

TEST REPORT

FCC ID: 2AKSAMOVIC-DUAL

Product: Dual

Model No.: Dual

Additional Model No.: ED1, ED2, ED3, M1, M2, M3, M4

Trade Mark: **MOVIC** 

Report No.: TCT170602E021

Issued Date: Jun. 29, 2017

Issued for:

Shenzhen YLWD Technology Co., Ltd

RM1002.A.Haisong BLD.RDTairan.FuTian District Shenzhen, China

Issued By:

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1. Test Certification

Product:	Dual
Model No.:	Dual
Additional Model:	ED1, ED2, ED3, M1, M2, M3, M4
Trade Mark:	
Applicant:	Shenzhen YLWD Technology Co., Ltd
Address:	RM1002.A.Haisong BLD.RDTairan.FuTian District Shenzhen, China
Manufacturer:	Shenzhen YLWD Technology Co., Ltd
Address:	RM1002.A.Haisong BLD.RDTairan.FuTian District Shenzhen, China
Date of Test:	Jun. 03, 2017 – Jun. 28, 2017
Applicable Standards:	FCC CFR Title 47 Part 2 FCC CFR Title 47 Part22 FCC CFR Title 47 Part24 FCC CFR Title 47 Part27

The above equipment has been tested by Shenzhen Tongce Testing Lab. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:



Garen

Date:

Jun. 28, 2017

Reviewed By:



Joe Zhou

Date:

Jun. 29, 2017

Approved By:



Tomsin

Date:

Jun. 29, 2017

2. Test Result Summary

Requirement	CFR 47 Section	Result
Conducted Output Power	§22.913; §2.1046 §24.232; §27.50(d)	PASS
Peak-to-Average Ratio	§2.1046; §24.232(d) §27.50(d)	PASS
Effective Radiated Power	§2.1046; §22.913(a) §24.232; §27.50(d)	PASS
Equivalent Isotropic Radiated Power	§2.1046; §22.913(a) §24.232; §27.50(d)	PASS
Occupied Bandwidth	§2.1049	PASS
Band Edge	§2.1051 §22.917(a) §24.238(a) §27.53(g)	PASS
Conducted Spurious Emission	§2.1051; §22.917 §24.238; §27.53(h)	PASS
Field Strength of Spurious Radiation	§2.1053; §22.917(a) §24.238; §27.53(g)	PASS
Frequency Stability for Temperature & Voltage	§2.1055; §22.355 §24.235; §27.54	PASS

Note:

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

3. EUT Description

Product:	Dual
Model No.:	Dual
Additional Model:	ED1, ED2, ED3, M1, M2, M3, M4
Trade Mark:	
3G Version:	WCDMA: R99 HSDPA: Release 5 HSUPA: Release 6
Tx Frequency:	GSM/GPRS/EGPRS 850: 824.2 MHz ~ 848.8 MHz GSM/GPRS/EGPRS 1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz
Rx Frequency:	GSM/GPRS/EGPRS 850: 869.2 MHz ~ 893.8 MHz GSM/GPRS/EGPRS 1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band IV: 2112.4 MHz ~ 2152.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz
Maximum Output Power to Antenna:	GSM850: 33.69dBm GSM1900: 29.83dBm GPRS 850: 33.03dBm GPRS 1900: 29.26dBm EGPRS850: 27.32dBm EGPRS1900: 26.42dBm WCDMA Band V: 23.78dBm WCDMA Band IV: 23.44dBm WCDMA Band II: 22.97dBm
99% Occupied Bandwidth:	GSM850: 246KGXM GSM1900: 246KGXM GPRS850 Class 8: 246KGXW GPRS1900 Class 8: 247KGXW EGPRS850 Class 8: 242KG7W EGPRS1900 Class 8: 249KG7W WCDMA Band V RMC 12.2Kbps: 4M21F9W WCDMA Band IV RMC 12.2Kbps: 4M36F9W WCDMA Band II RMC 12.2Kbps: 4M21F9W
Type of Modulation:	GSM/GPRS: GMSK EGPRS: GMSK/8PSK WCDMA/HSDPA/HSUPA: QPSK
Antenna Type:	PIFA Antenna
Antenna Gain:	GSM/GPRS/EGPRS 850: -2.5dBi

	GSM/GPRS/EGPRS 1900: -2.5dBi WCDMA Band V: -3.01dBi WCDMA Band IV: -3.01dBi WCDMA Band II: -3.01dBi
Power Supply:	Rechargeable Li-ion Battery DC3.8V
Adapter:	Adapter Information: Input: AC 100-240V, 50/60Hz, 0.2A Output: DC 5.0V, 1000mA
Remark:	All models above are identical in interior structure, electrical circuits and components, and just model names are different for the marketing requirement.

4. Genera Information

4.1. Test environment and mode

Operating Environment:

Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar

Test Mode:

Operation mode:	Keep the EUT in communication with CMU200 and select channel with modulation
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Remark: This product has a built-in rechargeable battery, so in an independent test, the EUT battery was fully-charged.

The sample was placed (0.8m below 1GHz, 0.8m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

Description Operation Frequency

GSM 850		PCS1900	
Channel:	Frequency (MHz)	Channel:	Frequency (MHz)
128	824.20	512	1850.20
129	824.40	513	1850.40
....			
189	836.40	660	1879.80
190	836.60	661	1880.00
191	836.80	662	1880.20
...	...	...	...
250	848.60	809	1909.60
251	848.80	810	1909.80

WCDMA Band IV		WCDMA Band V		WCDMA Band II	
Channel:	Frequency (MHz)	Channel:	Frequency (MHz)	Channel:	Frequency (MHz)
1312	1712.4	4132	826.40	9262	1852.40
....		4133	826.60	9263	1852.60
....					
....		4182	836.40	9399	1879.80
1413	1732.6	4183	836.60	9400	1880.00
....		4184	836.80	9401	1880.20
....		...	...	...	...
1513	1752.6	4233	846.60	9538	1907.60

4.2. Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r02 with maximum output power. Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 10000 MHz for GSM850 and WCDMA Band V.
2. 30 MHz to 20000 MHz for PCS1900, WCDMA Band II and WCDMA Band IV.

All modes and data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

Test Mode		
Band	Radiated TCs	Conducted TCs
GSM 850	GSM Link GPRS class 12 Link EGPRS class 12 Link	GSM Link GPRS class 12 Link EGPRS class 12 Link
PCS 1900	GSM Link GPRS class 12 Link EGPRS class 12 Link	GSM Link GPRS class 12 Link EGPRS class 12 Link
WCDMA Band V	RMC 12.2Kbps Link	RMC 12.2Kbps Link
WCDMA Band IV	RMC 12.2Kbps Link	RMC 12.2Kbps Link
WCDM Band II	RMC 12.2Kbps Link	RMC 12.2Kbps Link

Note: The maximum power levels are chosen to test as the worst case configuration as follows:

GPRS multi-slot class 8 mode for GMSK modulation, EDGE multi-slot class 8 mode for 8PSK modulation. RMC 12.2Kbps mode for WCDMA band V and WCDMA band II, only these modes were used for all tests. In addition to above worst-case test, below investigating on all data rates and all modes are compliance with each FCC test case which has specific test limits. For spurious emissions at antenna port, the EUT was investigated the band edges on low and high channels, and the unwanted spurious emissions on middle channel for all modes, the results are PASS, then only the worst-results were reported in the test report. The Radiated Spurious emissions for GPRS and EDGE modes were investigated on the middle channel and the PASS results were not worst than those data tested from the highest power channels.

4.3. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
/	/	/	/	/

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

n analy


$$= 8(\text{dB})$$

5. Facilities and Accreditations

5.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 572331

Shenzhen Tongce Testing Lab

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

5.2. Location

Shenzhen Tongce Testing Lab

Address: 1F, Leinuo Watch Building, Fuyong Town, Baoan Dist, Shenzhen, China

TEL: +86-755-27673339

5.3. Measurement Uncertainty

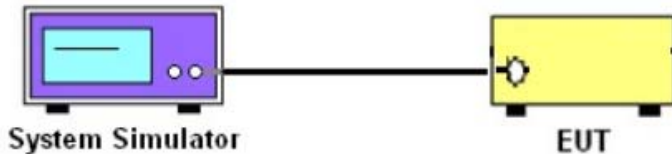
The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	$\pm 2.56\text{dB}$
2	RF power, conducted	$\pm 0.12\text{dB}$
3	Spurious emissions, conducted	$\pm 0.11\text{dB}$
4	All emissions, radiated(<1G)	$\pm 3.92\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.28\text{dB}$
6	Temperature	$\pm 0.1^{\circ}\text{C}$
7	Humidity	$\pm 1.0\%$

6. Test Results and Measurement Data

6.1. Conducted Output Power Measurement

6.1.1. Test Specification

Test Requirement:	FCC part 22.913(a) and FCC part 24.232(b) FCC part 27.50(d);
Test Method:	FCC part 2.1046
Operation mode:	Refer to item 4.1
Limits:	GSM 850 7W PCS 1900 2W WCDMA Band V:7W WCDMA Band II: 2W WCDMA Band IV:1W
Test Setup:	 The diagram illustrates the test setup. On the left is a purple box labeled 'System Simulator' with a screen and two buttons. A black line connects it to a yellow box on the right labeled 'EUT' (Equipment Under Test), which has a circular port on its left side.
Test Procedure:	1. The transmitter output port was connected to the system simulator. 2. Set EUT at maximum power through system simulator. 3. Select lowest, middle, and highest channels for each band and different modulation. 4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.
Test Result:	PASS

6.1.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Aug. 11, 2017
RF cable (9kHz-40GHz)	TCT	RE-06	N/A	Aug. 12, 2017
Antenna Connector	TCT	RFC-01	N/A	Aug. 12, 2017

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.1.3. Test data

Conducted Power Measurement Results:

