

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 20, 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-FC028-R2

FCC ID:	2AFEG-850-33	
APPLICANT:	FRTEK CO., LTD.	
Model:	DAL835-32BKF	
EUT Type:	INOVA 5W	
Frequency Range:	Band Name	Downlink (MHz)
	ESMR	862 ~ 869
	Cellular	869 ~ 894
Output Power:	33 dBm	
Date of Test:	September 27, 2018 ~ October 10, 2018	

FCC Rule Parts: CFR 47 Part 2, Part 22, Part 90

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.



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-FC028	October 19, 2018	- First Approval Report
HCT-RF-1810-FC028-R1	December 13, 2018	- Change applicant address information
HCT-RF-1810-FC028-R2	December 20, 2018	- Correct reference standard of radiation test diagram



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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 5W	
Power Supply	AC 88 ~ 132 V	
Frequency Range	Band Name ESMR Cellular	Downlink (MHz) 862 ~ 869 869 ~ 894
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 22, Part 90
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, Part 22 and Part 90.

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, §22.913, §90.635	Compliant
Out-of-band/out-of-block and spurious emissions	§2.1051, §22.917, §90.691	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
ESMR	CDMA, LTE 5 MHz
Cellular	CDMA, WCDMA, LTE 5 MHz, LTE 10 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)
500	1.025	800	1.257
550	0.957	850	1.258
600	1.121	900	1.245
650	1.234	950	1.357
700	1.245	1 000	1.309
750	1.235		



: Output Path

Correction factor table			
Frequency (MHz)	Factor (dB)	Frequency (MHz)	Factor (dB)
2	31.154	2 000	32.621
10	30.706	2 500	33.016
30	30.632	3 000	33.301
50	30.615	3 500	33.376
100	30.698	4 000	33.844
200	30.848	4 500	33.611
300	31.205	5 000	33.971
400	31.388	5 500	34.340
500	31.497	6 000	34.270
600	31.613	6 500	35.022
700	31.747	7 000	34.290
750	31.755	7 500	34.619
800	31.764	8 000	34.165
850	31.783	8 500	34.399
900	31.792	9 000	34.791
1 000	31.843	9 500	33.845
1 500	32.321	10 000	37.064



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

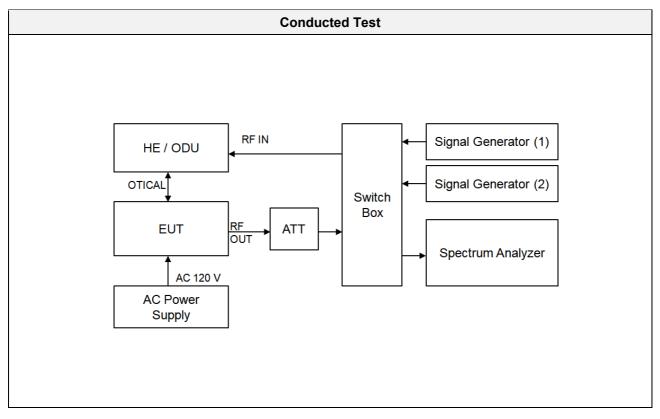
* Coverage factor k = 2, Confidence levels of 95 %

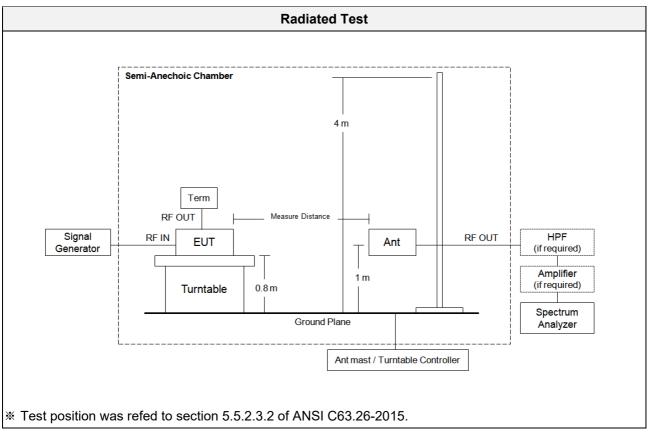
3.4. STANDARDS ENVIRONMENTAL TEST CONDITIONS

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



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)
ESMR	Downlink	CDMA	865.50	-20	33.12
ESIMIK	DOWIIIIIK	LTE 5 MHz	865.50	-20	33.24
		CDMA	881.50	-20	33.40
Callular	Downlink	WCDMA	881.50	-20	33.57
Cellular Dowr	DOWNIINK	LTE 5 MHz	881.50	-20	33.17
		LTE 10 MHz	881.50	-20	33.40

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.

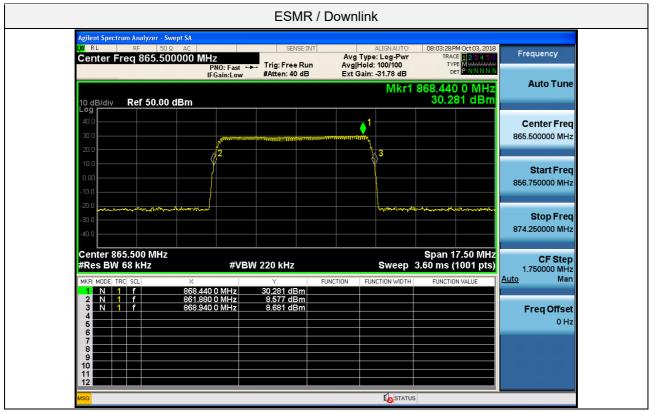
- 3) Dwell time = approximately 10 ms.
- 4) Number of points = SPAN/(RBW/2).
- c) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation.
- d) Set the span of the spectrum analyzer to the same as the frequency range of the signal generator.
- e) Set the resolution bandwidth (RBW) of the spectrum analyzer to be 1 % to 5 % of the EUT passband, and the video bandwidth (VBW) shall be set to \geq 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 .
- h) Place two markers, one at the lowest and the other at the highest frequency of the envelope of the

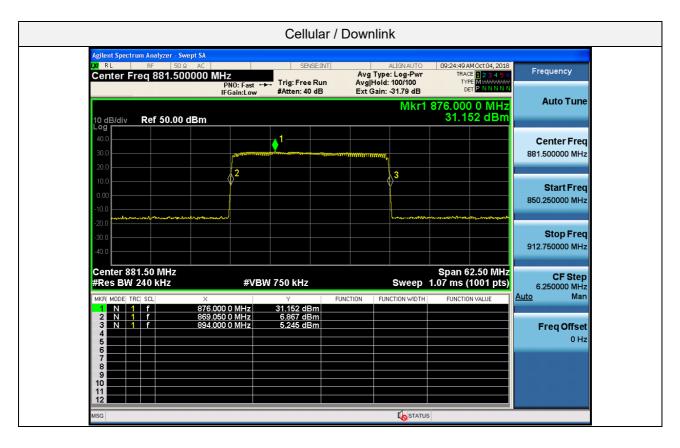
spectral display, such that each marker is at or slightly below the -20 dB down amplitude, to determine the 20 dB bandwidth.

- 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.



m) Repeat steps e) to l) 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 Band	Link	Signal	Center Frequency (MHz)	99 % OBW (MHz)	26 dB OBW (MHz)
ESMR	Downlink	CDMA	865.50	1.237 6	1.363
ESIMIK	DOWIIIIIK	LTE 5 MHz	865.50	4.516 8	5.034
		CDMA	881.50	1.244 8	1.363
Collular	Cellular Downlink	WCDMA	881.50	4.048 0	4.517
Cenular		LTE 5 MHz	881.50	4.505 7	4.920
		LTE 10 MHz	881.50	8.980 9	9.606

Tabular data of Input Occupied Bandwidth

Test Band	Link	Signal	Center Frequency (MHz)	99 % OBW (MHz)	26 dB OBW (MHz)
ESMR	Downlink	CDMA	865.50	1.241 1	1.370
ESIMIK	DOWININK	LTE 5 MHz	865.50	4.506 9	5.021
		CDMA	881.50	1.236 8	1.356
Cellular	Downlink	WCDMA	881.50	4.170 2	4.696
Cellular Downlink	Downlink	LTE 5 MHz	881.50	4.506 2	4.945
		LTE 10 MHz	881.50	9.002 8	9.896



Test Band	Link	Signal	Center Frequency (MHz)	99 % OBW (MHz)	26 dB OBW (MHz)
ESMR	Downlink	CDMA	865.50	1.238 8	1.360
ESIMIK	DOWININK	LTE 5 MHz	865.50	4.517 9	5.012
		CDMA	881.50	1.240 4	1.362
Cellular	Downlink	WCDMA	881.50	4.062 0	4.472
	Downink	LTE 5 MHz	881.50	4.507 2	4.943
		LTE 10 MHz	881.50	8.989 5	9.615

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

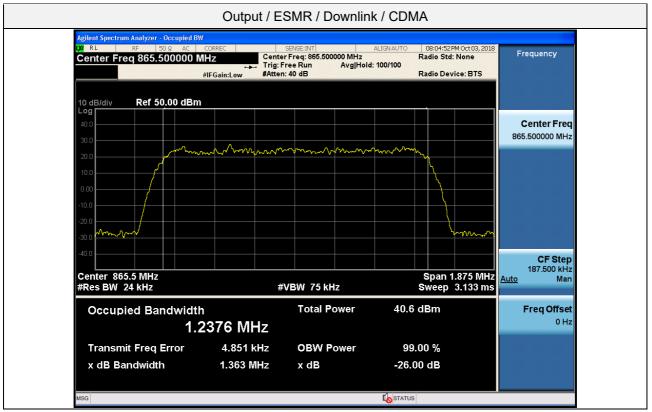
Measured Occupied Bandwidth Comparison

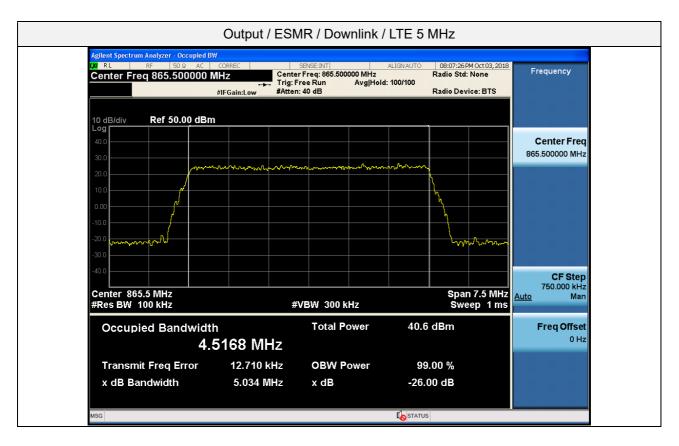
Test Band	Link	Signal	Variant of Input and output Occupied Bandwidth (%)	Variant of Input and 3 dB above the AGC threshold output Occupied Bandwidth (%)
ESMR	Downlink	CDMA	-0.511	-0.730
ESINIK	Downlink	LTE 5 MHz	0.259	-0.179
		CDMA	0.516	0.442
Cellular		WCDMA	-3.812	-4.770
	Downlink	LTE 5 MHz	-0.506	-0.040
	LTE 10 MHz	-2.930	-2.840	

