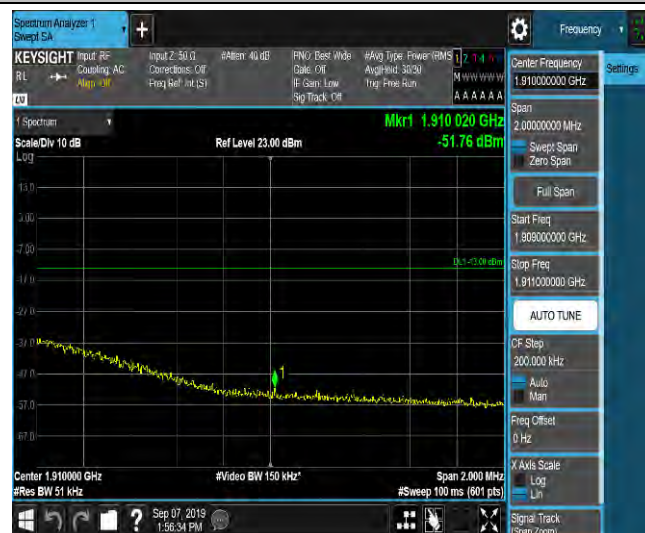


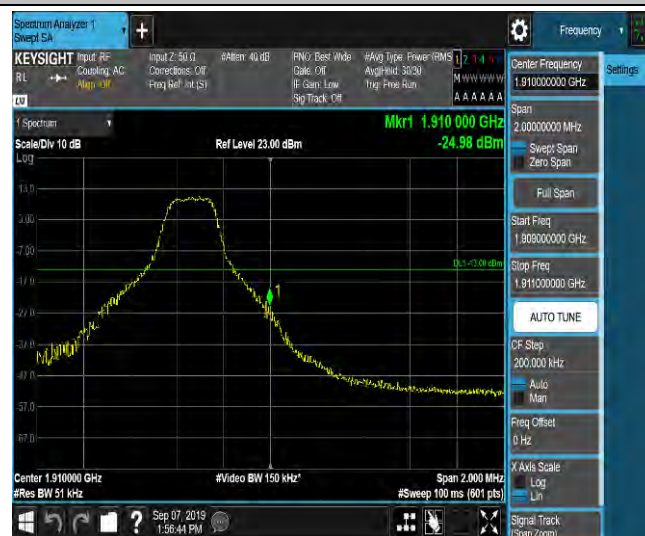
LTE Band 2_5MHz_QPSK_19175_1RB#12_-51.96_PASS



LTE Band 2_5MHz_16QAM_19175_1RB#12_-51.76_PASS



LTE Band 2 5MHz QPSK 19175 1RB#24 -24.98 PASS



LTE Band 2_5MHz_16QAM_19175_1RB#24_-28.32_PASS



LTE Band 2_5MHz_QPSK_19175_12RB#0_-46.08_PASS



LTE Band 2 5MHz 16QAM 19175 12RB#0 -46.90 PASS



LTE Band 2_5MHz_QPSK_19175_12RB#6_-46.31_PASS



LTE Band 2_5MHz_16QAM_19175_12RB#6_-47.60_PASS



LTE Band 2 5MHz QPSK 19175 12RB#13 -31.99 PASS



LTE Band 2_5MHz_16QAM_19175_12RB#13_-32.32_PASS



LTE Band 2_5MHz_QPSK_19175_25RB#0_-34.93_PASS



LTE Band 2_5MHz_16QAM_19175_25RB#0_-36.26_PASS



LTE Band 2_10MHz_QPSK_18650_1RB#0_-36.61_PASS



LTE Band 2_10MHz_16QAM_18650_1RB#0_-34.00_PASS



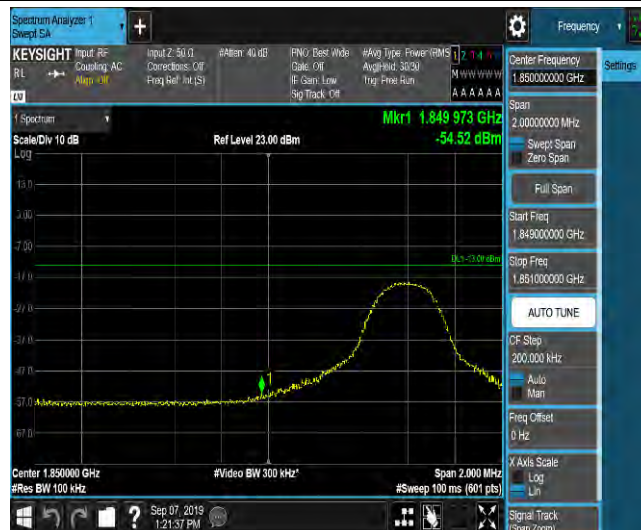
LTE Band 2_10MHz_QPSK_18650_1RB#24_-55.33_PASS



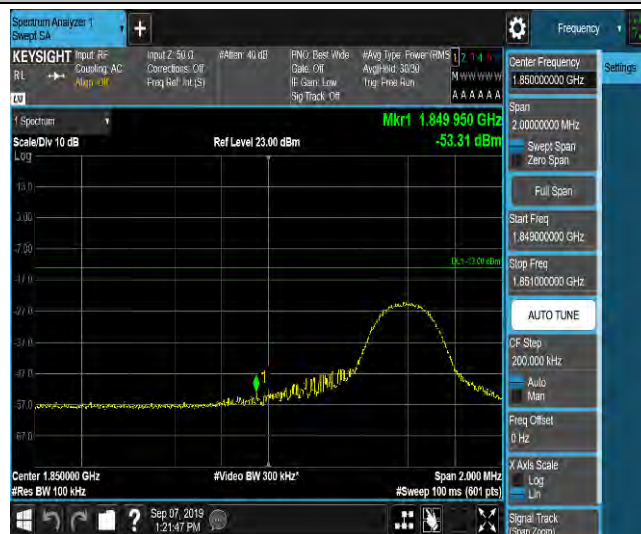
LTE Band 2_10MHz_16QAM_18650_1RB#24_-55.90_PASS



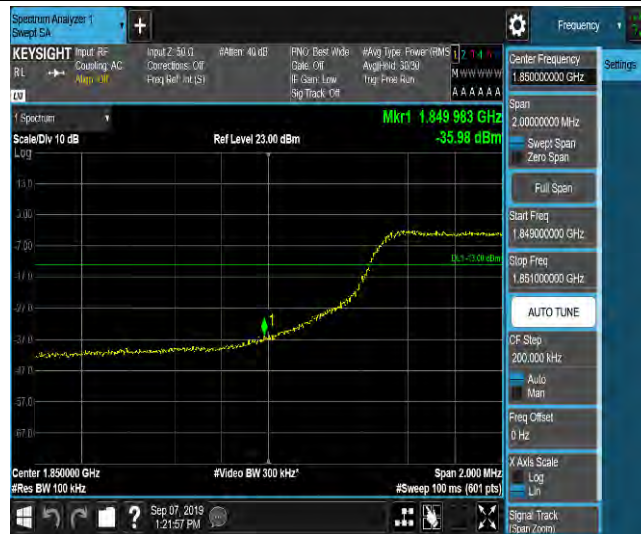
LTE Band 2_10MHz_QPSK_18650_1RB#49_-54.52_PASS



LTE Band 2_10MHz_16QAM_18650_1RB#49_-53.31_PASS



LTE Band 2_10MHz_QPSK_18650_25RB#0_-35.98_PASS



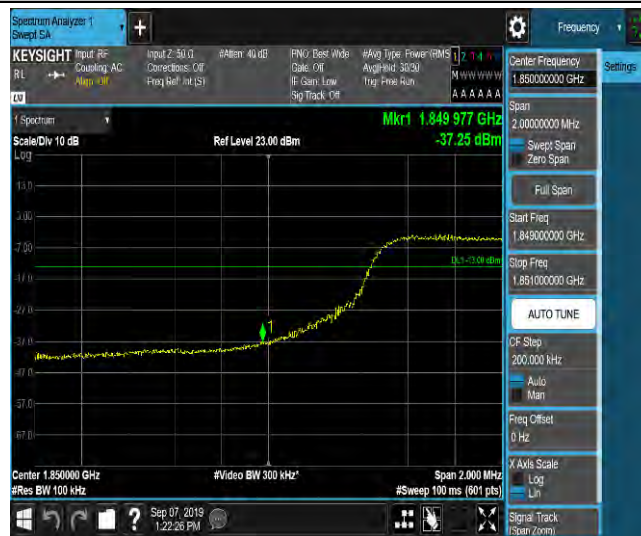
LTE Band 2_10MHz_16QAM_18650_25RB#0_-36.43_PASS



LTE Band 2_10MHz_QPSK_18650_25RB#12_-35.95_PASS



LTE Band 2_10MHz_16QAM_18650_25RB#12_-37.25_PASS



LTE Band 2_10MHz_QPSK_18650_25RB#25_-45.22_PASS



LTE Band 2_10MHz_16QAM_18650_25RB#25_-47.12_PASS



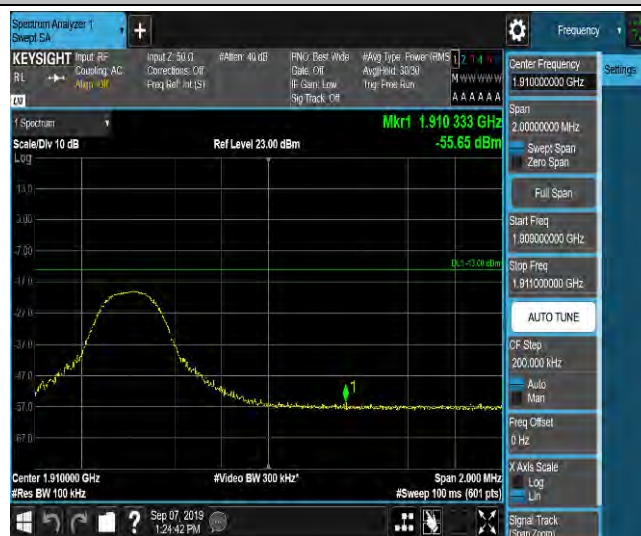
LTE Band 2_10MHz_QPSK_18650_50RB#0_-38.83_PASS



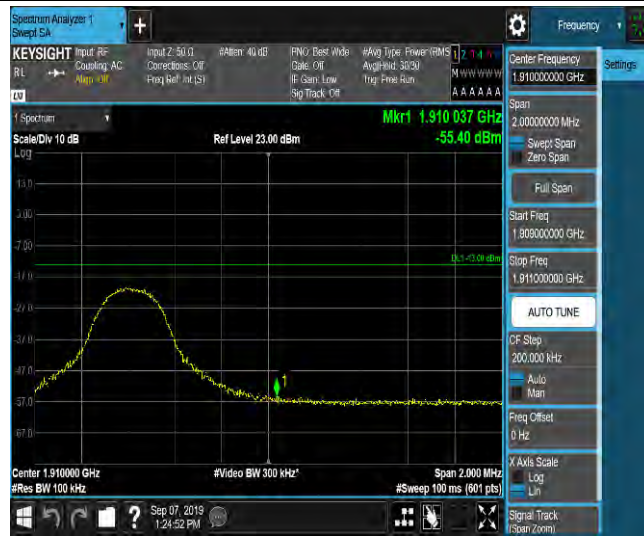
LTE Band 2_10MHz_16QAM_18650_50RB#0_-38.02_PASS



LTE Band 2_10MHz_QPSK_19150_1RB#0_-55.65_PASS



LTE Band 2_10MHz_16QAM_19150_1RB#0_-55.40_PASS



LTE Band 2_10MHz_QPSK_19150_1RB#24_-55.32_PASS



LTE Band 2_10MHz_16QAM_19150_1RB#24_-55.75_PASS



LTE Band 2_10MHz_QPSK_19150_1RB#49_-38.72_PASS



LTE Band 2_10MHz_16QAM_19150_1RB#49_-38.56_PASS



LTE Band 2_10MHz_QPSK_19150_25RB#0_-45.95_PASS



The screenshot displays a Spectrum Analyzer 1 interface. The main display area shows a spectrum plot with a green trace. A peak is labeled 'Mkr1 1.910 023 GHz' with a level of '-47.50 dBm'. The plot has a vertical scale of 'Scale/Div 10 dB' and a horizontal scale of 'Span 2.000 MHz'. The center frequency is 'Center 1.910000 GHz' and the resolution bandwidth is 'Res BW 100 kHz'. The video bandwidth is 'Video BW 300 kHz'.