Average Conducted Power (*Unit: dBm)						
Band	GSM850			PCS 1900		
Channel	128	190	251	512	661	810
Frequency(MHz)	824.2	836.6	848.8	1850.2	1880.0	1909.8
GSM	33.66	33.69	33.68	29.76	29.79	29.83
GPRS class8	32.95	33.03	32.96	29.05	29.13	29.26
GPRS class10	32.04	32.14	31.81	28.14	28.24	28.33
GPRS class11	30.53	30.45	30.23	26.63	26.55	26.64
GPRS class12	29.51	29.68	29.50	25.61	25.69	25.70
EGPRS class8	27.29	27.32	27.31	26.39	26.42	26.41
EGPRS class10	26.98	27.01	27.00	25.90	25.93	25.92
EGPRS class11	25.87	25.90	25.89	24.97	25.00	24.99
EGPRS class12	24.29	24.32	24.31	23.39	23.42	23.41
Average Conducted Power (*Unit: dBm)						
Band	WCDMA Band V			WCDMA Band II		
Channel	4132	4183	4233	9262	9400	9538
Frequency(MHz)	826.4	836.6	846.6	1852.4	1880.0	1907.6
WCDMA RMC 12.2K	23.67	23.78	23.75	22.86	22.97	22.94
HSDPA Subtest-1	23.21	23.34	23.26	22.40	22.53	22.45
HSDPA Subtest-2	22.91	23.02	22.99	22.10	22.21	22.18
HSDPA Subtest-3	22.85	22.94	22.94	22.04	22.13	22.13
HSDPA Subtest-4	22.79	22.96	22.91	21.98	22.15	22.10
HSUPA Subtest-1	22.55	22.68	22.58	21.74	21.87	21.77
HSUPA Subtest-2	22.45	22.58	22.50	21.64	21.77	21.69
HSUPA Subtest-3	22.04	22.17	22.08	21.23	21.36	21.27
HSUPA Subtest-4	22.01	22.15	22.06	21.20	21.34	21.25
HSUPA Subtest-5	21.84	21.97	21.87	21.03	21.16	21.06

Conducted Power (*Unit: dBm)			
Band	WCDMA Band IV		
Channel	1312	1413	1513
Frequency(MHz)	1712.4	1732.6	1752.6
RMC 12.2K	23.36	23.41	23.44
HSDPA Subtest-1	22.90	23.03	22.95
HSDPA Subtest-2	22.60	22.71	22.68
HSDPA Subtest-3	22.54	22.63	22.63
HSDPA Subtest-4	22.48	22.65	22.60
HSUPA Subtest-1	22.24	22.37	22.27
HSUPA Subtest-2	22.14	22.27	22.19
HSUPA Subtest-3	21.73	21.86	21.77
HSUPA Subtest-4	21.70	21.84	21.75
HSUPA Subtest-5	21.53	21.66	21.56

6.2. Peak to Average Ratio

6.2.1. Test Specification

Test Requirement:	FCC part 24.232(d) ; FCC part 22.913; FCC part 27.50(d);
Test Method:	FCC KDB 971168 v02r02 Section 5.7.1
Operation mode:	Refer to item 4.1
Limit:	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
Test Setup:	The diagram shows a System Simulator (purple) and a Spectrum Analyzer (green) connected to a Power Divider (black). The Power Divider is connected to the EUT (yellow). The System Simulator and Spectrum Analyzer are connected to the Power Divider via separate lines.
Test Procedure:	1. The testing follows FCC KDB 971168 v02r02 Section 5.7.1. 2. The EUT was connected to spectrum analyzer and system simulator via a power divider. 3. Set EUT to transmit at maximum output power. 4. For GSM/EGPRS operating modes, signal gating is implemented on the spectrum analyzer by triggering from the system simulator. 5. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer. Record the maximum PAPR level associated with a probability of 0.1%.
Test Result:	PASS

6.2.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Aug. 11, 2017
Spectrum Analyzer	Agilent	N9020A	MY49100060	Aug. 12, 2017
RF cable (9kHz-40GHz)	TCT	RE-06	N/A	Aug. 12, 2017
Antenna Connector	TCT	RFC-01	N/A	Aug. 12, 2017

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.2.3. Test Data

Cellular Band						
Mode	GSM850			GSM850 (EGPRS class 8)		
Channel	128	189	251	128	189	251
Frequency (MHz)	824.2	836.4	848.8	824.2	836.4	848.8
Peak-to-Average Ratio (dB)	2.62	2.62	2.63	7.12	7.13	7.17

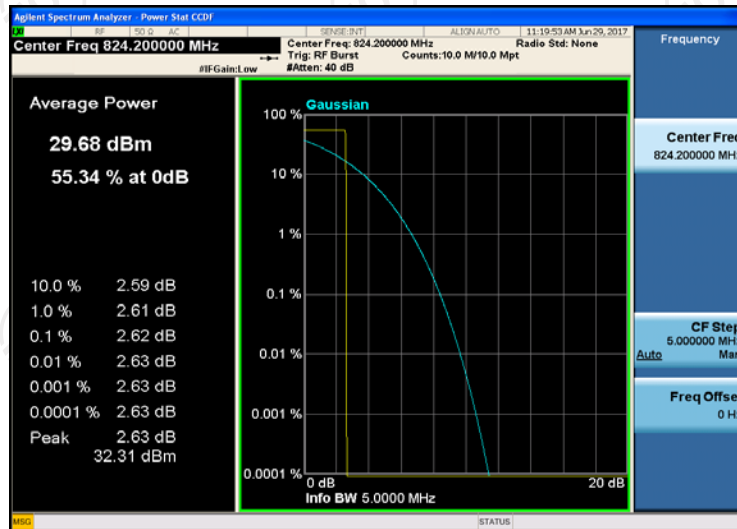
PCS Band						
Mode	GSM 1900			GSM 1900 (EGPRS class 8)		
Channel	512	661	810	512	661	810
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8
Peak-to-Average Ratio (dB)	2.65	2.68	2.68	4.94	4.95	5.04

Cellular Band									
Mode	WCDMA Band V (RMC 12.2Kbps)			WCDMA Band IV (RMC 12.2Kbps)			WCDMA Band II (RMC 12.2Kbps)		
Channel	4132	4183	4233	1312	1413	1513	9262	9400	9538
Frequency (MHz)	826.4	836.6	846.8	1712.4	1732.6	1752.6	1852.4	1880	1907.6
Peak-to-Average Ratio (dB)	2.83	2.98	2.68	2.84	3.18	2.39	2.83	2.71	3.19

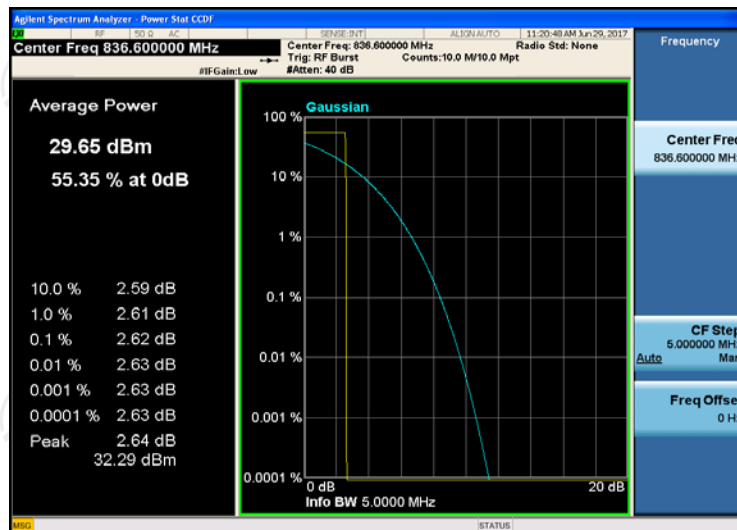
Test plots as follows:

