

The screenshot displays the Spectrum Analyzer 4 software interface. The main display area shows a frequency spectrum plot with a yellow trace. A prominent peak is labeled with a green '1' and a value of 64.375 MHz. The plot has a logarithmic scale on the y-axis (labeled 'Scale/Div 10 dB' and 'Log') and a linear scale on the x-axis (labeled 'Start 1.000 GHz', 'Stop 10.000 GHz', and 'dBm BW 1.0 MHz'). The top of the interface contains various control panels: 'KEYSTICK' for input and output settings, 'Wdgmt' for power and trigger settings, and a 'Settings' panel on the right for center frequency, span, and other parameters. The bottom of the interface includes a toolbar with icons for file operations, a date/time display (Aug 31, 2025), and a status bar showing video and sweep parameters.

The screenshot shows the Keysight Spectrum Analyzer 1 software interface. The main display is a frequency spectrum plot with a logarithmic scale. The x-axis represents frequency in kHz, ranging from 0 to 100. The y-axis represents power in dBm, ranging from -100 to 0. A prominent peak is visible at 9.9306 kHz, labeled with its frequency and power level: 9.9306 kHz, -69.897 dBm. The plot is titled 'Spectrum Analyzer 1' and 'Report SA'. The interface includes several control panels: 'Input' (RF, Video, etc.), 'Settings' (Frequency, Span, etc.), and 'Measurements' (Peak, Average, etc.). The 'Frequency' panel shows the center frequency at 9.9306 kHz. The 'Measurements' panel shows the peak power at -69.897 dBm. The plot is titled 'Spectrum Analyzer 1' and 'Report SA'. The interface includes several control panels: 'Input' (RF, Video, etc.), 'Settings' (Frequency, Span, etc.), and 'Measurements' (Peak, Average, etc.). The 'Frequency' panel shows the center frequency at 9.9306 kHz. The 'Measurements' panel shows the peak power at -69.897 dBm.

[illegible]

The screenshot displays the Keysight Spectrum Analyzer 1 software interface. The main display area shows a spectrum plot with a yellow trace. The frequency scale is logarithmic, ranging from 10.00 to 100.00 MHz. The amplitude scale is linear, ranging from -100.00 to 0.00 dBm. A signal is visible at 80.00 MHz, with a peak level of -45.989 dBm. The plot is titled "Ref Level Offset: 2.34 dB" and "Ref Level: 20.00 dBm". The plot is also labeled "Mkr1: 80.00 MHz" and "Mkr2: 80.00 MHz". The plot is also labeled "Mkr1: 80.00 MHz" and "Mkr2: 80.00 MHz". The plot is also labeled "Mkr1: 80.00 MHz" and "Mkr2: 80.00 MHz".

The screenshot shows the Keysight Spectrum Analyzer 1 interface. The main display is a frequency spectrum plot with a yellow trace. The plot is titled "Spectrum Analyzer 1" and "Power 1 dB". The frequency scale is in GHz, ranging from 15.00000000 to 16.79400000. The power scale is in dBm, ranging from -40.00 to 0.00. The plot shows a signal at 16.794 GHz with a power level of -35.25 dBm. The interface includes various control panels for frequency, span, resolution, and other parameters.

Frequency Panel:

- Center Frequency: 16.79400000 GHz
- Span: 15.00000000 GHz
- Span Type: Sweep Span
- Full Span
- AUTO TUNE
- Off Step: 1.00000000 GHz
- Auto Man
- Prep Offset: 0 Hz
- X Axis Scale: Log
- Log Lin
- Signal Guard

Resolution Panel:

- Resolution: 10.00000000 GHz
- Resolution Type: Sweep Span
- Full Span
- AUTO TUNE
- Off Step: 1.00000000 GHz
- Auto Man
- Prep Offset: 0 Hz
- X Axis Scale: Log
- Log Lin
- Signal Guard

Other Parameters:

- Input: 2.50 GHz
- Attenuation: 30.00 dB
- Power: 16.79400000 GHz
- Resolution: 10.00000000 GHz
- Span: 15.00000000 GHz
- Full Span
- AUTO TUNE
- Off Step: 1.00000000 GHz
- Auto Man
- Prep Offset: 0 Hz
- X Axis Scale: Log
- Log Lin
- Signal Guard

