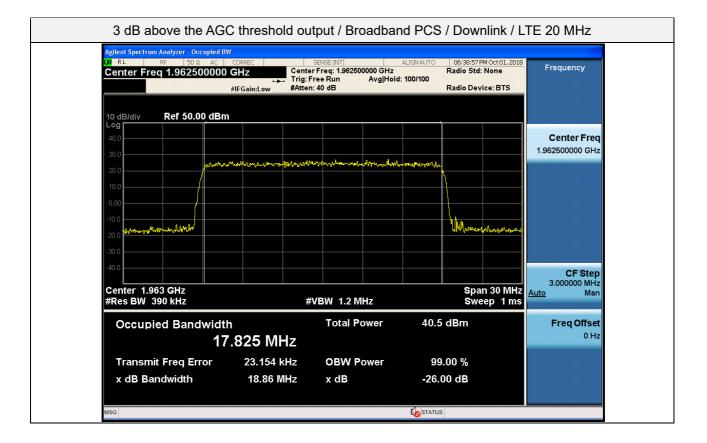














5.4. MEAN OUTPUT POWER AND AMPLIFIER/BOOSTER GAIN

Test Requirement:

§2.1046 Measurements required: RF power output.

(a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in §2.1033(c)(8). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

(b) For single sideband, independent sideband, and single channel, controlled carrier radiotelephone transmitters the procedure specified in paragraph (a) of this section shall be employed and, in addition, the transmitter shall be modulated during the test as specified and applicable in § 2.1046 (b) (1-5). In all tests, the input level of the modulating signal shall be such as to develop rated peak envelope power or carrier power, as appropriate, for the transmitter.

(c) For measurements conducted pursuant to paragraphs (a) and (b) of this section, all calculations and methods used by the applicant for determining carrier power or peak envelope power, as appropriate, on the basis of measured power in the radio frequency load attached to the transmitter output terminals shall be shown. Under the test conditions specified, no components of the emission spectrum shall exceed the limits specified in the applicable rule parts as necessary for meeting occupied bandwidth or emission limitations.

§24.232 Power and antenna height limits.

(2) Base stations with an emission bandwidth greater than 1 MHz are limited to 1640 watts/MHz equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below.

(3) Base station antenna heights may exceed 300 meters HAAT with a corresponding reduction in power; see Tables 2 of this section.

Table 2-Reduced Power for Base Station Antenna Heights Over 300 Meters, With Emission Bandwidth

HAAT in meters	Maximum EIRP (watts/MHz)
≤300	1640
≤500	1070
≤1000	490
≤1500	270
≤2000	160

Greater Than 1 MHz

(2) Base stations that are located in counties with population densities of 100 persons or fewer per square mile, based upon the most recently available population statistics from the Bureau of the Census, with an emission bandwidth greater than 1 MHz are limited to 3280 watts/MHz equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT.



(3) Base station antenna heights may exceed 300 meters HAAT with a corresponding reduction in power; see Tables 4 of this section.

Table 4—Reduced Power for Base Station Antenna Heights Over 300 Meters, With Emission Bandwidth

HAAT in meters	Maximum EIRP (watts/MHz)
≤300	3280
≤500	2140
≤1000	980
≤1500	540
≤2000	320

Greater Than 1 MHz

(d) Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

(e) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

Test Procedures:

Measurements were in accordance with the test methods section 3.5 of KDB 935210 D05 v01r02.

Adjust the internal gain control of the EUT to the maximum gain for which the equipment certification is being sought. Any EUT attenuation settings shall be set to their minimum value.

Input power levels (uplink and downlink) should be set to maximum input ratings while confirming that the device is not capable of operating in saturation (non-linear mode) at the rated input levels, including during the performance of the input/output power measurements.

3.5.2 Measuring the EUT mean input and output power

- a) Connect a signal generator to the input of the EUT.
- b) Configure to generate the test signal.

c) The frequency of the signal generator shall be set to the frequency f_0 as determined from out-of-band rejection test.

d) Connect a spectrum analyzer or power meter to the output of the EUT using appropriate attenuation as necessary.

e) Set the signal generator output power to a level that produces an EUT output level that is just below the AGC threshold, but not more than 0.5 dB below.

f) Measure and record the output power of the EUT; use ANSI C63.26-2015 subclause 5.2.4.4.1, for



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power measurement.

g) Remove the EUT from the measurement setup. Using the same signal generator settings, repeat the power measurement at the signal generator port, which was used as the input signal to the EUT, and record as the input power. EUT gain may be calculated as described in 3.5.5.

- h) Repeat steps f) and g) with input signal amplitude set to 3 dB above the AGC threshold level.
- i) Repeat steps e) to h) with the narrowband test signal.
- j) Repeat steps e) to i) for all frequency bands authorized for use by the EUT.
- 3.5.5 Calculating amplifier, repeater, or industrial booster gain

After the input and output power levels have been measured as described in the preceding subclauses, the gain of the EUT can be determined from:

Gain (dB) = output power (dBm) – input power (dBm).

Report the gain for each authorized operating frequency band, and each test signal stimulus.

Note1. If f_0 that determined from out-of-band test is smaller or greater than difference of test signal's center frequency and operation band block, test is performed at the lowest or the highest frequency that test signals can be passed.



Test Results:

Tabular data of Input / Output Power and Gain

Test Band	Link	Signal	f ₀ Frequency (MHz)	Input Power (dBm)	Output Power (dBm)	Gain (dB)
		WCDMA	1 985.09	-19.61	34.01	53.62
		LTE 5M	1 985.09	-19.75	33.05	52.80
Broadband PCS	Downlink	LTE 10M	1 985.09	-19.74	33.00	52.74
	LTE 15M	1 985.09	-19.69	32.88	52.57	
		LTE 20M	1 985.00	-19.66	33.88	53.54

Tabular data of Input / 3 dB above AGC threshold Output Power and Gain

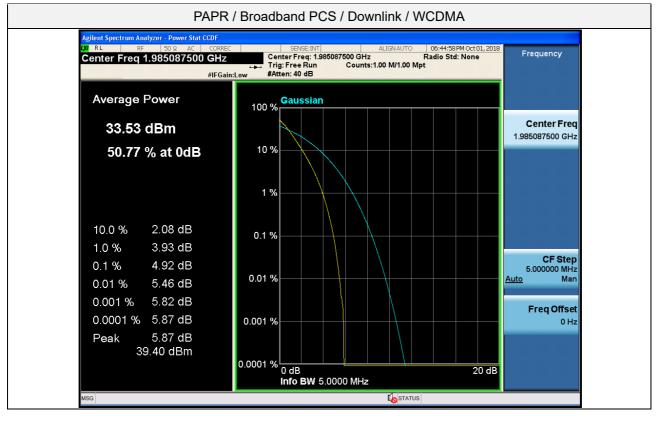
Test Band	Link	Signal	f ₀ Frequency (MHz)	Input Power (dBm)	+3 dB Output Power (dBm)	Gain (dB)
		WCDMA	1 985.09	-19.61	32.34	51.95
		LTE 5M	1 985.09	-19.75	32.45	52.20
Broadband PCS	Downlink	LTE 10M	1 985.09	-19.74	32.46	52.20
	LTE 15M	1 985.09	-19.69	32.34	52.03	
		LTE 20M	1 985.00	-19.66	32.14	51.80

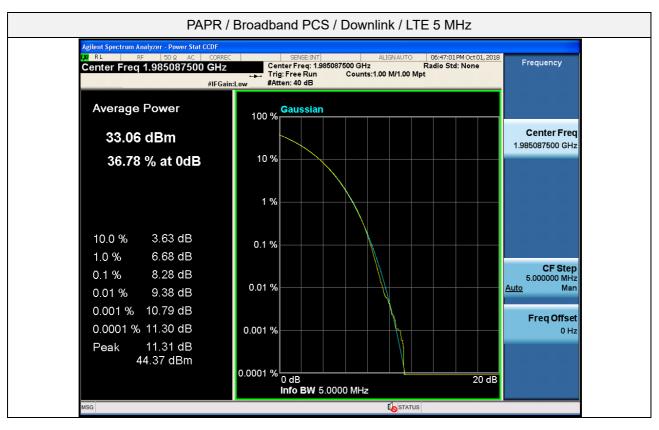
Tabular data of PAPR

Test Band	Link	Signal	f ₀ Frequency (MHz)	0.1 % PAPR (dB)
		WCDMA	1 985.09	4.92
		LTE 5M	1 985.09	8.28
Broadband PCS	Downlink	LTE 10M	1 985.09	8.34
	LTE 15M	1 985.09	8.41	
		LTE 20M	1 985.00	8.41



Plot data of PAPR

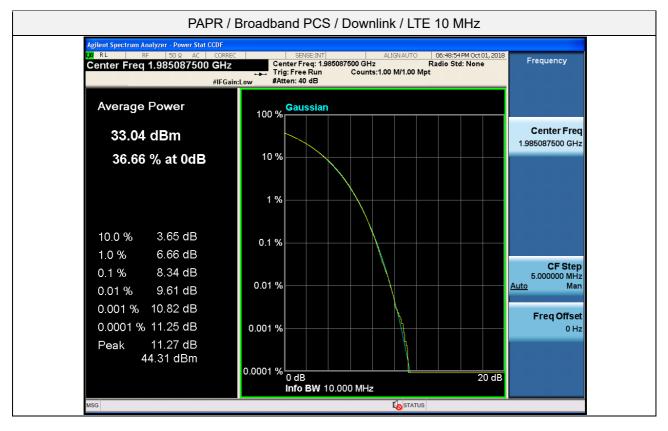


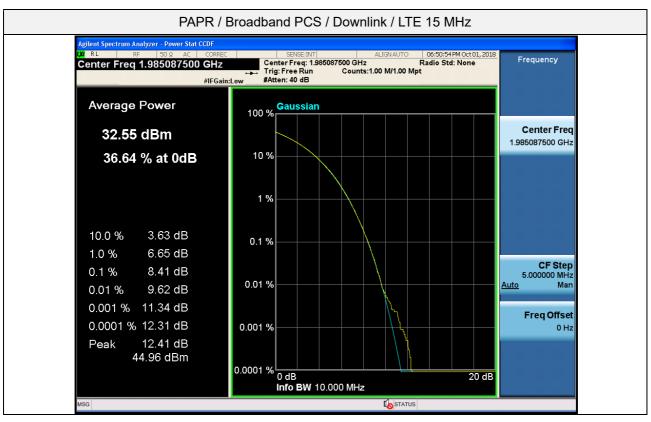




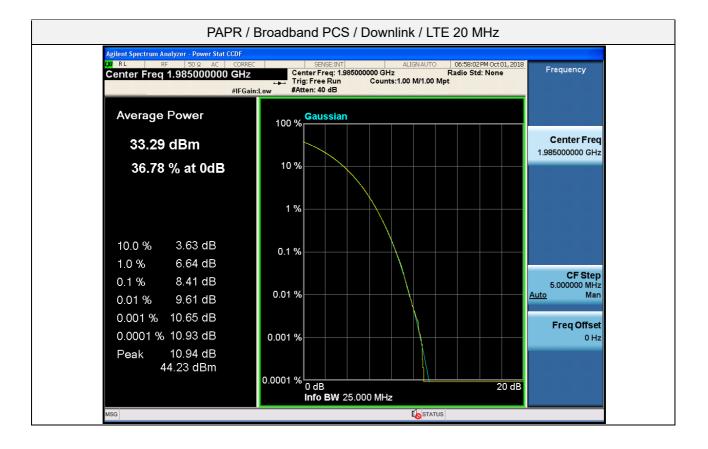


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5.5. OUT-OF-BAND/OUT-OF-BLOCK EMISSIONS AND SPURIOUS EMISSIONS

Test Requirements:

§2.1051 Measurements required: Spurious emissions at antenna terminals.

The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in §2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

§24.238 Emission limitations for Broadband PCS equipment.

The rules in this section govern the spectral characteristics of emissions in the Broadband Personal Communications Service.

(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.
(b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

Test Procedures:

Measurements were in accordance with the test methods section 3.6 of KDB 935210 D05 v01r02.

Spurious emissions shall be measured using a single test signal sequentially tuned to the low, middle, and high channels or frequencies within each authorized frequency band of operation.

Out-of-band/out-of-block emissions (including intermodulation products) shall be measured under each of the following two stimulus conditions:

- a) two adjacent test signals sequentially tuned to the lower and upper frequency band/block edges;
- *b)* a single test signal, sequentially tuned to the lowest and highest frequencies or channels within the frequency band/block under examination.

NOTE—Single-channel boosters that cannot accommodate two simultaneous signals within the passband may be excluded from the test stipulated in step a).



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3.6.2 Out-of-band/out-of-block emissions conducted measurements

a) Connect a signal generator to the input of the EUT.

If the signal generator is not capable of generating two modulated carriers simultaneously, then two discrete signal generators can be connected with an appropriate combining network to support this two-signal test.

b) Set the signal generator to produce two AWGN signals as previously described.

c) Set the center frequencies such that the AWGN signals occupy adjacent channels, as defined by industry standards such as 3GPP or 3GPP2, at the upper edge of the frequency band or block under test.
d) Set the composite power levels such that the input signal is just below the AGC threshold, but not more than 0.5 dB below. The composite power can be measured using the procedures provided in KDB Publication 971168, but it will be necessary to expand the power integration bandwidth so as to include both of the transmit channels.

e) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation as necessary.

f) Set the RBW = reference bandwidth in the applicable rule section for the supported frequency band.

g) Set the VBW = $3 \times RBW$.

h) Set the detector to power averaging (rms) detector.

i) Set the Sweep time = auto-couple.

j) Set the spectrum analyzer start frequency to the upper block edge frequency, and the stop frequency to the upper block edge frequency plus 300 kHz or 3 MHz, for frequencies below and above 1 GHz, respectively.

k) Trace average at least 100 traces in power averaging (rms) mode.

I) Use the marker function to find the maximum power level.

m) Capture the spectrum analyzer trace of the power level for inclusion in the test report.

n) Repeat steps k) to m) with the composite input power level set to 3 dB above the AGC threshold.

o) Reset the frequencies of the input signals to the lower edge of the frequency block or band under test.

p) Reset the spectrum analyzer start frequency to the lower block edge frequency minus 300 kHz or 3 MHz, for frequencies below and above 1 GHz, respectively, and the stop frequency to the lower band or block edge frequency.

q) Repeat steps k) to n).

r) Repeat steps a) to q) with the signal generator configured for a single test signal tuned as close as possible to the block edges.

s) Repeat steps a) to r) with the narrowband test signal.

t) Repeat steps a) to s) for all authorized frequency bands or blocks used by the EUT.