GSM 850

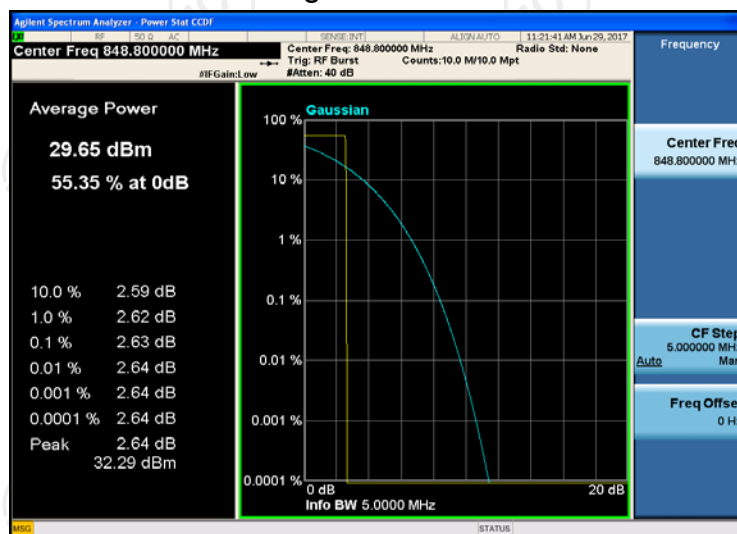
Peak-to-Average Ratio on Channel 128



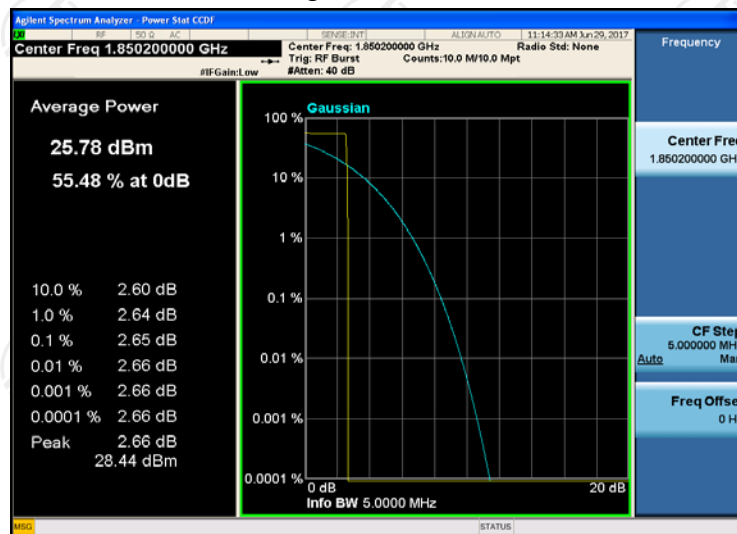
Peak-to-Average Ratio on Channel 190



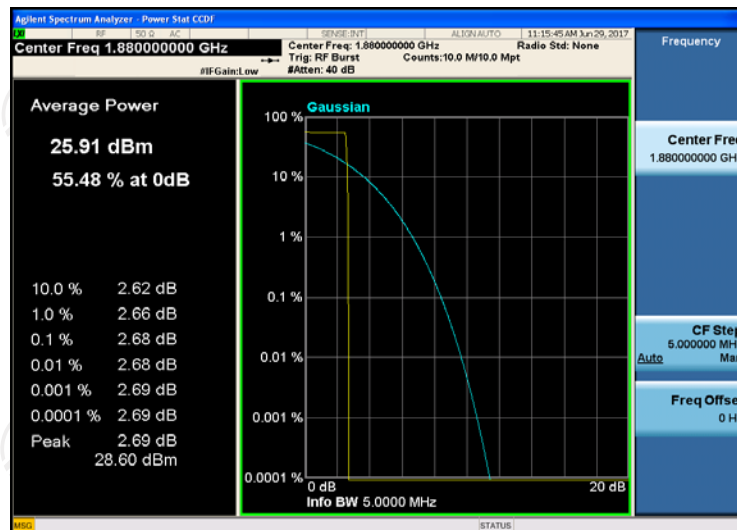
Peak-to-Average Ratio on Channel 251



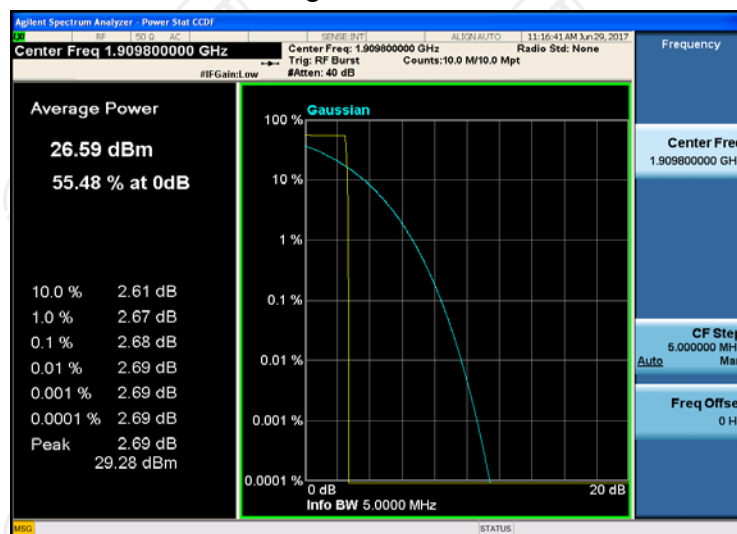
Peak-to-Average Ratio on Channel 512



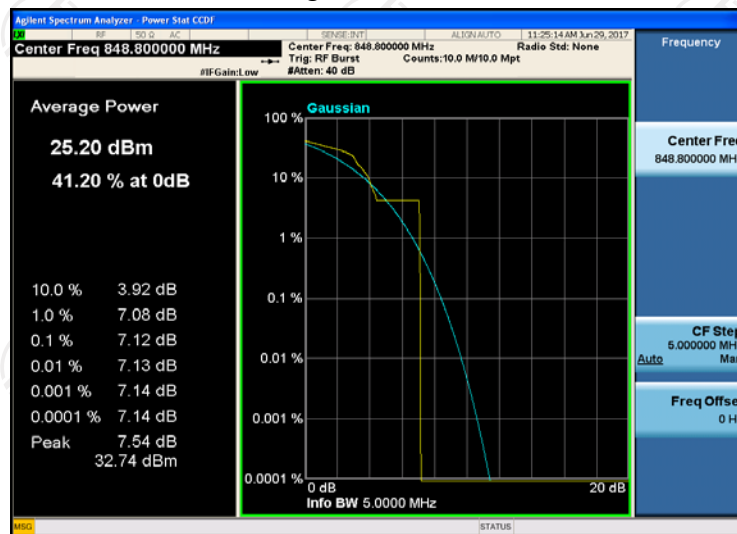
Peak-to-Average Ratio on Channel 661



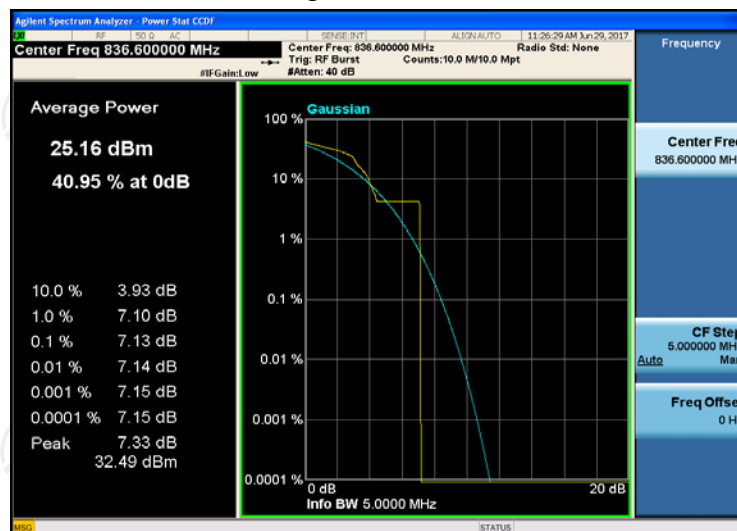
Peak-to-Average Ratio on Channel 810



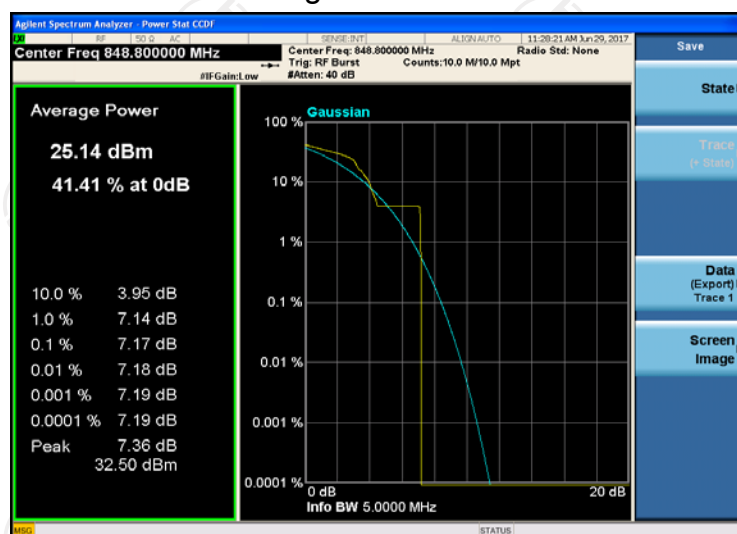
Peak-to-Average Ratio on Channel 128



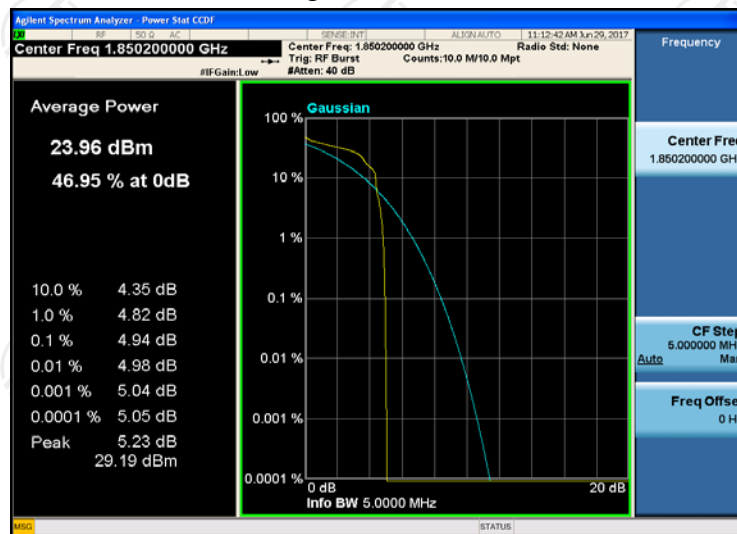
Peak-to-Average Ratio on Channel 189



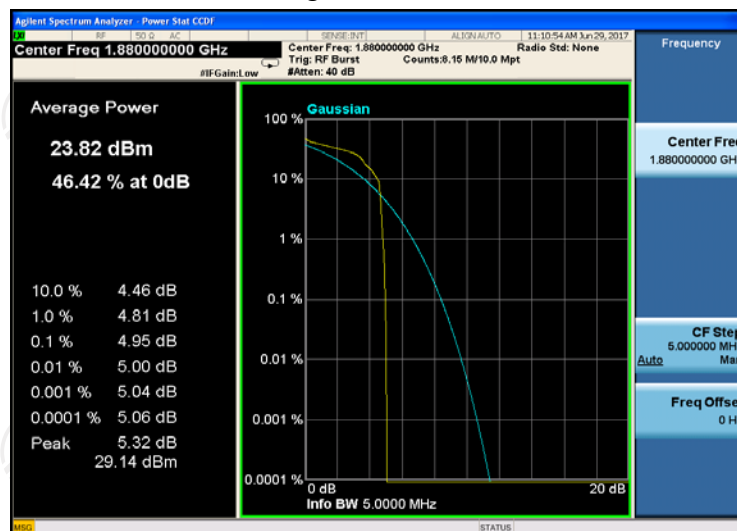
Peak-to-Average Ratio on Channel 251



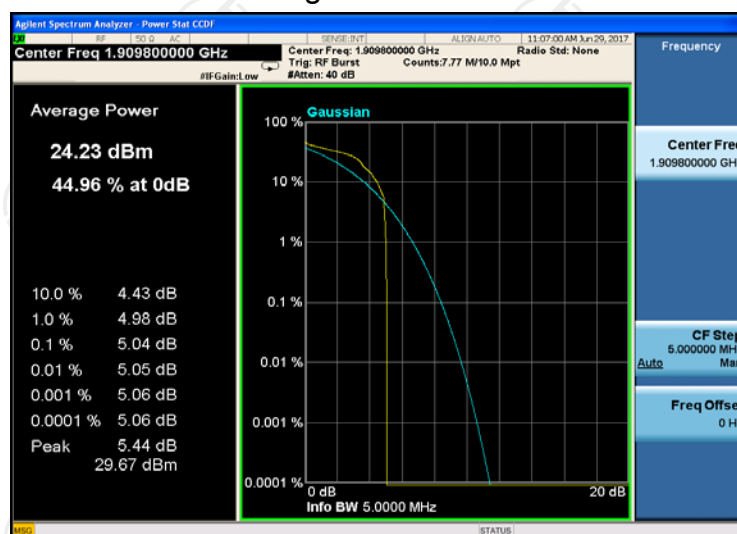
Peak-to-Average Ratio on Channel 512



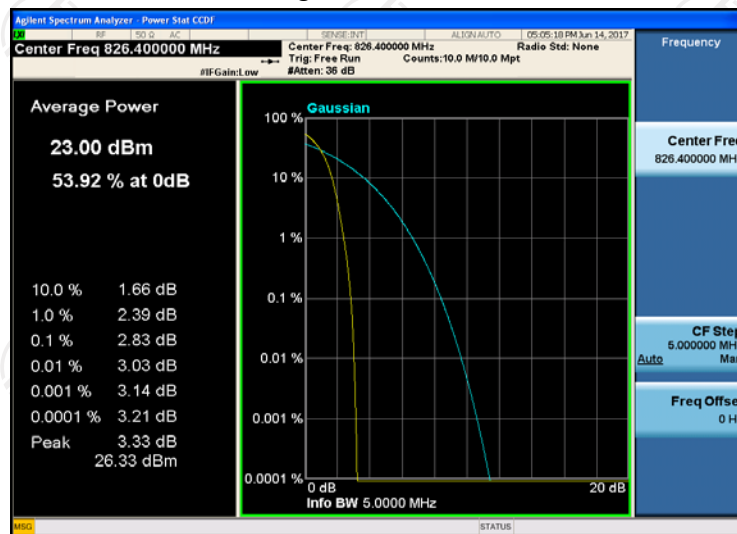
Peak-to-Average Ratio on Channel 661



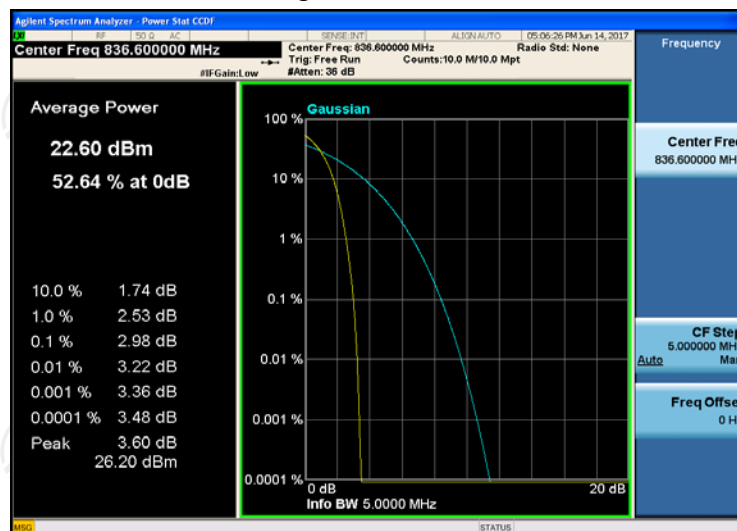
Peak-to-Average Ratio on Channel 810



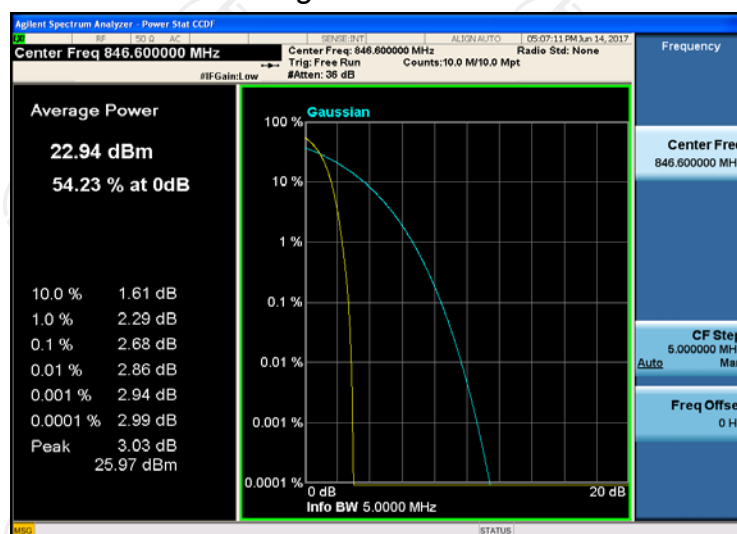
Peak-to-Average Ratio on Channel 4132



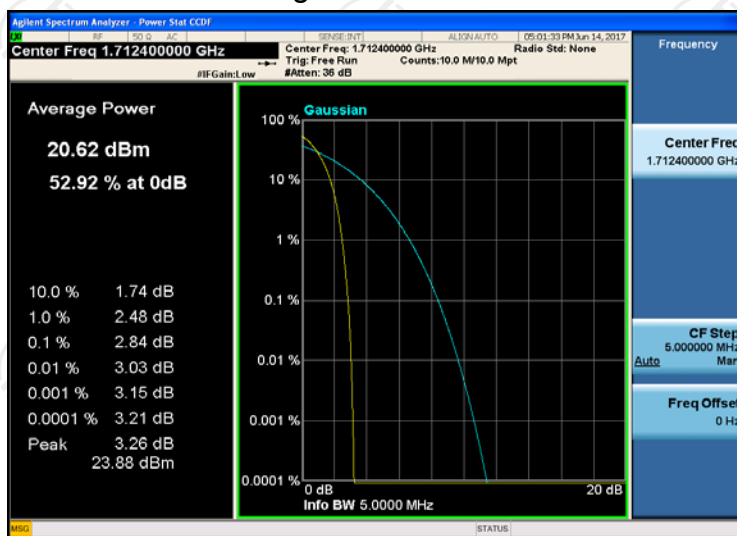
Peak-to-Average Ratio on Channel 4183



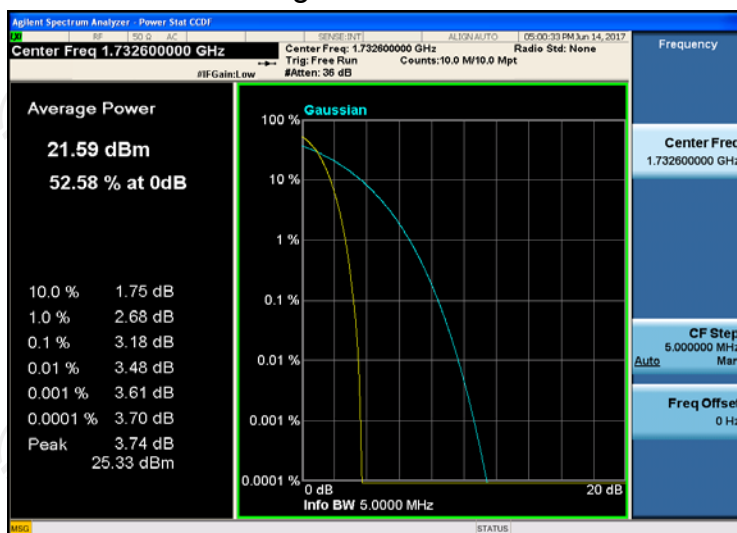
Peak-to-Average Ratio on Channel 4233



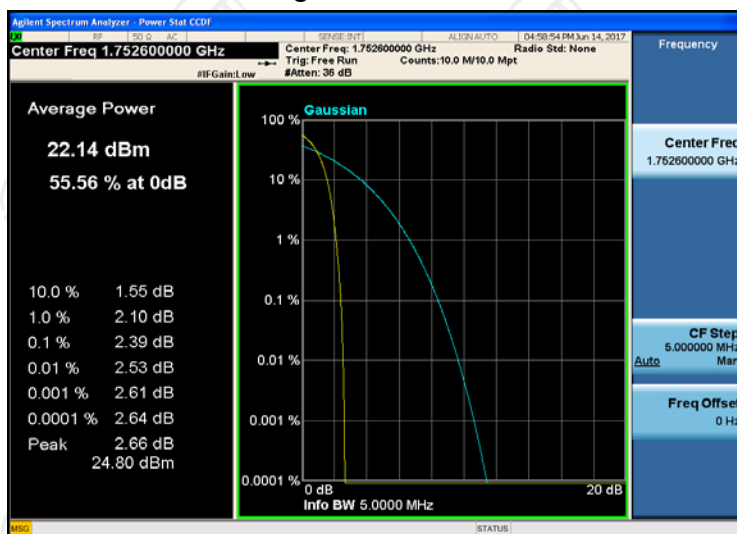
Peak-to-Average Ratio on Channel 1312



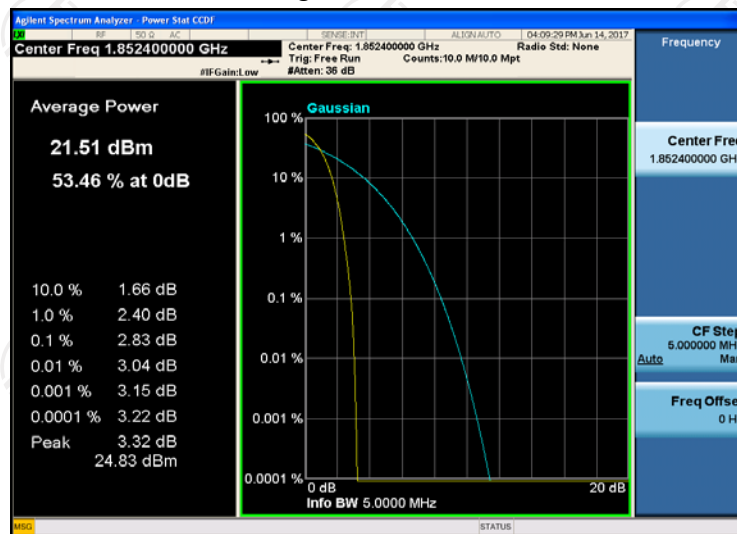
Peak-to-Average Ratio on Channel 1413



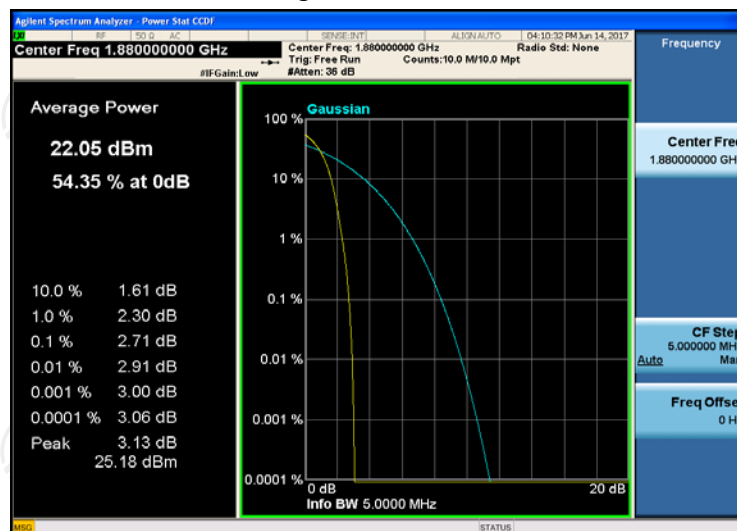