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

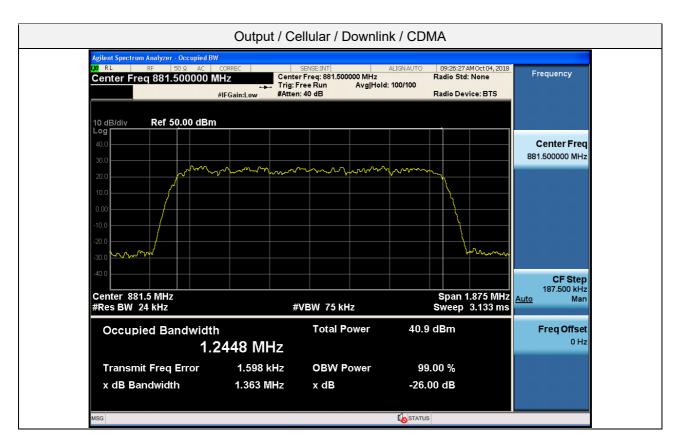


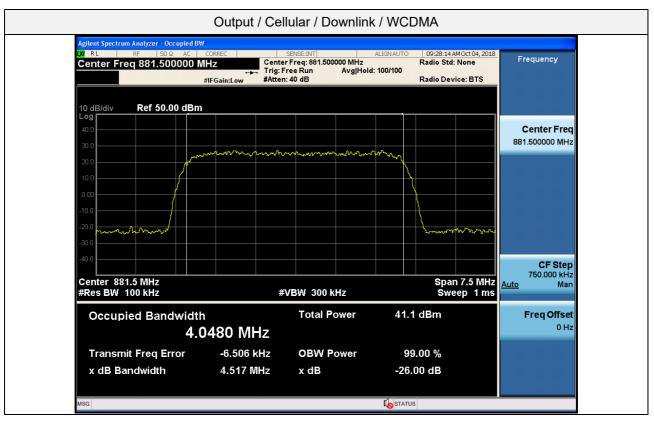
Plot data of Occupied Bandwidth



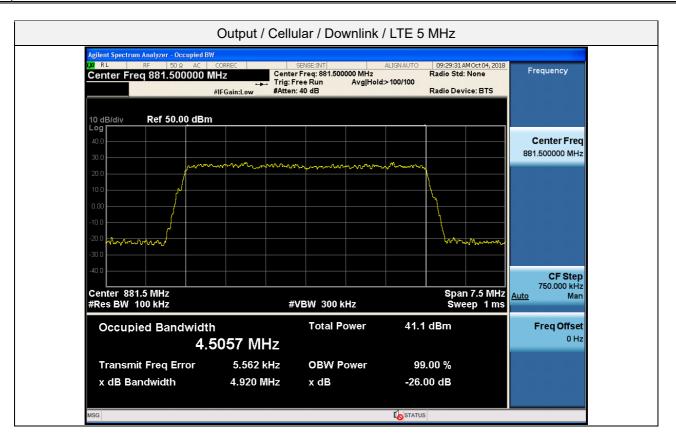


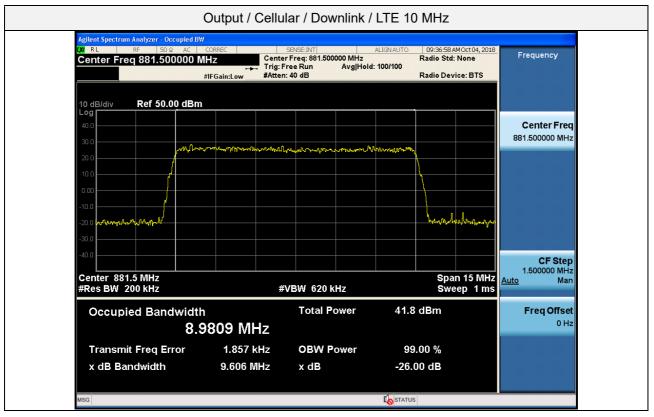




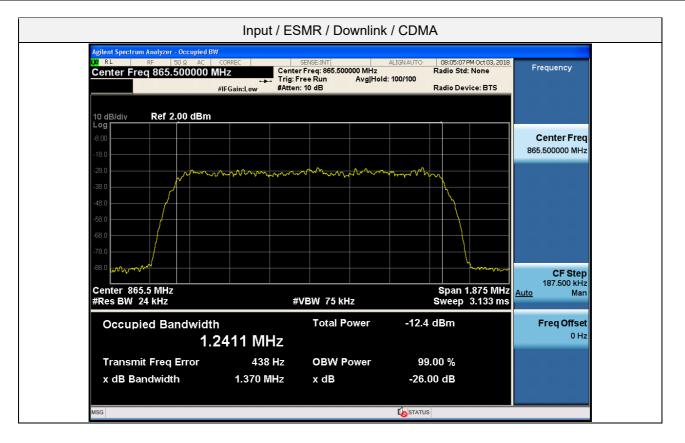


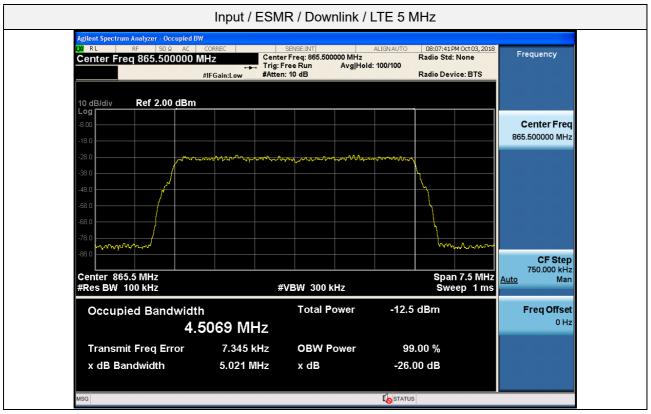




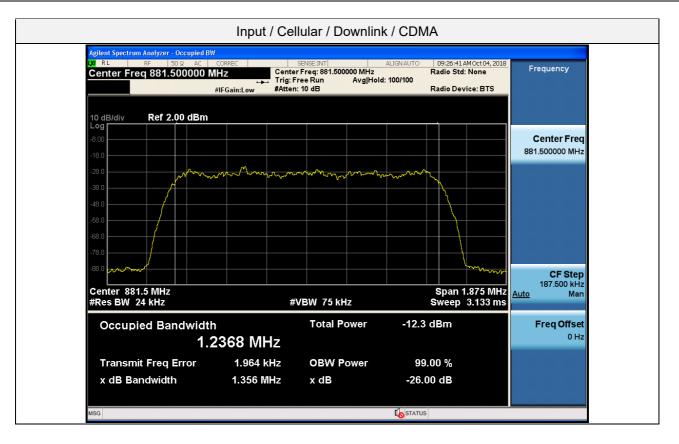


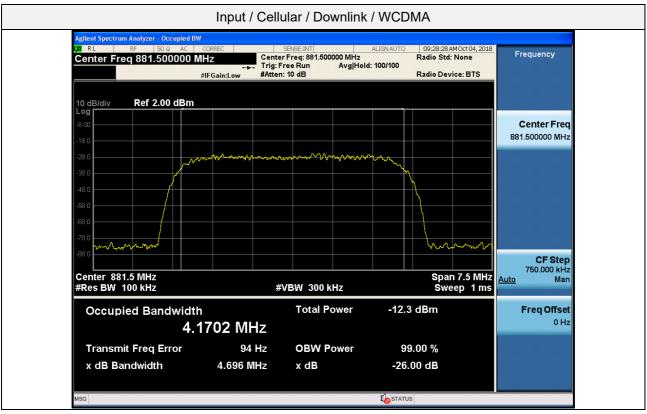




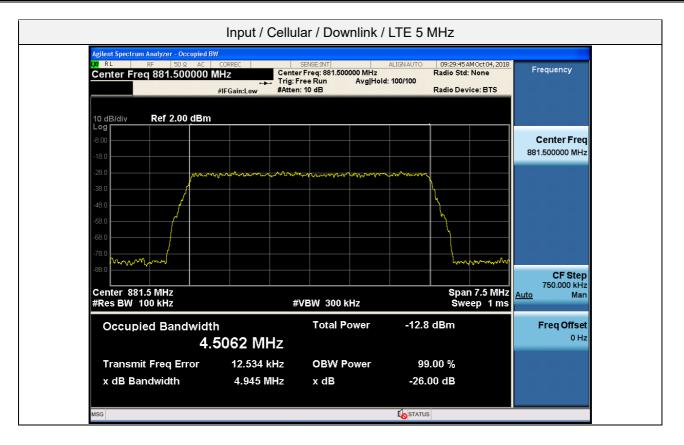


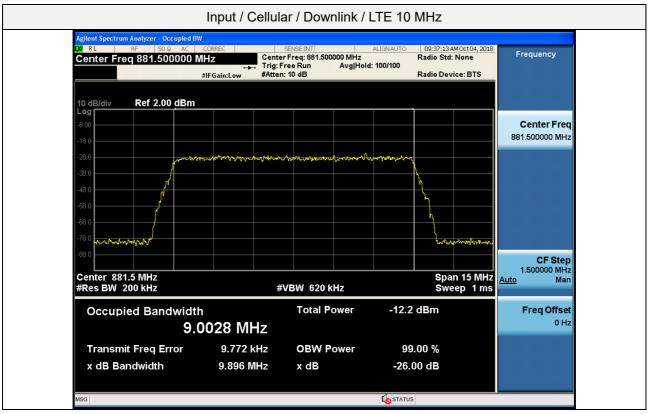




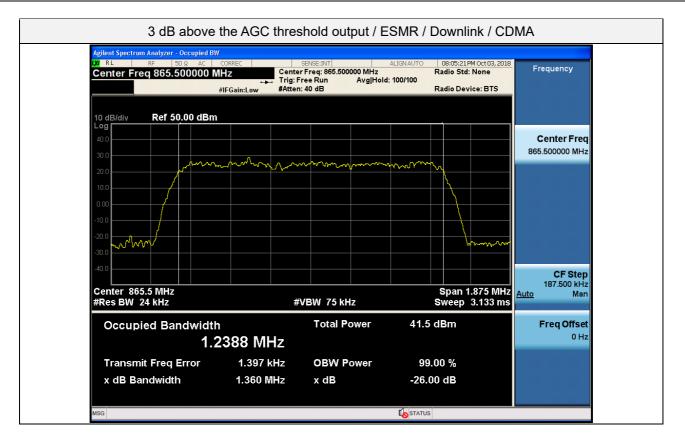


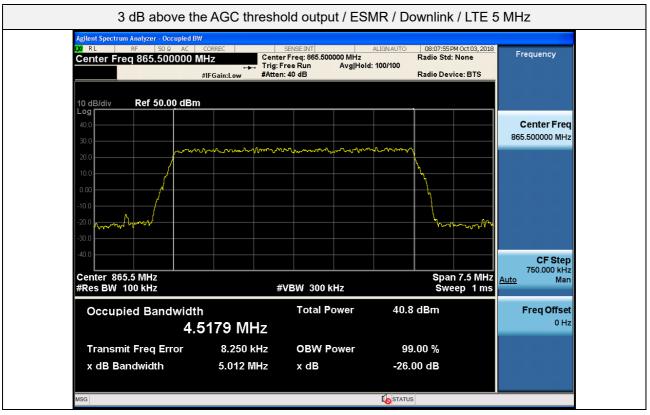




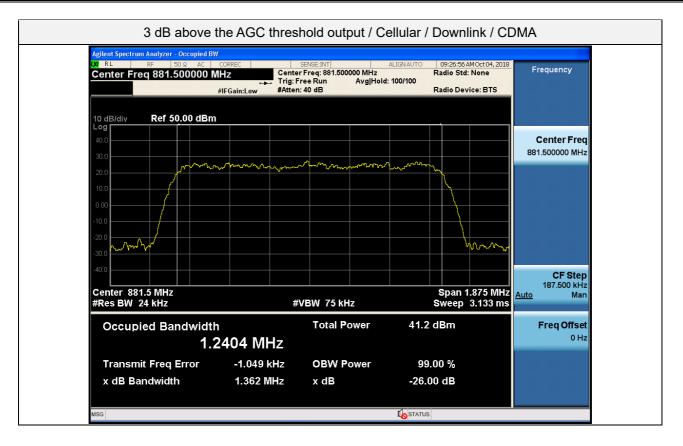


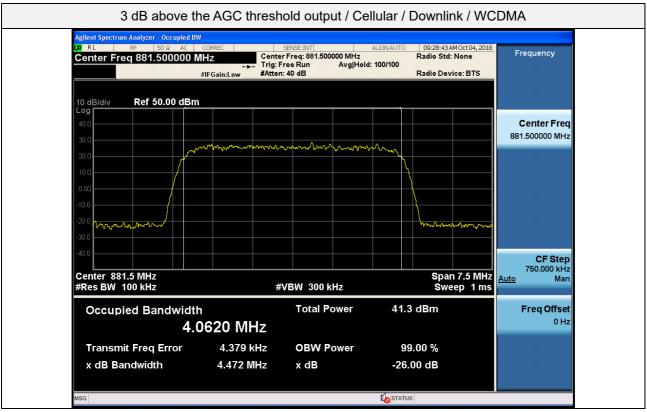




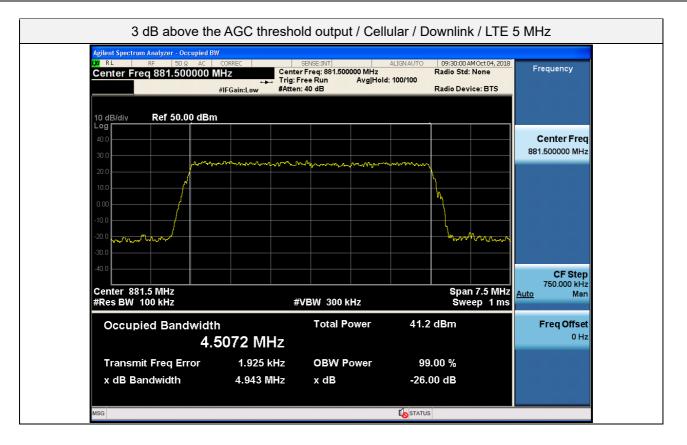


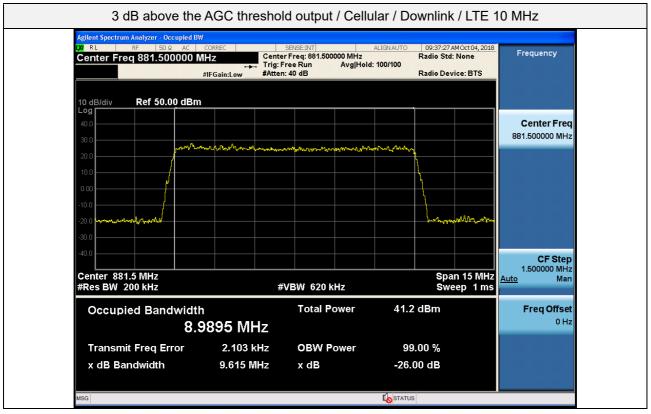














5.4. MEAN OUTPUT POWER AND AMPLIFIER/BOOSTER GAIN

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.

§22.913 Effective radiated power limits.

Licensees in the Cellular Radiotelephone Service are subject to the effective radiated power (ERP) limits and other requirements in this Section. See also §22.169.

(a) *Maximum ERP*. The ERP of transmitters in the Cellular Radiotelephone Service must not exceed the limits in this section.

(1) Except as described in paragraphs (a)(2), (3), and (4) of this section, the ERP of base stations and repeaters must not exceed—

(i) 500 watts per emission; or

(ii) 400 watts/MHz (PSD) per sector.

(d) Power measurement. Measurement of the ERP of Cellular base transmitters and repeaters must be made using an average power measurement technique. The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB. Power measurements for base transmitters and repeaters must be made in accordance with either of the following:

(1) A Commission-approved average power technique (see FCC Laboratory's Knowledge Database); or

(2) For purposes of this section, peak transmit power must be measured over an 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.

§90.635 Limitations on power and antenna height

(a) The effective radiated power and antenna height for base stations may not exceed 1 kilowatt (30 dBw) and 304 m. (1,000 ft.) above average terrain (AAT), respectively, or the equivalent thereof as determined from the Table. These are maximum values, and applicants will be required to justify power levels and antenna heights requested.

(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

Table—Equivalent Power and Antenna Heights for Base Stations in the 851-869 MHz and 935-940 MHz Bands Which Have a Requirement for a 32 km (20 mi) Service Area Radius

Antenna height (ATT) meters (feet)	Effective radiated power (watts)
Above 1,372 (4,500)	65
Above 1,220 (4,000) to 1,372 (4,500)	70
Above 1,067 (3,500) to 1,220 (4,000)	75
Above 915 (3,000) to 1,067 (3,500)	100
Above 763 (2,500) to 915 (3,000)	140
Above 610 (2,000) to 763 (2,500)	200
Above 458 (1,500) to 610 (2,000)	350
Above 305 (1,000) to 458 (1,500)	600
Up to 305 (1,000)	1,000

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 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)
ESMR	Downlink	CDMA	868.38	-20.06	32.74	52.80
ESINIK	DOWININK	LTE 5 MHz	866.50	-20.00	33.39	53.39
		CDMA	876.00	-20.10	33.28	53.38
Cellular		WCDMA	876.00	-19.95	33.95	53.90
	Downlink	LTE 5 MHz	876.00	-19.93	33.51	53.44
		LTE 10 MHz	876.00	-19.96	33.51	53.47

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

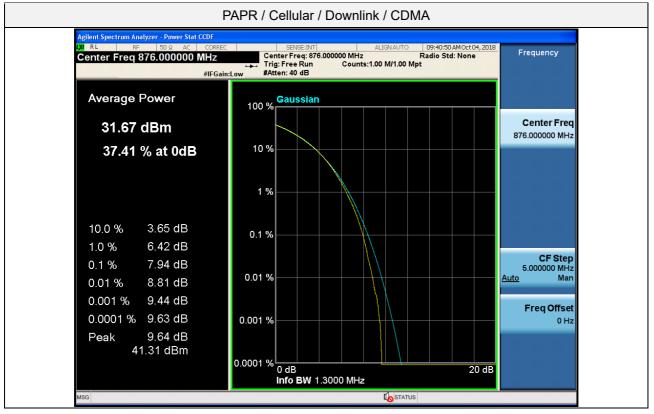
Test Band	Link	Signal	f ₀ Frequency (MHz)	Input Power (dBm)	+3 dB Output Power (dBm)	Gain (dB)
ESMR	Downlink	CDMA	868.38	-20.06	33.47	53.53
ESINIK	DOWININK	LTE 5 MHz	866.50	-20.00	32.98	52.98
		CDMA	876.00	-20.10	33.81	53.91
Cellular		WCDMA	876.00	-19.95	33.47	53.42
Celiular Downlink	Downlink	LTE 5 MHz	876.00	-19.93	33.70	53.63
		LTE 10 MHz	876.00	-19.96	33.55	53.51

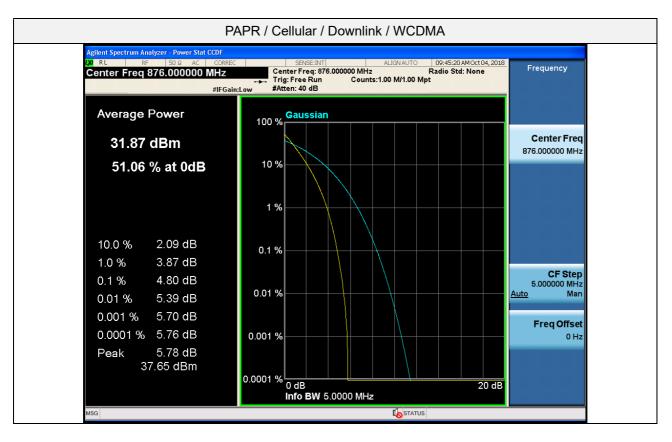
Tabular data of PAPR

Test Band	Link	Signal	f ₀ Frequency (MHz)	0.1 % PAPR (dB)
	Cellular Downlink	CDMA	876.00	7.94
Collular		WCDMA	876.00	4.80
Cellular		LTE 5 MHz	876.00	8.27
		LTE 10 MHz	876.00	8.35

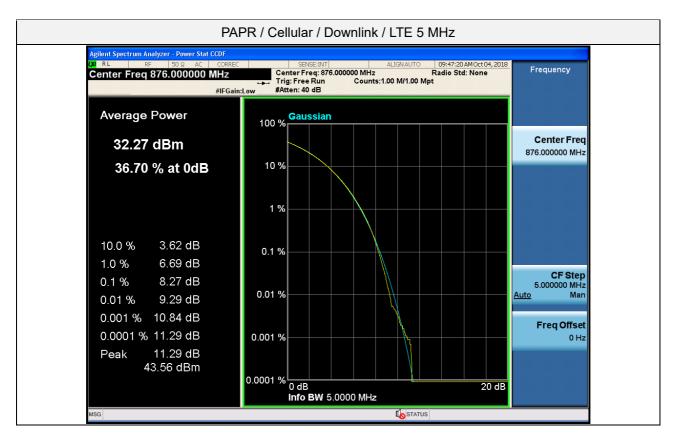


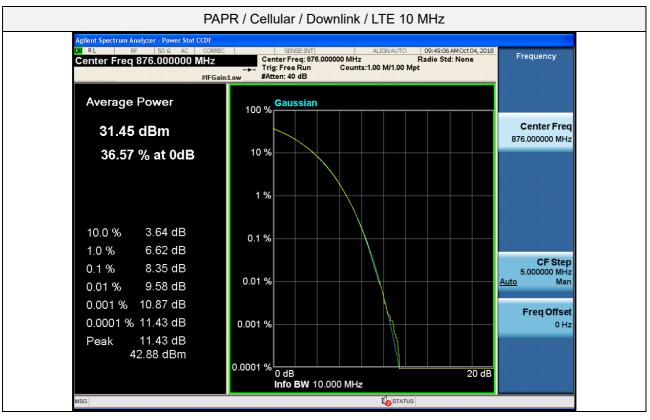
Plot data of PAPR













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.