3.6.3 Spurious emissions conducted measurements

a) Connect a signal generator to the input of the EUT.

b) Set the signal generator to produce the broadband test signal as previously described.

c) Set the center frequency of the test signal to the lowest available channel within the frequency band or



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block.

d) Set the EUT input power to a level that is just below the AGC threshold, but not more than 0.5 dB below.

e) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation as necessary.

f) Set the RBW = reference bandwidth in the applicable rule section for the supported frequency band of operation.

g) Set the VBW \geq 3 × RBW.

h) Set the Sweep time = auto-couple.

i) Set the spectrum analyzer start frequency to the lowest RF signal generated in the equipment, without going below 9 kHz, and the stop frequency to the lower band/block edge frequency minus 1 MHz. The number of measurement points in each sweep must be \geq (2 × span/RBW), which may require that the measurement range defined by the start and stop frequencies be subdivided, depending on the available number of measurement points provided by the spectrum analyzer.

j) Select the power averaging (rms) detector function.

k) Trace average at least 10 traces in power averaging (rms) mode.

I) Use the peak marker function to identify the highest amplitude level over each measured frequency range. Record the frequency and amplitude and capture a plot for inclusion in the test report.

m) Reset the spectrum analyzer start frequency to the upper band/block edge frequency plus 1 MHz, and the spectrum analyzer stop frequency to 10 times the highest frequency of the fundamental emission. The number of measurement points in each sweep must be \geq (2 × span/RBW), which may require that the measurement range defined by the start and stop frequencies be subdivided, depending on the available number of measurement points provided by the spectrum analyzer.

n) Trace average at least 10 traces in power averaging (rms) mode.

 o) Use the peak marker function to identify the highest amplitude level over each of the measured frequency ranges. Record the frequency and amplitude and capture a plot for inclusion in the test report; also provide tabular data, if required.

p) Repeat steps i) to o) with the input test signals firstly tuned to a middle band/block frequency/channel, and then tuned to a high band/block frequency/channel.

q) Repeat steps b) to p) with the narrowband test signal.

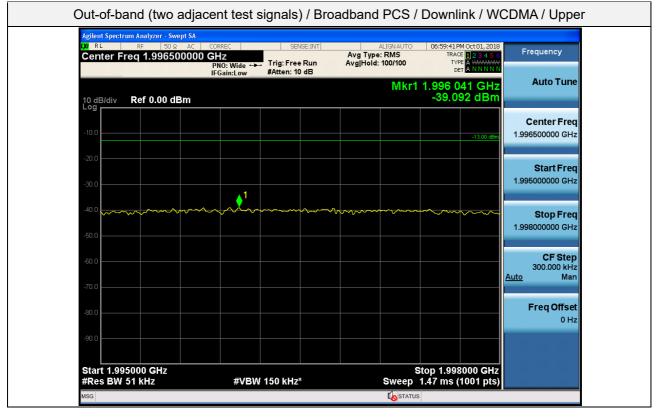
r) Repeat steps b) to q) for all authorized frequency bands/blocks used by the EUT.

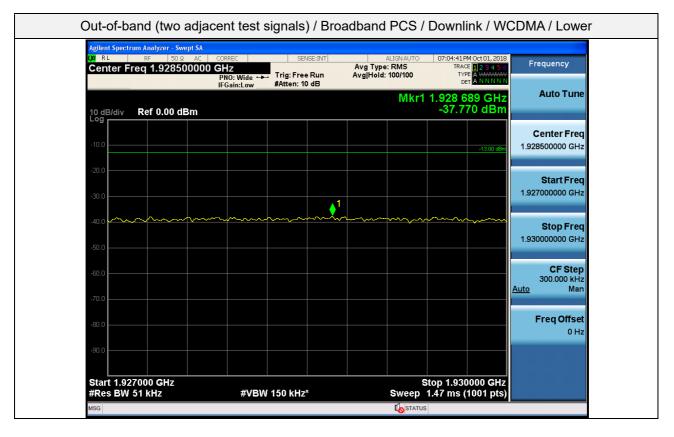
Note1. In 9 kHz-150 kHz and 150 kHz-30 MHz bands, RBW was reduced to 0.1 % and 1 % of the reference bandwidth for measuring unwanted emission level (typically, 1 MHz if the authorized frequency band is above 1 GHz) and power was integrated.(1% = +30 dB, 10% = +20 dB)



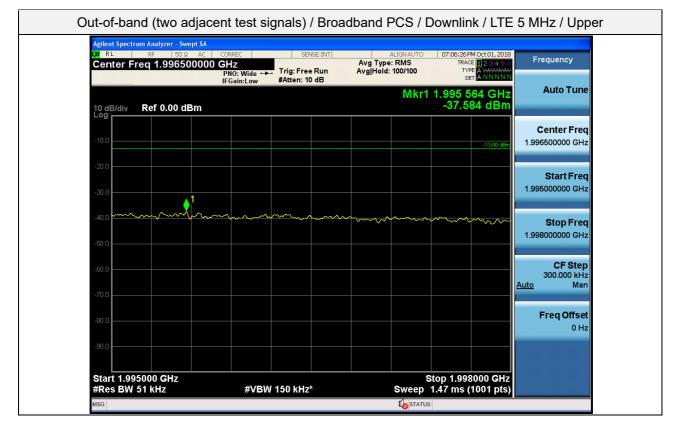
Test Results:

Plot data of Out-of-band/out-of-block emissions



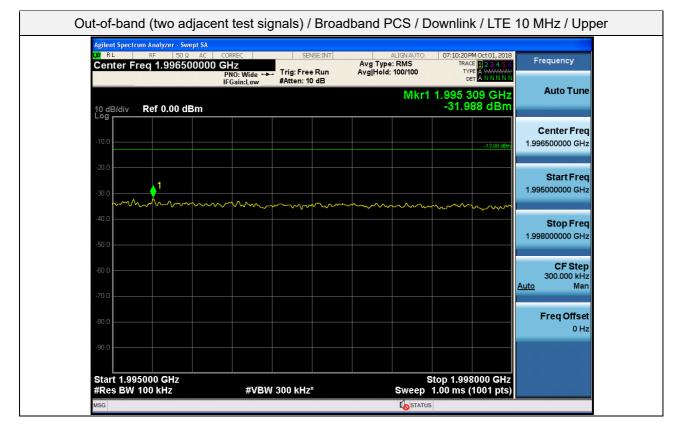






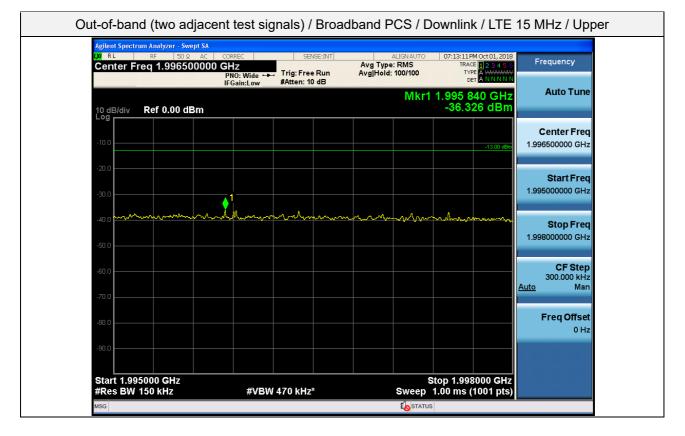
gilent Spectrum Analyzer - Swept SA G RL RF 50 Ω AC	CORREC	SENSE:INT	ALIGNAUTO	07:08:38 PM Oct 01, 2018	
Center Freq 1.928500000 (GHz PNO:Wide ↔ Trig:	Free Run n: 10 dB	Avg Type: RMS Avg Hold: 100/100	TRACE 123456 TYPE A WWWWW DET A N N N N N	Frequency
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10.0				-13.00 dBm	Center Free 1.928500000 GH;
				10,00 dbm	
20.0					Start Fred
30.0				↓ • 1 	1.927000000 GHz
40.0	·····	\sim			
40.0					Stop Fred 1.93000000 GHz
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60.0					CF Step
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00.0					0 Hz
90.0					
Start 1.927000 GHz				Stop 1.930000 GHz	





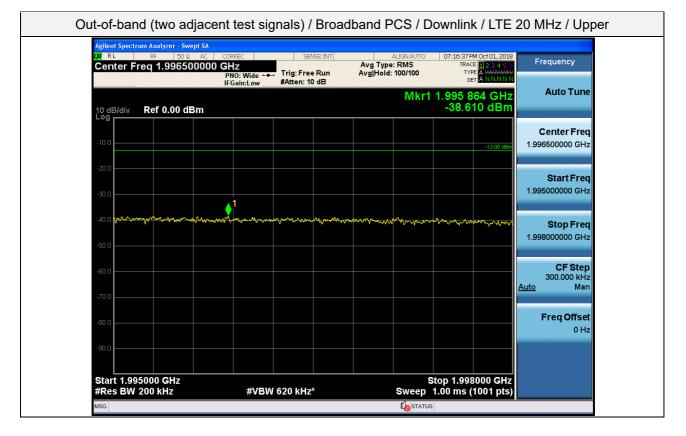
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-80.0			Fr	eq Offse





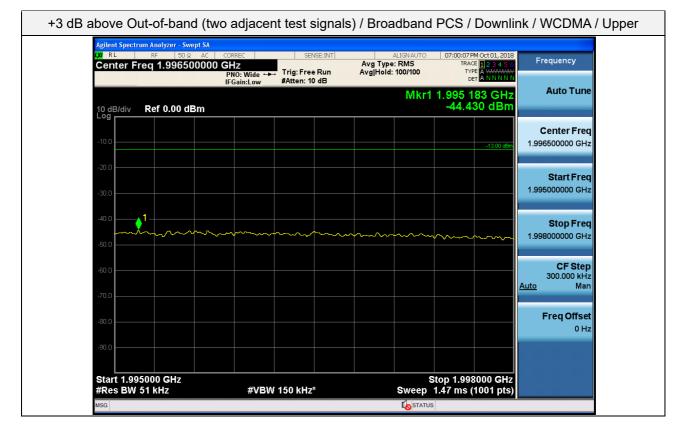
Start 1.927000 GHz #Res BW 150 kHz			Stop 1.930000 GH veep 1.00 ms (1001 pt	
-90.0				
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-70.0				Auto Mar
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-50.0				Stop Fred 1.930000000 GH2
-40.0 mm	m Mu Mary Mary Mary Mary Mary Mary Mary Mary	L.M. M.	-www.www.	
-20.0				Start Fred 1.927000000 GH:
-10.0			-13.00 dł	1.928500000 GH
10 dB/div Ref 0.00 dBm			-36.523 dBr	Center Free
	IFGain:Low #Atten: 10		Mkr1 1.929 667 GH	z Auto Tune
RL RF 50 Ω AC Center Freq 1.928500001		Avg Type: RN		Frequency





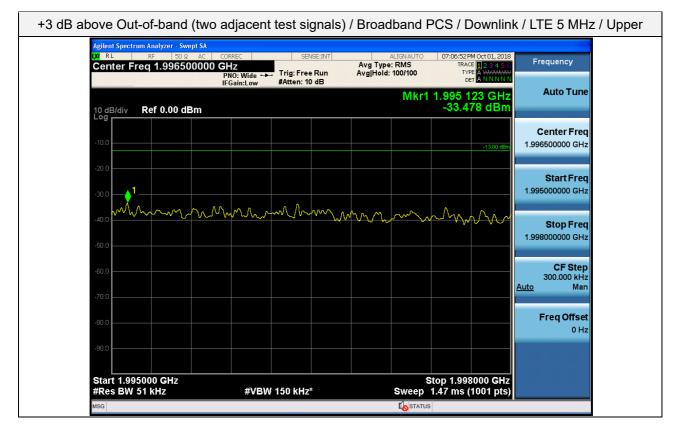
Agilent Spectrum Analyzer - Swept SA LXI RL RF 50 Ω AC			07.40.47.01.0.404.0040	
Center Freq 1.928500000		ALIGNAUTO Avg Type: RMS Avg Hold: 100/100	07:18:17 PM Oct 01, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN	Frequency
10 dB/div Ref 0.00 dBm		Mkr1 1	.929 382 GHz -39.264 dBm	Auto Tune
-10.0			-13.00 dBm	Center Freq 1.928500000 GHz
-20.0				Start Freq 1.927000000 GHz
			waymen and	Stop Freq 1.93000000 GHz
-60.0				CF Step 300.000 kHz
-70.0				uto Man Freq Offset
-90.0				0 Hz
Start 1.927000 GHz #Res BW 200 kHz	#VBW 620 kHz*		p 1.930000 GHz 00 ms (1001 pts)	

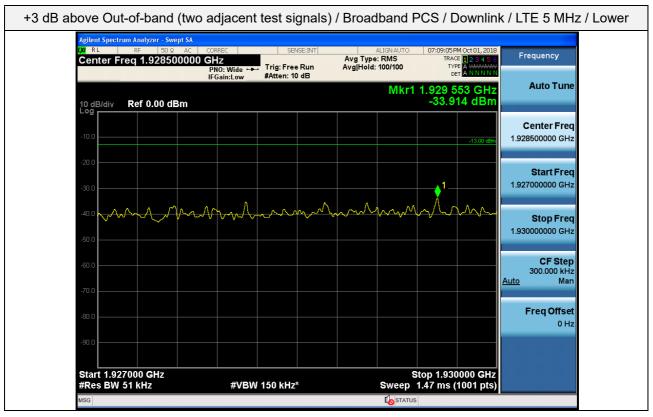




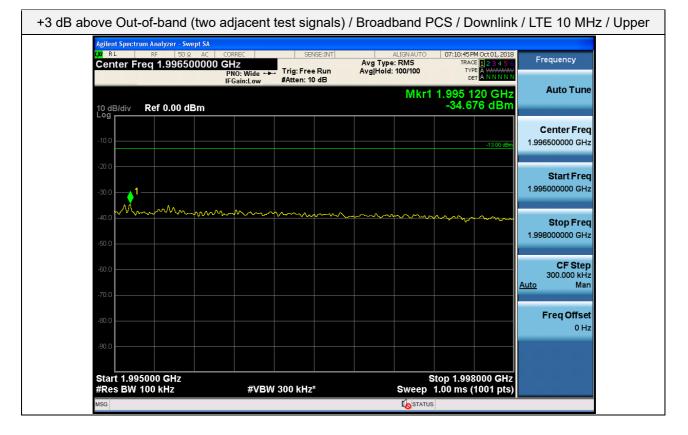
Center Freq 1.92850000	PNO: Wide ↔ IFGain:Low	. Trig: Free Run #Atten: 10 dB	Avg Hold: 100/100	DET A NNNN	
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10 dB/div Ref 0.00 dBm				42.700 abii	
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				-13.00 dBm	
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-90.0					