Peak-to-Average Ratio on Channel 1513



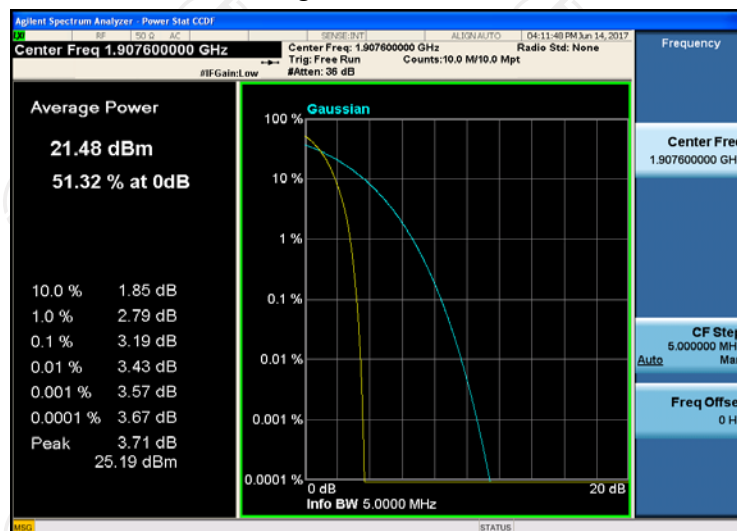
Peak-to-Average Ratio on Channel 9262



Peak-to-Average Ratio on Channel 9400



Peak-to-Average Ratio on Channel 9538



6.3. 99% Occupied Bandwidth and 26dB Bandwidth Measurement

6.3.1. Test Specification

Test Requirement:	FCC part 2.1049
Test Method:	FCC part 2.1049
Operation mode:	Refer to item 4.1
Limit:	N/A
Test Setup:	<pre> graph LR SS[System Simulator] --- PD[Power Divider] SA[Spectrum Analyzer] --- PD PD --- EUT[EUT] </pre>
Test Procedure:	1. The testing follows FCC KDB 971168 v02r02 Section 4.2. 2. The EUT was connected to the spectrum analyzer and system simulator via a power divider. 3. The RF output of the EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. 4. The 99% occupied bandwidth were measured, set RBW= 1% of span, VBW= 3*RBW, sample detector, trace maximum hold. 5. The 26dB bandwidth were measured, set RBW= 1% of EBW, VBW= 3*RBW, peak detector, trace maximum hold.
Test Result:	PASS

6.3.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Aug. 11, 2017
Spectrum Analyzer	Agilent	N9020A	MY49100060	Aug. 12, 2017
RF cable (9kHz-40GHz)	TCT	RE-06	N/A	Aug. 12, 2017
Antenna Connector	TCT	RFC-01	N/A	Aug. 12, 2017

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.3.3. Test data

Cellular Band						
Mode	GSM850			GSM 850 (EGPRS)		
Channel	128	189	251	128	189	251