On the right side, there is a 'Settings' panel with various controls:

- Center Frequency:** 1.910000000 GHz
- Span:** 2.00000000 MHz
- Sweep Span:** Zero Span
- Full Span:** (button)
- Start Freq:** 1.800000000 GHz
- Stop Freq:** 1.910000000 GHz
- AUTO TUNE:** (button)
- CF Step:** 200.000 kHz
- Auto Man:** (radio buttons)
- Freq Offset:** 0 Hz
- X Axis Scale:** Log (selected), Lin (radio button)
- Signal Track:** (button)

At the bottom, there is a status bar showing the date and time: 'Sep 07, 2019 1:27:07 PM'.

The screenshot displays a Spectrum Analyzer interface with the following components:

- Top Bar:**
 - Left: Spectrum Analyzer 1, Sweep SA
 - Center: Input 2, 50.0; Correction: Off; Frequency Ref: Int (ST); PNO: Best Wide; Gate: Off; IF Gain: Low; Sig Track: Off
 - Right: Settings icon, Frequency, and a unitless value of 1.7
- Input Section:**
 - Input: RF
 - Coating: AC
 - Align: CW
- Display Area:**
 - Top: Mkr1 1.910 063 GHz, -46.08 dBm
 - Center: Ref Level 23.00 dBm
 - Plot: A noisy signal trace with a green marker at 1.910 GHz.
 - Bottom: Center 1.510000 GHz, #Video BW 300 kHz, Span 2.000 MHz, #Res BW 100 kHz, #Sweep 100 ms (601 pts)
- Right Panel (Settings):**
 - Center Frequency: 1.910000000 GHz
 - Span: 2.000000000 MHz
 - Swept Span: Zero Span
 - Full Span
 - Start Freq: 1.895000000 GHz
 - Stop Freq: 1.911000000 GHz
 - AUTO TUNE
 - CF Step: 200.000 kHz
 - Auto Man
 - Freq Offset: 0 Hz
 - X Axis Scale: Log Lin
 - Signal Track: Sign./mag
- Bottom Bar:**
 - Windows icon, Taskbar (Sep 07, 2019, 1:27:17 PM), and system tray icons.

The screenshot displays the Spectrum Analyzer 1 interface. The main display area shows a signal trace with a peak labeled 'Mkr1 1.910 000 GHz' at -47.47 dBm. The trace is centered at 1.910000 GHz with a span of 2.000 MHz. The vertical scale is set to 10 dB. The horizontal axis is labeled '#Video BW 300 kHz' and the vertical axis is labeled '#Sweep 100 ms (601 pts)'. The interface includes various settings and controls on the right side, such as Center Frequency, Span, Start Freq, Stop Freq, CF Step, Freq Offset, X Axis Scale, and Signal Track. The top bar shows the device name 'Spectrum Analyzer 1' and the input signal 'Sweep SA'.

LTE Band 2_10MHz_QPSK_19150_25RB#25_-36.56_PASS



LTE Band 2_10MHz_16QAM_19150_25RB#25_-36.86_PASS



LTE Band 2_10MHz_QPSK_19150_50RB#0_-39.01_PASS



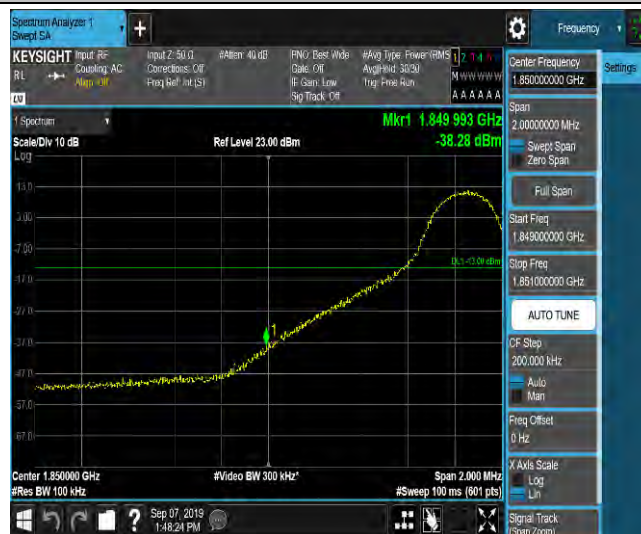
LTE Band 2_10MHz_16QAM_19150_50RB#0_-39.16_PASS



LTE Band 2_15MHz_QPSK_18675_1RB#0_-42.33_PASS



LTE Band 2_15MHz_16QAM_18675_1RB#0_-38.28_PASS



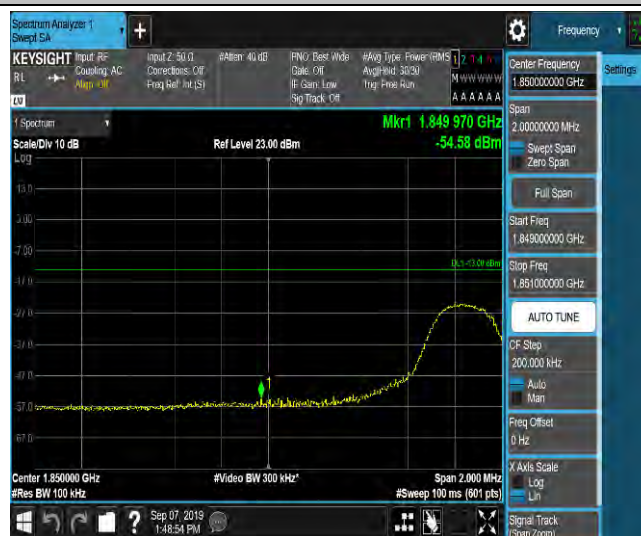
LTE Band 2_15MHz_QPSK_18675_1RB#38_-56.24_PASS



LTE Band 2_15MHz_16QAM_18675_1RB#38_-56.42_PASS



LTE Band 2_15MHz_QPSK_18675_1RB#74_-54.58_PASS



LTE Band 2_15MHz_16QAM_18675_1RB#74_-54.59_PASS



LTE Band 2_15MHz_QPSK_18675_38RB#0_-38.19_PASS



LTE Band 2_15MHz_16QAM_18675_38RB#0_-38.30_PASS



Spectrum Analyzer 1
Sweep SA

KEYSIGHT Input RF
Coupling AC
Align CW

Input 2: 50 Ω
Corrections Off
Freq Ref Int (S)

#Attain: 40 dB

PN0: Best Wide
Gate Off
IF Gain Low
Sig Track Off

#Avg Type: Power (RMS)
AveHold: 3030
Trig: Free Run

M W W W W W
A A A A A A

Center Frequency
1.850000000 GHz

Span
2.00000000 MHz

— Sweep Span
Zero Span

Full Span

Start Freq
1.849000000 GHz

Stop Freq
1.851000000 GHz

AUTO TUNE

CF Step
200.000 kHz

— Auto
Man

Freq Offset
0 Hz

X Axis Scale
Log
Lin

Signal Track
Spectrum

Scale/Div 10 dB

Ref Level 23.00 dBm

Mkr1 1.849 537 GHz
-56.29 dBm

Center 1.850000 GHz
#Res BW 100 kHz

#Video BW 300 kHz

Span 2.000 MHz
#Sweep 100 ms (601 pts)

Sep 07, 2019
1:49:34 PM

The screenshot displays the Keysight Spectrum Analyzer 1 interface. The main display area shows a spectrum plot with a green trace. A prominent peak is labeled "Mkr1 1.849 300 GHz" with a level of "-56.39 dBm". The plot has a logarithmic scale (Log) on the y-axis and a linear scale on the x-axis. The center frequency is set to 1.850000 GHz, and the span is 2.000 MHz. The resolution bandwidth (Res BW) is 300 kHz, and the video bandwidth (Video BW) is 300 kHz. The sweep time is 100 ms. The interface includes various control panels on the right for settings like Center Frequency, Span, Start Freq, Stop Freq, CF Step, Freq Offset, X Axis Scale, and Signal Track. The top panel shows input settings and measurement parameters. The bottom status bar indicates the date and time as Sep 07 2019 1:49:43 PM.