The screenshot displays the Spectrum Analyzer 1 window. The main plot area shows a frequency spectrum with a significant peak at 32.0112 MHz, labeled 'Mkr1 32.0112 MHz -66.943 dBm'. The x-axis represents frequency in MHz, ranging from 31.5 to 32.5. The y-axis represents power in dBm, ranging from -80 to 0. The interface includes various controls on the left (Keysight logo, Input, Span, Scale/Div, Log) and right (Frequency, Center Frequency, Span, Span Type, Full Span, Auto Tune, CF Step, Offset, Freq Offset, A-Keys Scale, Log, Signal Track). The bottom status bar shows the date 'Aug 31, 2025', time '8:50:00', and other system information.

The screenshot displays the Spectrum Analyzer 1 software interface. The main window shows a frequency spectrum plot with a prominent peak at 4.123 GHz, labeled 'Mkr1 4.123 0 MHz' and '-46.424 dBm'. The plot has a logarithmic scale for the Y-axis (dBm) ranging from -100 to 0. The X-axis represents frequency in GHz, with markers at 4.0 and 4.2. The interface includes various control panels: 'KEYSTICK' for input and alignment, 'Input' settings (50 Ohm, 20 dB), 'IF/RF' settings (Bandwidth, Center Freq, Span), 'Mixing' settings (Power, Phase, Frequency), and 'Frequency' settings (Center Frequency, Span, Sweep Span, Full Span, Start Freq, Stop Freq, Preset). The 'AUTO TUNE' button is visible on the right. The bottom status bar shows the date (Aug 01, 2025), time (9:52:17), and various system indicators.

Spectrum Analyzer 1
Sweep SA

KEYSTONE Input RF: Input 1, 50.0 MHz
 Filter: Filtering AC, Freq Ref: Ref, Cal: Cal, Freq Ref: Ref, Cal: Cal, Freq Ref: Ref, Cal: Cal

Input 1: 50.0 MHz
 Cal: Cal, Freq Ref: Ref, Cal: Cal, Freq Ref: Ref, Cal: Cal, Freq Ref: Ref, Cal: Cal

Ref Level Offset: 2.24 dB
 Ref Level: 20.00 dBm

Mkr1 906.52 MHz
 -45.962 dBm

Start: 0.0000 GHz
 Span: 1.0000 GHz
 Res BW: 1.0 MHz
 Sweep: -1.00 s (20001 pts)

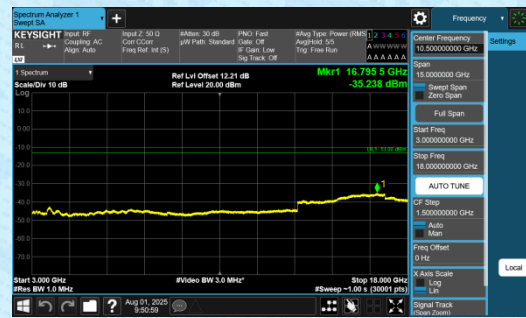
Start Freq: 30.000000 MHz
 Stop Freq: 1.00000000 GHz
 Span: 97.000000 MHz
 Offset: 0.0 Hz
 Auto Tune: [X]

Local

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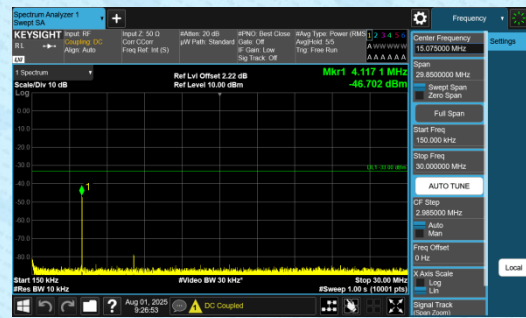
EGPRS1900-512-2-1000~3000MHz-PASS