Frequency (MHz)	824.2	836.4	848.8	824.2	836.4	848.8
99% OBW (kHz)	242.81	246.32	246.13	240.82	236.97	242.18
26dB BW (kHz)	321.2	320.6	318.0	306.1	314.7	305.7

Cellular Band						
Mode	GSM1900			GSM 1900 (EGPRS)		
Channel	512	661	810	512	661	810
Frequency (MHz)	1850.2	1880.0	1909.8	1850.2	1880.0	1909.8
99% OBW (kHz)	244.83	245.74	243.65	248.61	240.57	241.57
26dB BW (kHz)	320.1	322.8	322.1	316.0	305.2	309.3

Cellular Band			
Mode	WCDMA Band V (RMC 12.2Kbps)		
Channel	4132	4183	4233
Frequency (MHz)	826.4	836.6	846.6
99% OBW (kHz)	4201.6	4201.7	4214.0
26dB BW (kHz)	4887	4892	4894

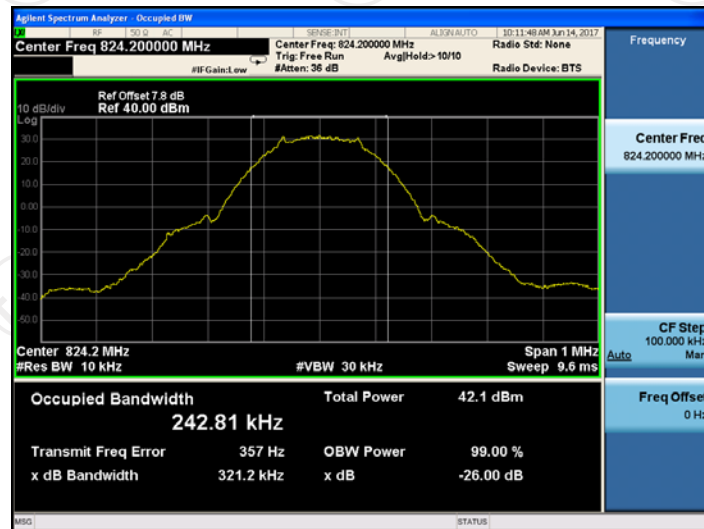
Cellular Band			
Mode	WCDMA Band IV (RMC 12.2Kbps)		
Channel	1312	1413	1513
Frequency (MHz)	1712.4	1732.6	1752.6
99% OBW (kHz)	4235.8	4220.3	4204.7
26dB BW (kHz)	4916	4884	4890

Cellular Band			
Mode	WCDMA Band II (RMC 12.2Kbps)		
Channel	9262	9400	9538
Frequency (MHz)	1852.4	1880	1907.6
99% OBW (kHz)	4210.9	4210.8	4198.4
26dB BW (kHz)	4861	4882	4859

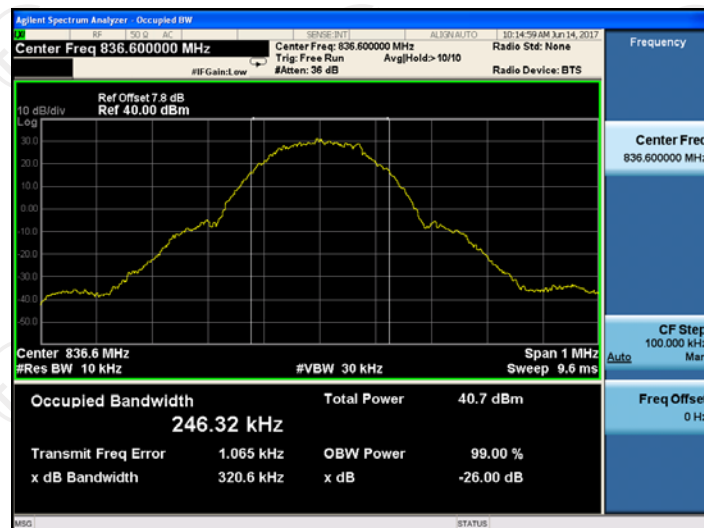
Test plots as follows:

Band:	GSM 850	Test Mode:	GSM Link (GMSK)
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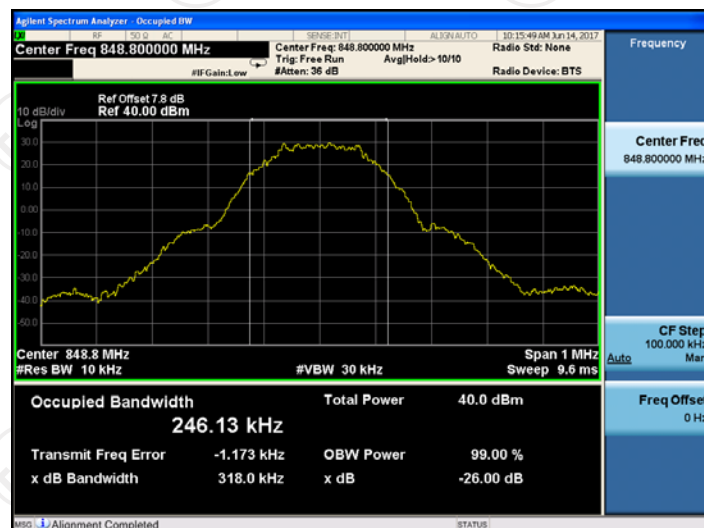
26dB&99% Occupied Bandwidth Plot on Channel 128



26dB&99% Occupied Bandwidth Plot on Channel 190



26dB&99% Occupied Bandwidth Plot on Channel 251



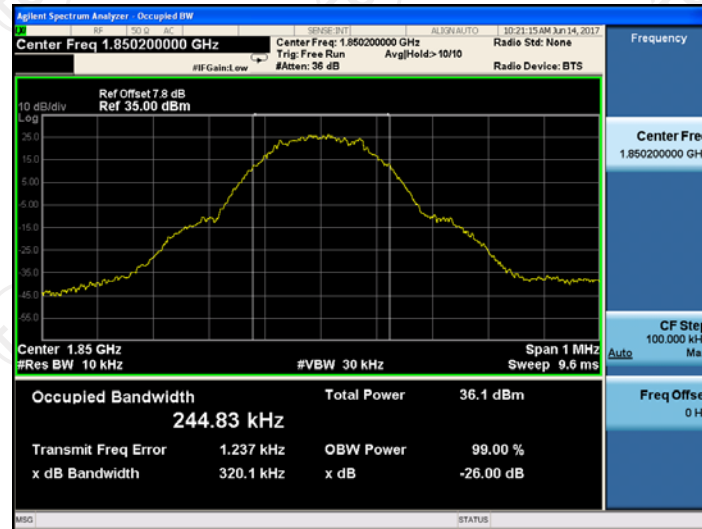
Band:

GSM 1900

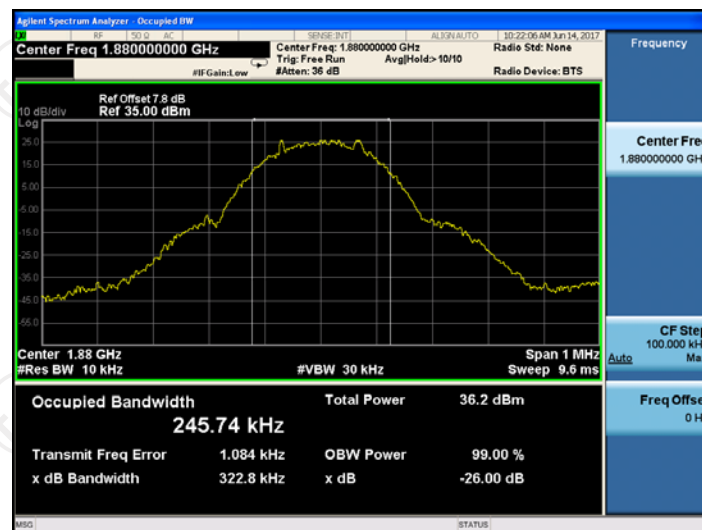
Test Mode:

GSM Link (GMSK)

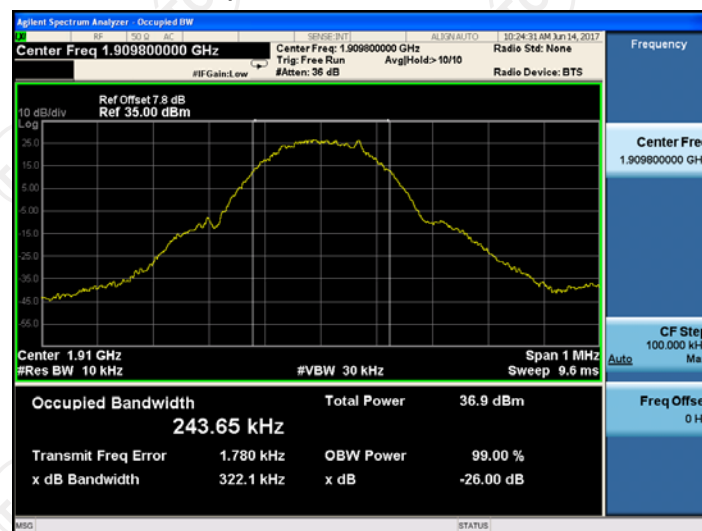
26dB&99% Occupied Bandwidth Plot on Channel 512



26dB&99% Occupied Bandwidth Plot on Channel 661

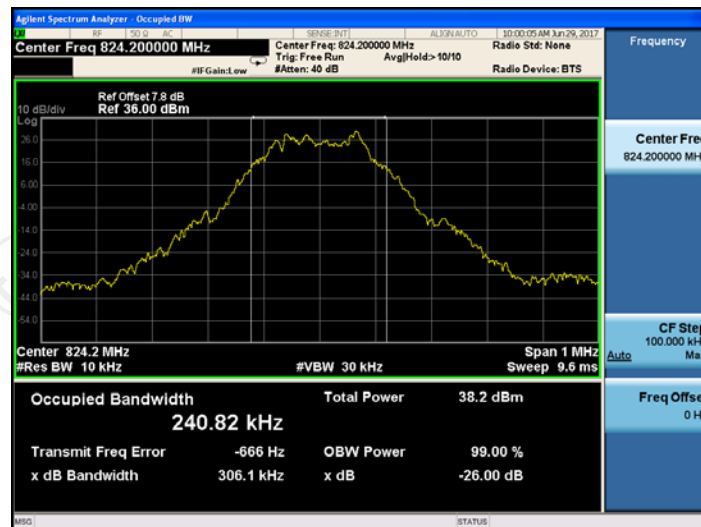


26dB&99% Occupied Bandwidth Plot on Channel 810

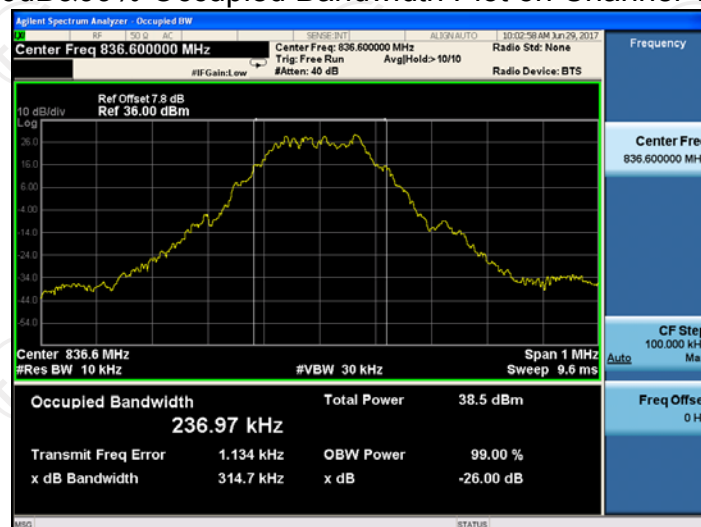


Band:	EGPRS850	Test Mode:	EGPRS Class 8 Link (8PSK)
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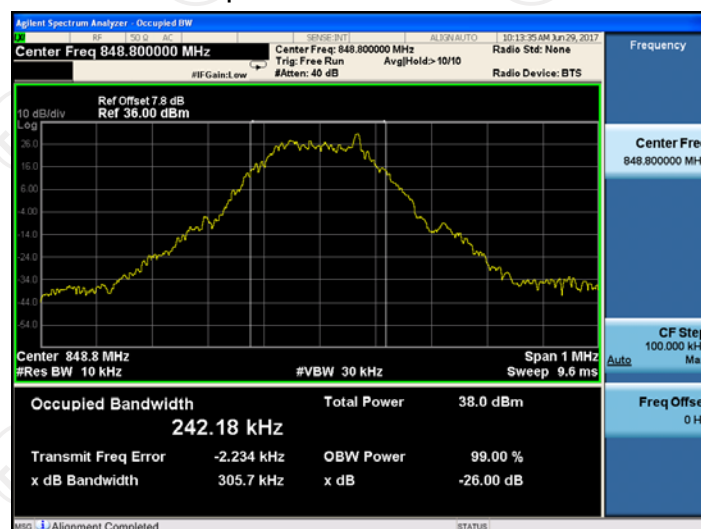
26dB&99% Occupied Bandwidth Plot on Channel 128



26dB&99% Occupied Bandwidth Plot on Channel 190

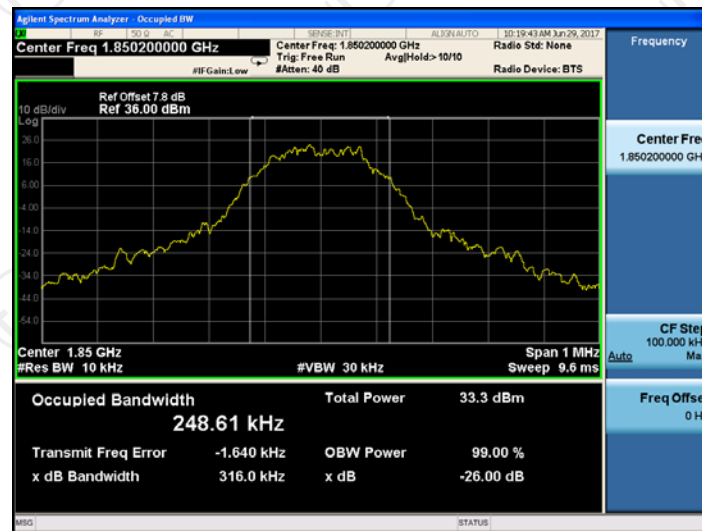


26dB&99% Occupied Bandwidth Plot on Channel 251

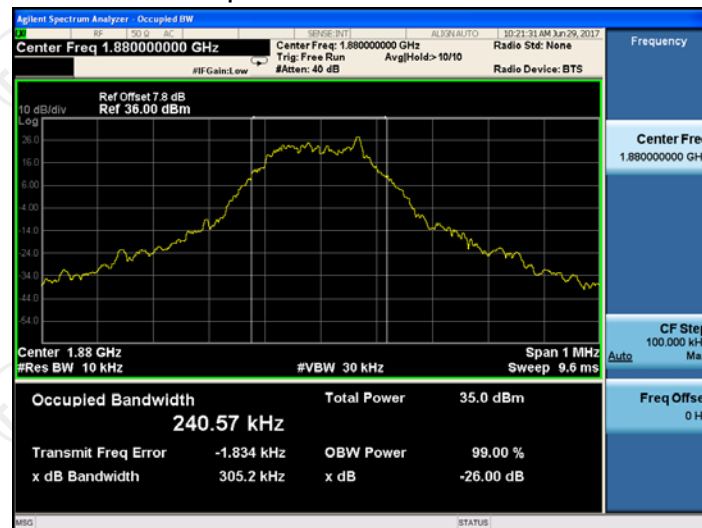


Band:	EGPRS 1900	Test Mode:	EGPRS Class 8 Link (8PSK)
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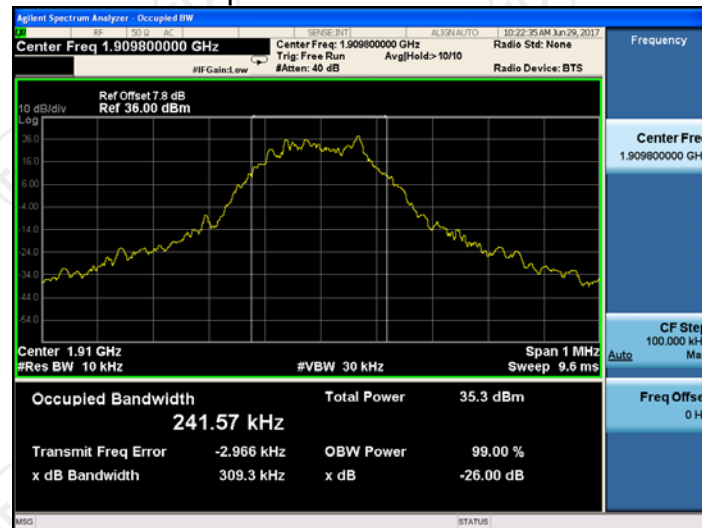
26dB&99% Occupied Bandwidth Plot on Channel 512