Spectrum Analyzer 1 Swept SA

KEYSIGHT Input RF Counting AC Allp Off

Input Z 50.0 #Attain 40 dB Corrections Off

IFNO Best Wide Gate Off # Gain Low Sig Track Off

Avg Type Power (RMS) 1 2 3 4 5 6 7 8 9 10

Align Mid 3030 N W W W W W W W

Trig Free Run A A A A A A A A

Center Frequency 1.850000000 GHz

Span 2.000000000 MHz

Sweep Span Zero Span

Full Span

Start Freq 1.849000000 GHz

Stop Freq 1.851000000 GHz

AUTO TUNE

CF Step 200.000 kHz

Auto Man

Freq Offset 0 Hz

X Axis Scale Log Lin

Signal Track (Span/7000)

Scale Div 10 dB Ref Level 23.00 dBm

Mkr1 1.849 917 GHz -54.71 dBm

Log

13.0

12.0

11.0

10.0

9.0

8.0

7.0

6.0

5.0

4.0

3.0

2.0

1.0

0.0

Center 1.850000 GHz #Video BW 300 kHz #Res BW 100 kHz

Span 2.000 MHz #Sweep 100 ms (601 pts)

Windows Taskbar

LTE Band 2_15MHz_16QAM_18675_38RB#37_-54.02_PASS



LTE Band 2_15MHz_QPSK_18675_75RB#0_-42.65_PASS



LTE Band 2_15MHz_16QAM_18675_75RB#0_-42.83_PASS



LTE Band 2_15MHz_QPSK_19125_1RB#0_-53.61_PASS



LTE Band 2_15MHz_16QAM_19125_1RB#0_-54.12_PASS



LTE Band 2_15MHz_QPSK_19125_1RB#38_-56.13_PASS



LTE Band 2_15MHz_16QAM_19125_1RB#38_-55.91_PASS



LTE Band 2_15MHz_QPSK_19125_1RB#74_-38.15_PASS



LTE Band 2_15MHz_16QAM_19125_1RB#74_-38.46_PASS



Spectrum Analyzer 1
Sweep SA

KEYSIGHT Input RF
Coupling AC
Att = 31

Input 2: 50.0
Corrections: Off
Preay Ref: Int (S)

#Att: 40 dB
FNO: Best Wide
Gate: Off
IF Gain: Low
Sig Track: Off

#Avg Type: Power (rms)
Avg Hold: 30.00
Trig: Pk Run

1 2 3 4 5
M W W W W W
A A A A A A

Center Frequency
1.910000000 GHz

Settings

Span
2.000000000 MHz
Sweep Span
Zero Span
Full Span

Start Freq
1.908000000 GHz

Stop Freq
1.911000000 GHz

AUTO TUNE

CF Step
200.0000000 kHz
Auto
Man

Freq Offset
0 Hz

X Axis Scale
Log
Lin

Signal Track
Spectrum

Scale/Div 10 dB
Ref Level 23.00 dBm

Mkr1 1.910 010 GHz
-38.71 dBm

Center 1.510000 GHz
#Res BW 100 kHz

#Video BW 300 kHz

Span 2.000 MHz
#Sweep 100 ms (601 pts)

Sep 07, 2019
1:52:19 PM

The screenshot displays the Keysight Spectrum Analyzer 1 software interface. The main window shows a frequency spectrum plot with a yellow trace. The plot is labeled "Mkr1 1.910 007 GHz" and "-38.42 dBm". The x-axis is labeled "Center 1.510000 GHz" and the y-axis is labeled "Scale/Div 10 dB". The plot shows a signal with a peak at 1.910 GHz and a noise floor around -38.42 dBm. The interface includes various control panels on the right for settings like Span, Start Freq, Stop Freq, and Auto Tune. The bottom status bar shows the date and time: Sep 07, 2019 1:52:29 PM.

The screenshot displays the Keysight Spectrum Analyzer software interface. The main window shows a frequency spectrum plot with a yellow trace representing the signal. The x-axis is labeled "Frequency" and ranges from 0 Hz to 2.0 GHz. The y-axis is labeled "Power Spectral Density (dBm)" and ranges from -60 dBm to 10 dBm. A prominent peak is visible at approximately 1.91 GHz, labeled "Mkr1 1.910 007 GHz -38.56 dBm".

The top panel contains various controls and settings:

- Spectrum Analyzer 1**: Sweep SA.
- Input RF**: Coupling AC, Att'n 1.0 dB.
- Input 2**: 50 Ohm, Corrections Off, Preamp Ref Int (S).
- #Att'n**: 40 dB.
- RNO Best Wide**: Gate Off, IF Gain Low, Sig Track Off.
- Avg Type**: Power RMS, 12.7 dB, AA AAAA.
- Trig**: Free Run.
- Center Frequency**: 1.910000000 GHz.
- Span**: 2.00000000 MHz.
- Sweep Span**: Zero Span.
- Full Span**.
- Start Freq**: 1.800000000 GHz.
- Stop Freq**: 1.910000000 GHz.
- AUTO TUNE**.
- CF Step**: 200.000 kHz.
- Freq Offset**: 0 Hz.
- X Axis Scale**: Log.
- Signal Track**: Start / Stop.

The bottom status bar indicates the following parameters:

- Center**: 1.910000 GHz
- #Res BW**: 100 kHz
- #Video BW**: 300 kHz
- Span**: 2.000 MHz
- #Sweep**: 100 ms (601 pts)

The Windows taskbar at the bottom shows the date and time as Sep 07, 2019, 1:52:39 PM.

The screenshot displays the Keysight Spectrum Analyzer 1 interface. The main display area shows a spectrum plot with a yellow trace. The plot is titled "Mkr1 1.910 023 GHz" and shows a peak at -39.22 dBm. The plot is labeled "Spectrum" and "Scale Div 10 dB". The plot shows a signal with a peak at 1.910 GHz and a level of -39.22 dBm. The plot is labeled "Mkr1 1.910 023 GHz" and "-39.22 dBm". The plot is labeled "Spectrum" and "Scale Div 10 dB".

The interface includes several control panels:

- Top Panel:** Contains various input and output settings, including "Input RF", "Coupling AC", "Input Z 50 Ohm", "Corrections Off", "IF Gain Low", "Sig Track Off", "PNO: Best Wide", "Gate Off", "Avg Type: Power (RMS)", "Avg Hold: 3030", "Trigger: Full Run", "Center Frequency: 1.910000000 GHz", "Span: 2.000000000 MHz", "Start Freq: 1.800000000 GHz", "Stop Freq: 1.911000000 GHz", "CF Step: 200.000 kHz", "Auto Tune", "Freq Offset: 0 Hz", "X Axis Scale: Log", "Log", "Lin", "Signal Track: Span/Zoom".
- Left Panel:** Contains "Spectrum" and "Scale Div 10 dB".
- Right Panel:** Contains "Settings" and "Full Span".
- Bottom Panel:** Contains "Center 1.910000 GHz", "Res BW 100 kHz", "Video BW 300 kHz", "Span 2.000 MHz", "Sweep 100 ms (601 pts)", and a date/time stamp "Sep 07, 2019 1:52:49 PM".

The screenshot displays the Keysight Spectrum Analyzer 1 interface. The main display area shows a spectrum plot with a yellow trace. The plot is labeled 'Mkr1 1.910 010 GHz' and '-39.45 dBm'. The x-axis is labeled 'Ref Level 23.00 dBm'. The y-axis is labeled 'Scale/Div 10 dB'. The plot shows a signal with a peak at 1.910010 GHz and a level of -39.45 dBm. The plot is labeled 'Mkr1 1.910 010 GHz' and '-39.45 dBm'. The plot is labeled 'Mkr1 1.910 010 GHz' and '-39.45 dBm'.

The interface includes a top menu bar with 'Spectrum Analyzer 1' and 'Sweep SA'. Below this is a 'KEYSIGHT' logo and a 'Input RF' section with 'Coupling AC' and 'Algo eW'. The 'Input RF' section also includes 'Z-50.0 Ohm', 'Corrections: Off', 'IF Ref: Int (ST)', 'PNO: Best Wide', 'Gate: Off', 'IF Gain: Low', and 'Sig Track: Off'. The 'Avg Type: Power (RMS)' is set to '1/2' and 'Ave Hold: 3033'. The 'Trigger' is set to 'Free Run'.

The 'Center Frequency' is set to '1.910000000 GHz'. The 'Span' is set to '2.000000000 MHz'. The 'Sweep Span' is set to 'Zero Span'. The 'Full Span' button is visible. The 'Start Freq' is set to '1.895000000 GHz' and the 'Stop Freq' is set to '1.910000000 GHz'. The 'AUTO TUNE' button is visible. The 'CF Step' is set to '200.000 kHz'. The 'Auto' button is visible. The 'Man' button is visible. The 'Freq Offset' is set to '0 Hz'. The 'X Axis Scale' is set to 'Log'. The 'Lin' button is visible. The 'Signal Track' is set to 'Sign./mag'.

The bottom status bar shows the date and time 'Sep 07 2019 1:52:58 PM' and the signal level 'Signal Level: -39.45 dBm'.

The screenshot displays the Keysight Spectrum Analyzer 1 interface. The main display area shows a spectrum plot with a signal trace labeled 'Mkr1' at a frequency of 1.910 003 GHz and a power level of -39.34 dBm. The plot is set to a resolution bandwidth (RBW) of 300 kHz and a video bandwidth (VBW) of 300 kHz. The center frequency is 1.910000 GHz, and the span is 2.000 MHz. The plot shows a signal that starts at approximately -39.34 dBm and decreases as frequency increases, with a noise floor around -70 dBm.

The interface includes several control panels:

- Top Left Panel:** Contains input settings (Input: RF, Coupling: AC, Attenuation: 0 dB), correction settings (Corrections: Off), and measurement settings (PNO: Best Wide, Gate: Off, IF Gain: Low, Sig Track: Off).
- Top Right Panel:** Contains the Center Frequency (1.910000000 GHz) and Span (2.000000000 MHz) controls.
- Right Panel:** Contains the Start Freq (1.895000000 GHz), Stop Freq (1.911000000 GHz), and AUTO TUNE button.
- Bottom Left Panel:** Contains the CF Step (200.000 kHz), Freq Offset (0 Hz), and X Axis Scale (Log) controls.
- Bottom Right Panel:** Contains the Signal Track (Start/Stop) controls.

The bottom status bar shows the date and time (Sep 07, 2019, 1:53:08 PM) and the signal track status (Start/Stop).

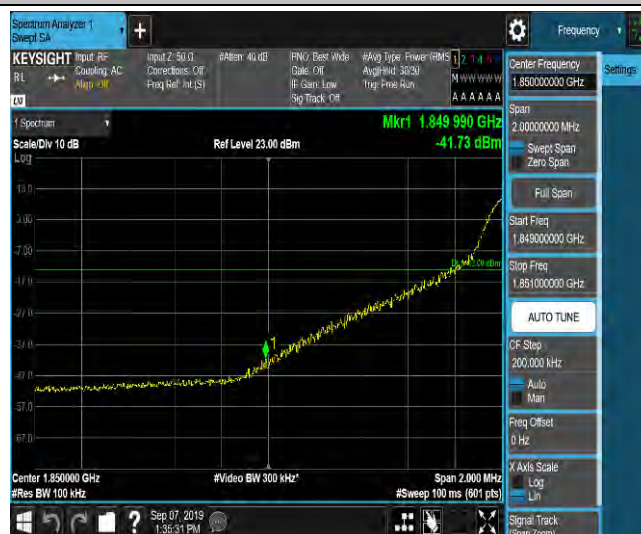
LTE Band 2_15MHz_QPSK_19125_75RB#0_-39.31_PASS



LTE Band 2_15MHz_16QAM_19125_75RB#0_-38.96_PASS



LTE Band 2_20MHz_QPSK_18700_1RB#0_-41.73_PASS



Spectrum Analyzer 1 Sweep SA

KEYSIGHT Input RF: Coaxial, AC; Input Z: 50 Ω ; Corrections: Off; #Attenu: 40 dB; #PNO: Best Wide; Date: Off; IF Gain: Low; #Avg Type: Power (RMS); Avg Hold: 30.0; Trig: Free Run; Span: 2.0000000 MHz; Center Frequency: 1.850000000 GHz; Start Freq: 1.849000000 GHz; Stop Freq: 1.851000000 GHz; CF Step: 200.000 kHz; Freq Offset: 0 Hz; X Axis Scale: Log; #Res BW: 100 kHz; #Video BW: 300 kHz; Span: 2.000 MHz; #Sweep: 100 ms (601 pts)