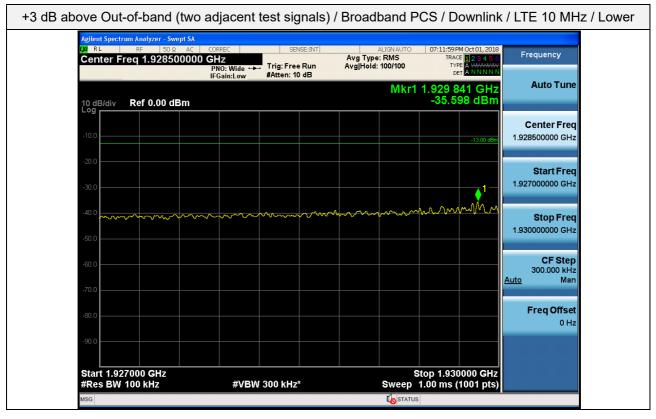




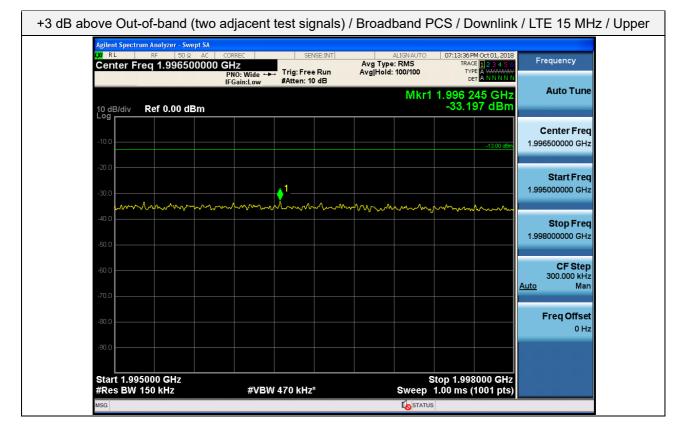


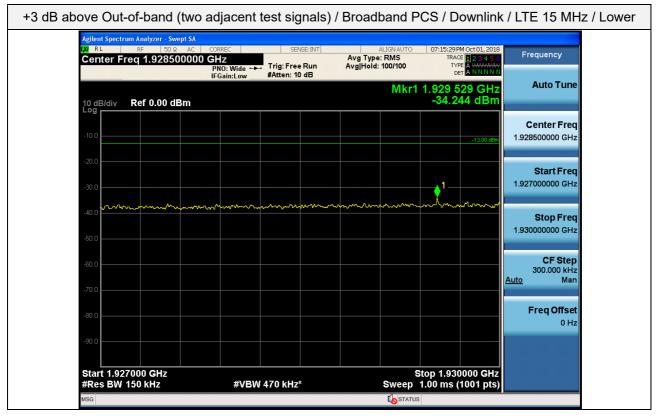




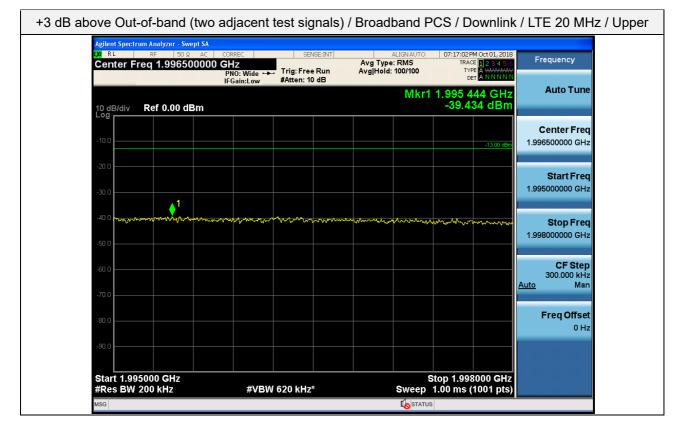






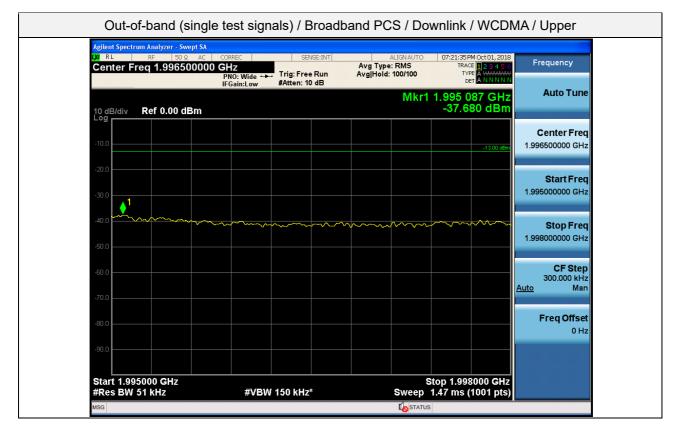






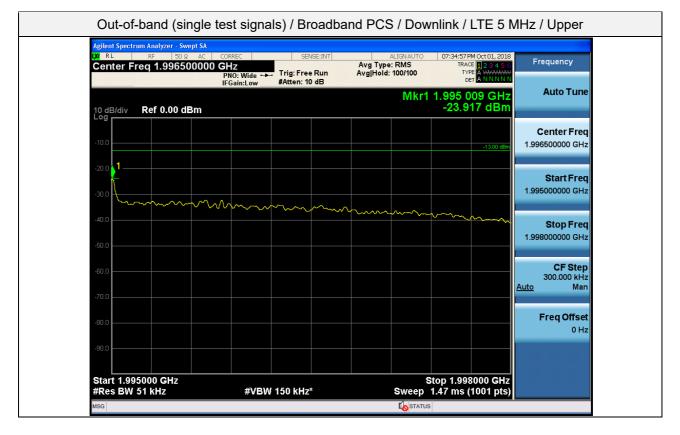
Agilent Spectrum Analyzer - Swept SA					
M RL RF 50Ω AC Center Freq 1.92850000	OGHZ PNO: Wide ↔ Trig:		ALIGNAUTO vg Type: RMS vg Hold: 100/100	07:18:43PM Oct 01, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
10 dB/div Ref 0.00 dBm			Mkr1	1.929 790 GHz -29.568 dBm	Auto Tune
-10.0				-13.00 dBm	Center Freq 1.928500000 GHz
-20.0					Start Freq
-30.0	manna	- Mar Marth	non an	mmm	Stop Freq
-50.0					1.930000000 GHz
-60.0					CF Step 300.000 kHz <u>Auto</u> Man
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Start 1.927000 GHz #Res BW 200 kHz	#VBW 620	/U=*	Sween	top 1.930000 GHz I.00 ms (1001 pts)	





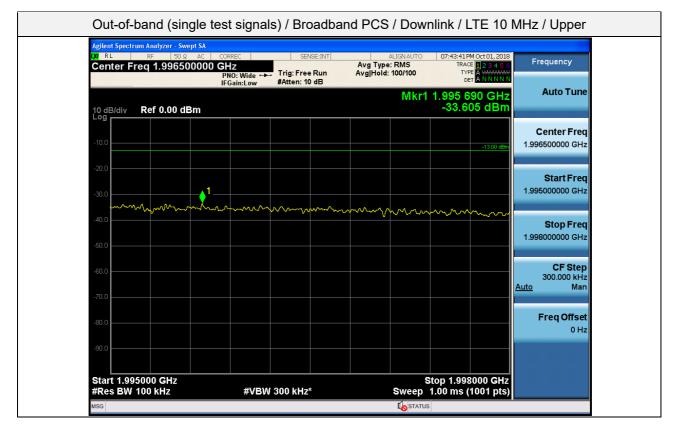
10. dB/div Ref 0.00 dBm -36. 508 dBm -10.0 -36. 508 dBm -36. 508 dBm -10.0 -1300dm -1300dm -20.0 -1300dm -1300dm -30.0 -1300dm -1300dm -30.0 -1300dm -1300dm -30.0 -1300dm -1300dm -30.0 -1300dm -1300dm -40.0 -1300dm -1300dm -40.0 -1300dm -1300dm -40.0 -1300dm -192700000 GH -40.0 -192700000 GH -1927000	Start 1.927000 GHz #Res BW 51 kHz	#VBW 150 kHz*	Steep 1	op 1.930000 GHz 47 ms (1001 pts)	
Center Freq 1.928500000 GHz Trig: Free Run Matten: 10 dB Avg/Hold: 100/100 Trie Company Auto Tune 10 dB/div Ref 0.00 dBm -36.508 dBm -36.508 dBm -36.508 dBm -39.500 dBm 10 dB/div Ref 0.00 dBm -30.00000 -30.00000 -3	-90.0				
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Center Freq 1.928500000 GHz Trig: Free Run #Atten: 10 dB Avg Hole: 100/100 Trie: Comparing the start of the start					CE Sten
Center Freq 1.323500000 GHz Trig: Free Run MAtten: 10 dB Avg/light (dit 10/100) Trig: Free Run Der A MUNNN Auto Tune 10 dB/div Ref 0.00 dBm	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				
Center Freq 1.928500000 GHz Trig: Free Run IFGain:Low Trig: Free Run #Atten: 10 dB Avg type: Ktop Avg(Hold: 100/100 Trig: Gree Run Cert & Kth N N N Cert & Kth N N N 10 dB/div Ref 0.00 dBm -36.508 dBm -36.508 dBm -10.0 -13.00 dbm -13.00 dbm -20.0 -11.00 dBm -13.00 dbm	-40.0				
Center Freq 1.928500000 GPz Trig: Free Run Avg Hold: 100/100 Trig: Gain: Low Auto Tune 10 dB/div Ref 0.00 dBm	-30.0				
Center Freq 1.928500000 GFIZ PRO: Wide	-20.0				
Center Fred 1.328500000 GHz PRO: Wide	-10.0			-13.00 dBm	
PNO: Wide				-36.508 dBm	
Center Free 1.926300000 GHZ http://www.setter.com/area/area/area/area/area/area/area/are		IFGametow weaten. To do	Mkr1 1	.929 955 GHz	Auto Tune
	Center Freq 1.92850000	PNO: Wide 🛶 Trig: Free Run		TRACE 123456 TYPE A WWWWW DET A N N N N N	Frequency





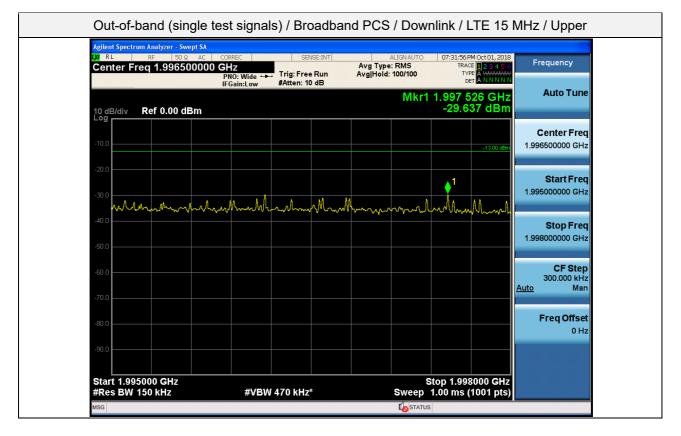
gilent Spectrum Analyzer - Swept SA					
e RL RF 50Ω AC Center Freq 1.928500000	GH ₇	ree Run A	ALIGN AUTO Avg Type: RMS wg Hold: 100/100	07:41:03 PM Oct 01, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
0 dB/div Ref 0.00 dBm	IFGain:Low wattern		Mkr1	1.930 000 GHz -22.637 dBm	
-og					Center Free
10.0				-13.00 dBm	1.928500000 GHz
20.0	A				Start Free 1.927000000 GH;
40.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				
50.0					Stop Fred 1.93000000 GHz
60.0					CF Step
70.0					300.000 kHz <u>Auto</u> Man
80.0					Freq Offset
90.0					0 Hz
				Stop 1.930000 GHz	





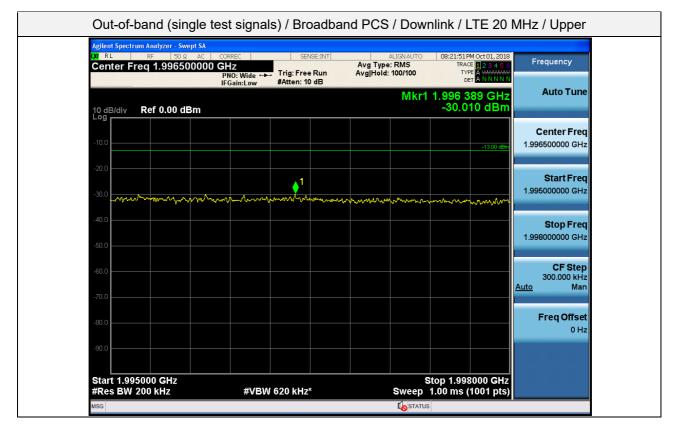
<mark>Agilent Spectrum Analyzer - Swept SA LXI RL RF 50 Ω AC CO</mark>	DRREC SENSE:INT	ALIGNAUTO	08:20:11PM Oct 01, 2018	
Center Freq 1.928500000 G	Hz NO: Wide 🛶 Trig: Free Run	Avg Type: RMS Avg Hold: 100/100	TRACE 123456	Frequency
	FGain:Low #Atten: 10 dB	Mkr1 1	.929 220 GHz	Auto Tune
10 dB/div Ref 0.00 dBm			-29.302 dBm	
				Center Freq
-10.0			-13.00 dBm	1.928500000 GHz
-20.0				
-30.0				Start Freq 1.927000000 GHz
······································	· · · · · · · · · · · · · · · · · · ·	have a second of the second of	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
-40.0				Stop Freq
-50.0				1.930000000 GHz
-60.0				CF Step
				300.000 kHz <u>Auto</u> Man
-70.0				
-80.0				Freq Offset 0 Hz
-90.0				
Start 1.927000 GHz #Res BW 100 kHz	#VBW 300 kHz*	Sto	p 1.930000 GHz 00 ms (1001 pts)	





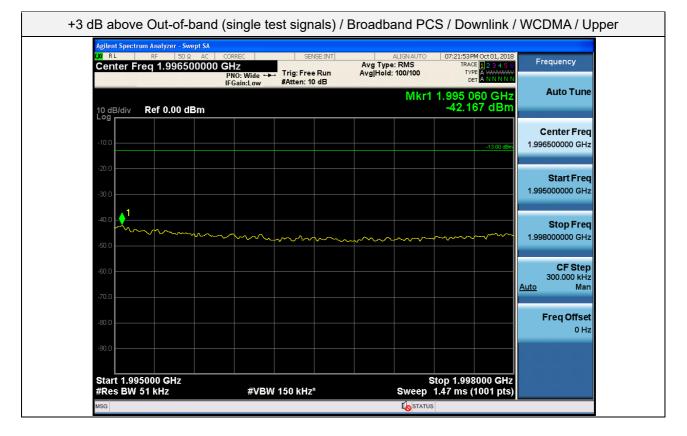
Agilent Spectrum Analyzer - Swept SA XI R L RF 50 Ω AC CORRE	C SENSE:INT	ALIGNAUTO	07:33:24 PM Oct 01, 2018	
Center Freq 1.928500000 GHz		Avg Type: RMS Avg Hold: 100/100	TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
10 dB/div Ref 0.00 dBm		Mkr1	1.929 514 GHz -28.039 dBm	Auto Tune
				Conton From
-10.0			-13.00 dBm	Center Freq 1.928500000 GHz
-20.0				
			♦ ¹	Start Freq
-30.0 mm mm mm mm mm	Mark marked	mar hand and have a	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1.927000000 GHz
-40.0				Stop Freq
-50.0				1.930000000 GHz
				CF Step
-60.0				300.000 kHz Auto Man
-70.0				Auto Mari
-80.0				Freq Offset
				0 Hz
-90.0				
Start 1.927000 GHz			top 1.930000 GHz	