EGPRS1900-512-2-3000~18000MHz-PASS



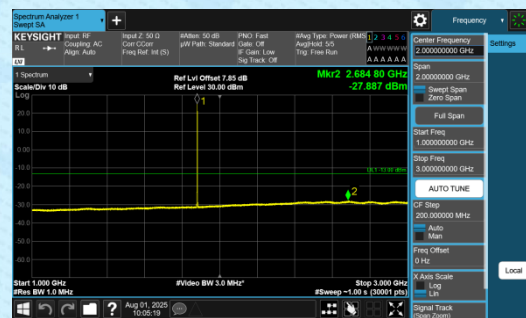
GPRS1900-661-0-0.009~0.15MHz-PASS



GPRS1900-661-0-0.15~30MHz-PASS



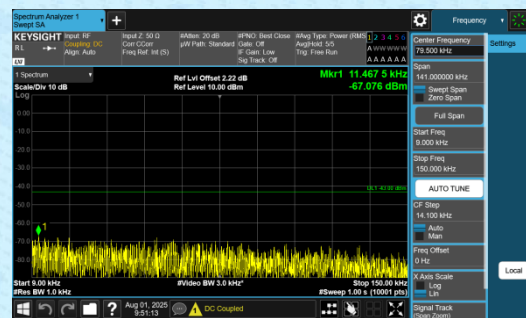
GPRS1900-661-0-30~1000MHz-PASS



GPRS1900-661-0-1000~3000MHz-PASS



GPRS1900-661-0-3000~18000MHz-PASS



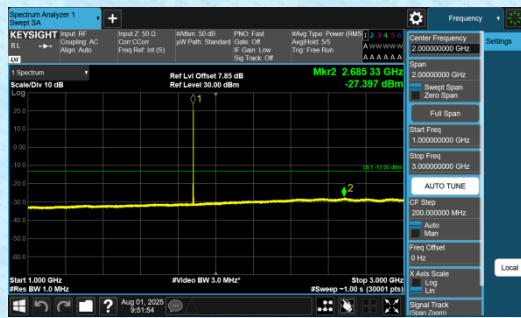
EGPRS1900-661-2-0.009~0.15MHz-PASS



EGPRS1900-661-2-0.15~30MHz-PASS



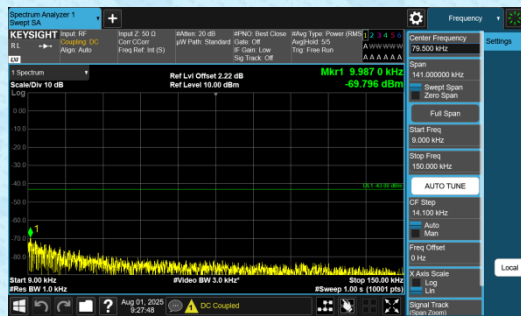
EGPRS1900-661-2-30~1000MHz-PASS



EGPRS1900-661-2-1000~3000MHz-PASS



EGPRS1900-661-2-3000~18000MHz-PASS



GPRS1900-810-0-0.009~0.15MHz-PASS



GPRS1900-810-0-0.15~30MHz-PASS



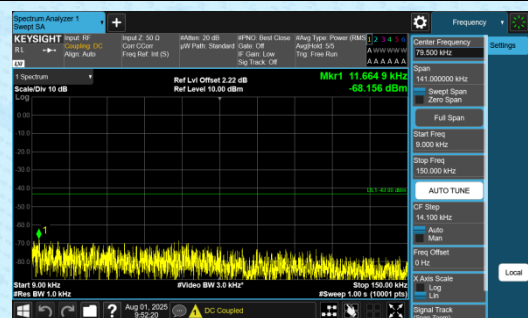
GPRS1900-810-0-30~1000MHz-PASS



GPRS1900-810-0-1000~3000MHz-PASS



GPRS1900-810-0-3000~18000MHz-PASS



EGPRS1900-810-2-0.009~0.15MHz-PASS



EGPRS1900-810-2-0.15~30MHz-PASS



EGPRS1900-810-2-30~1000MHz-PASS



EGPRS1900-810-2-1000~3000MHz-PASS



EGPRS1900-810-2-3000~18000MHz-PASS

AppendixF:Frequency Stability

Test Result

Voltage							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GPRS850	128	VN	NT	18.60	0.022567	±2.5	PASS
GPRS850	128	VL	NT	22.21	0.026947	±2.5	PASS
GPRS850	128	VH	NT	22.57	0.027384	±2.5	PASS
EGPRS850	128	VN	NT	24.44	0.029653	±2.5	PASS
EGPRS850	128	VL	NT	23.15	0.028088	±2.5	PASS
EGPRS850	128	VH	NT	23.28	0.028246	±2.5	PASS