Scale/Div 10 dB; Ref Level 23.00 dBm; Mkr1 1.849 977 GHz -42.57 dBm

Center 1.850000 GHz; #Res BW 100 kHz; #Video BW 300 kHz; Span 2.000 MHz; #Sweep 100 ms (601 pts)

Signal Track (Spectrum)

[illegible][illegible]

LTE Band 2_20MHz_QPSK_18700_1RB#99_-55.98_PASS



LTE Band 2_20MHz_16QAM_18700_1RB#99_-56.25_PASS



LTE Band 2_20MHz_QPSK_18700_50RB#0_-43.46_PASS



LTE Band 2_20MHz_16QAM_18700_50RB#0_-43.52_PASS



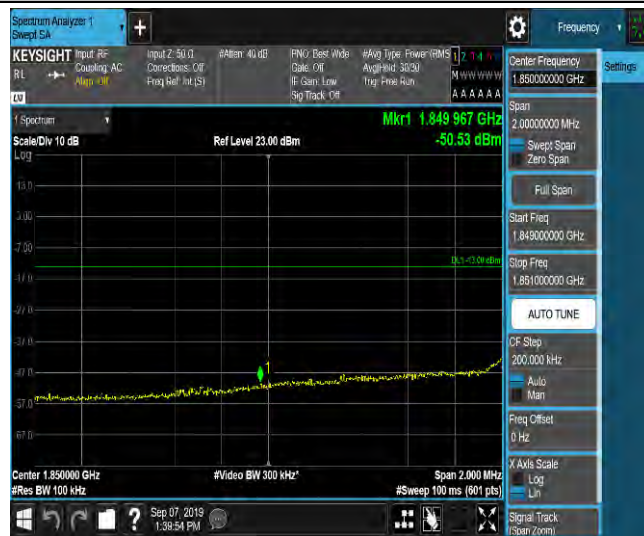
LTE Band 2_20MHz_QPSK_18700_50RB#25_-43.06_PASS



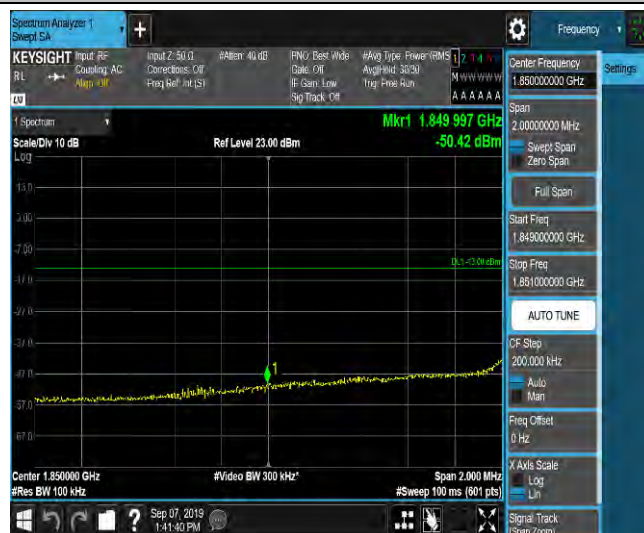
LTE Band 2_20MHz_16QAM_18700_50RB#25_-43.67_PASS



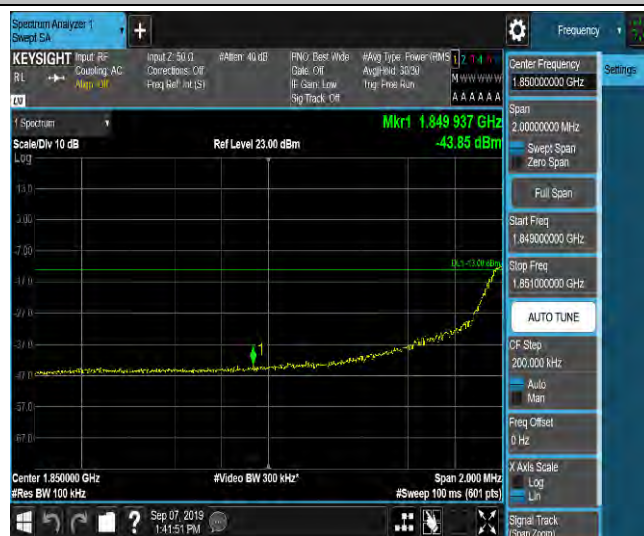
LTE Band 2_20MHz_QPSK_18700_50RB#50_-50.53_PASS



LTE Band 2_20MHz_16QAM_18700_50RB#50_-50.42_PASS



LTE Band 2_20MHz_QPSK_18700_100RB#0_-43.85_PASS



LTE Band 2_20MHz_16QAM_18700_100RB#0_-44.23_PASS



LTE Band 2_20MHz_QPSK_19100_1RB#0_-55.99_PASS



LTE Band 2_20MHz_16QAM_19100_1RB#0_-55.88_PASS



LTE Band 2_20MHz_QPSK_19100_1RB#49_-56.18_PASS



LTE Band 2_20MHz_16QAM_19100_1RB#49_-56.06_PASS



LTE Band 2_20MHz_QPSK_19100_1RB#99_-42.62_PASS



LTE Band 2_20MHz_16QAM_19100_1RB#99_-43.29_PASS



LTE Band 2_20MHz_QPSK_19100_50RB#0_-49.15_PASS



LTE Band 2_20MHz_16QAM_19100_50RB#0_-49.42_PASS



The screenshot displays a Spectrum Analyzer interface with the following components:

- Top Bar:** Includes a title bar "Spectrum Analyzer 1", a "Sheet SA" tab, a "+" icon, a settings gear icon, and a "Frequency" dropdown menu.
- Input Section:**
 - KEYSIGHT Input:** Includes "Input 2: 50 Ω", "Coupling: AC", "Preamp: Off", "Corrections: Off", "Freq Ref: Int (S)", "dBm: -40 dB", "PNO: Best Wide", "Gate: Off", "IF Gain: Low", and "Sig Track: Off".
 - Measurement Data:** Shows "Avg Type: Power (RMS)", "Avg Mid: 3033", "Trig: Free Run", and a "Marker" section with "M1: 1.910 GHz", "M2: 1.910 GHz", and "M3: 1.910 GHz".
- Center Frequency:** Set to "1.910000000 GHz".
- Span:** Set to "2.000000000 MHz".
- Start Freq:** Set to "1.908000000 GHz".
- Stop Freq:** Set to "1.911000000 GHz".
- Scale/Dir:** Set to "10 dB".
- Ref Level:** Set to "23.00 dBm".
- Marker:** A green marker is visible at "Mkr1 1.910 033 GHz" with a value of "-49.06 dBm".
- Plot:** A spectrum plot showing a signal trace with a peak at 1.910 GHz. The y-axis is labeled "Log" and ranges from -67.0 to 13.0 dBm.
- Center:** Set to "1.910000 GHz".
- #Video BW:** Set to "300 KHz".
- Span:** Set to "2.000 MHz".
- #Res BW:** Set to "100 KHz".
- #Sweep:** Set to "100 ms (501 pts)".
- Buttons:** Includes "Full Span", "AUTO TUNE", "CF Stop", "Auto", "Man", "Freq Offset", "X Axis Scale", "Log", and "Lin".
- Bottom Bar:** Includes a Windows taskbar with a clock showing "Sep 07, 2019 1:45:05 PM" and a "Signal Track (Span Zoom)" button.

The screenshot displays a Spectrum Analyzer software interface. The main display area shows a frequency spectrum with a prominent peak labeled "Mkr1 1.910 070 GHz" at a level of -49.62 dBm. The frequency range is centered at 1.910000 GHz with a span of 2.000 MHz. The interface includes various control panels and settings:

- Top Panel:** Shows the device name "Spectrum Analyzer 1" and the sweep type "Sweep SA".
- Input/Settings Panel (Left):** Includes controls for Input (RF), Coating (AC), and a "Setup" button. It also displays parameters like Input Z (50.0), Corrections (Off), #Aton (40 dB), PNO (Best Wide), Gate (Off), IF Gain (Low), Sig Track (Off), Avg Type (Power RMS), and Avg Res (303).
- Center Frequency Panel (Right):** Displays the Center Frequency (1.910000000 GHz) and a "Span" of 2.000000000 MHz. It includes buttons for "Sweep Span", "Zero Span", and "Full Span".
- Start/Stop Frequency Panel (Right):** Shows the Start Freq (1.898000000 GHz) and Stop Freq (1.910000000 GHz).
- AUTO TUNE Panel (Right):** Includes a "CF Step" of 200.000 kHz, buttons for "Auto" and "Man", and a "Freq Offset" of 0 kHz.
- Axis Scale Panel (Right):** Shows the Y Axis Scale (Log) and X Axis Scale (Lin).
- Bottom Panel:** Displays the Center Frequency (1.910000 GHz), #Video BW (300 kHz), Span (2.000 MHz), and #Sweep (100 ms (601 pts)).
- Bottom Bar:** Includes a taskbar with a clock showing "Sep 07, 2019 1:45:55 PM" and various system icons.

Spectrum Analyzer 1
SWPT SA

KEYSIGHT Input RF Counting AC
RL → Auto 130

Input Z: 50 Ω #Azm: 40 dB
Corrections: Off
Freq Ref: Int (SI)

RNO: Best Wide Date: Off
IF Gain: Low Sig Track: Off

#Avg Type: Power (RMS) 1 2 1.0 1.0
Avg (Std): 30.33 Trg: Free Run
M WWW WWW
A A A A A A

Center Frequency 1.910000000 GHz

Span 2.000000000 MHz
Sweep Span Zero Span
Full Span

Start Freq 1.800000000 GHz
Stop Freq 1.910000000 GHz
AUTO TUNE

CF Step 200.000 kHz
Auto Man
Freq Offset 0 Hz
X Axis Scale Log Lin

Center 1.910000 GHz
#Res BW 100 kHz
#Video BW 300 kHz
Span 2.000 MHz
#Sweep 100 ms (601 pts)

Sig. Track Stop / Run

Sep 07, 2019 1:46:06 PM

The screenshot displays a Spectrum Analyzer interface with the following components:

- Top Bar:**
 - Left: "Spectrum Analyzer 1" and "Sheet SA".
 - Center: A "+" icon.
 - Right: A gear icon for "Settings" and a "Frequency" label.
- Configuration Section:**
 - KEYSIGHT** Input: RF (with a switch icon), Coupling: AC, Auto Off.
 - Input 2: 50 Ω, Corrections: Off, Freq Ref: Int (SI).
 - Attenu: 40 dB.
 - RFN: Best Wide, Gate: Off, IF Scan: Low, Sig Track: Off.
 - Avg Type: Power RMS, Avg Hold: 30.3s, Trig: Free Run.
 - Marker: M1 1.910 GHz, Amplitude: -42.27 dBm.
- Display Area:**
 - Top: "1 Spectrum" and "Scale/Div 10 dB".
 - Center: "Ref Level 23.00 dBm".
 - Plot: A frequency spectrum showing a signal trace with a peak labeled "1" at 1.910 GHz.
 - Bottom: "Center 1.910000 GHz", "#Video BW 300 kHz", "Span 2.000 MHz", and "#Res BW 100 kHz".
- Right Panel (Settings):**
 - Center Frequency: 1.910000000 GHz.
 - Span: 2.000000000 MHz.
 - Sweep Span: Swept Span, Zero Span.
 - Full Span.
 - Start Freq: 1.808000000 GHz.
 - Stop Freq: 1.911000000 GHz.
 - AUTO TUNE button.
 - CF Step: 200.000 kHz.
 - Auto Man.
 - Freq Offset: 0 Hz.
 - X Axis Scale: Log, Lin.
 - Signal Track (Span Zoom).
- Bottom Bar:**
 - Windows taskbar showing the date "Sep 07, 2019" and time "1:46:55 PM".
 - Navigation icons: Home, Back, Forward, Search, and a question mark.