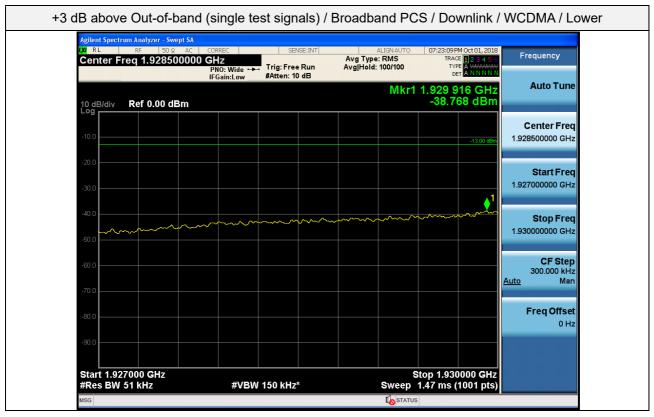




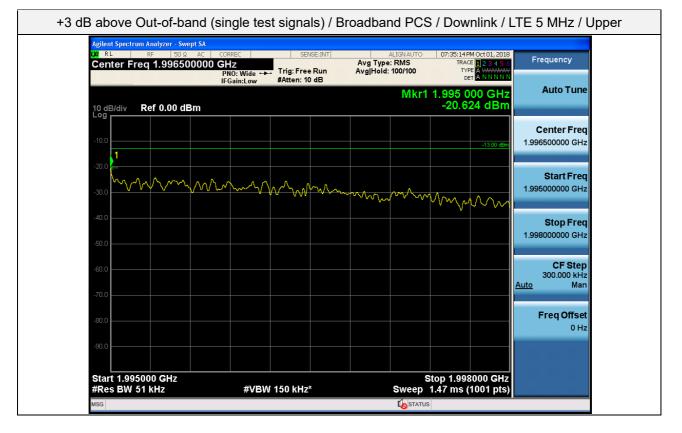
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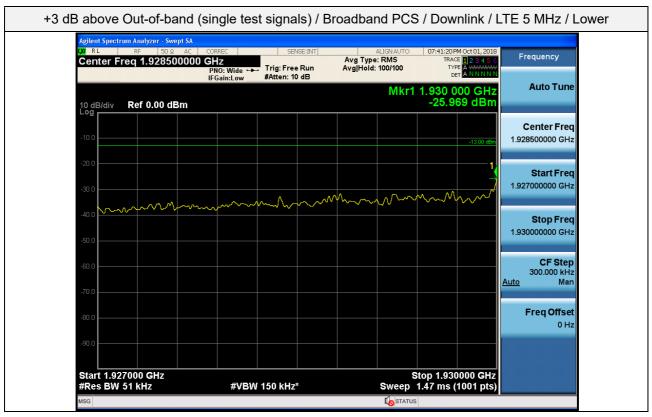




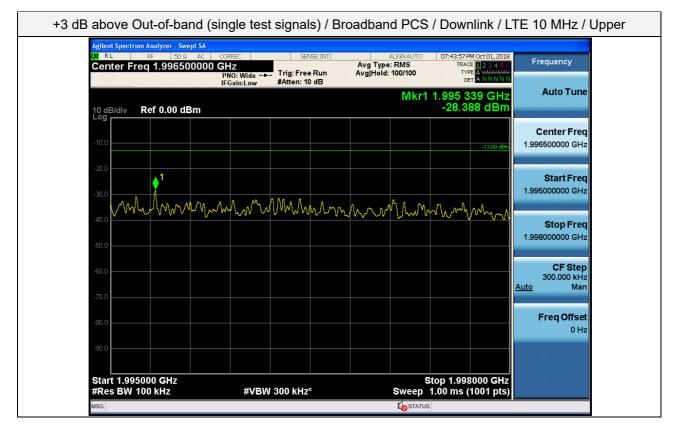






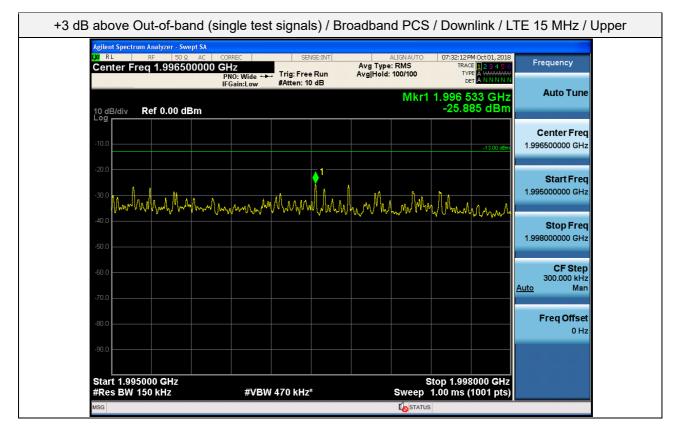


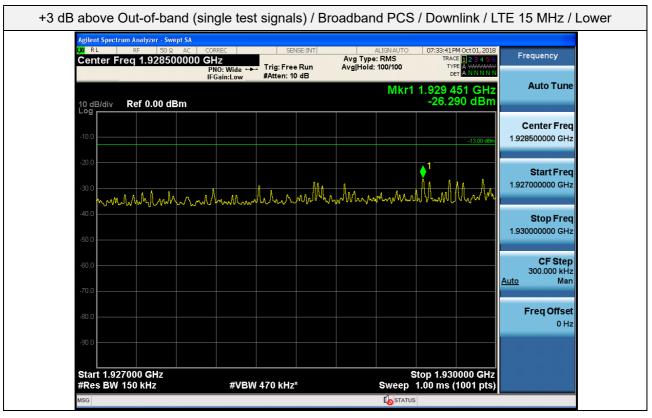




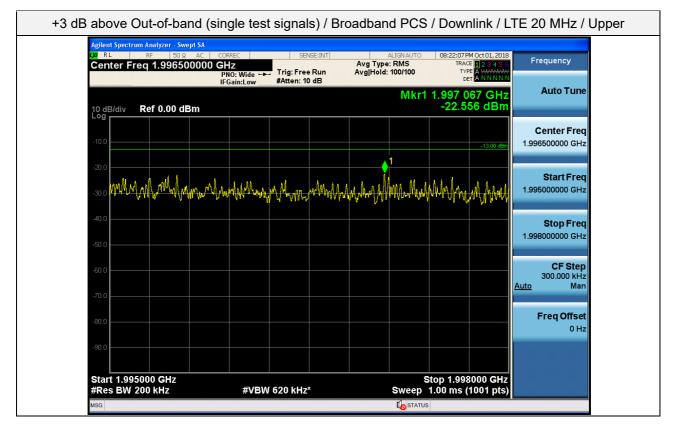
Agilent Spectrum Analyzer - Swept S IXI RL RF 50 Ω AG		SENSE:IN	Т	ALIGNAUTO	08:20:27 PM Oct 01, 2018	
Center Freq 1.9285000		Trig: Free Rur	Avg Type	e: RMS	TRACE 123456	Frequency
	IFGain:Low	#Atten: 10 dB		Mket 1	DET A NN NN N	Auto Tune
10 dB/div Ref 0.00 dBm				IVINIT	-29.947 dBm	
						Center Fred
-10.0					-13.00 dBm	1.928500000 GHz
-20.0						
-30.0					∮ 1	Start Freq 1.927000000 GHz
Manna	mmm	mm	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m	man	
-40.0						Stop Freq
-50.0						1.930000000 GHz
-60.0						CF Step
						300.000 kHz <u>Auto</u> Man
-70.0						
-80.0						Freq Offset 0 Hz
-90.0						
Start 1.927000 GHz					op 1.930000 GHz .00 ms (1001 pts)	







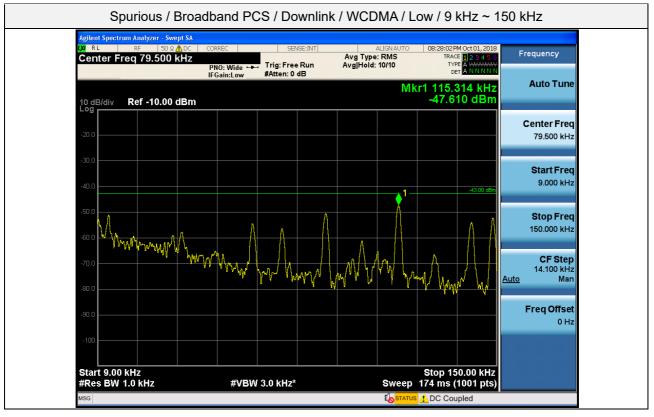




Agilent Spectrum Analyzer - Swept SA W RL RF 50 Ω AC	CORREC SENSE:INT	ALIGN AUTO	08:23:54 PM Oct 01, 2018	
Center Freq 1.928500000	GHz PNO: Wide ↔ Trig: Free Run	Avg Type: RMS Avg Hold: 100/100	TRACE 123456	Frequency
	IFGain:Low #Atten: 10 dB	Mkrt 1	929 925 GHz	Auto Tune
10 dB/div Ref 0.00 dBm		WINT I.	-29.408 dBm	
				Center Freq
-10.0			-13.00 dBm	.928500000 GHz
-20.0				
-30.0			! .	Start Freq 927000000 GHz.
m home man home	- www.man	www.www.	with	
-40.0				Stop Freq
-50.0				I.930000000 GHz
-60.0				CF Step
			Au	300.000 kHz <u>to</u> Man
-70.0				
-80.0				Freq Offset 0 Hz
-90.0				0 H2
-33.0				
Start 1.927000 GHz		Stor	p 1.930000 GHz	



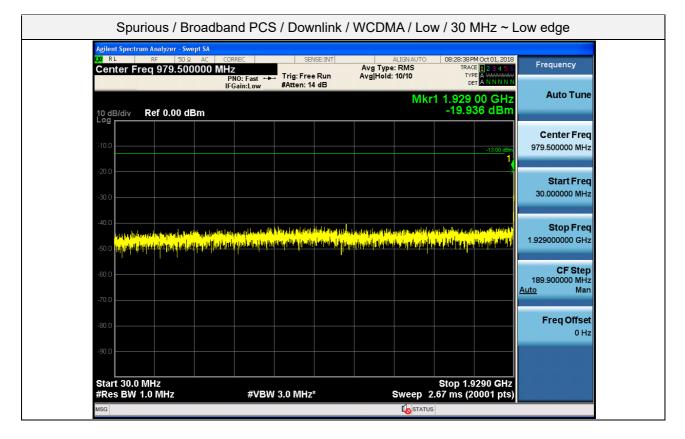
Plot data of Spurious Emissions

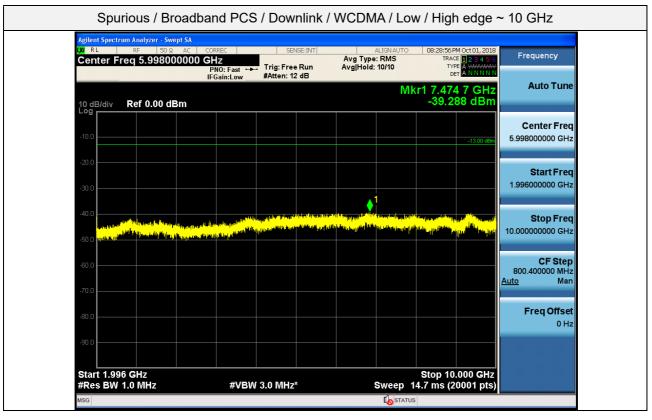


Agilent Spectrum Analyzer - Swept SA LXV RL RF 50 Ω ⚠️DC	CORREC SENSE:	INT ALIGN AUTO	08:28:22 PM Oct 01. 2018	
Center Freq 15.075000 Mł		Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
	IFGain:Low #Atten: 10 dl			Auto Tune
10 dB/div Ref 0.00 dBm			Mkr1 598 kHz -37.619 dBm	
Log				Center Freq
-10.0				15.075000 MHz
-20.0				
-20.0				Start Freq
-30.0			-33.00 dBm	150.000 kHz
-40.0				
				Stop Freq 30.000000 MHz
-50.0				
-60.0				CF Step
		den hijd by dhe kate hillion (the group of the element)		2.985000 MHz <u>Auto</u> Man
-70.0	a la construction de la constructio Construction de la construction de l	a parta a parta da mandra da m Antes da mandra da man		
-80.0				Freq Offset 0 Hz
-90.0				0 H2
-30.0				
Start 150 kHz			Stop 30.00 MHz	