§22.917 Emission limitations for cellular equipment.

The rules in this section govern the spectral characteristics of emissions in the Cellular Radiotelephone 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 reference bandwidth as follows:

(1) In the spectrum below 1 GHz, instrumentation should employ a reference bandwidth of 100 kHz or greater. 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 that the measured power is integrated over the full required reference bandwidth (i.e., 100 kHz 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.

(2) In the spectrum above 1 GHz, instrumentation should employ a reference bandwidth of 1 MHz.

(c) Alternative out of band emission limit. Licensees in this service may establish an alternative out of band emission limit to be used at specified band edge(s) in specified geographical areas, in lieu of that set forth in this section, pursuant to a private contractual arrangement of all affected licensees and applicants. In this event, each party to such contract shall maintain a copy of the contract in their station files and disclose it to prospective assignees or transferees and, upon request, to the FCC.

(d) Interference caused by out of band emissions. If any emission from a transmitter operating in this service results in interference to users of another radio service, the FCC may require a greater attenuation of that emission than specified in this section.



§90.691 Emission mask requirements for EA-based systems

(a) Out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10Log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

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).

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 × 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 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 100 kHz or 1 MHz, as specified in the applicable rule part.

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 100 kHz or 1 MHz, as specified in the applicable rule part, 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 1 % and 10 % of the reference bandwidth for measuring unwanted emission level (typically, 100 kHz if the authorized frequency band is below 1 GHz) and power was integrated.(1% = +20 dB, 10% = +10 dB)

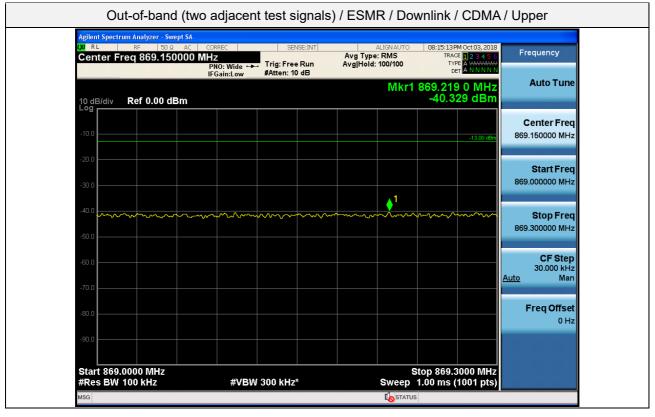
Note2. The test condition of \$90.691(a)(2) can be applied because the EUT provides filters above 37.5 kHz such as WCDMA and LTE. And its limit (43 + 10Log10(P)) is included in spurious emissions and band edge.

Note3. Intermodulation tests in ESMR band are performed only for CDMA signal, because the band cannot accommodate two LTE 5 MHz signals.



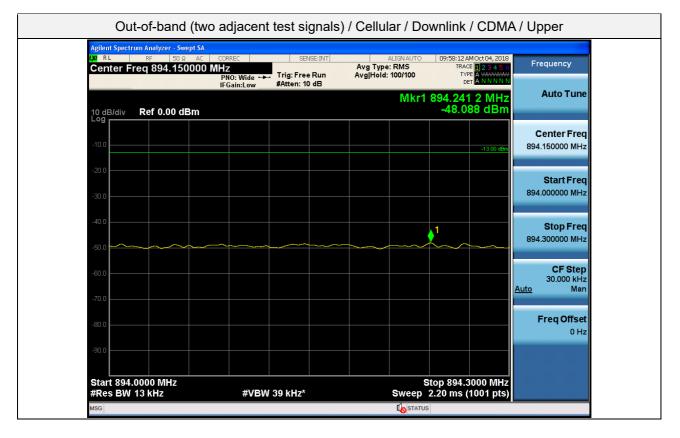
Test Results:

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



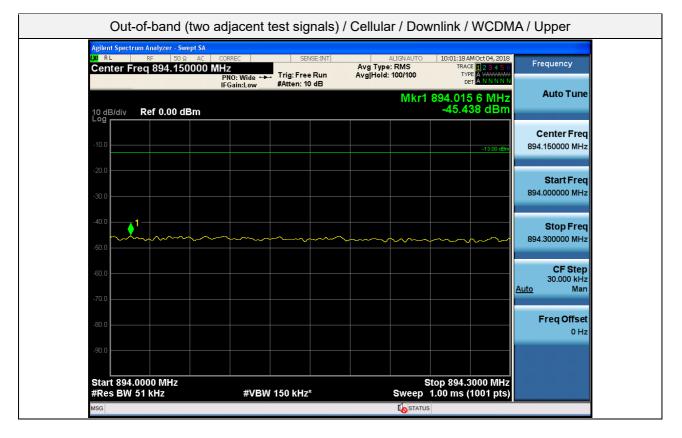
Agilent Spectrum Analyzer - Swept S				
M RL RF 50Ω AX Center Freq 861.85000			08:15:41 PM Oct 03, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWWWW DET A N N N N N	Frequency
10 dB/div Ref 0.00 dBm		Mkr	1 862.000 0 MHz -41.797 dBm	Auto Tune
-10.0			-13.00 dBm	Center Freq 861.850000 MHz
-20.0				Start Freq 861.700000 MHz
-40.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	······	1	Stop Freq 862.000000 MHz
-60.0				CF Step 30.000 kHz
-70.0				<u>Auto</u> Man Freq Offset
-80.0				0 Hz
Start 861.7000 MHz #Res BW 100 kHz	#VBW 300 kHz	* Sween	Stop 862.0000 MHz 1.00 ms (1001 pts)	





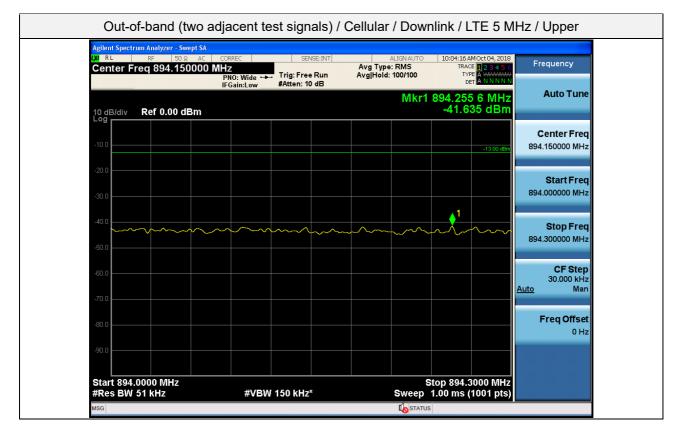
Agilent Spectrum Analyzer - Swept SA				
M RL RF 50Ω AC Center Freq 868.850000 Γ	CORREC SENSE:INT MHZ PNO: Wide +++ IFGain:Low #Atten: 10 dB	ALIGNAUTO : Avg Type: RMS Avg[Hold: 100/100	L0:00:11 AM Oct 04, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
10 dB/div Ref 0.00 dBm			8.730 0 MHz -48.843 dBm	Auto Tune
-10.0			-13.00 dBm 8	Center Fred 68.850000 MHz
-20.0			8	Start Freq 68.700000 MHz
-40.0				Stop Freq 69.00000 MHz
-50.0				CF Step 30.000 kHz
-70.0			Auto	Man Freq Offset
-90.0				0 Hz
Start 868.7000 MHz #Res BW 13 kHz	#VBW 39 kHz*	Stop	0 869.0000 MHz 0 ms (1001 pts)	