Spectrum Analyzer 1 Sweep SA

Keysight Input RF Coating AC

Input Z: 50.0 Corrections: Off

#Aton: 40 dB

RNO: Best Wide Gate: Off

#Avg Type: Power (RMS)

Center Frequency 1.910000000 GHz

Span 2.000000000 MHz

Start Freq 1.890000000 GHz

Stop Freq 1.910000000 GHz

CF Step 200.000 kHz

Freq Offset 0 kHz

X Axis Scale Log

Signal Track None/Onp1

Ref Level 23.00 dBm

Mkr1 1.910 000 GHz

-45.20 dBm

Center 1.910000 GHz

#Res BW 300 kHz

Span 2.000 MHz

#Sweep 100 ms (601 pts)

Scale/Div 10 dB

Log

1.910

70.0

20.0

30.0

40.0

50.0

60.0

70.0

80.0

90.0

100.0

110.0

120.0

130.0

140.0

150.0

160.0

170.0

180.0

190.0

200.0

210.0

220.0

230.0

240.0

250.0

260.0

270.0

280.0

290.0

300.0

310.0

320.0

330.0

340.0

350.0

360.0

370.0

380.0

390.0

400.0

410.0

420.0

430.0

440.0

450.0

460.0

470.0

480.0

490.0

500.0

510.0

520.0

530.0

540.0

550.0

560.0

570.0

580.0

590.0

600.0

610.0

620.0

630.0

640.0

650.0

660.0

670.0

680.0

690.0

700.0

710.0

720.0

730.0

740.0

750.0

760.0

770.0

780.0

790.0

800.0

810.0

820.0

830.0

840.0

850.0

860.0

870.0

880.0

890.0

900.0

910.0

920.0

930.0

940.0

950.0

960.0

970.0

980.0

990.0

1000.0

1010.0

1020.0

1030.0

1040.0

1050.0

1060.0

1070.0

1080.0

1090.0

1100.0

1110.0

1120.0

1130.0

1140.0

1150.0

1160.0

1170.0

1180.0

1190.0

1200.0

1210.0

1220.0

1230.0

1240.0

1250.0

1260.0

1270.0

1280.0

1290.0

1300.0

1310.0

1320.0

1330.0

1340.0

1350.0

1360.0

1370.0

1380.0

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1420.0

1430.0

1440.0

1450.0

1460.0

1470.0

1480.0

1490.0

1500.0

1510.0

1520.0

1530.0

1540.0

1550.0

1560.0

1570.0

1580.0

1590.0

1600.0

1610.0

1620.0

1630.0

1640.0

1650.0

1660.0

1670.0

1680.0

1690.0

1700.0

1710.0

1720.0

1730.0

1740.0

1750.0

1760.0

1770.0

1780.0

1790.0

1800.0

1810.0

1820.0

1830.0

1840.0

1850.0

1860.0

1870.0

1880.0

1890.0

1900.0

1910.0

1920.0

1930.0

1940.0

1950.0

1960.0

1970.0

1980.0

1990.0

2000.0

2010.0

2020.0

2030.0

2040.0

2050.0

2060.0

2070.0

2080.0

2090.0

2100.0

2110.0

2120.0

2130.0

2140.0

2150.0

2160.0

2170.0

2180.0

2190.0

2200.0

2210.0

2220.0

2230.0

2240.0

2250.0

2260.0

2270.0

2280.0

2290.0

2300.0

2310.0

2320.0

2330.0

2340.0

2350.0

2360.0

2370.0

2380.0

2390.0

2400.0

2410.0

2420.0

2430.0

2440.0

2450.0

2460.0

2470.0

2480.0

2490.0

2500.0

2510.0

2520.0

2530.0

2540.0

2550.0

2560.0

2570.0

2580.0

2590.0

2600.0

2610.0

2620.0

2630.0

2640.0

2650.0

2660.0

2670.0

2680.0

2690.0

2700.0

2710.0

2720.0

2730.0

2740.0

2750.0

2760.0

2770.0

2780.0

2790.0

2800.0

2810.0

2820.0

2830.0

2840.0

2850.0

2860.0

2870.0

2880.0

2890.0

2900.0

2910.0

2920.0

2930.0

2940.0

2950.0

2960.0

2970.0

The screenshot displays the Keysight Spectrum Analyzer 1 software interface. The main window shows a spectrum plot with a green trace. The center frequency is 1.910100 GHz, and the span is 2.000 MHz. The plot shows a signal at 1.910013 GHz with a power level of -44.83 dBm. The interface includes various control panels for input, corrections, and settings, as well as a status bar at the bottom showing the date and time.

Top Panel:

- Keysight Spectrum Analyzer 1** (Input: RF, Counting: AC, Alphas: 10)
- Input:** Z: 50.0, Corrections: Off, #Azm: 40 dB, PNO: Best Wide, Gate: Off, IF Gain: Low, Sig Track: Off
- Avg Type:** Power (RMS), Avg Hold: 30.33, Trig: Free Run
- Center Frequency:** 1.910100000 GHz

Plot Area:

- Scale/Div:** 10 dB
- Ref Level:** 23.00 dBm
- Span:** 2.00000000 MHz
- Sweep Span:** Zero Span
- Full Span:** (Button)
- Start Freq:** 1.800000000 GHz
- Stop Freq:** 1.910100000 GHz
- AUTO TUNE:** (Button)
- CF Step:** 200.000 kHz
- Freq Offset:** 0 Hz
- X Axis Scale:** Log

Bottom Panel:

- Center:** 1.9101000 GHz
- #Video BW:** 300 kHz
- Span:** 2.000 MHz
- #Res BW:** 100 kHz
- #Sweep:** 100 ms (601 pts)
- Status Bar:** Sep 07, 2019 1:47:56 PM

5.5. Peak-to-Average Power Ratio (PAPR)

Ambient condition

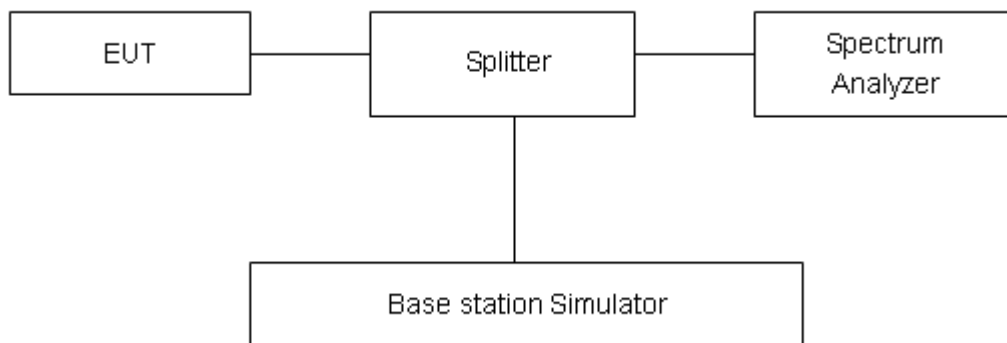
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

Measure the total peak power and record as PPK. And measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$\text{PAPR (dB)} = \text{PPk (dBm)} - \text{PAvg (dBm)}.$$

Test Setup



Limits

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 in 24.232(d).

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4$ dB.

**Test Results**

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
GPRS1900	512	2.70	13	PASS
GPRS1900	661	2.63	13	PASS
GPRS1900	810	2.63	13	PASS
EGPRS1900	512	5.88	13	PASS
EGPRS1900	661	5.76	13	PASS
EGPRS1900	810	5.68	13	PASS
Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
WCDMA Band II	9262	3.20	13	PASS
WCDMA Band II	9400	3.17	13	PASS
WCDMA Band II	9538	3.11	13	PASS

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
LTE Band 2	1.4MHz	QPSK	18607	6RB#0	5.36	13	PASS
LTE Band 2	1.4MHz	16QAM	18607	6RB#0	5.37	13	PASS
LTE Band 2	1.4MHz	QPSK	18900	6RB#0	5.29	13	PASS
LTE Band 2	1.4MHz	16QAM	18900	6RB#0	5.32	13	PASS
LTE Band 2	1.4MHz	QPSK	19193	6RB#0	5.12	13	PASS
LTE Band 2	1.4MHz	16QAM	19193	6RB#0	5.13	13	PASS
LTE Band 2	3MHz	QPSK	18615	15RB#0	5.41	13	PASS
LTE Band 2	3MHz	16QAM	18615	15RB#0	5.43	13	PASS
LTE Band 2	3MHz	QPSK	18900	15RB#0	5.39	13	PASS
LTE Band 2	3MHz	16QAM	18900	15RB#0	5.39	13	PASS
LTE Band 2	3MHz	QPSK	19185	15RB#0	5.15	13	PASS
LTE Band 2	3MHz	16QAM	19185	15RB#0	5.13	13	PASS
LTE Band 2	5MHz	QPSK	18625	25RB#0	5.41	13	PASS
LTE Band 2	5MHz	16QAM	18625	25RB#0	5.40	13	PASS
LTE Band 2	5MHz	QPSK	18900	25RB#0	5.38	13	PASS
LTE Band 2	5MHz	16QAM	18900	25RB#0	5.40	13	PASS
LTE Band 2	5MHz	QPSK	19175	25RB#0	5.16	13	PASS
LTE Band 2	5MHz	16QAM	19175	25RB#0	5.17	13	PASS
LTE Band 2	10MHz	QPSK	18650	50RB#0	5.27	13	PASS
LTE Band 2	10MHz	16QAM	18650	50RB#0	5.26	13	PASS
LTE Band 2	10MHz	QPSK	18900	50RB#0	5.20	13	PASS
LTE Band 2	10MHz	16QAM	18900	50RB#0	5.20	13	PASS
LTE Band 2	10MHz	QPSK	19150	50RB#0	5.08	13	PASS
LTE Band 2	10MHz	16QAM	19150	50RB#0	5.10	13	PASS
LTE Band 2	15MHz	QPSK	18675	75RB#0	5.03	13	PASS
LTE Band 2	15MHz	16QAM	18675	75RB#0	5.02	13	PASS
LTE Band 2	15MHz	QPSK	18900	75RB#0	4.98	13	PASS