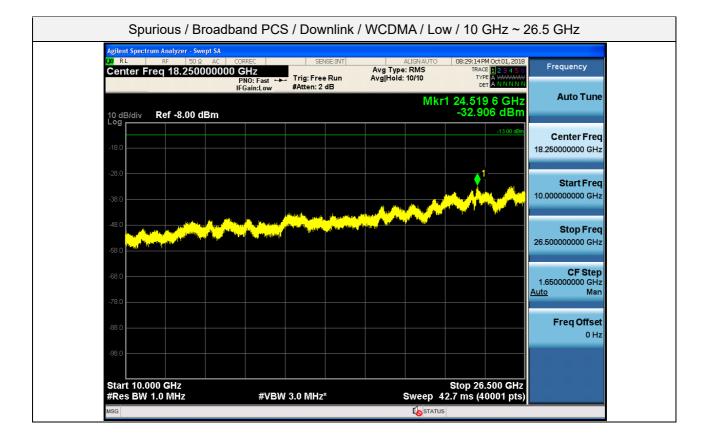




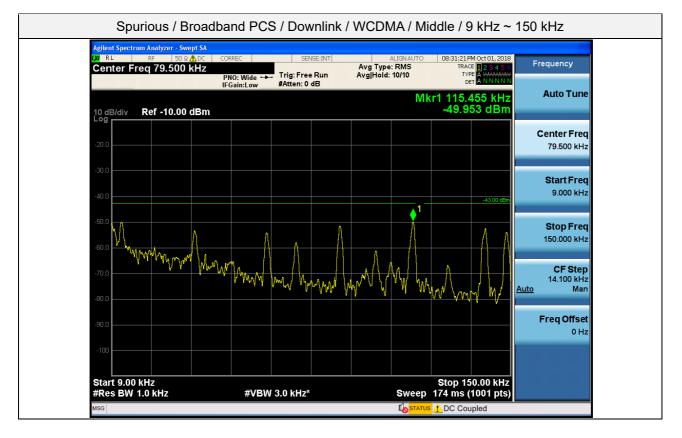




Report No.: HCT-RF-1810-FC017-R2

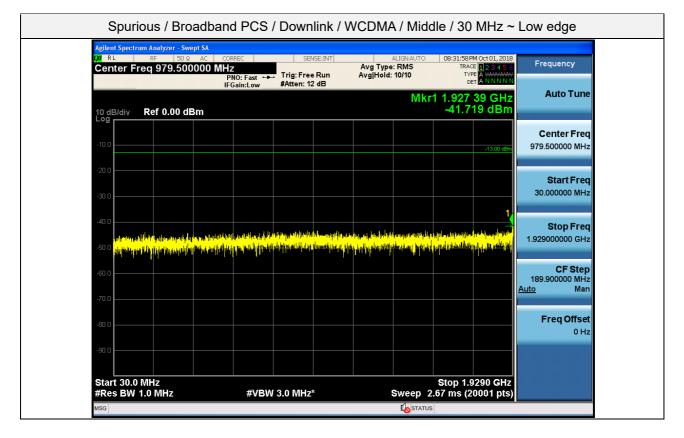






RL RF 50ΩADC	CORREC SEN	ISE:INT	LIGNAUTO C	18:31:41 PM Oct 01, 2018	_
enter Freq 15.075000 M	PNO: Fast +++ Trig: Free		: RMS 10/10	TRACE 123456 TYPE A WWWWW DET A N N N N N	Frequency
	IFGain:Low #Atten: 10	IdB	N	1kr1 593 kHz	Auto Tune
dB/div Ref 0.00 dBm				-37.007 dBm	
3					Center Freq
).0					15.075000 MHz
).0					
					Start Freq 150.000 kHz
1.0 1				-33.00 dBm	
.0					Stop Freq
					30.000000 MHz
					CF Step
					2.985000 MHz
	od pridina della si kanalatina dana darahatin Kanalari dalam dalam darahatina darahatina darahatina darahatina darahatina darahatina darahatina darahatina da	a titu ta la dia ang kana da ang kana kana kana kana kana kana kana	de la	anders and all the field of the street	<u>Auto</u> mun
).0					Freq Offset
					0 Hz
).0					
art 150 kHz				Stop 30.00 MHz	
	WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW	er Man tal All Maren Versen Hersten Marsen Versten Versen Versen Versen versen versen versen versen versen vers Versen versen		stop 30.00 MHz 8 ms (6001 pts)	<u>Auto</u>

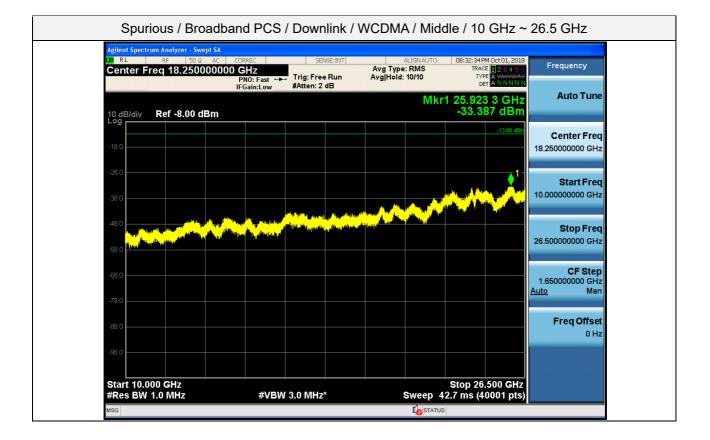




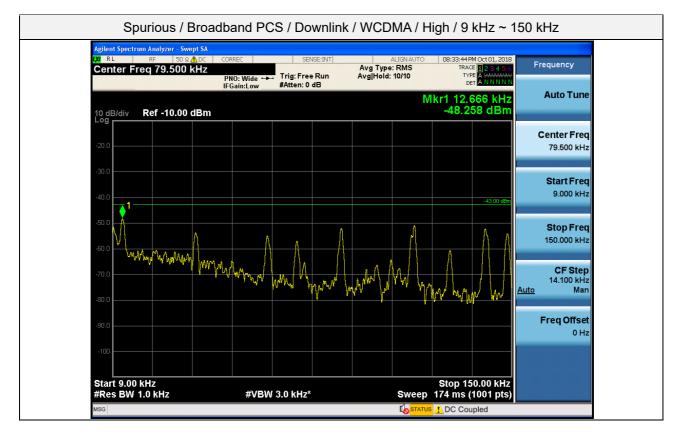
In dB/div Ref 0.00 dBm -39.131 dBm -00 -39.131 dBm -39.131 dBm -00 -1300 dBm -1300 dBm -200 -11 -1300 dBm -200 -11 -1300 dBm -200 -11 -11 -200 -11 -11 -200 -11 -11 -200 -11 -11 -200 -11 -11 -200 -11 -11 -200 -11 -11 -200 -11 -11	Start 1.996 GHz #Res BW 1.0 MHz	#VBW 3.0 M	Hz*		op 10.000 GHz ns (20001 pts)	
DX RL RF SD 9. AC CORREC SENSEINT Augration D8:32:15m ort01, 2018 Frequency Center Freq 5,998000000 GHz PN0: Fast +	-90.0					
ON RL RF SD 2 AC CORREC SENSE:INT ALIGNAUTO D8:32:15PM Oct01, 2018 Frequency Center Freq 5.998000000 GHz PR0: Fsat to the sense of						0 Hz
OX RL RF 50.0 AC CORREC SENSE:INT ALIGNAUTO 08:32:15PM Oct01, 2018 Frequency Center Freq 5.998000000 GHz PN0: Fast	.80.0					Freq Offset
ON RL RF SD 2 AC CORREC SENSE:INT ALIGNAUTO 08:32:15 PM Oct01, 2018 Frequency Center Freq 5.998000000 GHz PN0: Fast the provide the control of the cont	-70.0					
VX RL RF 50.9 AC CORREC SENSE:INT ALIGNAUTO 08:32:15PM Oct01, 2019 Frequency Center Freq 5.998000000 GHz PN0: Fast + Trig: Free Run Avg Type: RMS TRACE IP 2:34.5 G Auto Tune 10 dB/div Ref 0.00 dBm Avg Type: RMS TRACE IP 2:34.5 G Auto Tune 10 dB/div Ref 0.00 dBm Auto Tune	-60.0					
Image: Non-State index Serve: Inter Augnauto 08:32:15PM Oct01, 2019 Frequency Center Freq 5.998000000 GHz PN0: Fast	-50.0	a <u>kunstaan an </u>	ing section and indefinition and and the independent of a section of the section of t	^{tel in} The state of a line of the state of	alidentary and the second s	10.00000000 GHz
Avg Type: RMS TRACE III 2 3 4 5 6 Center Freq 5.998000000 GHz Avg Type: RMS TRACE III 2 3 4 5 6 PN0: Fast Trig: Free Run Avg Type: RMS TRACE III 2 3 4 5 6 Mkr1 9.514 6 GHz Mkr1 9.514 6 GHz Auto Tune 10 dB/div Ref 0.00 dBm	-40.0	and the second				Stop Freq
Dr. RE S0.9 AC CORREC SENSE:INT ALIGNAUTO D8:32:15 PM Oct 01, 2018 Frequency Center Freq 5.998000000 CHz PNO: Fast	-30.0					1.996000000 GHz
DX RL RF 50.Ω AC CORREC SENSE:INT ALIGN AUTO D8:32:15PM Oct01, 2018 Center Freq 5.998000000 GHz PN0: Fast → IFGain:Low Trig: Free Run #Atten: 12 dB Avg Type: RMS Avg Hold: 10/10 TRACE III 2:34.55 Frequency 10 dB/div Ref 0.00 dBm	-20.0					Start Freq
W RL RF 50 Ω AC CORREC SENSE:INT ALIGN AUTO DB:32:15PM Oct01, 2019 Center Freq 5.998000000 GHz PN0: Fast Trig: Free Run IFGain: Low Avg Type: RMS #Atten: 12 dB Trige: RMS Avg Hold: 10/10 Trige: RMS Type: RMS Avg Hold: 10/10 Trige: RMS Type: RMS Avg Hold: 10/10 Trige: Frequency Mkr1 9.514 6 GHz -39.131 dBm Auto Tune	-10.0				-13.00 dBm	5.998000000 GHz
Aug Na RL RF 50 Ω AC CORREC SENSE:INT ALIGNAUTO 08:32:15PM Oct01, 2019 Center Freq 5.998000000 GHz Avg Type: RMS TRACE Image: RMS TRACE Image: RMS Trace PN0: Fast Frequency Avg Type: RMS TVPE TVPE TVPE TVPE Avg Type: RMS TVPE PN0: Fast Frequency #Atten: 12 dB Mkr1 9.514 6 GHz Auto Tune 10 dB/div Ref 0.00 dBm -39.131 dBm	Log					Center Freq
W RL RF 50 Ω AC CORREC SENSE:INT ALIGN AUTO 08:32:15PM Oct01, 2018 Center Freq 5.998000000 GHz Trig: Free Run Avg Type: RMS TRACE II23:456 PN0: Fast → IFGain:Low Trig: Free Run Avg Iylei: RMS Trig: August 10/10 Type: RMS		1				AutoTune
XX RL RF 50 Ω AC CORREC SENSE:INT ALIGN AUTO 08:32:15 PM Oct 01, 2018		PNO: Fast ↔ Trig: F				Auto Turo
	<mark>(X)</mark> RL RF 50Ω /	AC CORREC				Frequency





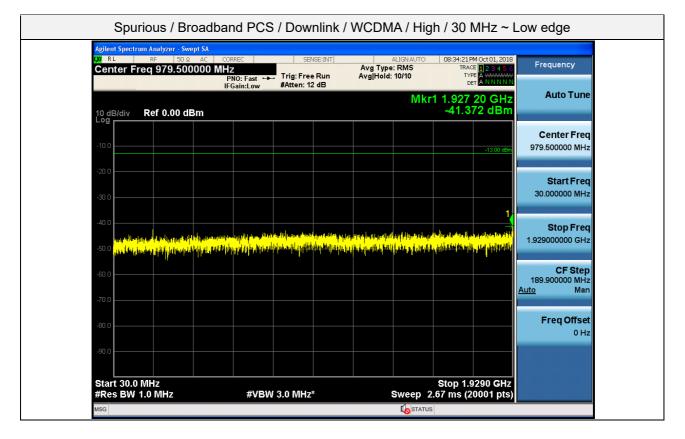






Agilent Spectrum Analyzer Swept SA LX RL RF 50 Ω Δ DC	CORREC	SENSE:INT	81	.IGN AUTO	09:01:430	M Oct 01, 2018	
Center Freq 15.075000 I	MHz PNO: Fast ↔→→→ Trig:	Free Run	Avg Type: I Avg Hold: 1	RMS		E 1 2 3 4 5 6 E A 4 4 4 4 4 5 6 T A N N N N N	Frequency
	IFGain:Low #Atte	n: 10 dB				593 kHz	Auto Tune
10 dB/div Ref 0.00 dBm						06 dBm	
							Center Freq
-10.0							15.075000 MHz
-20.0							Start Freq
-30.0						-33.00 dBm	150.000 kHz
-40.0							
							Stop Freq 30.000000 MHz
-50.0							
-60.0							CF Step 2.985000 MHz
-70.0	nin alah di di katan di di katan dari Pengena terdak karangan di katan dari	ullini. Aurober herre	ula estila estila de la composicia de la		en lle het stel at het	ala ati ndi sabiti	<u>Auto</u> Man
-80.0		ashidan bankilana ku	annan Palaata a	արդերինես	an a	a ana katumatan	Freq Offset
							0 Hz
-90.0							
Start 150 kHz					Stop 3	0.00 MHz	

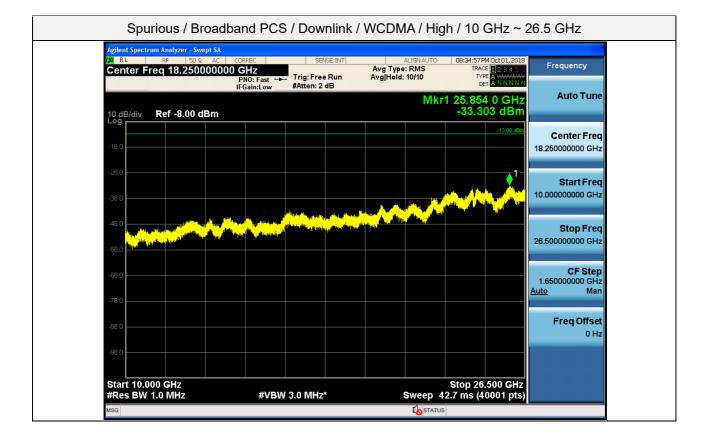




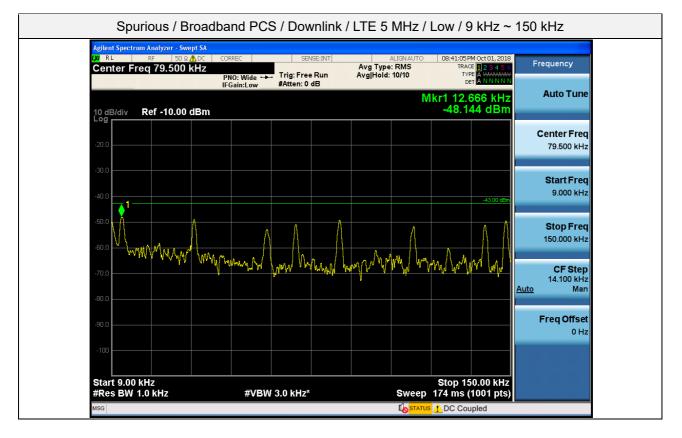
		g:FreeRun Avgj ten:14dB	Hold: 10/10	TRACE 123456 TYPE A WWWW DET A N N N N N	Auto Tune
10 dB/div Ref 0.00 dB	m			17.573 dBm	
-10.0				-13.00 dBm 5.9	Center Freq
-20.0					Start Freq
-30.0				1.9	96000000 GHz
		a bayang pang ang ang ang ang ang ang ang ang ang	an a		Stop Freq
-50.0					CF Step
-60.0				8 <u>Auto</u>	00.400000 MHz
-80.0					Freq Offset
-90.0					0 Hz