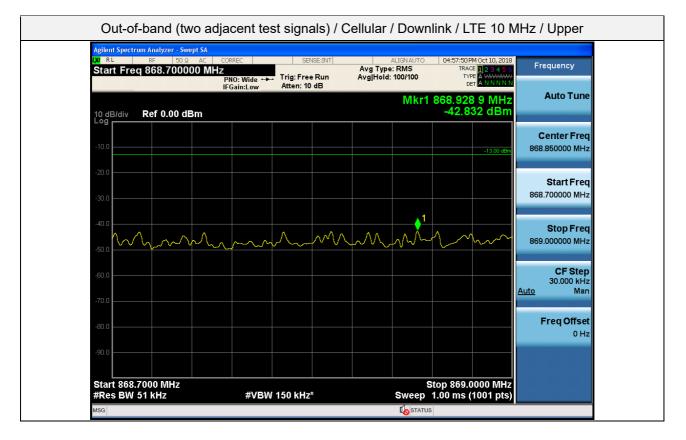
Agilent Spectrum Analyzer - Swept SA	CORREC SENSE:INT	ALIGN AUTO	10:03:00 AM Oct 04, 2018	
Center Freq 868.850000		Avg Type: RMS Avg Hold: 100/100	TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
10 dB/div Ref 0.00 dBm	IFGIN:LUW WAtten, 10 40	Mkr1	868.878 5 MHz -43.549 dBm	Auto Tune
				Center Freq
-10.0			-13.00 dBm	868.850000 MHz
-20.0				Start Freq
-30.0				868.700000 MHz
-40.0		1		
			~~~~~~	<b>Stop Freq</b> 869.000000 MHz
-50.0				05.064
-60.0				CF Step 30.000 kHz Auto Man
-70.0				<u>riaro</u> inan
-80.0				Freq Offset 0 Hz
-90.0				
Start 868.7000 MHz #Res BW 51 kHz	#VBW 150 kHz*		top 869.0000 MHz I.00 ms (1001 pts)	





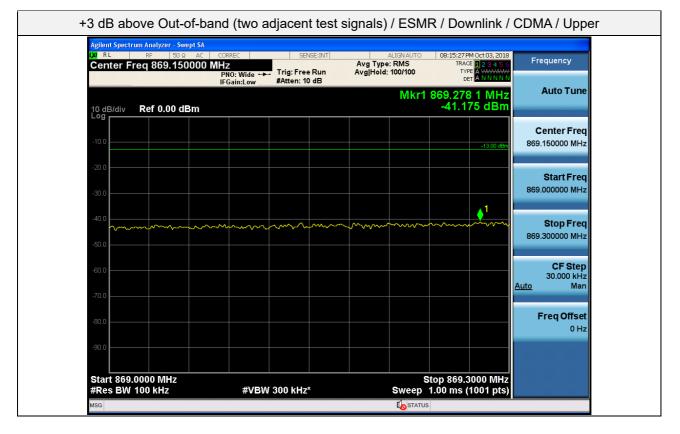
-100	ter Free 0000 MH
Si ang	
	art Fred
	op Fred
	<b>CF Step</b> 0.000 kHz Man
-70.0	<b>q Offset</b> 0 Hz





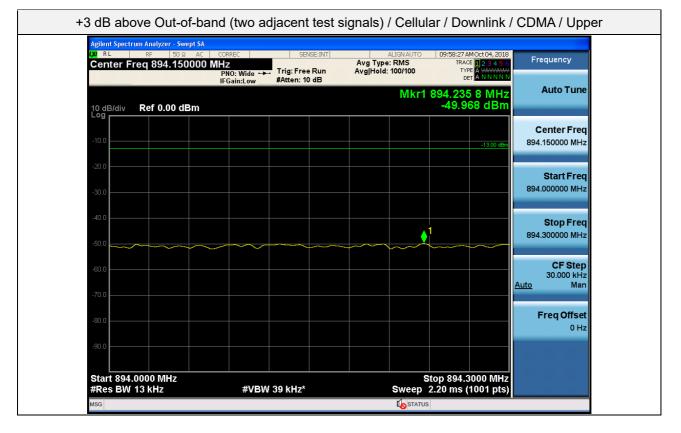
Start Freq 894.000000 M	PNO: Wide 🛶 Trig: Free Run	Avg Type: RMS Avg Hold: 100/100	TRACE 123456 TYPE A WWWWW DET A N N N N N	Frequency
	IFGain:Low Atten: 10 dB	Mkr1	894.001 5 MHz	Auto Tune
10 dB/div Ref 0.00 dBm			-43.138 dBm	
				Center Freq
-10.0			-13.00 dBm	894.150000 MHz
-20.0				Start Freq
-30.0				894.000000 MHz
-40.0 1				
-40.0				Stop Freq 894.300000 MHz
-50.0				
-60.0				CF Step 30.000 kHz
-70.0				<u>Auto</u> Man
				Freq Offset
-80.0				0 Hz
-90.0				
			top 894.3000 MHz	





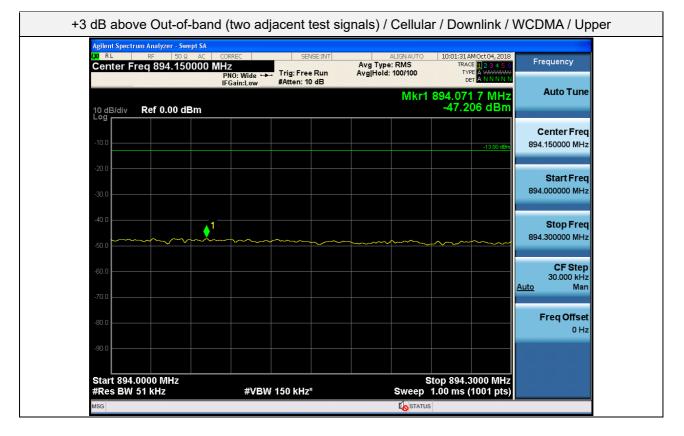
Agilent Spectrum Analyzer - Swept SA	CORREC SENSE:INT	ALIGNAUTO	08:15:55 PM Oct 03, 2018	
Center Freq 861.850000 M	HZ PNO: Wide 🖚 Trig: Free Run	Avg Type: RMS Avg Hold: 100/100	TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
	IFGain:Low #Atten: 10 dB	Mkr1	861.721 6 MHz	Auto Tune
10 dB/div Ref 0.00 dBm			-39.803 dBm	
				Center Freq
-10.0			-13.00 dBm	861.850000 MHz
-20.0				Start Freq
-30.0				861.700000 MHz
<b>↓</b> 1				
-40.0	man man	······································	- Marine Ma Marine Marine Mari	Stop Freq 862.000000 MHz
-50.0				
-60.0				CF Step 30.000 kHz
-70.0				<u>Auto</u> Man
				Freq Offset
-80.0				0 Hz
-90.0				
Start 861.7000 MHz #Res BW 100 kHz	#VBW 300 kHz*		top 862.0000 MHz I.00 ms (1001 pts)	





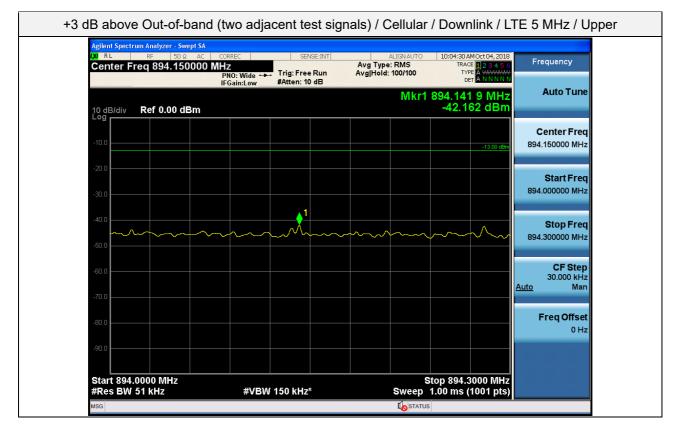
Agilent Spectrum Analyzer - Swept SA XU RL RF 50 Ω AC	CORREC SENSE:INT		10:00:25 AM Oct 04, 2018	E
Center Freq 868.850000	NHZ PNO: Wide ↔ Trig: Free Run IFGain:Low #Atten: 10 dB	Avg Type: RMS Avg Hold: 100/100	TRACE 123456 TYPE A WWWWW DET A N N N N N	Frequency
10 dB/div Ref 0.00 dBm			8.983 2 MHz -49.697 dBm	Auto Tune
				Center Freq
-10.0			-13.00 dBm	868.850000 MH
-20.0				
-20.0				Start Freq
-30.0				868.700000 MHz
-40.0				Oton Erog
			<b>↓</b> ¹	Stop Freq 869.00000 MHz
-50.0				
-60.0				CF Step 30.000 kHz
-70.0			Au	
				Erog Offoot
-80.0				Freq Offset 0 Hz
-90.0				
Start 868.7000 MHz #Res BW 13 kHz	#VBW 39 kHz*	Sto	o 869.0000 MHz 0 ms (1001 pts)	

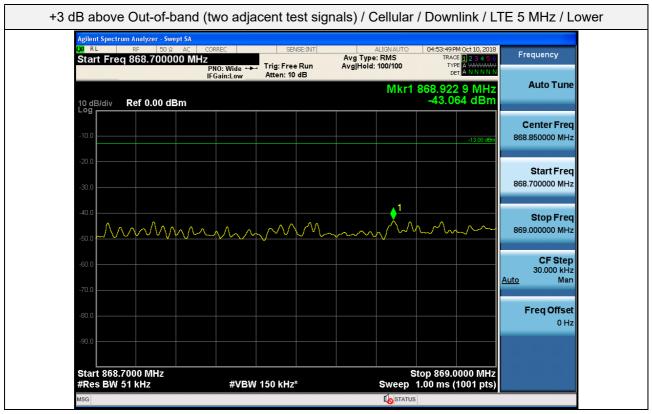




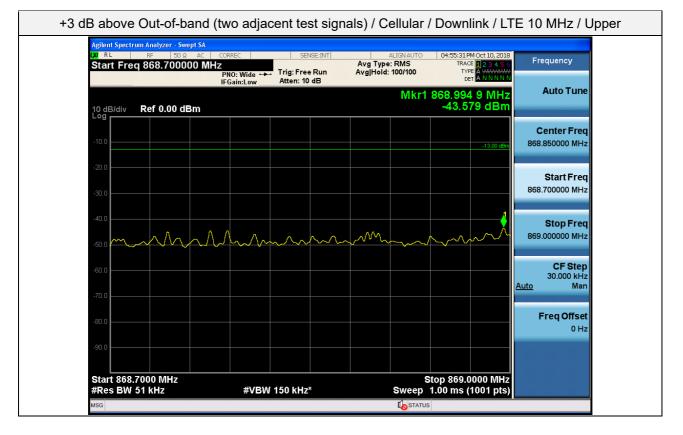
.100       .130080       868.850000         .200       .130080       Start F         .300		
.100       .1300#br       868.850000 f         .200       .1300#br       Start F         .300       .1300#br       Start F         .300       .1300#br       Start F         .300       .1300#br       .1300#br         .400       .1300#br       .1300#br         .400		Freq Offse 0 Ha
-100		
.100       .1300 dBm       868.850000 f         .200       .1300 dBm       Start F         .300		Mar
-10.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0		CF Step 30.000 kHz
-10.0		0.000000 MHz
-10.0		Stop Freq
-10.0	868	.700000 MHz
		Start Free
		Center Freq
Mkr1 868.846 1 MHz Auto Tu	Mkr1 868.846 1 MHz	Auto Tune
Wile     RL     RF     50 Ω     AC     CORREC     SENSE:INT     ALIGNAUTO     10:03:13 AMOct 04, 2018       Center Freq 868.850000 MHz     Avg Type: RMS     TRACE     2.3 ± 5.6       PNO: Wide ↔     Trig: Free Run     Avg/Hold: 100/100     TYPE     2.3 ± 5.6       IFGain: Low     #Atten: 10 dB	B.850000 MHz Avg Type: RMS TRACE 123456 F PNO: Wide ↔ Trig: Free Run Avg Hold: 100/100 Type A	equency

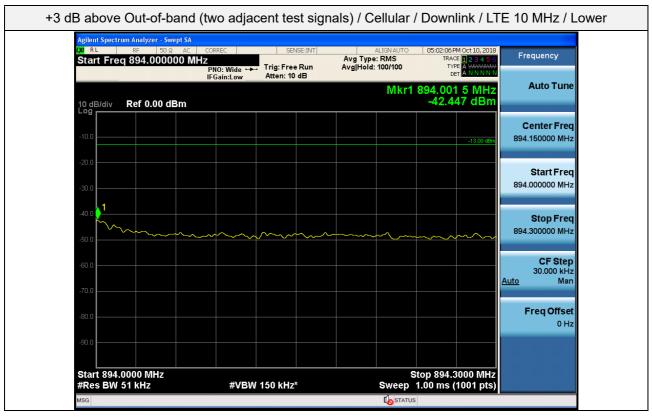






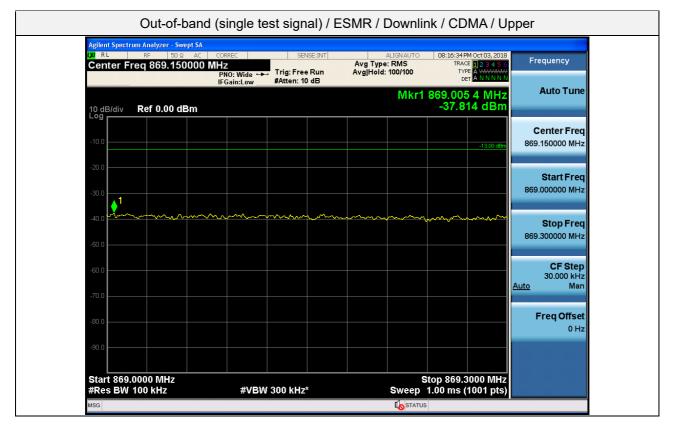






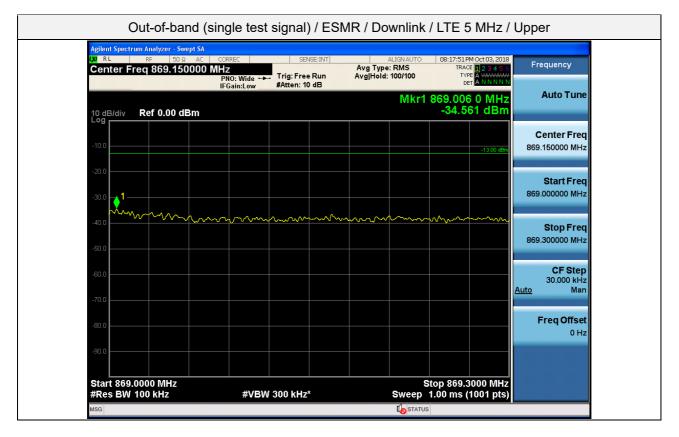






Center Free         Start Free           300	Agilent Spectrum Analyzer - Swept SA				
Mkr1 861.969 7 MHz         Auto Tun           10 dE/div         Ref 0.00 dBm         -37.560 dBm         Center Free           -100         -30.00         -30.00         -30.00         -30.00         -30.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00         -40.00 <th></th> <th>MHZ PNO: Wide +++ Trig: Free Run</th> <th>Avg Type: RMS</th> <th>08:17:01 PM Oct 03, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N</th> <th>Frequency</th>		MHZ PNO: Wide +++ Trig: Free Run	Avg Type: RMS	08:17:01 PM Oct 03, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
Log -100	10 dB/div Ref 0.00 dBm	IFGain:Luw #Atten: To dia	Mkr1 8	61.969 7 MHz	Auto Tune
-200     -300 dem     -300 dem<	Log				Center Freq
-30.0	-10.0			-13.00 dBm	861.850000 MHz
300       1       1       Stop Free         40.0       1       1       1         -60.0       1       1       1         -60.0       1       1       1         -60.0       1       1       1         -70.0       1       1       1         -80.0       1       1       1       1         -80.0       1       1       1       1       1	-20.0				Start Freq
Stop Free         Stop Free <t< td=""><td>-30.0</td><td></td><td></td><td><b>↓</b>1</td><td>861.700000 MHz</td></t<>	-30.0			<b>↓</b> 1	861.700000 MHz
-50.0	-40.0			www.	Stop Freq
-70.0 -70.0 -80.0	-50.0				862.000000 MHz
-70.0 Freq Offse	-60.0				CF Step 30.000 kHz
	-70.0				<u>Auto</u> Man
	-80.0				Freq Offset 0 Hz
	-90.0				
Start 861.7000 MHz Stop 862.0000 MHz	Stort 964 7000 MUs			n 862 0000 MU-	
	-80.0				<u>Auto</u> Freq Off

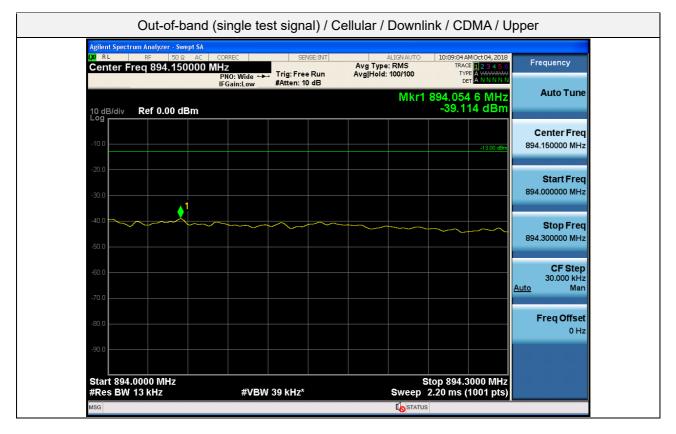








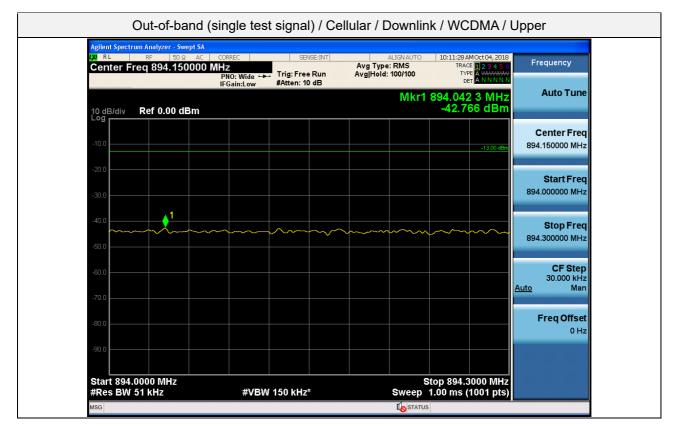




Agilent Spectrum Analyzer - Swept SA				
ແນ RL RF 50 ລ AC Center Freq 868.850000 N		ALIGNAUTO Avg Type: RMS Avg Hold: 100/100	10:10:03 AM Oct 04, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
	PNO: Wide +++ Trig: Free Run IFGain:Low #Atten: 10 dB	•		Auto Tune
10 dB/div Ref 0.00 dBm			58.853 0 MHz -46.253 dBm	
Log				Center Freq
-10.0			-13.00 dBm	868.850000 MHz
-20.0				Start Freq
-30.0				868.700000 MHz