LTE Band 2	15MHz	16QAM	18900	75RB#0	4.98	13	PASS
LTE Band 2	15MHz	QPSK	19125	75RB#0	4.89	13	PASS
LTE Band 2	15MHz	16QAM	19125	75RB#0	4.90	13	PASS
LTE Band 2	20MHz	QPSK	18700	100RB#0	5.25	13	PASS
LTE Band 2	20MHz	16QAM	18700	100RB#0	5.25	13	PASS
LTE Band 2	20MHz	QPSK	18900	100RB#0	5.27	13	PASS
LTE Band 2	20MHz	16QAM	18900	100RB#0	5.28	13	PASS
LTE Band 2	20MHz	QPSK	19100	100RB#0	5.31	13	PASS
LTE Band 2	20MHz	16QAM	19100	100RB#0	5.27	13	PASS

5.6.Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -40°C to +85°C in 10°C step size,

(1) With all power removed, the temperature was decreased to 0°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -40°C to +85°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

Frequency Stability (Voltage Variation)

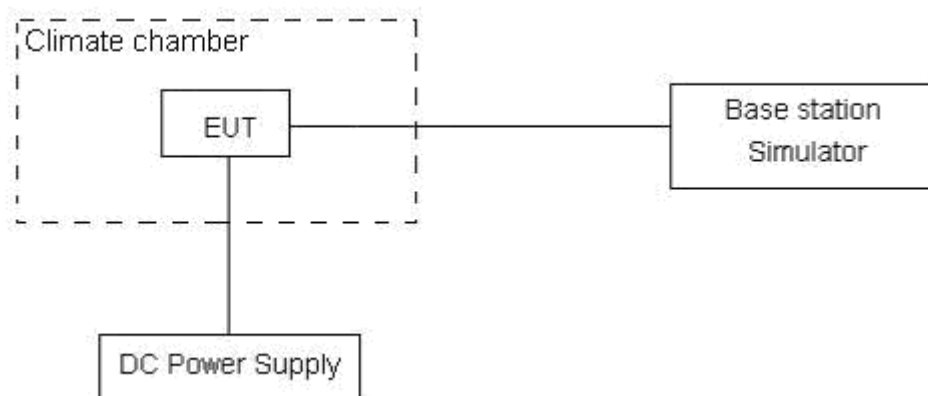
The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery-operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3.3 V and 4.3 V, with a nominal voltage of 3.8V.

Test setup



**Limits**

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 3$, $U = 0.01\text{ppm}$.

Test Result

GSM1900						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
Temperature	Voltage	GMSK	8PSK	GMSK	8PSK	
Normal (25℃)	Normal	6.26	17.10	0.00333	0.00910	PASS
Extreme (85℃)		12.20	14.60	0.00649	0.00776	PASS
Extreme (80℃)		3.56	13.74	0.00189	0.00731	PASS
Extreme (70℃)		8.18	16.62	0.00435	0.00884	PASS
Extreme (60℃)		7.26	2.80	0.00386	0.00149	PASS
Extreme (50℃)		1.01	7.67	0.00054	0.00408	PASS
Extreme (40℃)		15.82	3.59	0.00842	0.00191	PASS
Extreme (30℃)		4.20	12.93	0.00223	0.00688	PASS
Extreme (20℃)		15.91	14.32	0.00847	0.00762	PASS
Extreme (10℃)		2.28	3.74	0.00121	0.00199	PASS
Extreme (0℃)		5.50	14.99	0.00293	0.00797	PASS
Extreme (-10℃)		8.31	3.27	0.00442	0.00174	PASS
Extreme (-20℃)		13.45	3.50	0.00716	0.00186	PASS
Extreme (-30℃)		17.96	7.85	0.00955	0.00418	PASS
Extreme (-40℃)		1.79	12.46	0.00095	0.00663	PASS
25℃	LV	17.85	17.69	0.00949	0.00941	PASS
	HV	15.32	11.61	0.00815	0.00618	PASS

WCDMA B2						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
Temperature	Voltage	BPSK	QPSK	BPSK	QPSK	
Normal (25℃)	Normal	11.14	10.84	0.00593	0.00577	PASS
Extreme (85℃)		11.87	1.42	0.00631	0.00076	PASS
Extreme (80℃)		16.04	12.00	0.00853	0.00639	PASS
Extreme (70℃)		8.82	13.14	0.00469	0.00699	PASS
Extreme (60℃)		9.56	6.44	0.00508	0.00343	PASS
Extreme (50℃)		15.73	10.39	0.00837	0.00552	PASS
Extreme (40℃)		2.26	1.50	0.00120	0.00080	PASS
Extreme (30℃)		5.28	15.22	0.00281	0.00809	PASS
Extreme (20℃)		13.94	11.47	0.00741	0.00610	PASS
Extreme (10℃)		11.56	12.09	0.00615	0.00643	PASS
Extreme (0℃)		7.45	16.97	0.00396	0.00903	PASS
Extreme (-10℃)		15.47	4.99	0.00823	0.00265	PASS



Extreme (-20℃)		1.01	9.43	0.00054	0.00501	PASS
Extreme (-30℃)		8.70	5.09	0.00463	0.00271	PASS
Extreme (-40℃)		2.47	3.17	0.00131	0.00169	PASS
25℃	LV	9.95	11.94	0.00529	0.00635	PASS
	HV	6.14	11.76	0.00327	0.00626	PASS

LTE Band 2						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25℃)	Normal	7.49	9.69	0.00399	0.00515	PASS
Extreme (85℃)		5.14	6.78	0.00274	0.00360	PASS
Extreme (80℃)		12.64	5.89	0.00672	0.00313	PASS
Extreme (70℃)		15.83	11.14	0.00842	0.00593	PASS
Extreme (60℃)		13.46	10.59	0.00716	0.00563	PASS
Extreme (50℃)		5.83	14.63	0.00310	0.00778	PASS
Extreme (40℃)		15.96	9.44	0.00849	0.00502	PASS
Extreme (30℃)		4.46	4.81	0.00237	0.00256	PASS
Extreme (20℃)		1.81	9.55	0.00096	0.00508	PASS
Extreme (10℃)		3.17	8.02	0.00168	0.00427	PASS
Extreme (0℃)		4.22	14.67	0.00224	0.00780	PASS
Extreme (-10℃)		6.16	10.08	0.00328	0.00536	PASS
Extreme (-20℃)		13.91	2.71	0.00740	0.00144	PASS
Extreme (-30℃)		9.27	10.05	0.00493	0.00534	PASS
Extreme (-40℃)		17.15	9.81	0.00912	0.00522	PASS
25℃	LV	7.75	13.07	0.00412	0.00695	PASS
	HV	16.61	6.78	0.00884	0.00360	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25℃)	Normal	6.64	17.02	0.00353	0.00905	PASS
Extreme (85℃)		12.72	16.43	0.00677	0.00874	PASS
Extreme (80℃)		9.62	10.55	0.00512	0.00561	PASS
Extreme (70℃)		5.29	4.76	0.00282	0.00253	PASS
Extreme (60℃)		7.44	9.22	0.00396	0.00491	PASS
Extreme (50℃)		12.27	15.87	0.00653	0.00844	PASS
Extreme (40℃)		14.71	7.54	0.00783	0.00401	PASS
Extreme (30℃)		3.74	2.24	0.00199	0.00119	PASS



Extreme (20℃)		2.86	2.79	0.00152	0.00148	PASS
Extreme (10℃)		4.74	16.86	0.00252	0.00897	PASS
Extreme (0℃)		9.06	14.58	0.00482	0.00775	PASS
Extreme (-10℃)		2.30	13.44	0.00122	0.00715	PASS
Extreme (-20℃)		10.41	8.41	0.00553	0.00447	PASS
Extreme (-30℃)		7.40	13.07	0.00394	0.00695	PASS
Extreme (-40℃)		7.17	9.09	0.00381	0.00484	PASS
25℃	LV	3.59	13.24	0.00191	0.00704	PASS
	HV	10.74	5.16	0.00571	0.00274	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25℃)	Normal	2.20	4.50	0.00117	0.00239	PASS
Extreme (85℃)		12.45	15.68	0.00662	0.00834	PASS
Extreme (80℃)		2.01	5.03	0.00107	0.00267	PASS
Extreme (70℃)		3.20	5.05	0.00170	0.00268	PASS
Extreme (60℃)		1.11	6.23	0.00059	0.00331	PASS
Extreme (50℃)		9.56	10.24	0.00508	0.00545	PASS
Extreme (40℃)		11.39	6.66	0.00606	0.00354	PASS
Extreme (30℃)		12.53	13.08	0.00666	0.00696	PASS
Extreme (20℃)		14.34	7.44	0.00763	0.00396	PASS
Extreme (10℃)		16.11	4.45	0.00857	0.00237	PASS
Extreme (0℃)		17.39	11.00	0.00925	0.00585	PASS
Extreme (-10℃)		17.90	16.31	0.00952	0.00868	PASS
Extreme (-20℃)		12.16	1.24	0.00647	0.00066	PASS
Extreme (-30℃)		11.45	16.73	0.00609	0.00890	PASS
Extreme (-40℃)		8.31	10.46	0.00442	0.00557	PASS
25℃	LV	14.94	1.03	0.00795	0.00055	PASS
	HV	4.46	14.85	0.00237	0.00790	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25℃)	Normal	12.79	3.04	0.00680	0.00162	PASS
Extreme (85℃)		15.04	1.15	0.00800	0.00061	PASS
Extreme (80℃)		17.20	1.78	0.00915	0.00095	PASS
Extreme (70℃)		15.10	4.54	0.00803	0.00241	PASS
Extreme (60℃)		4.79	6.03	0.00255	0.00321	PASS
Extreme (50℃)		7.20	14.17	0.00383	0.00754	PASS
Extreme (40℃)		8.26	11.12	0.00440	0.00592	PASS