GPRS850	190	VN	NT	20.92	0.025006	±2.5	PASS
GPRS850	190	VL	NT	18.69	0.022340	±2.5	PASS
GPRS850	190	VH	NT	21.05	0.025161	±2.5	PASS
EGPRS850	190	VN	NT	25.83	0.030875	±2.5	PASS
EGPRS850	190	VL	NT	22.63	0.027050	±2.5	PASS
EGPRS850	190	VH	NT	22.83	0.027289	±2.5	PASS
GPRS850	251	VN	NT	22.24	0.026202	±2.5	PASS
GPRS850	251	VL	NT	22.50	0.026508	±2.5	PASS
GPRS850	251	VH	NT	22.99	0.027085	±2.5	PASS
EGPRS850	251	VN	NT	25.25	0.029748	±2.5	PASS
EGPRS850	251	VL	NT	21.76	0.025636	±2.5	PASS
EGPRS850	251	VH	NT	21.70	0.025566	±2.5	PASS
GPRS1900	512	VN	NT	18.85	0.010188	±2.5	PASS
GPRS1900	512	VL	NT	22.76	0.012301	±2.5	PASS
GPRS1900	512	VH	NT	23.12	0.012496	±2.5	PASS
EGPRS1900	512	VN	NT	18.27	0.009875	±2.5	PASS
EGPRS1900	512	VL	NT	19.50	0.010539	±2.5	PASS
EGPRS1900	512	VH	NT	19.82	0.010712	±2.5	PASS
GPRS1900	661	VN	NT	16.37	0.008707	±2.5	PASS
GPRS1900	661	VL	NT	17.14	0.009117	±2.5	PASS
GPRS1900	661	VH	NT	15.46	0.008223	±2.5	PASS
EGPRS1900	661	VN	NT	24.60	0.013085	±2.5	PASS
EGPRS1900	661	VL	NT	17.11	0.009101	±2.5	PASS

EGPRS1900	661	VH	NT	18.92	0.010064	±2.5	PASS
GPRS1900	810	VN	NT	15.24	0.007980	±2.5	PASS
GPRS1900	810	VL	NT	11.85	0.006205	±2.5	PASS
GPRS1900	810	VH	NT	13.04	0.006828	±2.5	PASS
EGPRS1900	810	VN	NT	23.63	0.012373	±2.5	PASS
EGPRS1900	810	VL	NT	18.53	0.009703	±2.5	PASS
EGPRS1900	810	VH	NT	15.43	0.008079	±2.5	PASS