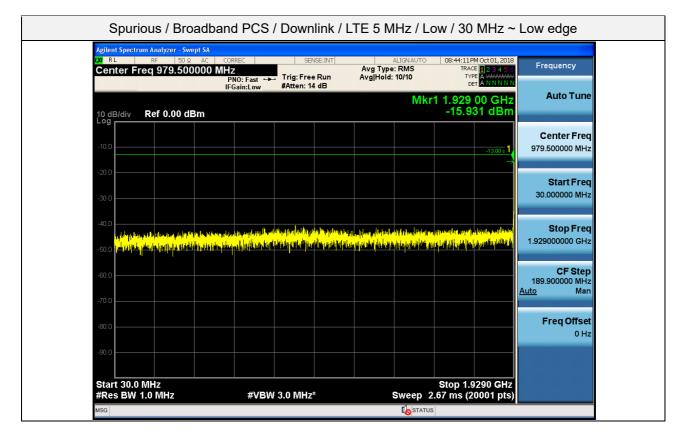






Agilent Spectrum Analyzer - Swept LXI RL RF 50 Ω ▲		ISE:INT A	LIGNAUTO 08:41:2	5PM Oct 01, 2018	
Center Freq 15.07500		Avg Type:	RMS TF		Frequency
	IFGain:Low #Atten: 10		Miland	667 kHz	Auto Tune
10 dB/div Ref 0.00 dBm	1			582 dBm	
Log					Center Freq
-10.0					15.075000 MHz
-20.0					
-20.0					Start Freq
-30.0				-33.00 dBm	150.000 kHz
-40.0					
					Stop Freq 30.000000 MHz
-50.0					
-60.0					CF Step
					2.985000 MHz <u>Auto</u> Man
-70.0	ilin ja kinin kan dista din sa dina kan kan kan kan kan kan kan kan kan k	i de se de la constant de la desta de Constant de la desta de la d			
-80.0					Freq Offset
					0 Hz
-90.0					
Start 150 kHz			Ston	30.00 MHz	
#Res BW 10 kHz	#VBW 30 kHz*		Sweep 368 ms	6001 pts)	

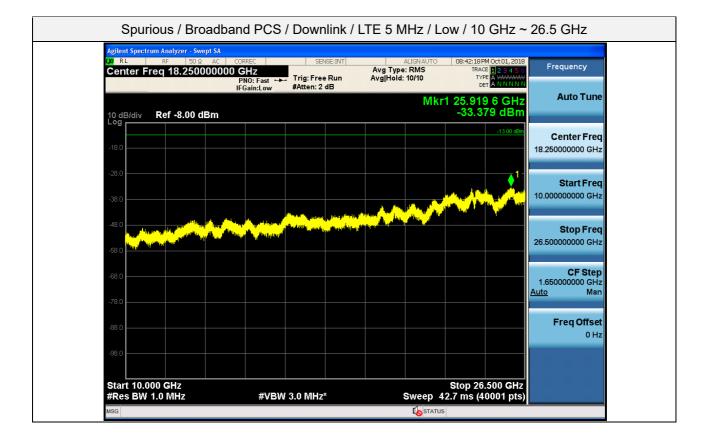




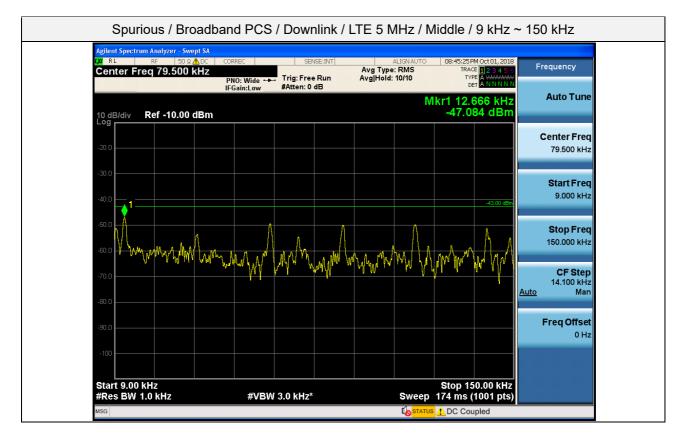
W RL RF 50.0 AC CORREC SENSE INT ALIGNAUTO 08:41:59PM Oct01, 2018 Frequency Center Freq 5.998000000 GHz PN0: Fsat	#Res BW 1.0 MHz	#VBW 3.0 MHz*	Sweep 1	4.7 ms (20001 pts)	
MR RF BOR ALLYAUTO 08:41:59PM OC101,2018 Frequency Center Freq 5.998000000 GHz Trig: Free Run Avg Type: RMS Trig: Center Freq 5.998000000 GHz Frequency Mkr1 7.431 9 GHz Auto Tune 10 dB/div Ref 0.00 dBm Center Freq Store Freq Store Freq 10 dB/div Ref 0.00 dBm Center Freq Store Freq Store Freq 10 dB/div Ref 0.00 dBm Store Freq Store Freq Store Freq 200 Store Freq Store Freq Store Freq Store Freq 200 Store Freq Store Freq Store Freq Store Freq 200 Store Freq Store Freq Store Freq Store Freq 200 Store Freq Store Freq Store Freq Store Freq 200 Store Freq Store Freq Store Freq Store Freq 200 Store Freq Store Freq Store Freq Store Freq 200 Store Freq Store Freq Store Freq Store Freq Store Freq 200 Store Freq Store Freq Store Freq Store Freq	Start 1.996 GHz				
DX RE SD 9. AC CORREC SENSEINT Augunation D8:41:59PM Oct01, 2018 Frequency Center Freq 5,998000000 CHz PNO: Fast Herein 12 dB Trig: Free Run Herein 12 dB Avg Type: RMS Trig: Tree Run Herein 12 dB Augunation 10:1000 Center Freq 5,998000000 CHz Auto Tune 10 dB/div Ref 0.00 dBm -338.820 dBm -338.820 dBm -3300000 Center Freq -10.0 -3300000 -3300000 -3300000 -3300000 Center Freq -00 -3300000 -3300000 -3300000 Center Freq -00 -3300000 -3300000 -3300000 Center Freq -00 -3300000 -3300000 Center Freq 5.998000000 GHz -00 -300000 -3300000 -3300000 Center Freq -00 -300000 -3300000 -3300000 Center Freq -000 -300000 -3300000 -3300000 Center Freq -000 -3000000 -3300000 -3300000 -33000000 -33000000 -000 -30000000 -33000000 -33000000 -330000000 -330000000 <tr< td=""><td></td><td></td><td></td><td></td><td></td></tr<>					
LX RF SO Q. AC CORREC SENSE INT ALIGNAUTO 08-41:59 PM Oct 01, 2018 Frequency Center Freq 5.998000000 GHz PHO: East +>- Trig: Free Run IFGain:Low Avg Type: RMS RMACE 2 3 4 5 5 Auto Tune In dB/div Ref 0.00 dBm	-90.0				
M RL RF SD R AC CORREC SENSE:INT ALIGNAUTO 08:41:59 PM Oct01, 2018 Frequency Center Freq 5.998000000 GHz PR0: Fast IFGain:Low Trig: Free Run MAtten: 12 dB Avg Type: RMS AvgHold: 10/10 Trace Type: RMS ITRACE IP 2: 4 4 5 IP 2: 4 5 Frequency 10 dB/div Ref 0.00 dBm -38.820 dBm -38.820 dBm -38.820 dBm -39.00000 GHz -39.00 dBm	-80.0				
INTERPOND SD Q AC CORREC SENSE:INT ALIGNAUTO 08:41:59PM Oct01, 2019 Frequency Center Freq 5.998000000 GHz PN0: Fast - Integration of the sense of the sensense of the sense					Fred Offset
Image: Note of the second o	-70.0				<u>Auto</u> Man
VI RL RF SO Q AC CORREC SENSE:INT ALIGNAUTO 08:41:59PM Oct01, 2018 Frequency Center Freq 5.998000000 GHz PNO: Fast	-60.0				800.400000 MHz
Image: Non-State index Serve: Int index ALIGN AUTO 0841:59PM Oct01, 2018 Frequency Center Freq 5.998000000 GHz PN0: Fast					0.5.6
VI RL RF SO Q AC CORREC SENSE:INT ALIGNAUTO 08:41:59PM Oct01, 2019 Frequency Center Freq 5.998000000 GHz PNO: Fast	-50.0 -50.0	ality of the second	all for a second sec	And the second sec	10.00000000 GHz
Augnation Augnation Description Augnation Description Frequency Center Freq 5.998000000 GHz PN0: Fast +	-40.0			New of the second second	Stop Freq
Aug RL RF 50 Q AC CORREC SENSE:INT ALIGNAUTO 08:41:59 PM Oct 01, 2018 Frequency Center Freq 5.998000000 GHz PN0: Fast ++					
D8 RL RF 50.9 AC CORREC SENSE:INT ALIGNAUTO 08:41:59PM Oct01, 2018 Frequency Center Freq 5.998000000 GHz PN0: Fast	-30.0				
M RL RF SD 92 AC CORREC SENSE:INT ALIGNAUTO 08:41:59 PM Oct 01, 2018 Center Freq 5.998000000 GHz PNO: Fast Trig: Free Run Avg Type: RMS TRACE H2 3 4 5 6 PNO: Fast Trig: Free Run Avg IHold: 10/10 TWPE TACE H2 3 4 5 6 In dB/div Ref 0.00 dBm Mkr1 7.431 9 GHz Auto Tune 10 dB/div Ref 0.00 dBm Center Freq Center Freq	-20.0				Start Fred
Avg Type: RMS Trig: Freq S0.9 Action Auto 08:41:59 PM Oct 01, 2018 Center Freq 5.998000000 GHz Trig: Freq Run IFGain: Low Avg Type: RMS TRACE II 2 34 5 6 PN0: Fast				-13.00 dBm	5.998000000 GHZ
M RL RF 50 Ω AC CORREC SENSE:INT ALIGNAUTO 08:41:59PM Oct01, 2018 Center Freq 5.998000000 GHz Avg Type: RMS TRACE [] 2 3 4 5 6 PN0: Fast Trig: Free Run IFGain: Low Avg Type: RMS TRACE [] 2 3 4 5 6 Mkr1 7.431 9 GHz Auto Tune 10 dB/div Ref 0.00 dBm -38.820 dBm	-10.0				•
W RL RF 50 Ω AC CORREC SENSE:INT ALIGNAUTO 08:41:59PM Oct01, 2018 Frequency Center Freq 5.998000000 GHz PNO: Fast				00.020 aBiii	
M RL RF 50 Ω AC CORREC SENSE:INT ALIGNAUTO 08:41:59PM Oct 01, 2019 Center Freq 5.998000000 GHz Frequency PN0: Fsat Trig: Free Run Avg Type: RMS TRACE It 2:34.55 PN0: Fsat Trig: Free Run Avg Iyleid: 10/10 TYPE TYPE			Mk		Auto Tune
20 R L RF 50 Ω AC CORREC SENSE:INT ALIGN AUTO 08:41:59 PM Oct 01, 2018		110.1430	. .		Auto Turo
		GHz	Avg Type: RMS		Frequency
årilent Spectrum ånalvzer - Swent Så	Agilent Spectrum Analyzer - Swept SA				





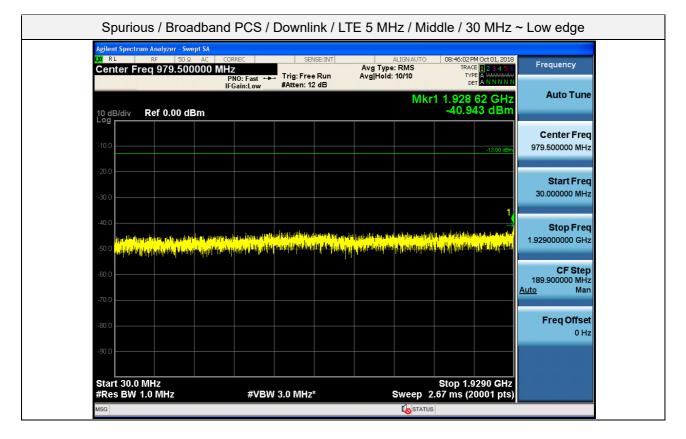






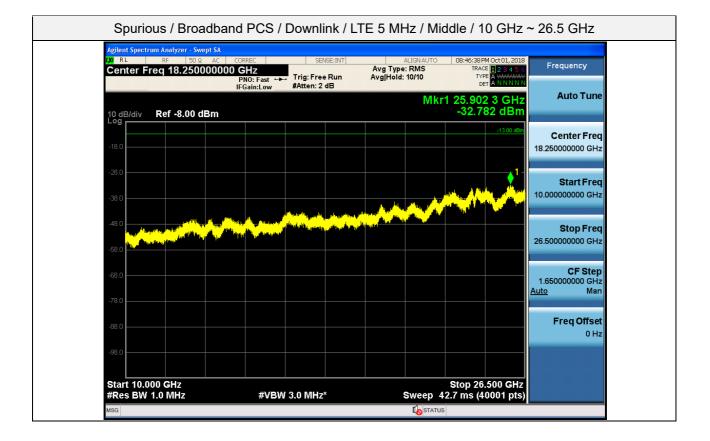
Agilent Spectrum Analyzer - Swept S/			IGNAUTO 08:45:46	PM Oct 01, 2018
Center Freq 15.075000		Avg Type: e Run Avg Hold: 1	IGNAUTO 08:45:46 RMS דגא 0/10 די	Improved by 2018 Frequency Improved by 2018 Frequency Improved by 2018 Frequency
10 dB/div Ref 0.00 dBm			Mkr1 -37.4	593 kHz Auto Tu I35 dBm
-10.0				Center Fr 15.075000 M
-20.0				Start Fr 150.000 k
-40.0				Stop Fr 30.000000 M
-60.0				CF St 2.985000 M
	n a Bernahari bilan ya kana din ka ang bilan ang manang Ang mang ang bilang pang ang bilang di Anagaga ang ang Ang mang ang bilang pang ang bilang ang bilang ang bilang	and and the second states of a state base of a state of a State of a state of a st		
-80.0				0
Start 150 kHz			Stop	30.00 MHz



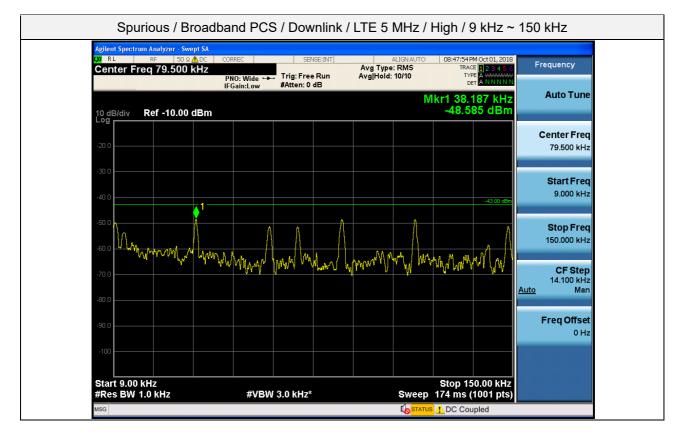


Agilent Spectrum Analyzer - Swept SA	2000-22			
M RL RF 50Ω AC Center Freq 5.998000000		ALIGN AUTO Avg Type: RMS Avg Hold: 10/10	08:46:20 PM Oct 01, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
10 dB/div Ref 0.00 dBm		Mkr1	6.805 2 GHz -39.043 dBm	Auto Tune
-10.0				Center Freq 98000000 GHz
-20.0			1.9	Start Freq 96000000 GHz
-40.0	nan ta antista ya mana kata ya mana kata ya shi ka Mana kata ya mana ya mana kata ya shi k			Stop Freq 00000000 GHz
-50.0	and the stand of the second			
-60.0			80 <u>Auto</u>	CF Step 00.400000 MHz Man
-80.0				Freq Offset
-90.0				0 Hz
Start 1.996 GHz #Res BW 1.0 MHz	#VBW 3.0 MHz*		top 10.000 GHz ' ms (20001 pts)	