Extreme (30℃)		12.91	6.81	0.00687	0.00362	PASS
Extreme (20℃)		12.21	15.82	0.00649	0.00842	PASS
Extreme (10℃)		17.59	6.35	0.00935	0.00338	PASS
Extreme (0℃)		8.87	8.11	0.00472	0.00432	PASS
Extreme (-10℃)		15.82	10.78	0.00841	0.00573	PASS
Extreme (-20℃)		12.16	16.66	0.00647	0.00886	PASS
Extreme (-30℃)		5.04	1.11	0.00268	0.00059	PASS
Extreme (-40℃)		9.51	9.73	0.00506	0.00517	PASS
25℃	LV	9.09	2.66	0.00484	0.00142	PASS
	HV	2.06	10.20	0.00110	0.00543	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25℃)	Normal	10.53	15.87	0.00560	0.00844	PASS
Extreme (85℃)		11.96	2.44	0.00636	0.00130	PASS
Extreme (80℃)		3.88	5.68	0.00207	0.00302	PASS
Extreme (70℃)		6.24	8.91	0.00332	0.00474	PASS
Extreme (60℃)		8.97	11.82	0.00477	0.00629	PASS
Extreme (50℃)		3.56	1.43	0.00190	0.00076	PASS
Extreme (40℃)		7.59	9.89	0.00404	0.00526	PASS
Extreme (30℃)		15.26	14.79	0.00812	0.00786	PASS
Extreme (20℃)		16.63	17.81	0.00885	0.00947	PASS
Extreme (10℃)		13.69	17.66	0.00728	0.00940	PASS
Extreme (0℃)		6.69	10.19	0.00356	0.00542	PASS
Extreme (-10℃)		6.92	13.92	0.00368	0.00740	PASS
Extreme (-20℃)		7.59	13.77	0.00404	0.00733	PASS
Extreme (-30℃)		14.32	16.67	0.00762	0.00887	PASS
Extreme (-40℃)		1.79	11.28	0.00095	0.00600	PASS
25℃	LV	12.22	2.74	0.00650	0.00146	PASS
	HV	5.11	6.87	0.00272	0.00365	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25℃)	Normal	3.02	1.74	0.00161	0.00093	PASS
Extreme (85℃)		3.71	10.92	0.00197	0.00581	PASS
Extreme (80℃)		5.79	4.54	0.00308	0.00242	PASS
Extreme (70℃)		9.64	11.94	0.00513	0.00635	PASS
Extreme (60℃)		9.06	15.22	0.00482	0.00809	PASS
Extreme (50℃)		8.83	11.86	0.00470	0.00631	PASS



Extreme (40℃)		6.65	3.17	0.00354	0.00169	PASS
Extreme (30℃)		14.48	5.88	0.00770	0.00313	PASS
Extreme (20℃)		13.30	10.27	0.00707	0.00546	PASS
Extreme (10℃)		11.93	14.22	0.00635	0.00756	PASS
Extreme (0℃)		4.49	11.97	0.00239	0.00636	PASS
Extreme (-10℃)		11.18	15.48	0.00595	0.00824	PASS
Extreme (-20℃)		9.52	8.76	0.00507	0.00466	PASS
Extreme (-30℃)		9.15	2.14	0.00487	0.00114	PASS
Extreme (-40℃)		11.97	14.58	0.00637	0.00775	PASS
25℃	LV	3.82	11.88	0.00203	0.00632	PASS
	HV	6.86	8.68	0.00365	0.00462	PASS

5.7. Spurious Emissions at Antenna Terminals

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

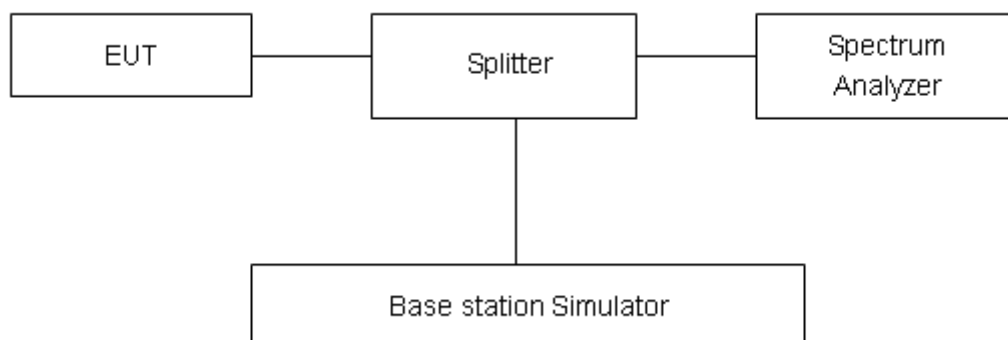
The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used.

RBW is set to 100kHz, VBW is set to 300kHz for 30MHz~1GHz

RBW is set to 1MHz, VBW is set to 3MHz for above 1GHz, Sweep is set to ATUO.

The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee’s frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10} (P)$ dB.”

Limit	-13 dBm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
9kHz-1GHz	0.684 dB



1GHz-20GHz	1.407 dB
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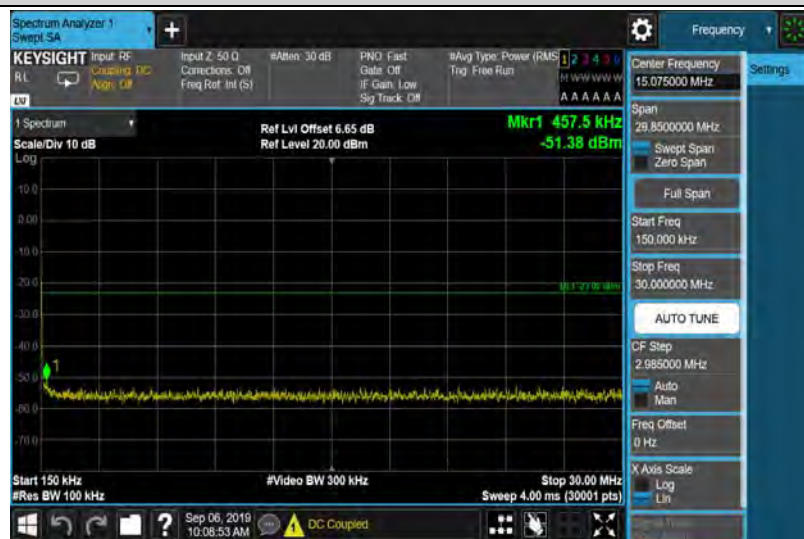
Test Result

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.