26dB&99% Occupied Bandwidth Plot on Channel 661

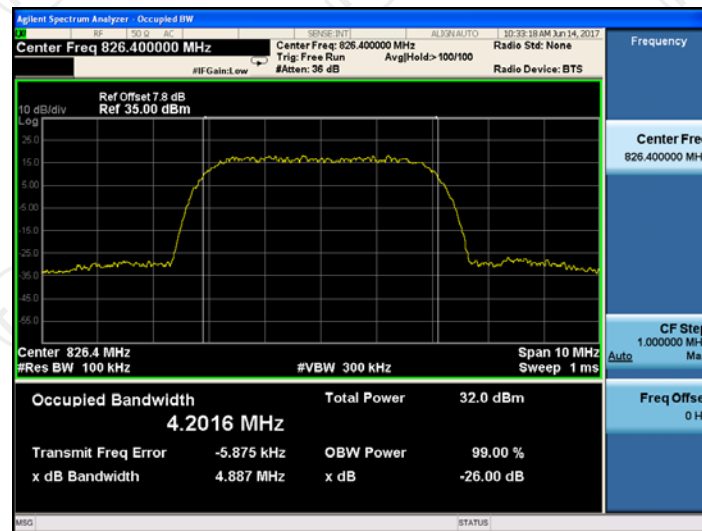


26dB&99% Occupied Bandwidth Plot on Channel 810

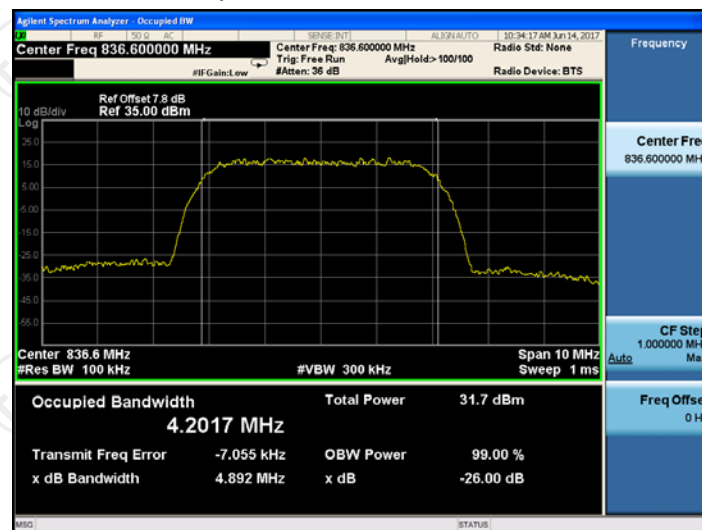


Band:	WCDMA Band V	Test Mode:	RMC 12.2Kbps Link (QPSK)
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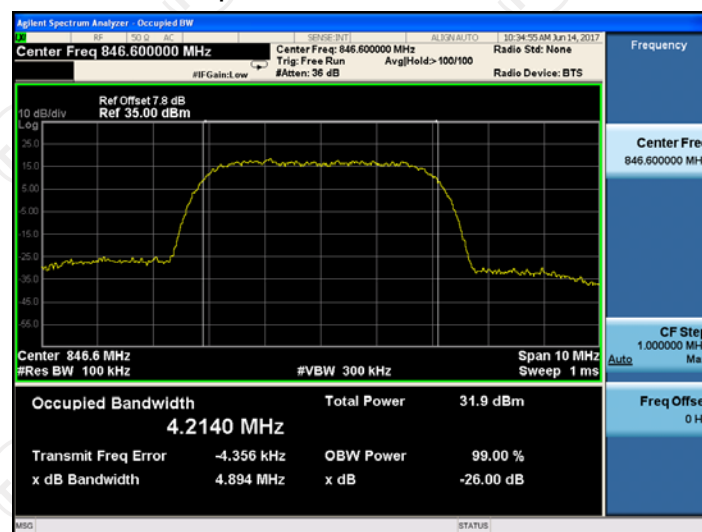
26dB&99% Occupied Bandwidth Plot on Channel 4132



26dB&99% Occupied Bandwidth Plot on Channel 4183

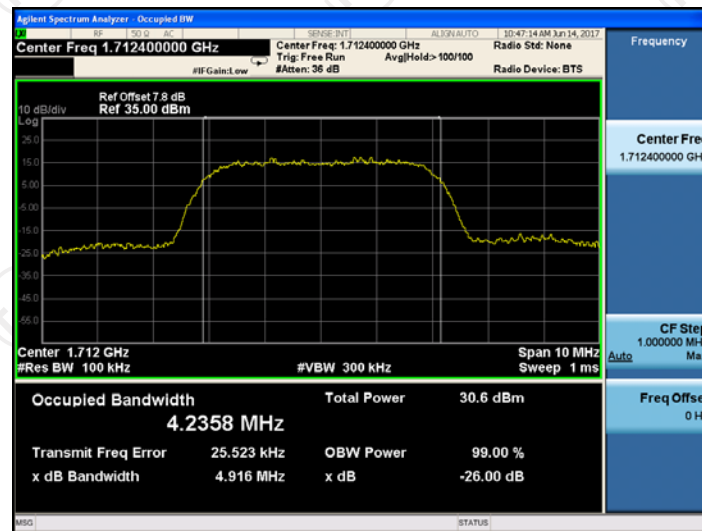


26dB&99% Occupied Bandwidth Plot on Channel 4233

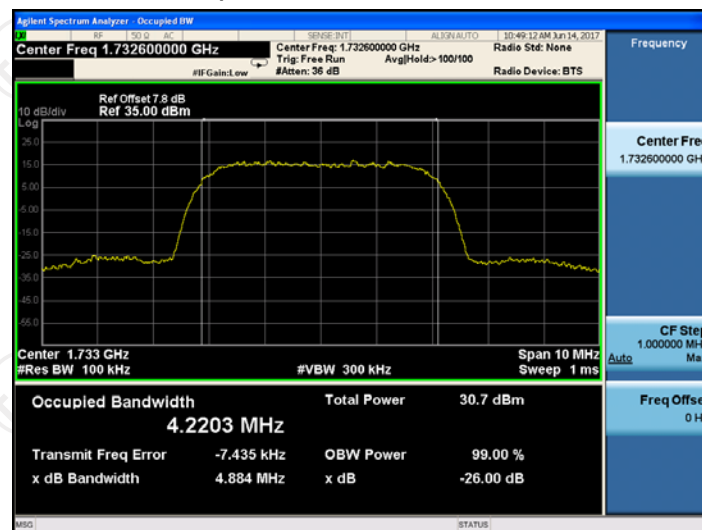


Band:	WCDMA Band IV	Test Mode:	RMC 12.2Kbps Link (QPSK)
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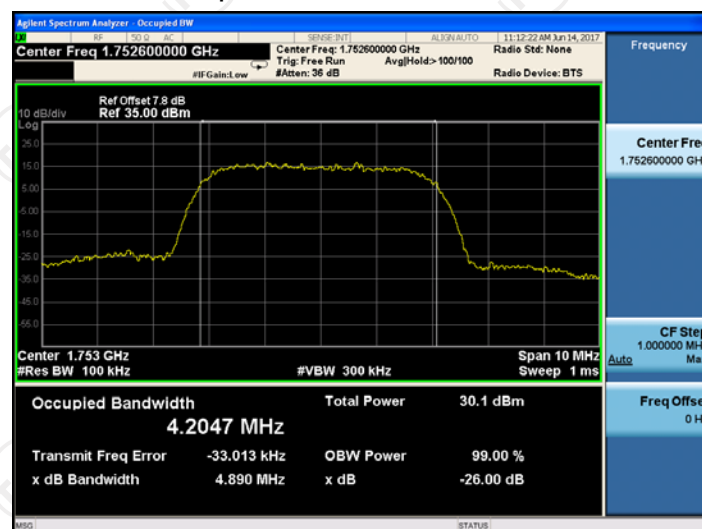
26dB&99% Occupied Bandwidth Plot on Channel 1312



26dB&99% Occupied Bandwidth Plot on Channel 1413

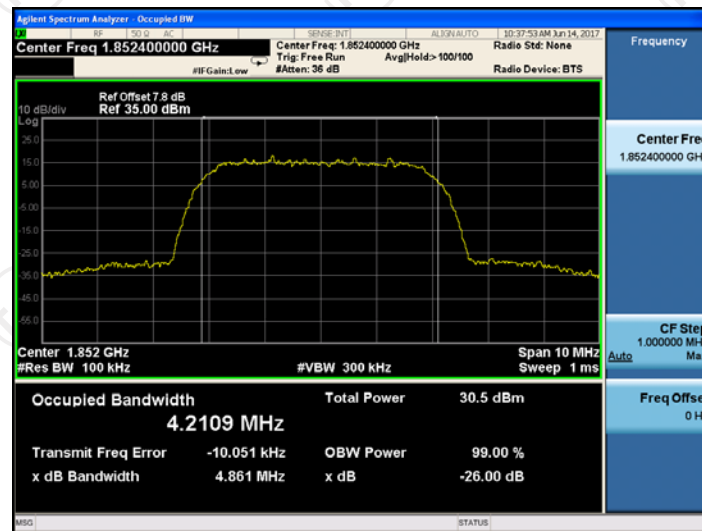


26dB&99% Occupied Bandwidth Plot on Channel 1513

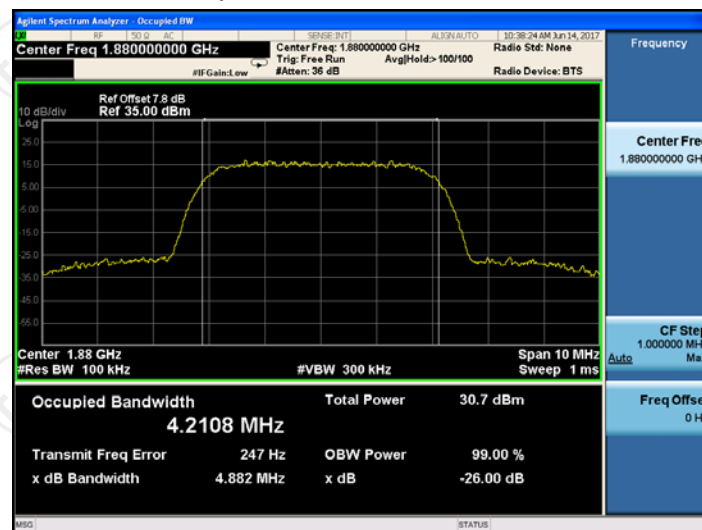


Band:	WCDMA Band II	Test Mode:	RMC 12.2Kbps Link (QPSK)
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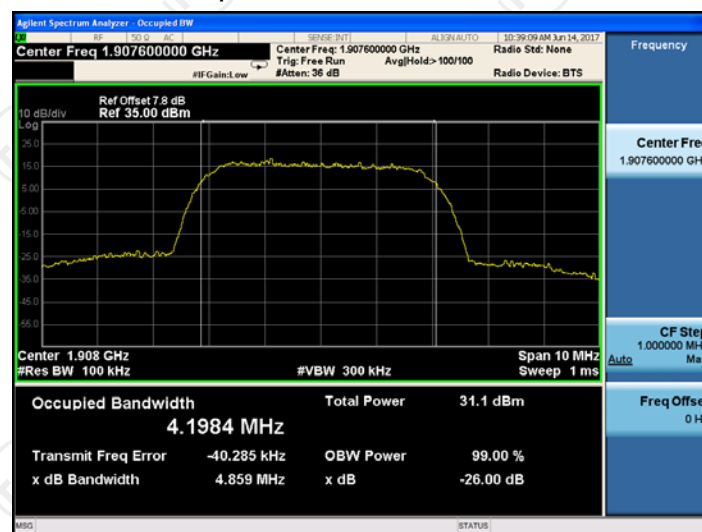
26dB&99% Occupied Bandwidth Plot on Channel 9262