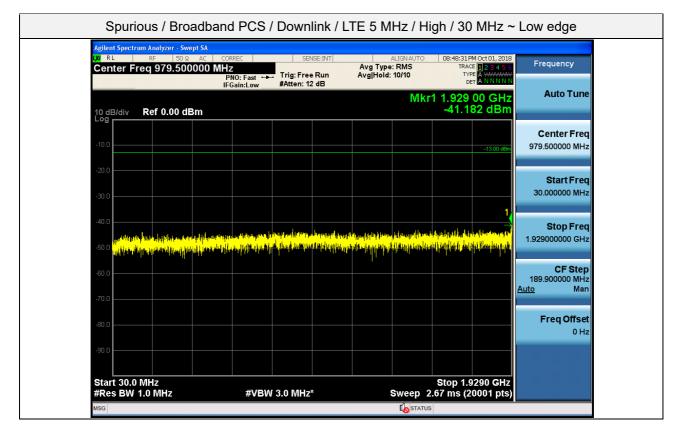






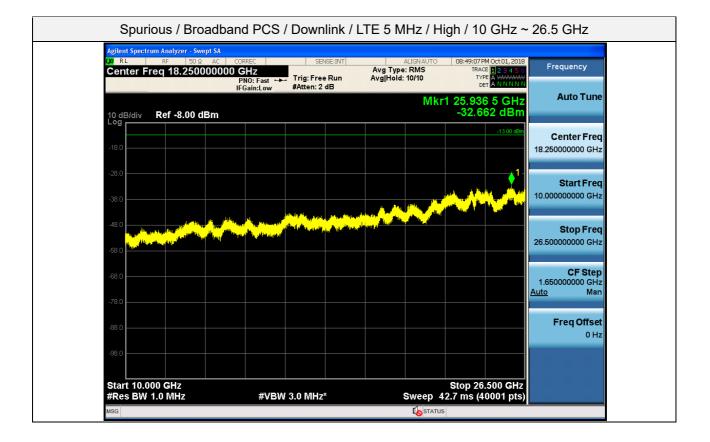
CORREC	SEN	ISE:INT		ALIGN AUTO			Frequency
PNO: Fast 🔸					TRAC TYP	E 1 2 3 4 5 6 E A WWWWW T A N N N N N	Frequency
IFGain:Low	#Atten: 10	dB					Auto Tune
							Center Freq
							15.075000 MHz
							Start Freq 150.000 kHz
						-33.00 dBm	
							Stop Freq
							30.000000 MHz
							CF Step
							2.985000 MHz
ara kati bati takuka atabi dalar. Manana kati takuka sa dalar kati dalar	, porta districto Reconstruction				du ti ac d	والأشارية والمتعاط والمتعا	<u>Auto</u> Man
of contrast of the second second	. In the other	a di se si ka di di	and minds in the	ad management	a ob Mara and		Freq Offset
							0 Hz
						0.00 MHz	
	MHz PN0: Fast →→ IFGain:Low	MHz PNO: Fast IFGain:Low #Atten: 10	MHz PNO: Fast ↔ IFGain:Low #Atten: 10 dB	MHz PNO: Fast ↔ IFGain:Low #Atten: 10 dB Avg Type Avg Hold:	MHz Avg Type: RMS PN0: Fast →→ Trig: Free Run IFGain:Low #Atten: 10 dB	MHz PNO: Fast +++ Trig: Free Run IFGain:Low #Atten: 10 dB Mkr1 4 -35.4 Mkr1 4 -35.4	MHz Avg Type: RMS Trace: Basi 45 G PN0: Fast →→ #Atten: 10 dB Avg Hold: 10/10 TVPE AMMON OFF IFGain:Low #Atten: 10 dB Mkr1 593 kHz -33.00 dBm



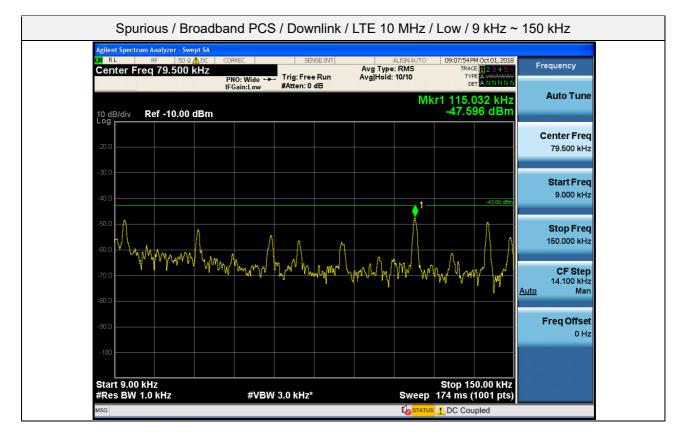


Start 1.996 GHz #Res BW 1.0 MHz	#VBW 3.0 MHz*	Sweep 1	Stop 10.000 GHz 4.7 ms (20001 pts)	
-90.0				
				0 Hz
-80.0				Freq Offset
-70.0				800.400000 MHz <u>Auto</u> Man
-60.0				CF Step
	n an far a le station a station de la st La station de la station de	elde Held of the standard field bit of the breek and the standard		Stop Freq 10.000000000 GHz
	ar kan na da tata da sa	م من المنافق من من المنافق المن المنافق	non the college	
-20.0				Start Freq 1.996000000 GHz
-10.0			-13.00 dBm	5.998000000 GHz
Log				Center Freq
10 dB/div Ref 0.00 dBm		Mk	r1 1.996 0 GHz -18.908 dBm	Auto Tune
Center Freq 5.99800000	PNO: Fast ↔→→ Trig: Free Run IFGain:Low #Atten: 14 dB	Avg Type: RMS Avg Hold: 10/10	TRACE 123456 TYPE A WWWWW DET A NNNNN	
Agilent Spectrum Analyzer Swept SA LXI RL RF 50 Ω AC		ALIGNAUTO	09:00:17 PM Oct 01, 2018	Frequency



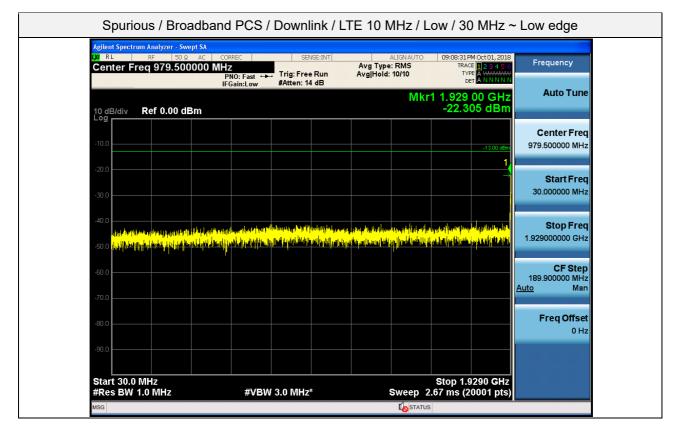






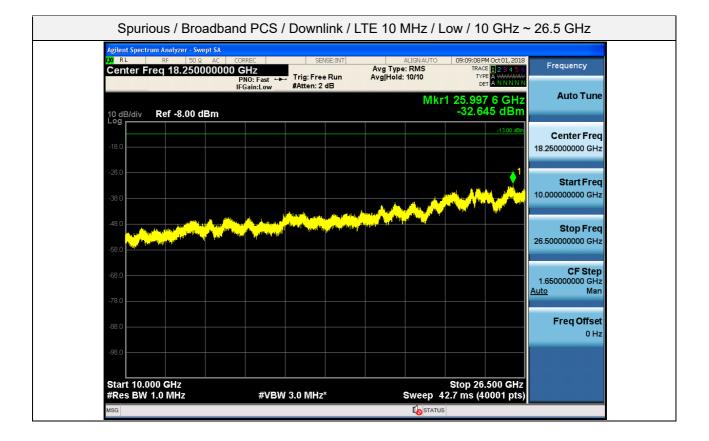
Agilent Spectrum Analyzer - Swept SA IXI RF 50 Ω ▲ DC	CORREC SENSE		09:10:52 PM Oct 01, 2018	Eroguanau
Center Freq 15.075000 M	IHz PNO: Fast ↔→ Trig: Free F IFGain:Low #Atten: 10 o		TRACE 123456 TYPE A WWWWW DET A N N N N N	Frequency
10 dB/div Ref 0.00 dBm			Mkr1 593 kHz -36.442 dBm	Auto Tune
-10.0				Center Freq 15.075000 MHz
-20.0				Start Freq 150.000 kHz
-40.0				Stop Freq 30.000000 MHz
-60.0				CF Step 2.985000 MHz
a la construction de la const	san di pengalan dan di pangalah di dari dari dari dan dari dari dari dari dari dari dari dari	na na fan staat fan de fan fan staat de fan de fan General de fan staat	eling a bestyrmet fan Hall fan an en fersen fan fan fan stersteling. Hij wit peline fersen yn an fan y fan yn yn bestyrm a bester yn s	<u>Auto</u> Man Freq Offset
-90.0				0 Hz
Start 150 kHz #Res BW 10 kHz	#VBW 30 kHz*	Sween	Stop 30.00 MHz 368 ms (6001 pts)	



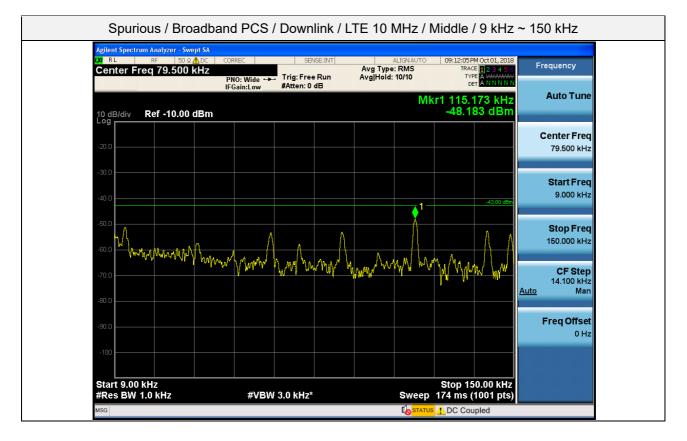


Agilent Spectrum Analyzer - Swept S		SENSE:INT	ALIGNAUTO 09:	08:49 PM Oct 01, 2018	
Center Freq 5.9980000	00 GHz	Avg Typ ree Run Avg Hol	e: RMS	TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
10 dB/div Ref 0.00 dBm	II GUIILEOW			.204 5 GHz 8.683 dBm	Auto Tune
-10.0				-13.00 dBm	Center Freq 5.998000000 GHz
				LIS OUTEN	
-20.0					Start Freq
-30.0					1.996000000 GHz
		. ∳ ¹			
-40.0	والمتحديد والمنطقة المحمدات والمتحد والمتحدين	an ya kutoka kutoka na mana kutoka na mana kutoka kutoka kutoka kutoka kutoka kutoka kutoka kutoka kutoka kuto Mana kutoka ku			Stop Freq
-50.0 -50.0			i 1976)	- M	10.00000000 GHz
-60.0					CF Step
-00.0					800.400000 MHz Auto Man
-70.0					
-80.0					Freq Offset
					0 Hz
-90.0					
Start 1.996 GHz #Res BW 1.0 MHz	#VBW 3.0 MH	7*	Sto Sweep 14.7 n	p 10.000 GHz	



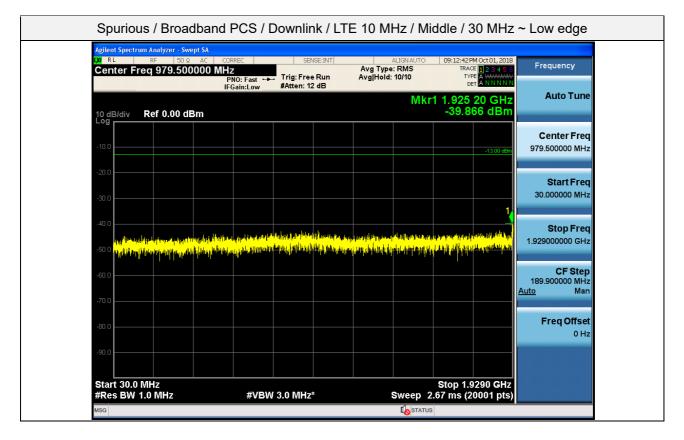






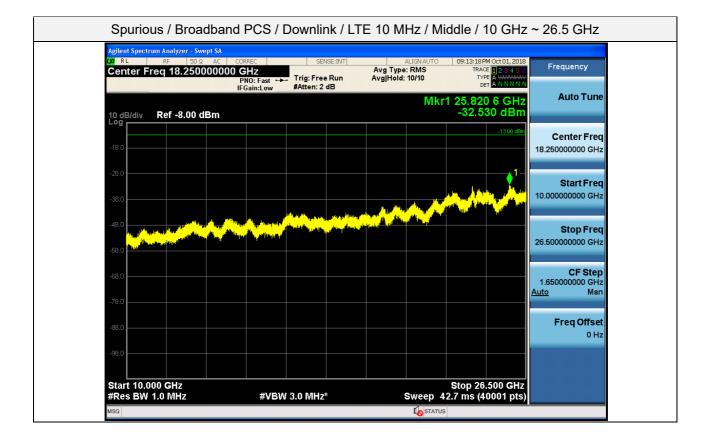
Agilent Spectrum Analyzer - Swept SA LX RL RF 50 Ω Λ DC	CORREC SENSE:INT	ALIGNAUTO	09:14:58 PM Oct 01, 2018	
Center Freq 15.075000 M		Avg Type: RMS Avg Hold: 10/10	TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
10 dB/div Ref 0.00 dBm			Mkr1 593 kHz -37.495 dBm	Auto Tune
-10.0				Center Freq 15.075000 MHz
-20.0				Start Freq 150.000 kHz
-40.0				Stop Freq 30.000000 MHz
-60.0				CF Step 2.985000 MHz <u>Auto</u> Man
-70.0	hering te di kaning dina mali pating mang berhang pating mang berhang di kanang berhang bi Pangkan mali pantang banaka di tipyop mang berjang mali pating milang berhang bi Ang di kaning berhang banaka di tipyop mang berjang berhang berhang berhang berhang berhang berhang berhang ber	ne se	all contained there is not a shadle of the later.	Freq Offset
-90.0				0 Hz
Start 150 kHz #Res BW 10 kHz	#VBW 30 kHz*	Swoon	Stop 30.00 MHz 368 ms (6001 pts)	