GPRS1900-512-0.009~0.15



GPRS1900-512-0.15~30



GPRS1900-512-30~1000



GPRS1900-512-1000~5000



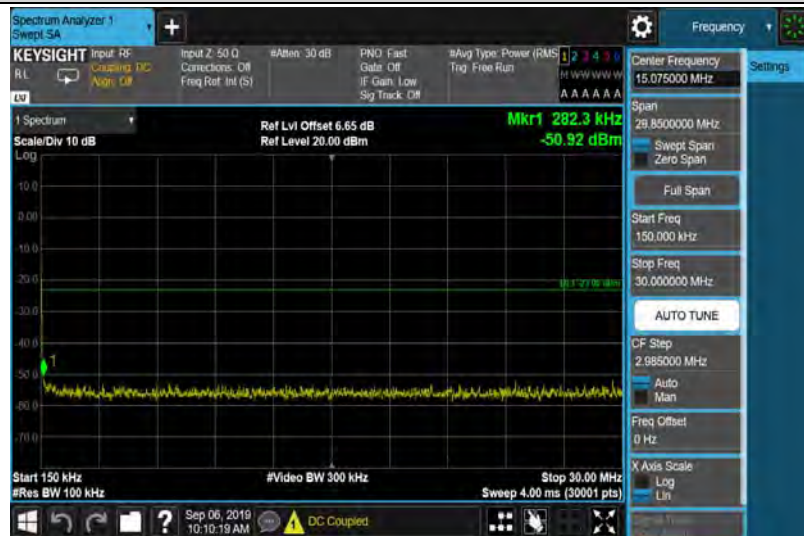
GPRS1900-512-5000~12000



GPRS1900-512-12000~26500



GPRS1900-661-0.009~0.15



GPRS1900-661-0.15~30



GPRS1900-661-30~1000



GPRS1900-661-1000~5000



GPRS1900-661-5000~12000



GPRS1900-661-12000~26500



GPRS1900-810-0.009~0.15



GPRS1900-810-0.15~30



GPRS1900-810-30~1000



GPRS1900-810-1000~5000



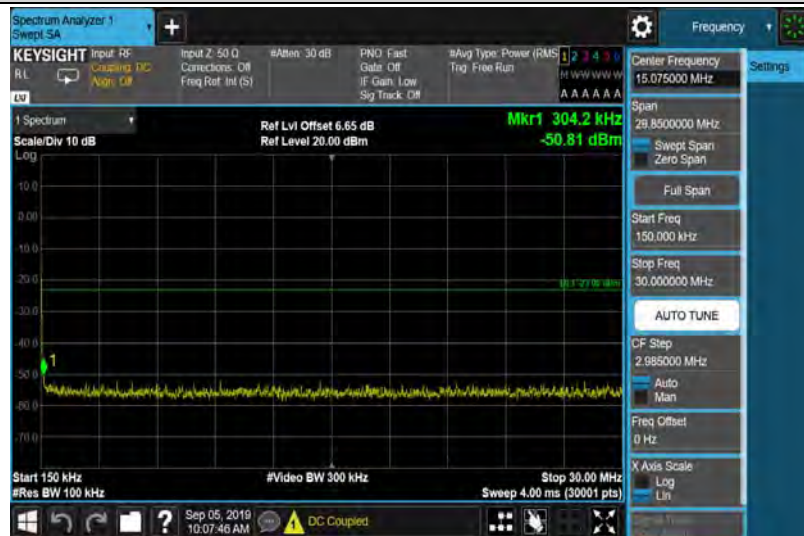
GPRS1900-810-5000~12000



GPRS1900-810-12000~26500



EGPRS1900-512-0.009~0.15



EGPRS1900-512-0.15~30



EGPRS1900-512-30~1000



EGPRS1900-512-1000~5000



EGPRS1900-512-5000~12000



EGPRS1900-512-12000~26500



EGPRS1900-661-0.009~0.15



EGPRS1900-661-0.15~30



EGPRS1900-661-30~1000



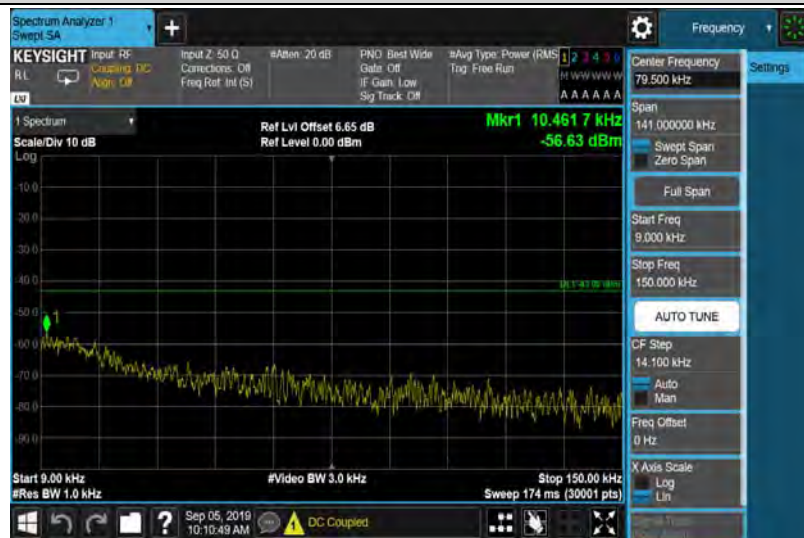
EGPRS1900-661-1000~5000



EGPRS1900-661-5000~12000



EGPRS1900-661-12000~26500



EGPRS1900-810-0.009~0.15



EGPRS1900-810-0.15~30



EGPRS1900-810-30~1000



EGPRS1900-810-1000~5000



EGPRS1900-810-5000~12000



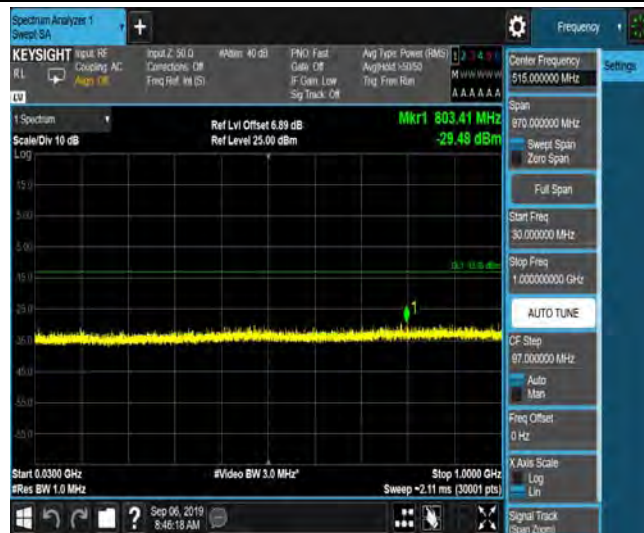
EGPRS1900-810-12000~26500



WCDMA Band II _9262



WCDMA Band II _9262



WCDMA Band II_9262



WCDMA Band II_9262



WCDMA Band II_9262



WCDMA Band II_9262



WCDMA Band II_9400



WCDMA Band II_9400



WCDMA Band II_9400



WCDMA Band II_9400



WCDMA Band II_9400



WCDMA Band II_9400



WCDMA Band II_9538



WCDMA Band II_9538



WCDMA Band II_9538



WCDMA Band II_9538



WCDMA Band II_9538



WCDMA Band II _9538

LTE Band 2_1.4MHz_QPSK_18607_1RB#0_Range1:0.009~0.15MHz_-63.19_PASS



LTE Band 2_1.4MHz_QPSK_18607_1RB#0_Range2:0.15~30MHz_-59.12_PASS



LTE Band 2_1.4MHz_QPSK_18607_1RB#0_Range3:30~1000MHz_-47.44_PASS



LTE Band 2_1.4MHz_QPSK_18607_1RB#0_Range4:1000~5000MHz_-54.55_PASS



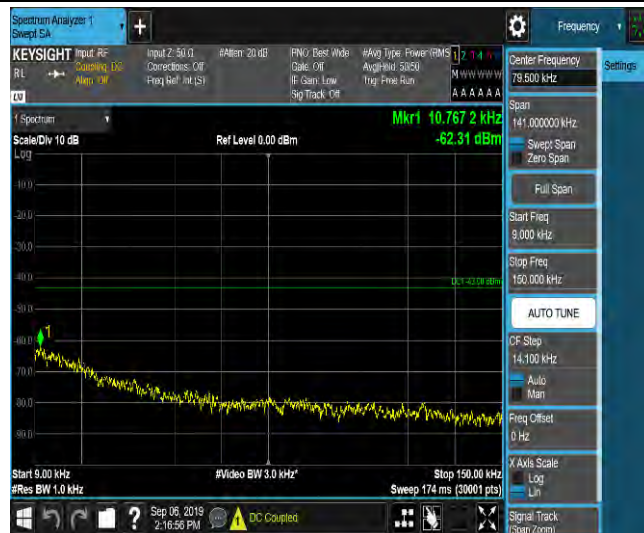
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LTE Band 2_1.4MHz_QPSK_18607_1RB#0_Range6:12000~18000MHz_-55.35_PASS



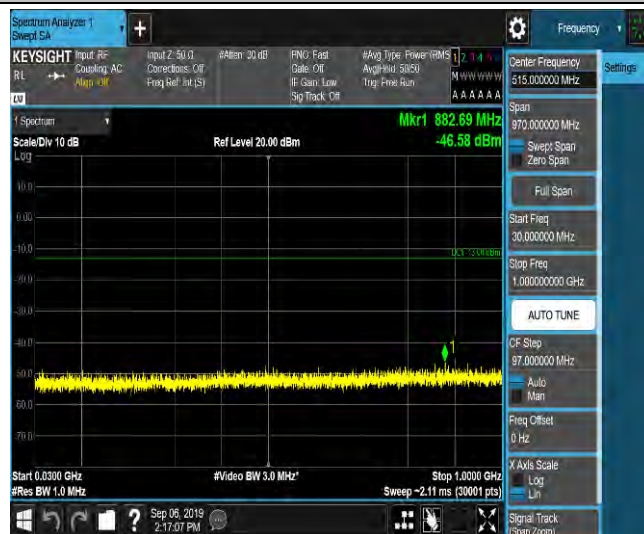
LTE Band 2_1.4MHz_16QAM_18607_1RB#0_Range1:0.009~0.15MHz_-62.31_PASS



LTE Band 2_1.4MHz_16QAM_18607_1RB#0_Range2:0.15~30MHz_-56.7_PASS



LTE Band 2_1.4MHz_16QAM_18607_1RB#0_Range3:30~1000MHz_-46.58_PASS



LTE Band 2_1.4MHz_16QAM_18607_1RB#0_Range4:1000~5000MHz_-54.33_PASS



LTE Band 2_1.4MHz_16QAM_18607_1RB#0_Range5:5000~12000MHz_-65.56_PASS



LTE Band 2_1.4MHz_16QAM_18607_1RB#0_Range6:12000~18000MHz_-55.37_PASS



LTE Band 2_1.4MHz_QPSK_18900_1RB#0_Range1:0.009~0.15MHz_-62.68_PASS



LTE Band 2_1.4MHz_QPSK_18900_1RB#0_Range2:0.15~30MHz_-58.57_PASS



LTE Band 2_1.4MHz_QPSK_18900_1RB#0_Range3:30~1000MHz_-46.83_PASS



LTE Band 2_1.4MHz_QPSK_18900_1RB#0_Range4:1000~5000MHz_-54.5_PASS



LTE Band 2_1.4MHz_QPSK_18900_1RB#0_Range5:5000~12000MHz_-65.05_PASS



LTE Band 2_1.4MHz_QPSK_18900_1RB#0_Range6:12000~18000MHz_-55.35_PASS



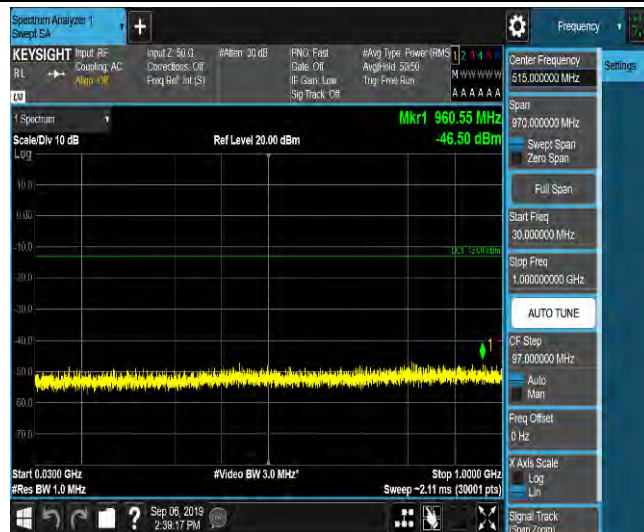
LTE Band 2_1.4MHz_16QAM_18900_1RB#0_Range1:0.009~0.15MHz_-61.09_PASS



LTE Band 2_1.4MHz_16QAM_18900_1RB#0_Range2:0.15~30MHz_-59.29_PASS



LTE Band 2_1.4MHz_16QAM_18900_1RB#0_Range3:30~1000MHz_-46.51_PASS



LTE Band 2_1.4MHz_16QAM_18900_1RB#0_Range4:1000~5000MHz_-54.44_PASS



LTE Band 2_1.4MHz_16QAM_18900_1RB#0_Range5:5000~12000MHz_-65.13_PASS



LTE Band 2_1.4MHz_16QAM_18900_1RB#0_Range6:12000~18000MHz_-55.17_PASS



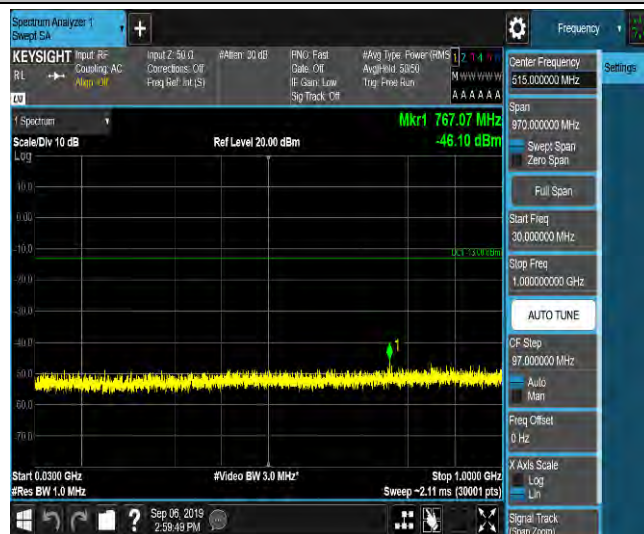
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LTE Band 2_1.4MHz_QPSK_19193_1RB#0_Range2:0.15~30MHz_-57.76_PASS



LTE Band 2_1.4MHz_QPSK_19193_1RB#0_Range3:30~1000MHz_-46.1_PASS



LTE Band 2_1.4MHz_QPSK_19193_1RB#0_Range4:1000~5000MHz_-54.37_PASS



LTE Band 2_1.4MHz_QPSK_19193_1RB#0_Range5:5000~12000MHz_-63.23_PASS



LTE Band 2_1.4MHz_QPSK_19193_1RB#0_Range6:12000~18000MHz_-55.34_PASS



LTE Band 2_1.4MHz_16QAM_19193_1RB#0_Range1:0.009~0.15MHz_-62.43_PASS



LTE Band 2_1.4MHz_16QAM_19193_1RB#0_Range2:0.15~30MHz_-57.09_PASS



LTE Band 2_1.4MHz_16QAM_19193_1RB#0_Range3:30~1000MHz_-47.23_PASS



LTE Band 2_1.4MHz_16QAM_19193_1RB#0_Range4:1000~5000MHz_-54.29_PASS



LTE Band 2_1.4MHz_16QAM_19193_1RB#0_Range5:5000~12000MHz_-63.85_PASS



LTE Band 2_1.4MHz_16QAM_19193_1RB#0_Range6:12000~18000MHz_-55.28_PASS



LTE Band 2_3MHz_QPSK_18615_1RB#0_Range1:0.009~0.15MHz_-64.5_PASS