-40.0				Oton From
-50.0				<b>Stop Freq</b> 869.000000 MHz
-50.0				05.0444
-60.0				CF Step 30.000 kHz Auto Man
-70.0				<u>ato</u> Mari
-80.0				Freq Offset 0 Hz
-90.0				0 H2
Start 868.7000 MHz #Res BW 13 kHz	#VBW 39 kHz*	Sto	p 869.0000 MHz 20 ms (1001 pts)	

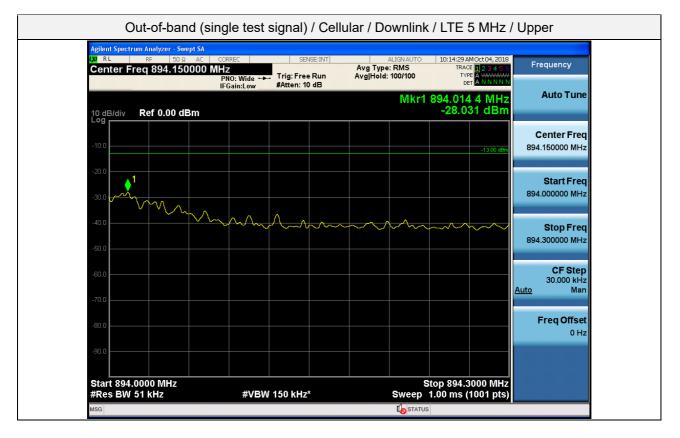






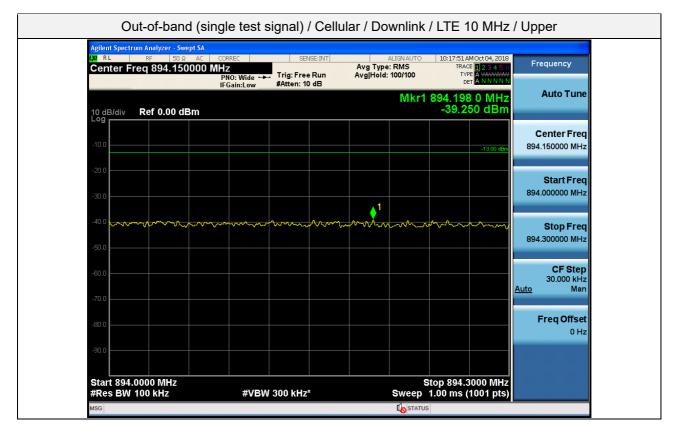
Agilent Spectrum Analyzer - Swept SA	CORREC SENSE:INT	ALIGN AUTO 11	0:12:36 AM Oct 04, 2018	
Center Freq 868.850000 M	MHz PNO: Wide ↔ Trig: Free Run	Avg Type: RMS Avg Hold: 100/100	TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
	IFGain:Low #Atten: 10 dB	Mkr1 86	B.853 6 MHz	Auto Tune
10 dB/div Ref 0.00 dBm			42.034 dBm	
				Center Freq
-10.0			-13.00 dBm	868.850000 MHz
-20.0				Start Freq
-30.0				868.700000 MHz
-40.0	1			
				Stop Freq 869.000000 MHz
-50.0				
-60.0				<b>CF Step</b> 30.000 kHz
-70.0				<u>uto</u> Man
-80.0				Freq Offset
				0 Hz
-90.0				
Start 868.7000 MHz		Stop	869.0000 MHz	

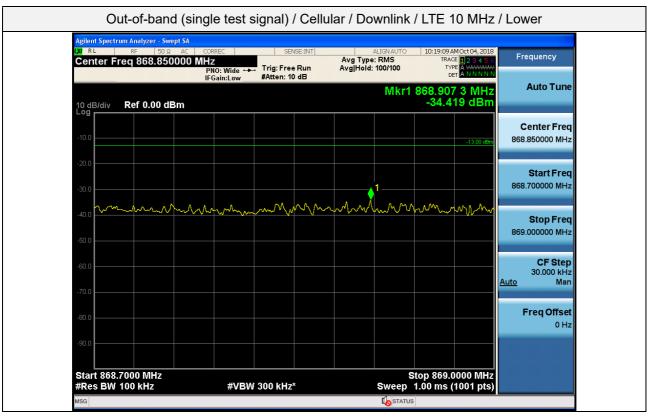




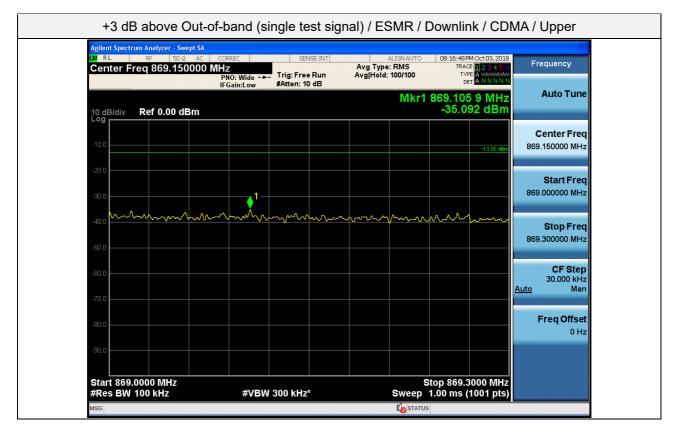
Agilent Spectrum Analyzer - Swept SA DØ RL RF 50.Ω AC C				
Center Freq 868.850000 MH	CORREC SENSE: IZ PNO: Wide Trig: Free Ru	Avg Type: RMS	10:16:33 AM Oct 04, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
	IFGain:Low #Atten: 10 dE			Auto Tune
10 dB/div Ref 0.00 dBm		IVIKE	1 868.994 9 MHz -25.029 dBm	
Log				Center Freq
-10.0			-13.00 dBm	868.850000 MHz
-20.0				
-30.0			A A	Start Freq 868.700000 MHz
-30.0		ر, ا	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
-40.0	······	www		Stop Freq
-50.0				869.000000 MHz
-60.0				CF Step
				30.000 kHz <u>Auto</u> Man
-70.0				
-80.0				Freq Offset 0 Hz
-90.0				0112
Start 868.7000 MHz #Res BW 51 kHz	#VBW 150 kHz*		Stop 869.0000 MHz 1.00 ms (1001 pts)	





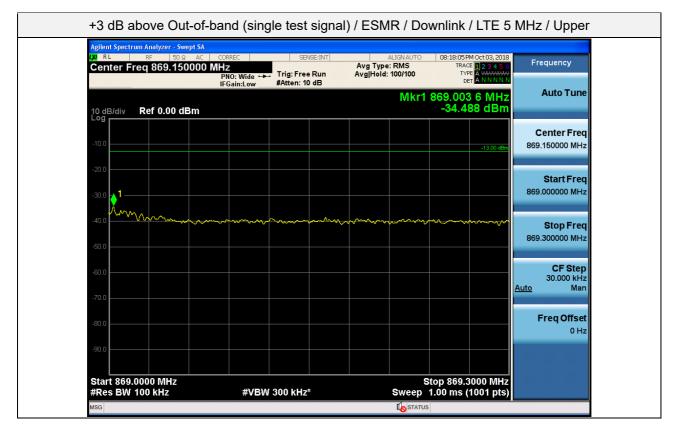


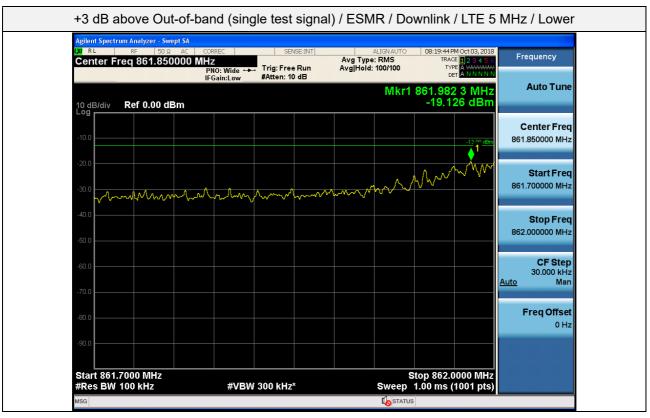




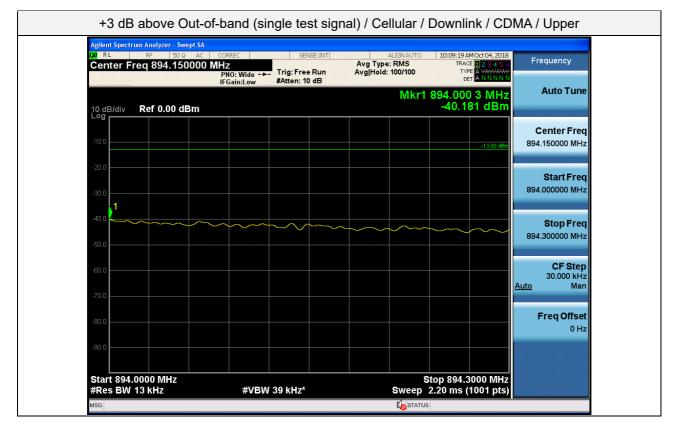
<mark>Agilent Spectrum Analyzer - Swept SA</mark> I <mark>XI</mark> RL RF 50Ω AC CORREI	SENSE:INT	ALIGNAUTO	08:17:15 PM Oct 03, 2018	
Center Freq 861.850000 MHz	Wide +++ Trig: Free Run	Avg Type: RMS Avg Hold: 100/100	TRACE 123456	Frequency
IFGai		U.		Auto Tune
10 dB/div Ref 0.00 dBm		IVIKET	361.999 4 MHz -33.612 dBm	
Log				Center Freq
-10.0			-13.00 dBm	861.850000 MHz
-20.0				
			1	Start Freq 861.700000 MHz
-30.0		and a good horizon	non and the	
-40.0				Stop Freq
-50.0				862.000000 MHz
				CF Step
-60.0				30.000 kHz Auto Man
-70.0				
-80.0				Freq Offset
				0 Hz
-90.0				
Start 861.7000 MHz			op 862.0000 MHz	

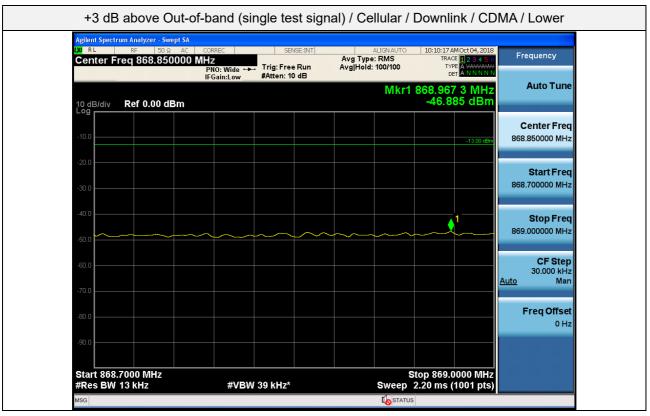




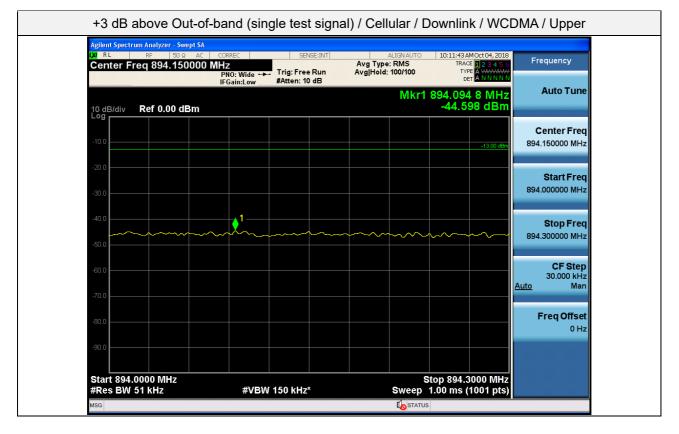






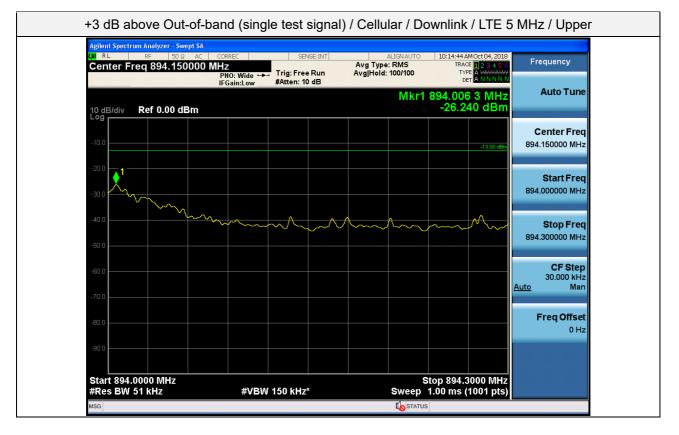






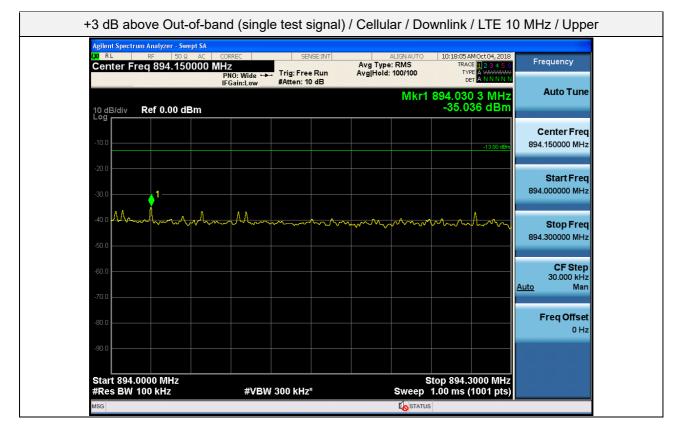
Agilent Spectrum Analyzer - Swept SA	CORREC SENSE:INT	ALIGN AUTO	10:12:50 AM Oct 04, 2018	
Center Freq 868.850000 M		Avg Type: RMS Avg Hold: 100/100	TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N	Frequency
	IFGain:Low #Atten: 10 dB	Mkr1 9	68.964 3 MHz	Auto Tune
10 dB/div Ref 0.00 dBm		WIKITO	-44.985 dBm	
				Center Freq
-10.0			-13.00 dBm	868.850000 MHz
-20.0				Start Freq
-30.0				868.700000 MHz
-40.0				<b>Stop Freq</b> 869.000000 MHz
-50.0				803.00000 Wi 12
-60.0				CF Step 30.000 kHz
-70.0				<u>Auto</u> Man
				Freq Offset
-80.0				0 Hz
-90.0				
tart 868.7000 MHz Res BW 51 kHz	#VBW 150 kHz*		p 869.0000 MHz 00 ms (1001 pts)	





Agilent Spectrum Analyzer - Swept SA	CORREC SENSE:INT	ALIGN AUTO	10:16:46 AM Oct 04, 2018	
Center Freq 868.850000		Avg Type: RMS Avg Hold: 100/100	TRACE 123456	Frequency
	IFGain:Low #Atten: 10 dB	Mkr1	868.994 9 MHz	Auto Tune
10 dB/div Ref 0.00 dBm		IVIKI	-25.755 dBm	
				Center Freq
-10.0			-13.00 dBm	868.850000 MHz
-20.0			<b>_</b>	Start Freq
-30.0			$ - ^{\sim}$	868.700000 MHz
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	A a a mm		
-40.0				Stop Freq 869.000000 MHz
-50.0				809.000000 Wi12
-60.0				CF Step 30.000 kHz
-70.0				Auto Man
				Freq Offset
-80.0				0 Hz
-90.0				
Start 868.7000 MHz #Res BW 51 kHz	#VBW 150 kHz*		Stop 869.0000 MHz 1.00 ms (1001 pts)	





0 dB/div Ref 0.00 dBm				Center Fre
10.0			-13.00 dBm	Center Fred 868.850000 MH:
20.0				Start Free
30.0			1	868.700000 MHz
	m m m	m.m.m.	mmMMM	Stop Fred 869.000000 MH:
60.0				CF Step
70.0				30.000 kHz <u>Auto</u> Man
10.0				Freq Offset

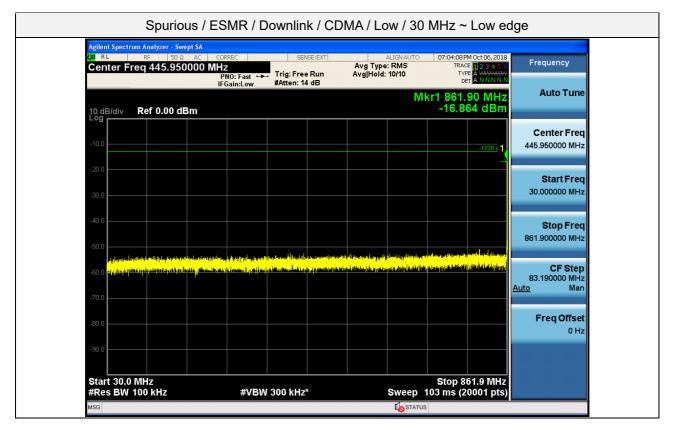


Plot data of Spurious Emissions



Agilent Spectrum Analyzer - Si	wept SA Ω /\ DC CORREC		SENSE:EXT		ALIGN AUTO	06:57:31Pf	4 Oct 06, 2018	
Center Freq 15.075	000 MHz	Fast ++ Trig:	Free Run	Avg Type Avg Hold:	: RMS	TRACI TYP	123456 A WWWWW A NNNNN	Frequency
	IFGain	:Low_#Atte	n: 10 dB				93 kHz	Auto Tune
10 dB/div Ref 0.00 c	IBm						39 dBm	
Log								Center Freq
-10.0								15.075000 MHz
-20.0							-23.00 dBm	
20.0								Start Freq 150.000 kHz
-30.0								
-40.0								Stop Freq
-50.0								30.000000 MHz
-60.0								CF Step
l III III III III III III III III III I								2.985000 MHz Auto Man
-70.0	alah merinan bah kerang	et a divida de la de	dele proven and the obligation Manager in population of the obligation	ter bergenen bildeler i Angenen bildeler	<mark>a kasili dala</mark>	u de tria telle de lite Napadi non priptico	Joshi de Litter ku sul Njer provinski preside	
-80.0								Freq Offset
								0 Hz
-90.0								
Start 150 kHz						Stop 30).00 MHz	

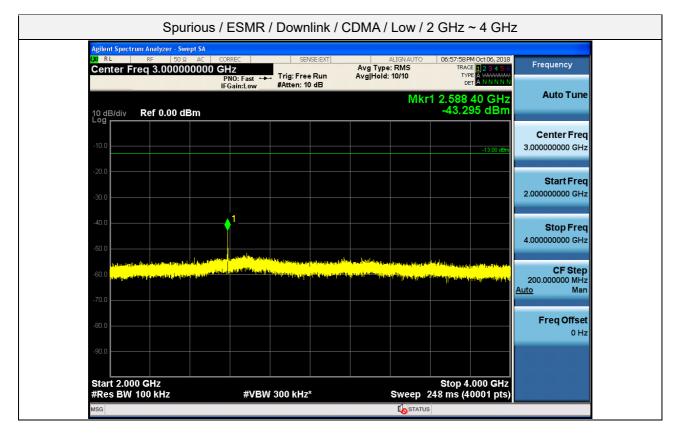




Agilent Spectrum Analyzer - Swe							
RL RF 50Ω Center Freq 1.43455	AC CORREC	SENSE	Avg T	ALIGN AUTO		M Oct 06, 2018 E 1 2 3 4 5 6 E A WWWWWW	Frequency
	PNO: Fast IFGain:Low	+++ Trig: Free R #Atten: 10 d		ld: 10/10	DE	ANNNNN	
10 dB/div Ref 0.00 dE	3m			Μ	kr1 891. -28.5	45 MHz 25 dBm	Auto Tune
Log							Center Freq
-10.0						-13.00 dBm	1.434550000 GHz
-20.0							
 ↓ ¹							Start Freq 869.100000 MHz
-30.0							869.100000 MHZ
-40.0							Stop Freq
-50.0							2.000000000 GHz
	al Art Mala sia, at an olive a the Material Science of the				يريان ولايترين والم	a. er arhadasikk	
60.0	and the second		r r			and the local difference of the second s	CF Step 113.090000 MHz
-70.0							<u>Auto</u> Man
							Freq Offset
-80.0							0 Hz
-90.0							
Start 869.1 MHz #Res BW 100 kHz		3W 300 kHz*			Stop 2.0	000 GHz 0001 pts)	

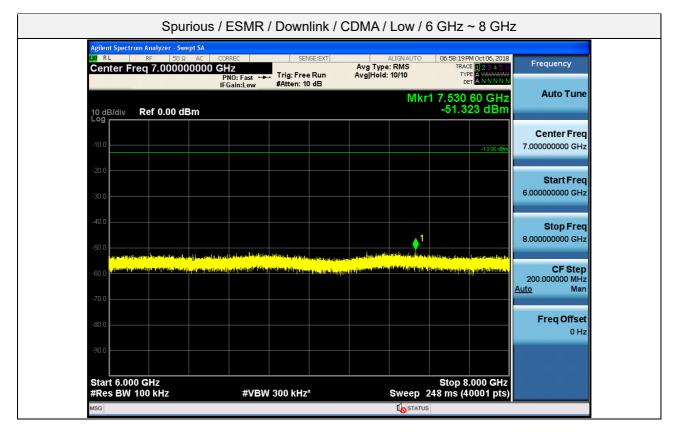






Agilent Spectrum			RREC	SE	VSE:EXT		ALIGNAUTO	06:58:081	PM Oct 06, 2018	