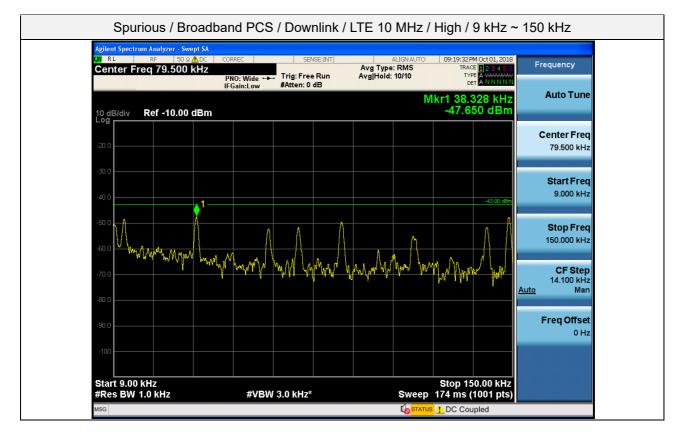


10 dB/div Ref 0.00 dBm -38.387 dBm -00 -38.387 dBm -38.387 dBm -00 -1300 dBm -38.387 dBm -00 -1300 dBm -1300 dBm -200 -1300 dBm <td< th=""><th>Start 1.996 GHz #Res BW 1.0 MHz</th><th>#VBW 3.0 MHz</th><th>Sweep</th><th>Stop 10.000 GHz 14.7 ms (20001 pts)</th><th></th></td<>	Start 1.996 GHz #Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep	Stop 10.000 GHz 14.7 ms (20001 pts)	
DX RE 50.2 AC CORREC SENSE:INT Augnatoro 09:13:00 MOCOL 2018 Frequency Center Freq 5.998000000 GHz PNO: Fast Trig: Free Run #Atten: 12 dB AvglHold: 10/10 Trig: AvglHold: 10/10 Trig: AvglHold: 10/10 Trig: Frequency Auto Tune 10 dB/div Ref 0.00 dBm -38.387 dBm -38.387 dBm -38.387 dBm Center Freq 5.998000000 GHz 10 dB/div Ref 0.00 dBm -39.00 dBm -					
Image: Solution of the solution					0 Hz
VI RL RF SO Q AC CORREC SENSE:INT ALIGNAUTO 09:13:00PM Oct01, 2018 Frequency Center Freq 5.998000000 GHz PNO: Fast	-80.0				Freq Offset
Image: Second condition of the second condition	-70.0				
M RL RF SO Q AC CORREC SENSE:INT ALIGNAUTO 09:13:00PM Oct01, 2018 Frequency Center Freq 5.998000000 GHz PNO: Fast - IFGain: Low Trig: Free Run Avg Type: RMS TRACE IF 2:34:56 Frequency Mkr1 9.479 7 GHz Mkr1 9.479 7 GHz Option 2:30:00 MBM Center Freq Sense: IF 2:34:56 Center Freq 10 dB/div Ref 0.00 dBm	-60.0				
M RL RF SO Q AC CORREC SENSE:INT ALIGNAUTO 09:13:00PM Oct01, 2018 Frequency Center Freq 5.998000000 GHz PNO: Fast - IFGain: Low Trig: Free Run Avg Type: RMS TRACE IF 2:34:56 Frequency Mkr1 9.479 7 GHz Mkr1 9.479 7 GHz Option 2:30:00 MBM Center Freq Sense: IF 2:34:56 Center Freq 10 dB/div Ref 0.00 dBm	-50.0		and a substant of the substant	an a	10.000000000 GHz
MX RL RF SD Q AC CORREC SENSE:INT ALIGNAUTO 09:13:00PM Oct01, 2018 Center Freq 5.998000000 GHz PNO: Fast +++ Trig: Free Run Avg Type: RMS TRACE [] 2:3:4:5:6 PNO: Fast +++ Trig: Free Run Avg JHold: 10/10 Type I Auto Tune 10 dB/div Ref 0.00 dBm -38.387 dBm -38.387 dBm -10.0 -13:00 dem -399000000 GHz -13:00 dem	-40.0	and in menuteral born and the first production born			Stop Freq
M RL RE SO Q AC CORREC SENSE:INT ALIGNAUTO 09:13:00PM Oct01, 2018 Frequency Center Freq 5.998000000 GHz PN0: Fast	-30.0			1	1.996000000 GHz
M RL RF 50 Ω AC CORREC SENSE:INT ALIGNAUTO 09:13:00PM Oct 01, 2018 Center Freq 5.998000000 GHz PN0: Fast Trig: Free Run IFGain: Low Avg Type: RMS #Atten: 12 dB Tites Field 2:3:4:5 G Frequency 10 dB/div Ref 0.00 dBm -38.387 dBm Center Freq Center Freq	-20.0				
MX RL RF 50 Ω AC CORREC SENSE:INT ALIGNAUTO 09:13:00PM Oct01, 2018 Center Freq 5.998000000 GHz Trig: Free Run Avg Type: RMS TRACE II 2 3 4 5 6 Frequency PN0: Fast Free Run AvgIHold: 10/10 TYPE ANNINN Frequency 10 dB/div Ref 0.00 dBm Center Freq S83.387 dBm	-10.0			-13.00 dBm	5.998000000 GHz
M RL RF 50 Ω AC CORREC SENSE:INT ALIGN AUTO 09:13:00PM Oct 01, 2018 Center Freq 5.998000000 GHz Trig: Free Run IF Gain: Low Avg Type: RMS TRACE II 2 34 5 G PN0: Fast Trig: Free Run IF Gain: Low Trig: Free Run #Atten: 12 dB Avg Type: RMS TVPE Mkr1 9.479 7 GHz -38.387 dBm Auto Tune					
W RL RF 50.Ω AC CORREC SENSE:INT ALIGNAUTO 09:13:00PM Oct 01, 2018 Frequency Center Freq 5.998000000 GHz Trig: Free Run IFGain:Low Trig: Free Run #Atten: 12 dB Avg Type: RMS TRACE H2 3:43 G Frequency			M		Autorune
1/2 RL RF 50 Ω AC CORREC SENSE:INT ALIGN AUTO 09:13:00 PM Oct 01, 2018		PNO: Fast ↔ Trig: Free	2 dB		
	ιχu RL RF 50Ω A		Avg Type: RMS		Frequency



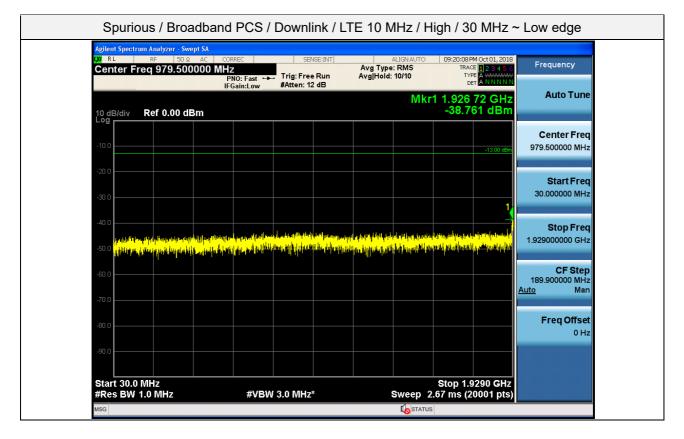






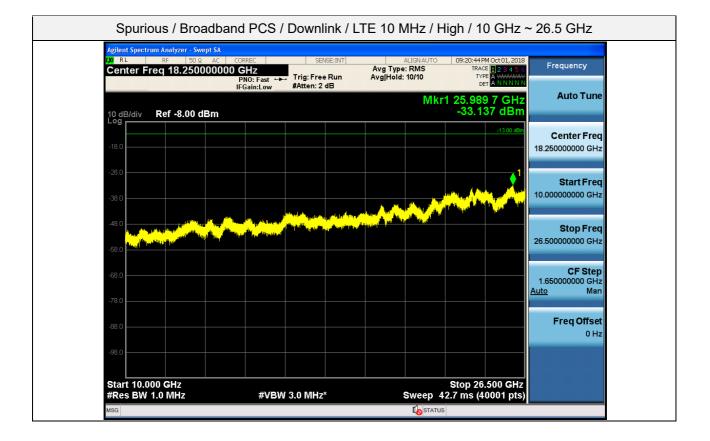
Agilent Spectrum Analyzer - Swept SA LXI RF 50 Ω ▲ DC	CORREC SENS	E:INT ALIGN AUTO	09:19:52 PM Oct 01, 2018	_
Center Freq 15.075000 M			TRACE 123456 TYPE A WWWWW DET A N N N N N	Frequency
10 dB/div Ref 0.00 dBm			Mkr1 598 kHz -37.783 dBm	Auto Tune
-10.0				Center Freq 15.075000 MHz
-20.0			-33.00 dBm	Start Freq 150.000 kHz
-40.0				Stop Freq 30.000000 MHz
-60.0				CF Step 2.985000 MHz uto Man
-70.0	a teles na tanàna mandra mandra dia mandri mandra dia dia dia dia dia dia dia dia dia di	n generalen eta di terreta de ter Nel de terreta generalen de terreta de terret		
-80.0				Freq Offset 0 Hz
-90.0				



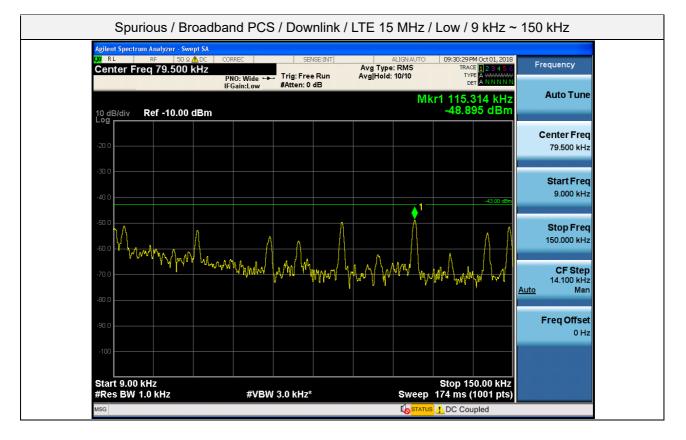


-90.0				
-80.0				Freq Offse 0 H
-70.0				<u>Auto</u> Mai
-60.0				CF Stej 800.400000 MH
-40.0 -40.0 -50.0	en en liter filmen en stillen in her stillen in her In her eine stille stillen in her st	n feis here an an feisig here the set on a grift filler here station and grift filler here and the set of the		Stop Fred 10.000000000 GH
-30.0				Start Fred 1.996000000 GH2
-10.0			-13.00 dBm	5.998000000 GH:
10 dB/div Ref 0.00 dBm				Center Free
	IFGain:Low #Atten: 1		lkr1 1.996 0 GHz -16.942 dBm	Auto Tune
μα RL RF 50Ω AC Center Freq 5.9980000	00 GHz PNO: Fast ↔→ Trig: Fre		09:25:20 PM Oct 01, 2018 TRACE 123456 TYPE A WWWW DET A N N N N N	Frequency



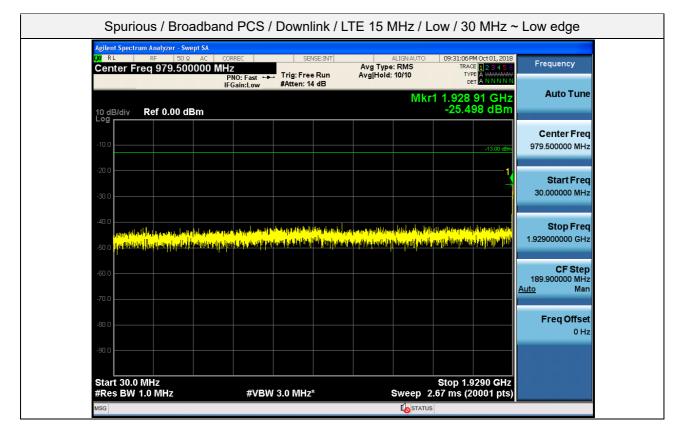






Agilent Spectrum Analyzer - Swept SA LXI RL RF 50 Ω ▲ DC			ALIGNAUTO	09:30:50 PM Oct 01, 2018	
Center Freq 15.075000	PNO: Fast 🛶 Trig: Free			TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
	IFGain:Low #Atten: 1	D dB		Mkr1 598 kHz	Auto Tune
10 dB/div Ref 0.00 dBm				-38.073 dBm	
					Center Freq
-10.0					15.075000 MHz
-20.0					
					Start Freq 150.000 kHz
-30.0				-33.00 dBm	130.000 KH2
-40.0					Stop Freq
-50.0					30.000000 MHz
-50.0					
-60.0					CF Step 2.985000 MHz
-70.0 WWWww.endertail.com	n hatter verken sin en faktet herer andereren herer seren here. Neven herer in sin der in sin performen herer in der in der seren here.		وأراب ألبار المريصان	ay man dan sing balan sa	<u>Auto</u> Man
	a supplier and a specific to the state of the	n a shi ngalik kalara shi ndinga biyariya d	a di kina ya di kina w	an a	Freq Offset
-80.0					0 Hz
-90.0					
Start 150 kHz #Res BW 10 kHz	#VBW 30 kHz*			Stop 30.00 MHz 868 ms (6001 pts)	





-90.0						
-80.0						Freq Offset 0 Hz
-70.0						<u>Auto</u> Mar
-60.0						CF Step 800.400000 MHz
-50.0 www.th	i in an	ha na shi na	d like, a posible ^{la del} se b _{el de s} an ^{del}	and and an an and a strength of the second states o	^{al duquatini andalaria}	10.00000000 GHz
-40.0			und samte bare the bare party of the second second	THE REPORT OF THE PARTY OF	1 Three partition of the second	Stop Freq
-30.0						Start Fred 1.996000000 GHz
-20.0					-13	5.998000000 GH2
-10.0						Center Fred 5.998000000 GHz
10 dB/div Ref 0.00 dB	m			Mk	r1 9.417 3 (-38.892 d	
ໝ RL RF 50Ω Center Freq 5.998000	DOOO GHz PNO: Fast - IFGain:Low	Trig: Free R #Atten: 12 dl	un Avg Ho	pe: RMS ld: 10/10	TRACE 12 TYPE A M DET A N	11,2018 3 4 5 6 WWWW N N N N