Temperature							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GPRS850	128	NV	-30	21.31	0.025855	±2.5	PASS
GPRS850	128	NV	-20	21.79	0.026438	±2.5	PASS
GPRS850	128	NV	-10	20.76	0.025188	±2.5	PASS
GPRS850	128	NV	0	20.76	0.025188	±2.5	PASS
GPRS850	128	NV	10	20.08	0.024363	±2.5	PASS
GPRS850	128	NV	20	19.82	0.024048	±2.5	PASS
GPRS850	128	NV	30	19.24	0.023344	±2.5	PASS
GPRS850	128	NV	40	19.92	0.024169	±2.5	PASS
GPRS850	128	NV	50	16.69	0.020250	±2.5	PASS
EGPRS850	128	NV	-30	23.70	0.028755	±2.5	PASS
EGPRS850	128	NV	-20	23.83	0.028913	±2.5	PASS
EGPRS850	128	NV	-10	23.28	0.028246	±2.5	PASS
EGPRS850	128	NV	0	22.41	0.027190	±2.5	PASS
EGPRS850	128	NV	10	22.31	0.027069	±2.5	PASS
EGPRS850	128	NV	20	22.96	0.027857	±2.5	PASS
EGPRS850	128	NV	30	25.18	0.030551	±2.5	PASS
EGPRS850	128	NV	40	21.86	0.026523	±2.5	PASS
EGPRS850	128	NV	50	21.86	0.026523	±2.5	PASS
GPRS850	190	NV	-30	19.69	0.023536	±2.5	PASS
GPRS850	190	NV	-20	21.44	0.025628	±2.5	PASS
GPRS850	190	NV	-10	22.34	0.026703	±2.5	PASS
GPRS850	190	NV	0	21.18	0.025317	±2.5	PASS
GPRS850	190	NV	10	21.37	0.025544	±2.5	PASS
GPRS850	190	NV	20	21.02	0.025126	±2.5	PASS
GPRS850	190	NV	30	24.02	0.028711	±2.5	PASS
GPRS850	190	NV	40	18.37	0.021958	±2.5	PASS
GPRS850	190	NV	50	22.02	0.026321	±2.5	PASS
EGPRS850	190	NV	-30	21.53	0.025735	±2.5	PASS
EGPRS850	190	NV	-20	21.02	0.025126	±2.5	PASS
EGPRS850	190	NV	-10	21.89	0.026165	±2.5	PASS
EGPRS850	190	NV	0	23.25	0.027791	±2.5	PASS
EGPRS850	190	NV	10	22.79	0.027241	±2.5	PASS
EGPRS850	190	NV	20	22.70	0.027134	±2.5	PASS
EGPRS850	190	NV	30	21.53	0.025735	±2.5	PASS

EGPRS850	190	NV	40	20.63	0.024659	±2.5	PASS
EGPRS850	190	NV	50	20.89	0.024970	±2.5	PASS
GPRS850	251	NV	-30	20.24	0.023845	±2.5	PASS
GPRS850	251	NV	-20	20.99	0.024729	±2.5	PASS
GPRS850	251	NV	-10	22.21	0.026166	±2.5	PASS
GPRS850	251	NV	0	20.40	0.024034	±2.5	PASS
GPRS850	251	NV	10	20.50	0.024152	±2.5	PASS
GPRS850	251	NV	20	20.40	0.024034	±2.5	PASS
GPRS850	251	NV	30	20.18	0.023775	±2.5	PASS
GPRS850	251	NV	40	22.73	0.026779	±2.5	PASS
GPRS850	251	NV	50	19.18	0.022597	±2.5	PASS
EGPRS850	251	NV	-30	20.40	0.024034	±2.5	PASS
EGPRS850	251	NV	-20	21.05	0.024800	±2.5	PASS
EGPRS850	251	NV	-10	27.22	0.032069	±2.5	PASS
EGPRS850	251	NV	0	23.37	0.027533	±2.5	PASS
EGPRS850	251	NV	10	21.47	0.025295	±2.5	PASS
EGPRS850	251	NV	20	21.57	0.025412	±2.5	PASS
EGPRS850	251	NV	30	19.73	0.023245	±2.5	PASS
EGPRS850	251	NV	40	26.41	0.031115	±2.5	PASS
EGPRS850	251	NV	50	22.18	0.026131	±2.5	PASS
GPRS1900	512	NV	-30	19.95	0.010783	±2.5	PASS
GPRS1900	512	NV	-20	16.01	0.008653	±2.5	PASS
GPRS1900	512	NV	-10	16.79	0.009075	±2.5	PASS
GPRS1900	512	NV	0	21.53	0.011637	±2.5	PASS
GPRS1900	512	NV	10	14.82	0.008010	±2.5	PASS
GPRS1900	512	NV	20	17.24	0.009318	±2.5	PASS
GPRS1900	512	NV	30	23.92	0.012928	±2.5	PASS
GPRS1900	512	NV	40	19.82	0.010712	±2.5	PASS
GPRS1900	512	NV	50	17.37	0.009388	±2.5	PASS
EGPRS1900	512	NV	-30	21.21	0.011464	±2.5	PASS
EGPRS1900	512	NV	-20	20.82	0.011253	±2.5	PASS
EGPRS1900	512	NV	-10	22.15	0.011972	±2.5	PASS
EGPRS1900	512	NV	0	21.89	0.011831	±2.5	PASS
EGPRS1900	512	NV	10	22.66	0.012247	±2.5	PASS
EGPRS1900	512	NV	20	16.95	0.009161	±2.5	PASS
EGPRS1900	512	NV	30	16.89	0.009129	±2.5	PASS
EGPRS1900	512	NV	40	21.05	0.011377	±2.5	PASS
EGPRS1900	512	NV	50	22.57	0.012199	±2.5	PASS
GPRS1900	661	NV	-30	18.05	0.009601	±2.5	PASS
GPRS1900	661	NV	-20	15.11	0.008037	±2.5	PASS
GPRS1900	661	NV	-10	18.92	0.010064	±2.5	PASS
GPRS1900	661	NV	0	12.37	0.006580	±2.5	PASS
GPRS1900	661	NV	10	15.95	0.008484	±2.5	PASS
GPRS1900	661	NV	20	15.11	0.008037	±2.5	PASS