Center Fre		00000 GH	lz NO: Fast ↔	. Trig: Fre	e Run	Avg Type Avg Hold:	: RMS	TRA	CE 123456 PE A WWWWW ET A N N N N N	Frequency
		IF	Gain:Low	#Atten: 1	DdB		Mkr		65 GHz	Auto Tune
10 dB/div	Ref 0.00 dl	Вm	_	_				-51.3	47 dBm	
40.0										Center Freq
-10.0									-13.00 dBm	5.000000000 GHz
-20.0										Start Freq
-30.0										4.000000000 GHz
-40.0										Stop Freq
-50.0									1	6.000000000 GHz
	to albertande tald	and all the differ	elen en de blekkels			n bei Veleinen jure				05.04+*
-60.0 <mark>, _DRead Mathins</mark>	<mark>hanna sanarana</mark>	<mark>j</mark> etessijiet ^{en} siss	hipitan katala	in the state of th	Larmont . Indeau	in die Antonio State of the second		, he fe tour a	- (.i., siment) piliti	CF Step 200.000000 MHz <u>Auto</u> Man
-70.0										<u>Auto</u> Man
-80.0										Freq Offset
-90.0										0 Hz
-50.0										
Start 4.000 #Res BW 10				/ / 300 kHz		<u> </u>			.000 GHz 0001 pts)	





Agilent Spectrum Analyzer - Swept SA			
	CORREC SENSE:EXT GHZ PNO: Fast ↔ Trig: Free Run	ALIGNAUTO 06:58:3 Avg Type: RMS ۲۴ Avg Hold: 10/10	DPM Oct 06, 2018 Frequency ACE 1 2 3 4 5 6 YPE A WWWWW DET A N N N N N
	IFGain:Low #Atten: 10 dB	Mkr1 9.50	Auto Tom
10 dB/div Ref 0.00 dBm			265 dBm
			Center Freq
-10.0			9.00000000 GHz
-20.0			Start Freq
-30.0			8.000000000 GHz
-40.0			
		_1	Stop Freq 10.00000000 GHz
	eta la la la seconda esta la sida de la sida de la seconda de la seconda de la seconda de la seconda de la seco		terte finde and the period
-60.0 121142.000.01.00010.00010.00000000000000	<mark>efek, la na za na za na za na za na prejen za dan bila ila bila ila bila ila na prejen za na na na na na na na Na na na</mark>	hah milan yang sang sang sang sang sang sang sang s	200.000000 MHz
-70.0			Auto Man
-80.0			Freq Offset
			0 Hz
-90.0			
Start 8.000 GHz		Stop 1	0.000 GHz

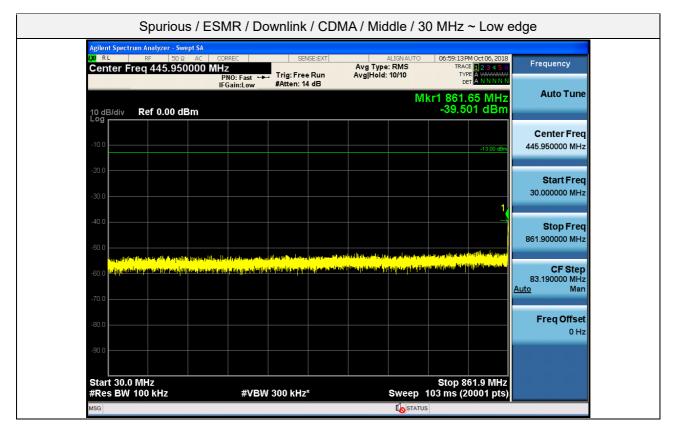






Agilent Spectrum Ana		CORREC	SEF	VSE:EXT		ALIGN AUTO	06:50:05	PM Oct 06, 2018	
Center Freq 1			, Trig: Fre	e Run	Avg Type Avg Hold:	: RMS	TRAC		Frequency
		IFGain:Low	#Atten: 1	0 dB				593 kHz	Auto Tune
10 dB/div Ref	0.00 dBm							28 dBm	
Log									Center Freq
-10.0									15.075000 MHz
-20.0								-23.00 dBm	
-30.0									Start Freq 150.000 kHz
-30.0									
-40.0									Stop Freq
-50.0									30.000000 MHz
									CF Step
-60.0									2.985000 MHz Auto Man
-70.0	alan and inside a darid Mana Ing Prantika (1	and a she she di sh fan ar	halling a hale de la	a na ing dalamati Vilagi ng Capitang	, les la classica de la constante de la Producto de la constante de la c	ladila ny shirida di Talah ny shirida	(bearlined block (periodical block)		
-80.0									Freq Offset
									0 Hz
-90.0									
Start 150 kHz							Stop 3	0.00 MHz	

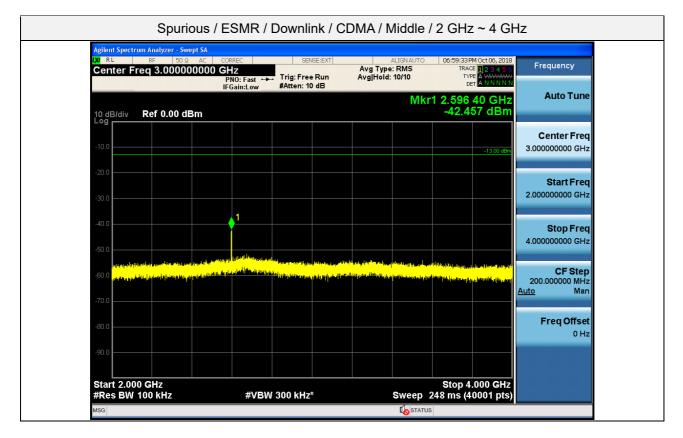




Agilent Spectrum Analyzer - Swept SA	CORREC SENSE	EXT ALIGNAUT	0 06:59:21 PM Oct 06, 2018	
Center Freq 1.43455000	0 GHz PN0: Fast ↔ Trig: Free F	Avg Type: RMS Run Avg Hold: 10/10	TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
	IFGain:Low #Atten: 10 d		Mkr1 888.02 MHz	Auto Tuno
10 dB/div Ref 0.00 dBm			-31.478 dBm	
109				Center Freq
-10.0			-13.00 dBm	1.434550000 GHz
-20.0				Otert From
-30.0				Start Freq 869.100000 MHz
-40.0				Stop Freq
-50.0				2.000000000 GHz
	1) Maria Alia Anto Inc. De maria de Childre de La Maria de La Contenza de			CF Step
	_{na} je klasila kanona je provinski područa pod	<mark>la na di taman ang ang ang ang ang ang ang ang ang a</mark>	nerite d'ex della contra contra colla contra con	113.090000 MHz <u>Auto</u> Man
-70.0				
-80.0				Freq Offset 0 Hz
-90.0				
Start 869.1 MHz #Res BW 100 kHz	#VBW 300 kHz*		Stop 2.0000 GHz 140 ms (30001 pts)	



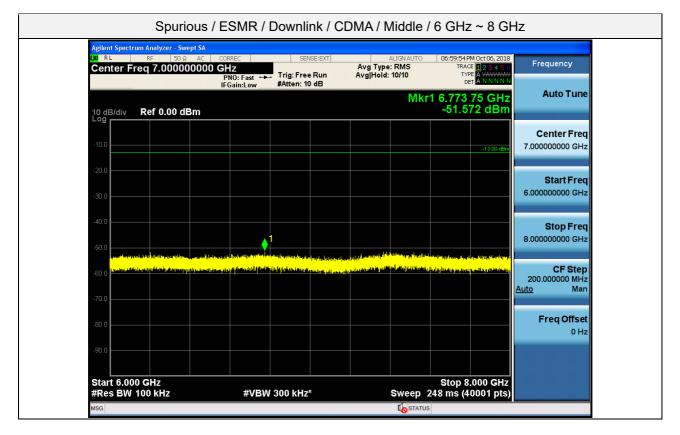




Agilent Spectrum Analyzer - Swept SA				
<mark>04</mark> RL RF 50 Ω AC Center Freq 5.00000000	0 GHz	AVG Type: RMS e Run Avg Hold: 10/10	TRACE 123456	Frequency
	PNO: Fast +++ Trig: Fre IFGain:Low #Atten: 1	0 dB	DET A N N N N N	Auto Tune
10 dB/div Ref 0.00 dBm		r	/kr1 5.540 30 GHz -51.335 dBm	
Log				Center Freq
-10.0			-13.00 dBm	5.000000000 GHz
-20.0				
-20.0				Start Freq
-30.0				4.000000000 GHz
-40.0				
			1	Stop Freq 6.00000000 GHz
-50.0		and to be a life of control of the state of the		
-60.0	and the second secon	er, de alemán filozofi de ser filozofi, em a filozofi a con a construir y parto a ada bitendo	والمتشاه ومستعلقة والمراجع ومتعاولا والمتراجع المراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع	CF Step 200.000000 MHz
				Auto Man
-70.0				
-80.0				Freq Offset 0 Hz
-90.0				
Start 4.000 GHz #Res BW 100 kHz	#VBW 300 kHz		Stop 6.000 GHz p 248 ms (40001 pts)	

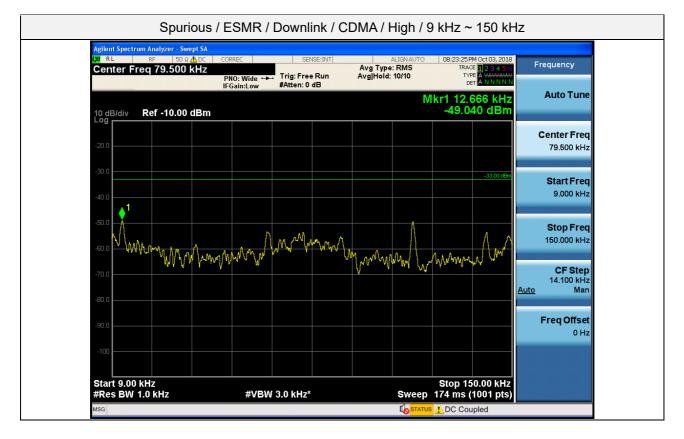






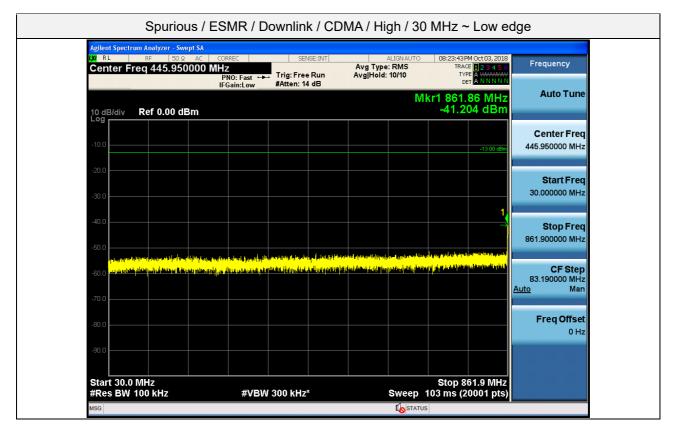
Agilent Spectrum Analyzer - Swept SA				
M RL RF 50 Ω AC Center Freq 9.000000000		ALIGNAUTO 0 Avg Type: RMS Avg Hold: 10/10	7:00:06 PM Oct 06, 2018 TRACE 2 3 4 5 6 TYPE A WWWWW DET A N N N N N	Frequency
	PNO: Fast +++ Trig: Free Run IFGain:Low #Atten: 10 dB			Auto Tune
10 dB/div Ref 0.00 dBm			.494 10 GHz 50.065 dBm	
Log				Center Freq
-10.0			-13.00 dBm	.000000000 GHz
-20.0				
-30.0				Start Freq 000000000 GHz
-33.0				
-40.0		.1		Stop Freq
-50.0	يرور و ما الماري الماري المارية المارية المارية المارية المارية المارية المارية المارية المارية الم		10	.000000000 GHz
-60.0	يريم إذار من هذا الله (1 هذا أنه أنه الأخلية والمراجع _و لا _{المع} اولية والمراجع المراجع الم	a load of an a first of the first of the state	and the specific sector of the	CF Step
-70.0			Au	200.000000 MHz to Man
-70.0				
-80.0				Freq Offset 0 Hz
-90.0				
Start 8.000 GHz #Res BW 100 kHz	#VBW 300 kHz*		op 10.000 GHz ms (40001 pts)	





Agilent Spectrum Analyzer - Swept		QEN	ISE:INT		ALIGN AUTO	08:23:36 DN	4 Oct 03, 2018	
Center Freq 15.07500			Run	Avg Type Avg Hold:	RMS	TRACE		Frequency
		#Attent it	, 40				67 kHz	Auto Tune
10 dB/div Ref 0.00 dBr	n					-43.86	67 dBm	
-10.0								Center Freq 15.075000 MHz
-20.0							-23.00 dBm	Start Freq
-30.0								150.000 kHz
-40.0 -1								
								Stop Freq 30.00000 MHz
-50.0								
-60.0								CF Step 2.985000 MHz
-70.0	andelenel been to be offer above the	a south and a south	an an staatd billide	المرجاد والمرجاد والمرجان وراد	l La strategi	والمتعادية والمتعادية	والمعادية المعادية	<u>Auto</u> Man
and the second of the second o	n de la grante de alterreterreterreterreterreterreterreter	in statisting and shall	destantes although	الم الم المانية من الم الم		NAL BOALD AND A CHARTER	and a later to a state	