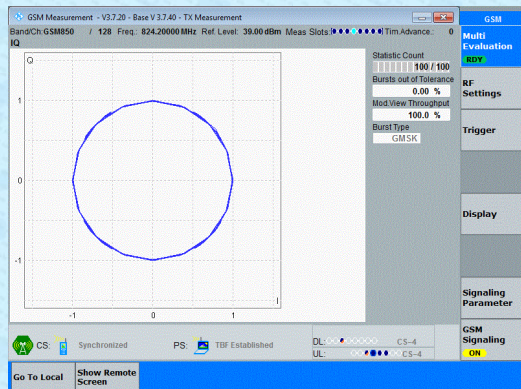
GPRS1900	661	NV	30	15.98	0.008500	±2.5	PASS
GPRS1900	661	NV	40	17.21	0.009154	±2.5	PASS
GPRS1900	661	NV	50	12.40	0.006596	±2.5	PASS
EGPRS1900	661	NV	-30	17.69	0.009410	±2.5	PASS
EGPRS1900	661	NV	-20	19.27	0.010250	±2.5	PASS
EGPRS1900	661	NV	-10	21.05	0.011197	±2.5	PASS
EGPRS1900	661	NV	0	18.66	0.009926	±2.5	PASS
EGPRS1900	661	NV	10	19.31	0.010271	±2.5	PASS
EGPRS1900	661	NV	20	20.66	0.010989	±2.5	PASS
EGPRS1900	661	NV	30	23.21	0.012346	±2.5	PASS
EGPRS1900	661	NV	40	21.95	0.011676	±2.5	PASS
EGPRS1900	661	NV	50	16.18	0.008606	±2.5	PASS
GPRS1900	810	NV	-30	14.79	0.007744	±2.5	PASS
GPRS1900	810	NV	-20	9.94	0.005205	±2.5	PASS
GPRS1900	810	NV	-10	13.37	0.007001	±2.5	PASS
GPRS1900	810	NV	0	13.14	0.006880	±2.5	PASS
GPRS1900	810	NV	10	12.62	0.006608	±2.5	PASS
GPRS1900	810	NV	20	14.53	0.007608	±2.5	PASS
GPRS1900	810	NV	30	14.24	0.007456	±2.5	PASS
GPRS1900	810	NV	40	19.76	0.010347	±2.5	PASS
GPRS1900	810	NV	50	19.69	0.010310	±2.5	PASS
EGPRS1900	810	NV	-30	18.92	0.009907	±2.5	PASS
EGPRS1900	810	NV	-20	16.98	0.008891	±2.5	PASS
EGPRS1900	810	NV	-10	19.15	0.010027	±2.5	PASS
EGPRS1900	810	NV	0	16.50	0.008640	±2.5	PASS
EGPRS1900	810	NV	10	17.85	0.009347	±2.5	PASS
EGPRS1900	810	NV	20	19.02	0.009959	±2.5	PASS
EGPRS1900	810	NV	30	15.34	0.008032	±2.5	PASS
EGPRS1900	810	NV	40	12.53	0.006561	±2.5	PASS
EGPRS1900	810	NV	50	18.76	0.009823	±2.5	PASS