-80.0								Freq Offset 0 Hz
-90.0								
Start 150 kHz #Res BW 10 kHz		30 kHz*				Stop 30 368 ms (6).00 MHz	

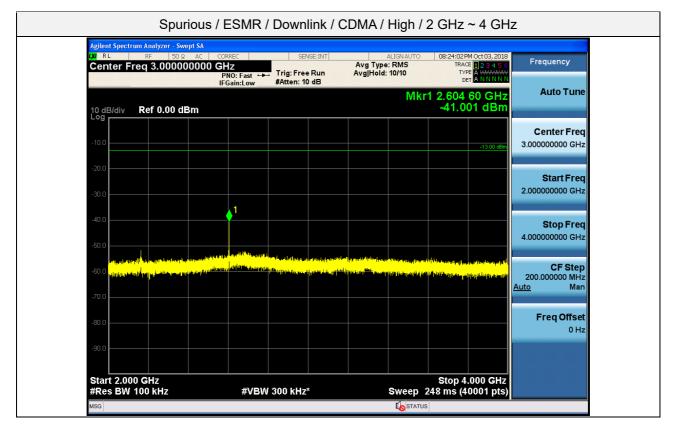




Agilent Spectrum	· ·				,		3, II		je ~ 2 G	· ·
Center Fre	RF 50 Ω	AC CORR			NSE:INT	Avg Type			PM Oct 03, 2018 CE 1 2 3 4 5 6	Frequency
		PN	D: Fast 🔸	Trig: Fre #Atten: 1		Avg Hold:	10/10	TY D	CE 123456 PE A WWWWW ET A NNNNN	
10 dB/div	Ref 0.00 dB	m					М		10 MHz 84 dBm	Auto Tune
Log										Center Freq
-10.0									-13.00 dBm	1.434550000 GHz
-20.0										Otort From
-30.0										Start Freq 869.100000 MHz
-40.0										Stop Freq 2.000000000 GHz
-50.0										
-60.0	<mark>na istolistikki sintena</mark> Kalendari palitikki sintena	lan sin bahar si kapana Timi kipa ka satalar						n and a Phile Tradens (alala des presidentes ala la des presidentes	CF Step 113.090000 MHz
-70.0										<u>Auto</u> Man
-80.0										Freq Offset
										0 Hz
-90.0										
Start 869.1	MHz							Stop <u>2.</u>	0000 GHz	
#Res BW 10)0 kHz		#VBW	300 kHz	*		Sweep	140 ms (3	80001 pts)	



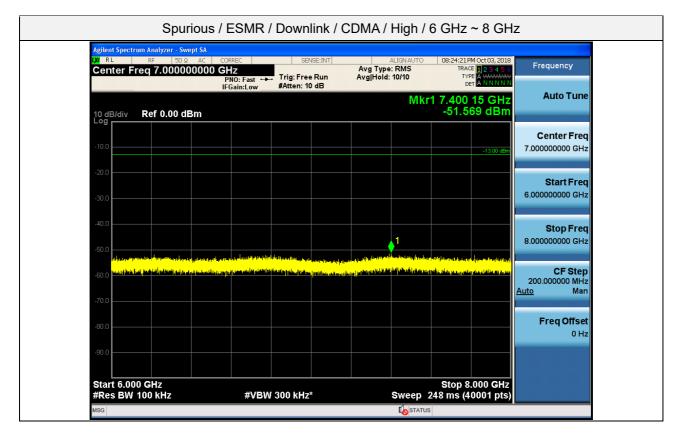




Agilent Spectrum Analyzer -									
Center Freq 5.000		7	SENS	SE:INT	Avg Type Avg Hold:		08:24:11F TRAC TYP	M Oct 03, 2018 E 1 2 3 4 5 6 PE A 444444 A N N N N N	Frequency
			Atten: 10		01			75 GHz	Auto Tune
10 dB/div Ref 0.00	dBm							38 dBm	
									Center Freq
-10.0								-13.00 dBm	5.000000000 GHz
-20.0									Start Freq
-30.0									4.000000000 GHz
-40.0									Stop Freq
-50.0						Les official and the field of the	1	♦ ¹	6.000000000 GHz
-60.0	en formalis distriction (download) medicae distriction (distriction)	a la selle de la selle de la selle	the second second		1.1	an protocol and a linear and a galaxy of the ball		alle fait an ait pair	CF Step
-70.0	ч г								200.000000 MHz <u>Auto</u> Man
									Freq Offset
-80.0									0 Hz
-90.0									
Start 4.000 GHz							Stop 6	.000 GHz	

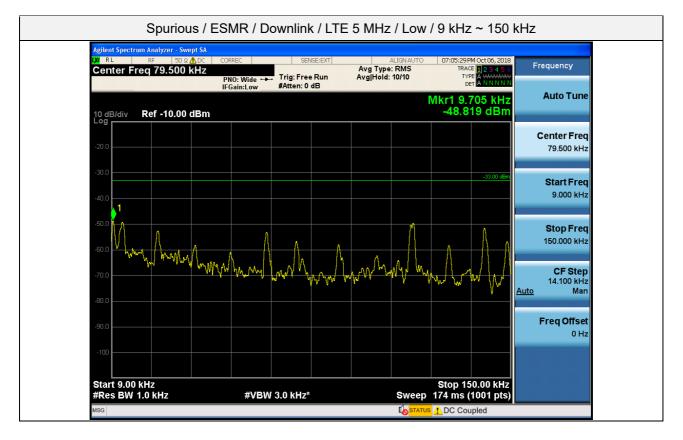






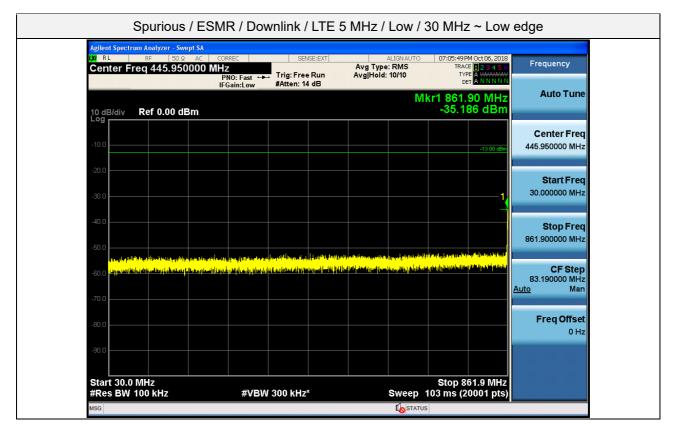
Agilent Spectrum Analyzer - Swept SA	CORREC SENSE:INT	ALIGNAUTO 08:24:31	M Oct 03, 2018
Center Freq 9.000000000	GHz PN0: Fast ↔ Trig: Free Run		E 123456 FE A WWWWW ET A NNNNN
	IFGain:Low #Atten: 10 dB	Mkr1 9,506	Auto Tuno
10 dB/div Ref 0.00 dBm		-50.3	14 dBm
			Center Freq
-10.0			-13.00 dBm 9.000000000 GHz
-20.0			Start Freq
-30.0			8.000000000 GHz
-40.0			
		_1	Stop Freq 10.00000000 GHz
-50.0	ويستح والمالية المتحافظ أفطرت ومحافظ والمتحد والمحافظ والمتحد والمحافظ	When the state of	
-60.0	landine in an annang _{al} di sa ana ini kanana di fair fiti al-lini paling distan	<mark>n la cana da sa ka ka</mark>	200.000000 MHz
-70.0			Auto Man
-80.0			Freq Offset
00.0			0 Hz
-90.0			
Start 8.000 GHz		Stop 10	.000 GHz





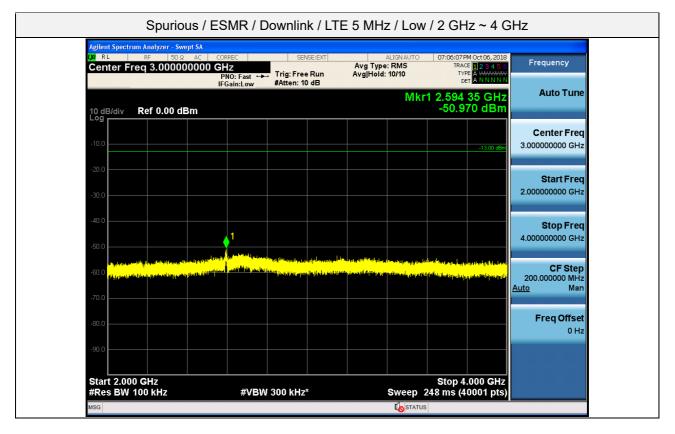
Agilent Spectrum Analyzer - Swept SA ↓XI RL RF 50 Q ▲ DC	CORREC SET	ues mail		07-05-00 PM 0-4-05-0015	
Center Freq 15.075000 I		Avg Type		07:05:39 PM Oct 06, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWW	Frequency
	IFGain:Low #Atten: 1			DET A NNNN	
10 dB/div Ref 0.00 dBm				Mkr1 667 kHz -42.606 dBm	
Log					Center Freq
-10.0					15.075000 MHz
-20.0					
				-23.00 dBm	Start Freq
-30.0					150.000 kHz
-40.0					Stop Freq
-50.0					30.000000 MHz
-50.0					
-60.0					CF Step 2.985000 MHz
	n din tala din kan de Kirin da la da bahah tibi b Pelangkan da pada pada pada pada pada pada pada	d des up the sector description in the line of the	Alithing the second second	a kuludan kin milikin kita dalam seria	<u>Auto</u> Man
	Valorin en parte (stiller in alle parties af her her h	a a fallan da gada ya da waka da ya da Mana na ya da y	a han in the line is a second seco	alaadii ji tertii ligi kii dagaalaa sida ay	Freq Offset
-80.0					0 Hz
-90.0					
Start 150 kHz #Res BW 10 kHz	#VBW 30 kHz*		Curson	Stop 30.00 MHz 368 ms (6001 pts)	





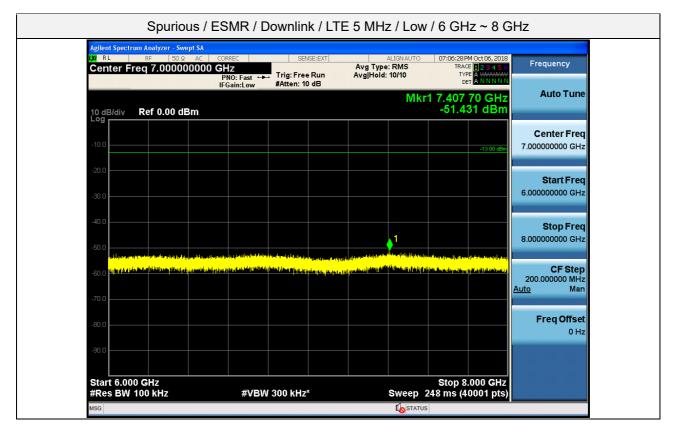
Agilent Spectrum Analyzer - Swept SA				
Center Freq 1.434550000 (CORREC SENSE:EXT GHz PNO: Fast ↔ Trig: Free Run	ALIGNAUTO 07:0 Avg Type: RMS Avg Hold: 10/10	5:57 PM Oct 06, 2018 TRACE 1 2:3:4:5:6 TYPE A WWWWW DET A N N N N N	uency
	IFGain:Low #Atten: 10 dB			uto Tune
10 dB/div Ref 0.00 dBm			1.516 dBm	
				nter Freq
-10.0			-13.00 dBm 1.43455	0000 GHz
-20.0			S	tart Freq
-30.0			869.10	0000 MHz
-40.0				top Freq
-50.0				00000 GHz
and a state of the	te specificate de la Arstena d'Anna fastigna, talestrissa i sufacestilionski		lluj fan jernen se feldi	CF Step
	en ni feren en her en ser en en en en en her			0000 MHz Man
-70.0				marr
-80.0			Fre	e q Offset 0 Hz
-90.0				UHZ
Start 869.1 MHz #Res BW 100 kHz	#VBW 300 kHz*	Stor Sweep 140 m	2.0000 GHz	





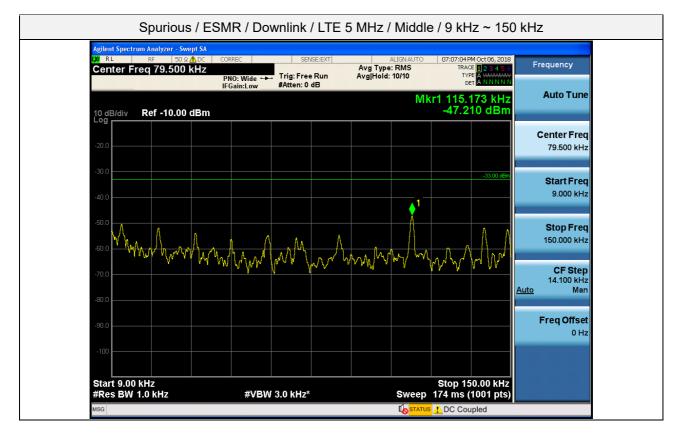
			SMR / L	Jownlin	nk / LT	E 5 MHz	: / Low	/ 4 GF	Iz ~ 6 G	iHz
LXI RL	um Analyzer - Swi RF 50 Ω eq 5.00000	AC COF	RREC		NSE:EXT	Avg Type:		TRA	PM Oct 06, 2018	Frequency
			NO: Fast ↔ Gain:Low	Trig: Fre #Atten: 1		Avg Hold: /				Auto Tune
10 dB/div	Ref 0.00 di	3m					Mkr'		30 GHz 75 dBm	Auto Tune
										Center Freq
-10.0									-13.00 dBm	5.00000000 GHz
-20.0										Start Freq
-30.0										4.000000000 GHz
-40.0										
								▲1		Stop Freq 6.00000000 GHz
-50.0	ورو بالغازية والمراجع المراجع		linguni, skantifis		n derling bilder og		anglanding the	utup loudnes.	du production	
-60.0 Hitset Jaw	under seinen sin der	and the second second	من الأراد في علي الرواية من ا	<mark></mark>	. _{اول} بامانتخاط الغازه.	<mark>la pie alla postana, _{de} teren hare, piela posta a</mark> l	and the second secon	A Internetional and the second		CF Step 200.000000 MHz
-70.0										<u>Auto</u> Man
-80.0										Freq Offset
-90.0										0 Hz
-30.0										
Start 4.00			#\/D\	1 200 kH-	*		Duroon - 2		.000 GHz	
#Res BW	TUU KHZ		#VBV	/ 300 kHz			Sweep 2	`	0001 pts)	





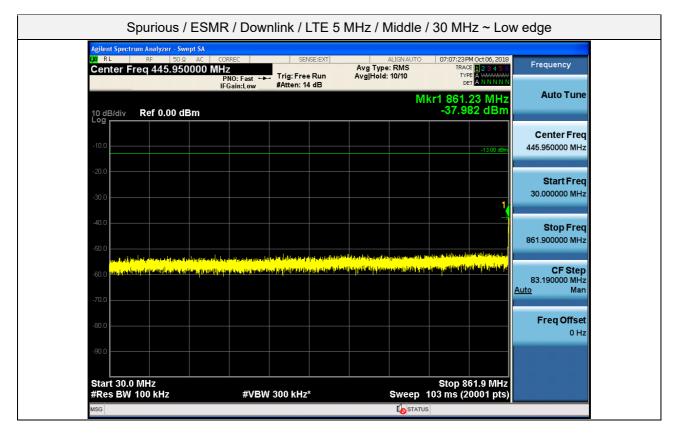
Agilent Spectrum Analyzer								
Center Freq 9.000		7	SENSE:EXT	Avg Type Avg Hold			Oct 06, 2018 1 2 3 4 5 6 A A M N N N N N	Frequency
		ain:Low #/	Atten: 10 dB		Mkr	DET		Auto Tune
10 dB/div Ref 0.00) dBm						4 dBm	
								Center Freq
-10.0							-13.00 dBm	9.000000000 GHz
-20.0								Start Freq
-30.0								8.00000000 GHz
-40.0								Stop Freq
-50.0					♦ ¹			10.000000000 GHz
	, extended distribution of the second se	THE REAL PROPERTY OF A			and a state of the second s		ly estimate the deside	CF Step