AppendixG:Modulation Characteristics

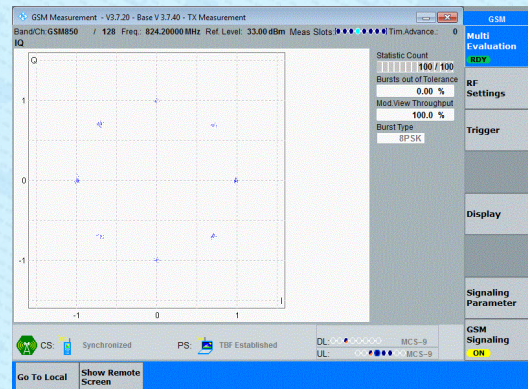
Test Result

Band	Channel	Result	Verdict
GPRS850	128	PASS	PASS
EGPRS850	128	PASS	PASS
GPRS850	190	PASS	PASS
EGPRS850	190	PASS	PASS
GPRS850	251	PASS	PASS
EGPRS850	251	PASS	PASS
GPRS1900	512	PASS	PASS
EGPRS1900	512	PASS	PASS
GPRS1900	661	PASS	PASS
EGPRS1900	661	PASS	PASS
GPRS1900	810	PASS	PASS
EGPRS1900	810	PASS	PASS

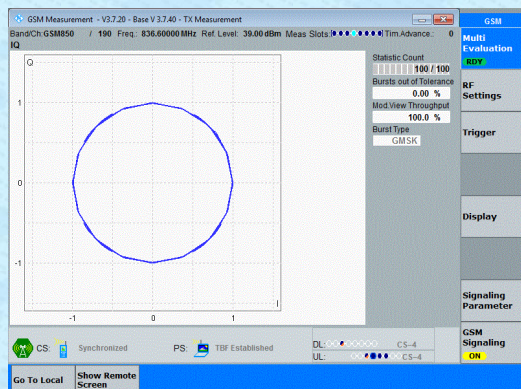
Test Graphs



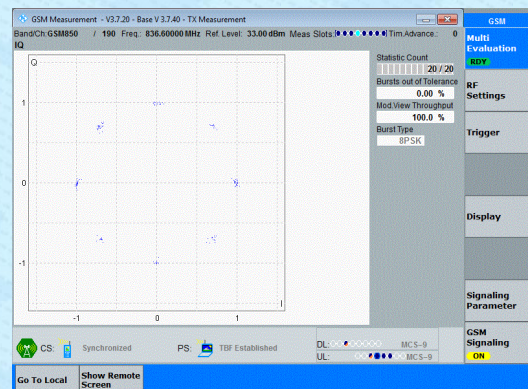
GPRS850-128-5-PASS



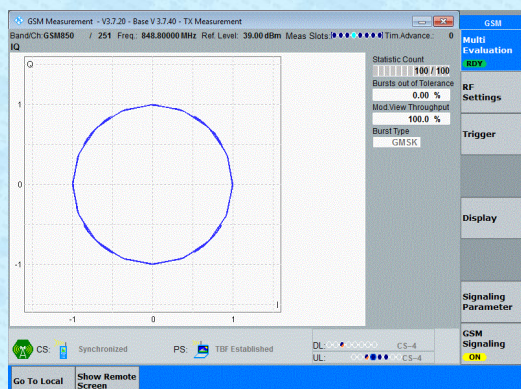
EGPRS850-128-8-PASS