-60.0 dentitionally and the second				i i i i i i i i i i i i i i i i i i i		الالا أما أوريم أوريهم ومعيدين		200.000000 MHz Auto Man
-70.0								
-80.0								Freq Offset 0 Hz
-90.0								0112
Start 8.000 GHz #Res BW 100 kHz		#VBW 30	A 1-11-*		a	Stop 10.0 248 ms (40		





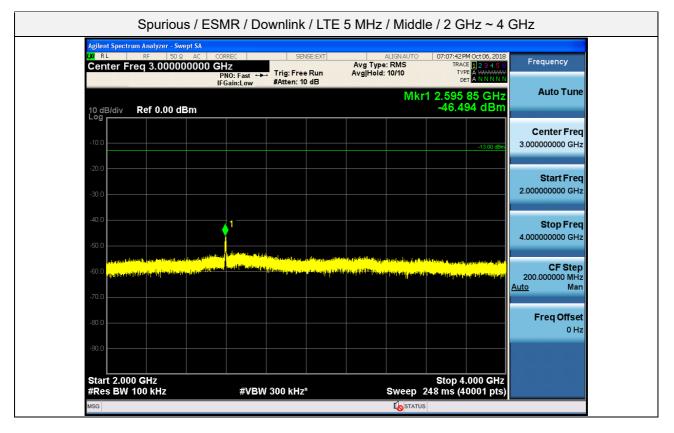
	MHz PNO: Fast ↔ Trig: Fre IFGain:Low #Atten: *			TRACE 123456 TYPE A WWWWW DET A N N N N N	
10 dB/div Ref 0.00 dBm				Mkr1 593 kHz -36.387 dBm	Auto Tune
-10.0					Center Freq 15.075000 MHz
-20.0				-23.00 dBm	Start Freq 150.000 kHz
-40.0					Stop Freq 30.000000 MHz
-60.0					CF Step 2.985000 MHz Auto Man
	petitele de la constante de la desta de La desta de la d La desta de la d	d a faith a la sta ann an Lean ann an Ann an Lean an Ann an Lean an Lean an Lean an Lean an Lean an Lean an Le An Lean an Lean	an an an the statements and a statement of the statement of the statement of the statement of the statement of t	di line di terre dei bala di si bibera di stato da Inte-India gran plana da presi tang tari di terre Inte-India gran plana da presi tang tari di terre	
-80.0					0 Hz
-80.0					Freq Offs 0





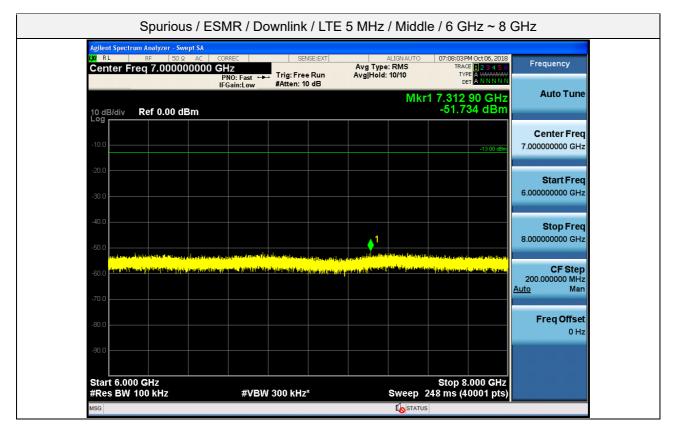
Agilent Spectrum Analyzer - S	Swept SA ΣΩ AC CORREC	-	SENSE:EXT		.IGN AUTO	07/07/22	M.O.+06, 2010	
Center Freq 1.434	550000 GHz		Free Run	Avg Type: Avg Hold: 1	RMS		M Oct 06, 2018 E 1 2 3 4 5 6 PE A 4444444 A NNNNN	Frequency
	IFGair		n: 10 dB					Auto Tune
10 dB/div Ref 0.00	dBm				IVI	-29.8	02 MHz 68 dBm	
Log								Center Freq
-10.0							-13.00 dBm	1.434550000 GHz
-20.0								
▲ 1								Start Freq 869.100000 MHz
-30.0								869.100000 MHZ
-40.0								Stop Freq
-50.0								2.00000000 GHz
- Solid I I	مريد المريد الم	deletera allans artilecen	nu	in a still at a laterative day of the	والمراد والمحادية		والمرور المراجع المراجع مراجع المراجع	
-60.0 Haldersold participation	lindi Kalindari di Man	n ^{har} a yan kana kana kana kana kana kana kana	a subset of the				ului piasmini ai	CF Step 113.090000 MHz
-70.0								<u>Auto</u> Man
~								Freq Offset
-80.0								0 Hz
-90.0								
Start 869.1 MHz #Res BW 100 kHz		#VBW 300 k	u 7*		woon	Stop 2.0	0000 GHz 0001 pts)	





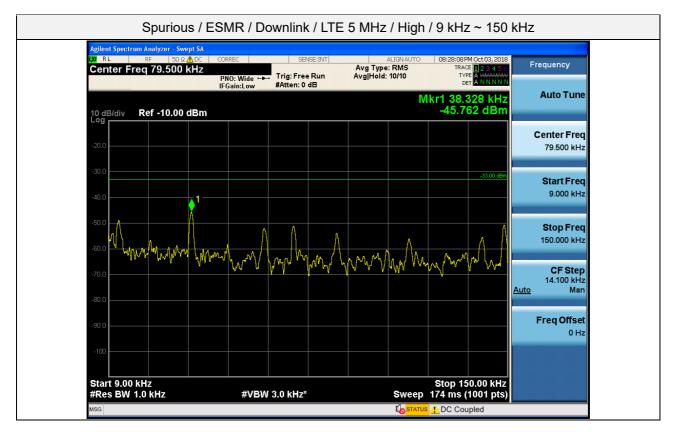
Agilent Spectrum Analyzer - Swept SA			
Ω RL RF 50Ω AC Center Freq 5.000000000		ALIGNAUTO 07:0 Avg Type: RMS Avg Hold: 10/10	7:53PM Oct 06, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N
	IFGain:Low #Atten: 10 dB		01 60 GHz Auto Tun
10 dB/div Ref 0.00 dBm			1.551 dBm
			Center Fre
-10.0			-13.00 dBm 5.000000000 GH
-20.0			Start Fre
-30.0			4.00000000 GH
-40.0			
		1	Stop Fre 6.000000000 GH
-50.0	ار بر الارتخاب المراجع	the all streets as the section of the	de Artil, de Jacon, Malleret
-60.0	and have a provide a first product of the second structure of the	الا الله الله الله الله عنه الله من الله عنه عنه الله الله الله الله الله الله الله ال	
-70.0			Auto Ma
-80.0			Freq Offs
			0 H
-90.0			
Start 4.000 GHz		Sto	op 6.000 GHz s (40001 pts)





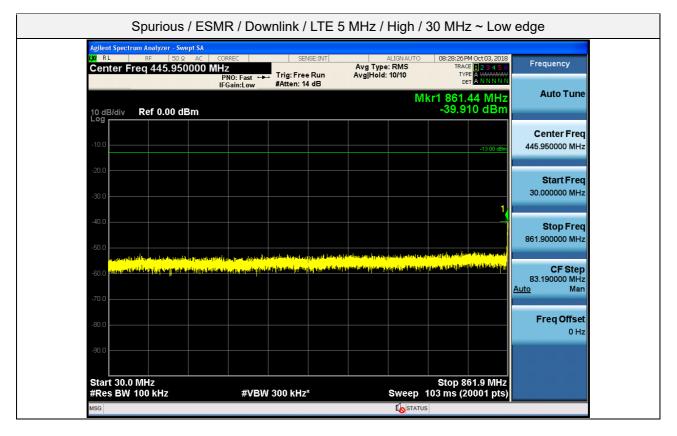
	DRREC SENSE:EXT		5PM Oct 06, 2018 ACE II Do a second Frequency
	Hz PNO: Fast ↔→ Trig: Free Run FGain:Low #Atten: 10 dB	Avg Type: RMS TF Avg Hold: 10/10	ACE 123456 TYPE A WWWWW DET A NNNNN
10 dB/div Ref 0.00 dBm	Conneow and the second	Mkr1 9.42 -50.	5 25 GHz Auto Tune 691 dBm
			Center Freq
-10.0			-13.00 dBm 9.000000000 GHz
-20.0			Start Freq
-30.0			8.00000000 GHz
-40.0			Stop Freq
-50.0		↓ 1	10.00000000 GHz
-60.0 Anter special statistics are as the distance and the second statistics of the second stati	atable, intra-other a creased of		
			200.000000 MHz <u>Auto</u> Man
-70.0			
-80.0			Freq Offset
-90.0			
Start 8.000 GHz		Stop 1	0.000 GHz





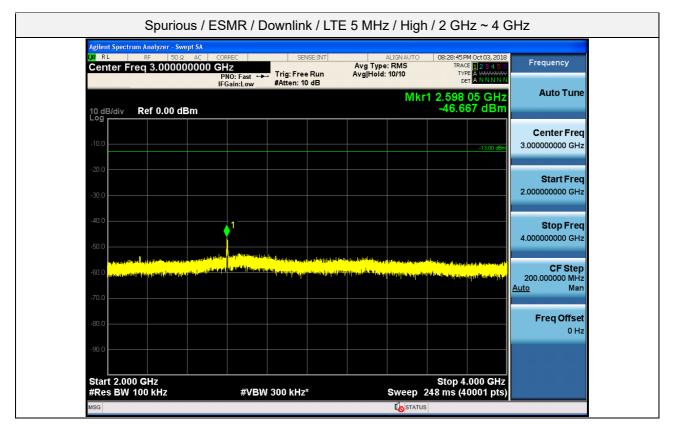
Agilent Spectrum Analyzer - Swe	pt SA	SEN	ISE:INT		ALIGN AUTO	08:28:19	M Oct 03, 2018	
Center Freq 15.0750	00 MHz PNO: Fast ←	Trig: Free	Run	Avg Type Avg Hold:	RMS		CE 123456 PE A 400000000000000000000000000000000000	Frequency
	IFGain:Low _	#Atten: 10				Mkr1	593 kHz 76 dBm	Auto Tune
10 dB/div Ref 0.00 dE	sm					-07.0		
-10.0								Center Freq 15.075000 MHz
-20.0								
							-23.00 dBm	Start Freq 150.000 kHz
-30.0								150.000 KHZ
-40.0								Stop Freq
-50.0								30.000000 MHz
-60.0								CF Step
	م بند المعالية م			لىزىر بى	la des a d			2.985000 MHz <u>Auto</u> Man
-70.0			and the first state of the second state of the	ini in the				
-80.0								Freq Offset 0 Hz
-90.0								
Start 150 kHz #Res BW 10 kHz	#\/B)	N 30 kHz*			Qwoon		0.00 MHz 6001 pts)	





Agilent Spectrum Analyzer - S							
Center Freq 1.434	0 Ω AC CORREC 550000 GHz PN0: Fast	SENS	Avg T	ALIGNAUTO ype: RMS old: 10/10	TRAC	M Oct 03, 2018 E 1 2 3 4 5 6 PE A WWWWW	Frequency
	IFGain:Low				D	10 MHz	Auto Tune
10 dB/div Ref 0.00	dBm			IVI	-36.2	90 dBm	
							Center Freq
-10.0						-13.00 dBm	1.434550000 GHz
-20.0							Otort From
-30.0							Start Freq 869.100000 MHz
-40.0							Stop Freq 2.000000000 GHz
-50.0				<mark>i</mark>			2.000000000 GH2
60.0	la de la calencia de consecter de la consectione A de la calencia de consecter por la consection de la consection de la consection de la consection de la consec	station of the local bard, we done		nan talah talan <mark>basa</mark>	a an a thair a bhaileil an An an an an an Allain an Allain	i a di sente de la constance. La constance de la constance de	CF Step 113.090000 MHz
-70.0		and the second	al estatua del de concerna de	L. La trata de			<u>Auto</u> Man
							Freq Offset
-80.0							0 Hz
-90.0							
Start 869.1 MHz #Res BW 100 kHz	#V	BW 300 kHz*		Sweep	Stop 2.0 140 ms (3	0000 GHz 0001 pts)	





Agilent Spectrum Analyzer - Swept	SA				
Center Freq 5.000000	000 GHz		ALIGNAUTO Avg Type: RMS Avg Hold: 10/10	08:28:55 PM Oct 03, 201 TRACE 1 2 3 4 5 TYPE A 0000000 DET A N N N N	Frequency
		tten: 10 dB			Auto Tuno
10 dB/div Ref 0.00 dBn	n		IVIKE	5.810 45 GHz -51.657 dBm	
					Center Freq
-10.0				-13.00 dBr	5.000000000 GHz
-20.0					Start Freq
-30.0					4.000000000 GHz
-40.0					Stop Freq
-50.0			u u u u u u u u u u u u u u u u u u u	1	6.000000000 GHz
-60.0	n a de la companya d Na companya de la comp	a na katala katala katala na katala kata Katala katala	A DESCRIPTION OF A DESC	and the second second second	CF Step
-70.0	ar In Internet				200.000000 MHz <u>Auto</u> Man
-70.0					Freq Offset
-80.0					0 Hz
-90.0					
Start 4.000 GHz				Stop 6.000 GHz	