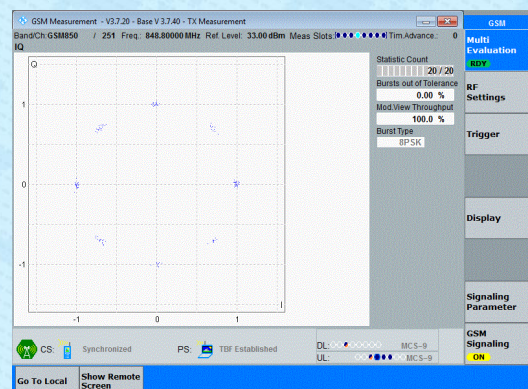
GPRS850-190-5-PASS



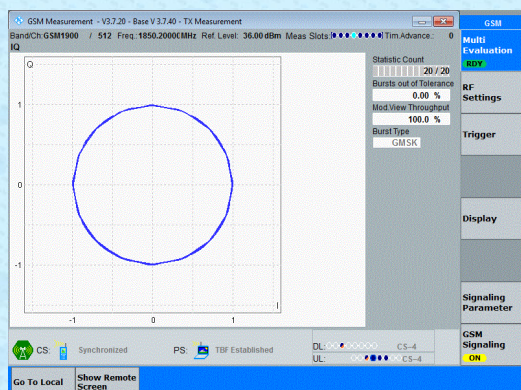
EGPRS850-190-8-PASS



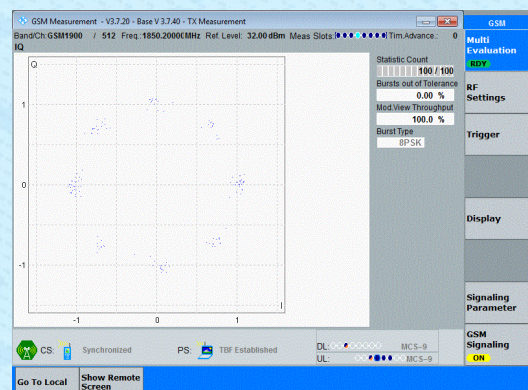
GPRS850-251-5-PASS



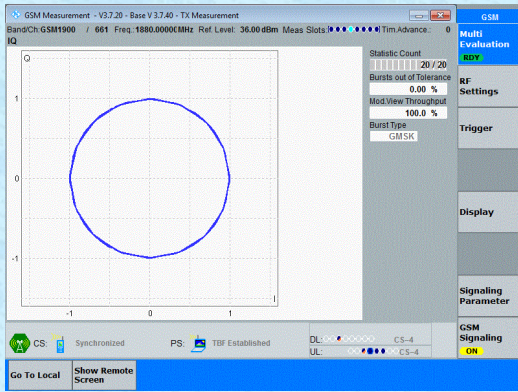
EGPRS850-251-8-PASS



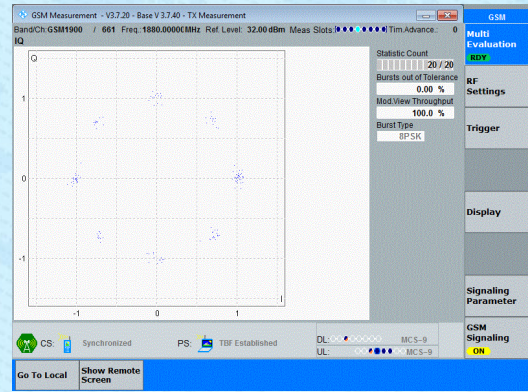
GPRS1900-512-0-PASS



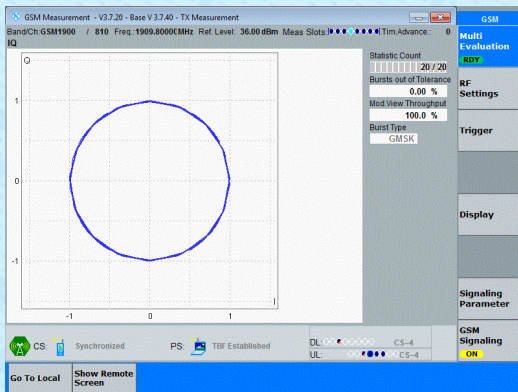
EGPRS1900-512-2-PASS



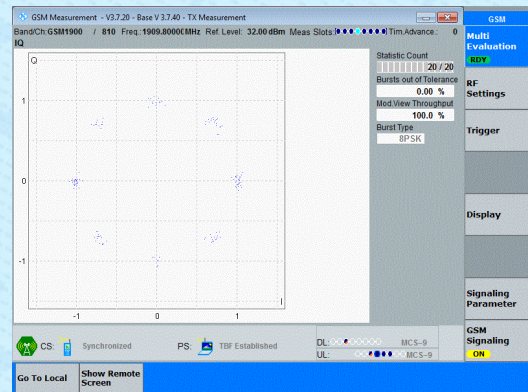
GPRS1900-661-0-PASS



EGPRS1900-661-2-PASS



GPRS1900-810-0-PASS



EGPRS1900-810-2-PASS

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