26dB&99% Occupied Bandwidth Plot on Channel 9400

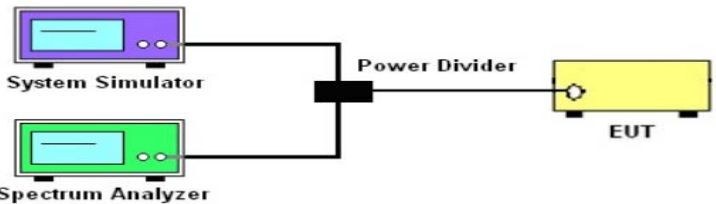


26dB&99% Occupied Bandwidth Plot on Channel 9538



6.4. Band Edge and Conducted Spurious Emission Measurement

6.4.1. Test Specification

Test Requirement:	FCC part22.917(a) and FCC part24.238(a) FCC part27.53(g)
Test Method:	FCC part2.1051
Operation mode:	Refer to item 4.1
Limit:	-13dBm
Test Setup:	 The diagram illustrates the test setup. A System Simulator (purple box) and a Spectrum Analyzer (green box) are connected to a Power Divider (black box). The Power Divider is then connected to the EUT (yellow box). The Spectrum Analyzer is also connected to the Power Divider.
Test Procedure:	1. The testing follows FCC KDB 971168 v02r02 Section 6.0. 2. The EUT was connected to the spectrum analyzer and system simulator via a power divider. 3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement. 4. The band edges of low and high channels for the highest RF powers were measured. 5. The conducted spurious emission for the whole frequency range was taken. 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band. 7. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power $P(\text{Watts}) = P(W) - [43 + 10\log(P)] \text{ (dB)} = [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)} = -13\text{dBm}.$
Test Result:	PASS

6.4.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Aug. 11, 2017
Spectrum Analyzer	Agilent	N9020A	MY49100060	Aug. 12, 2017
RF cable (9kHz-40GHz)	TCT	RE-06	N/A	Aug. 12, 2017
Antenna Connector	TCT	RFC-01	N/A	Aug. 12, 2017

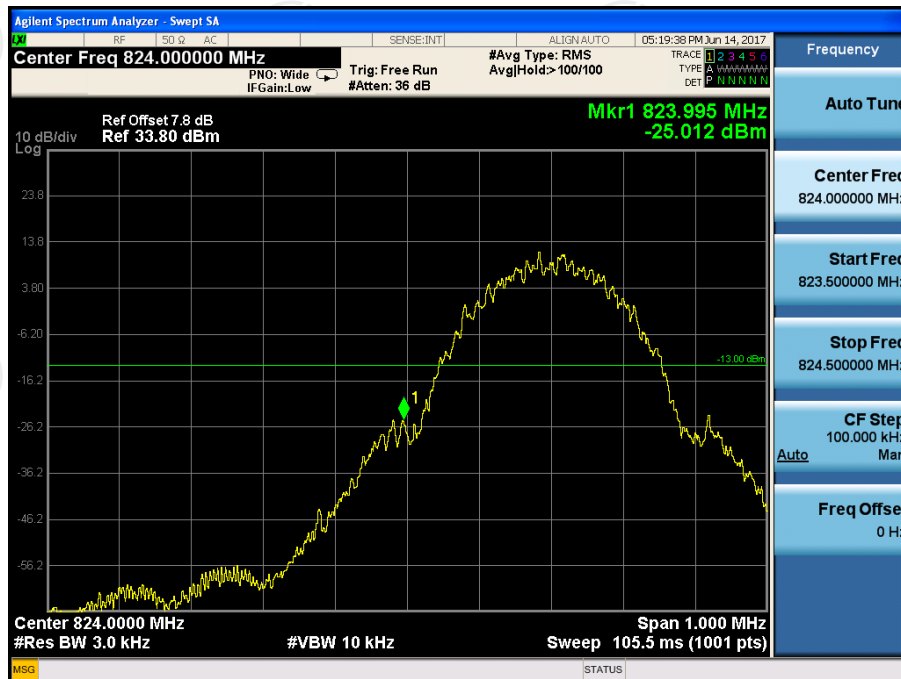
Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.4.3. Test data

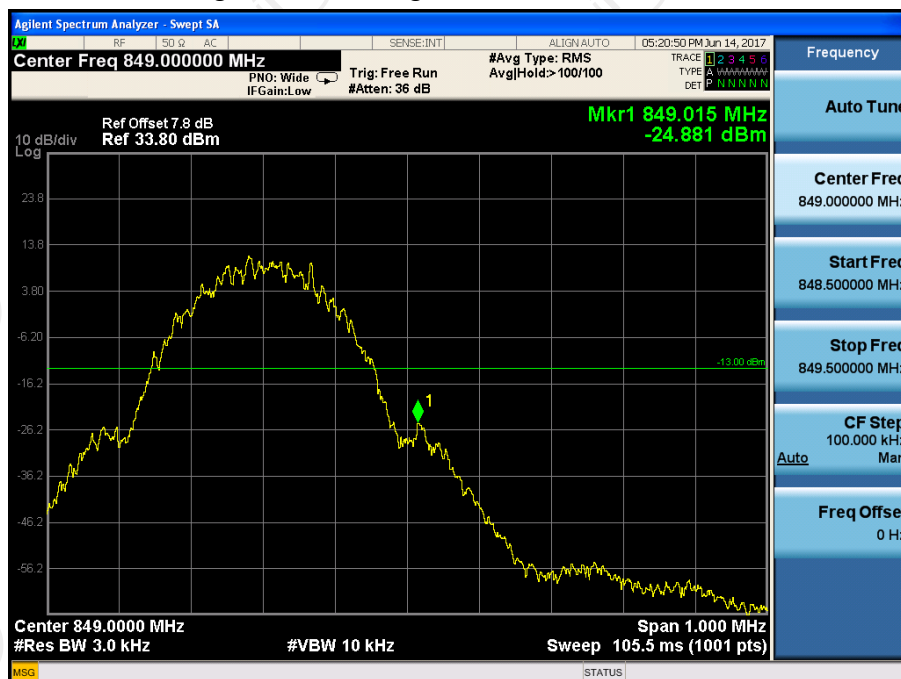
Test plots as follows:

Band:	GSM 850	Test Mode:	GSM Link (GMSK)
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Lower Band Edge Plot on Channel 128



Higher Band Edge Plot on Channel 251



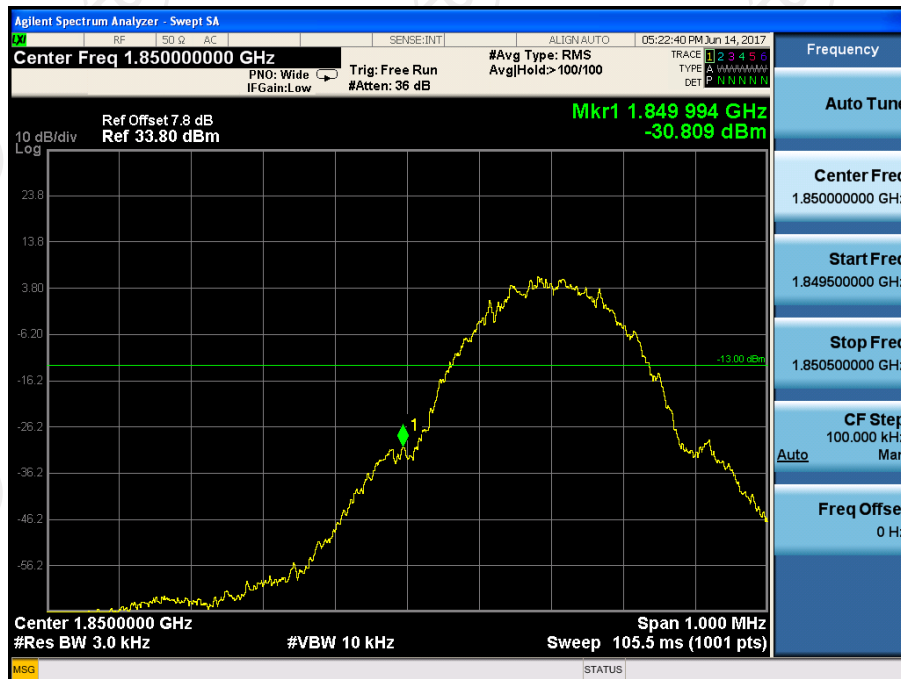
Band:

GSM 1900

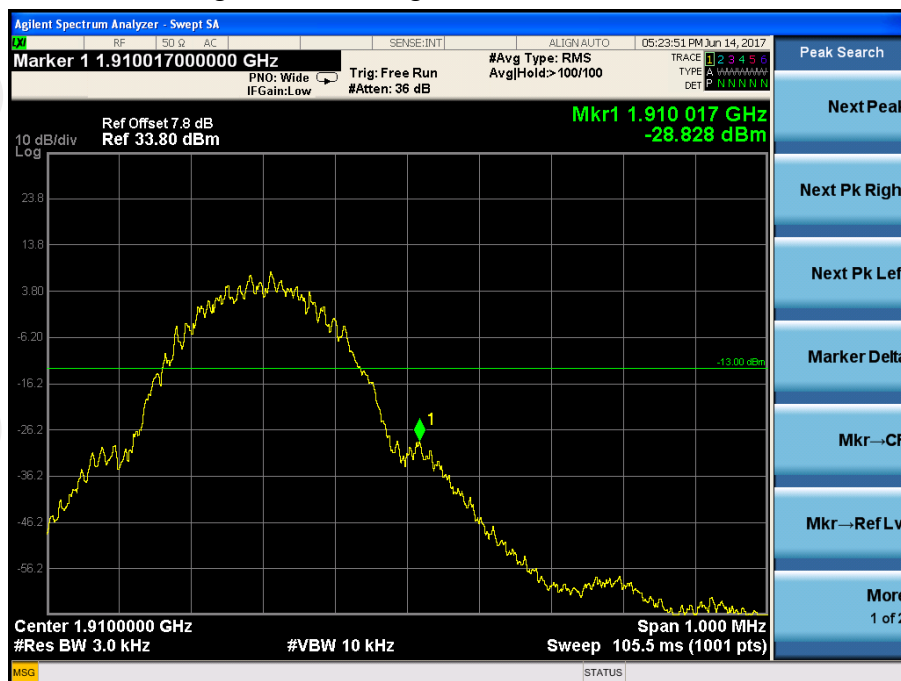
Test Mode:

GSM Link (GMSK)

Lower Band Edge Plot on Channel 512

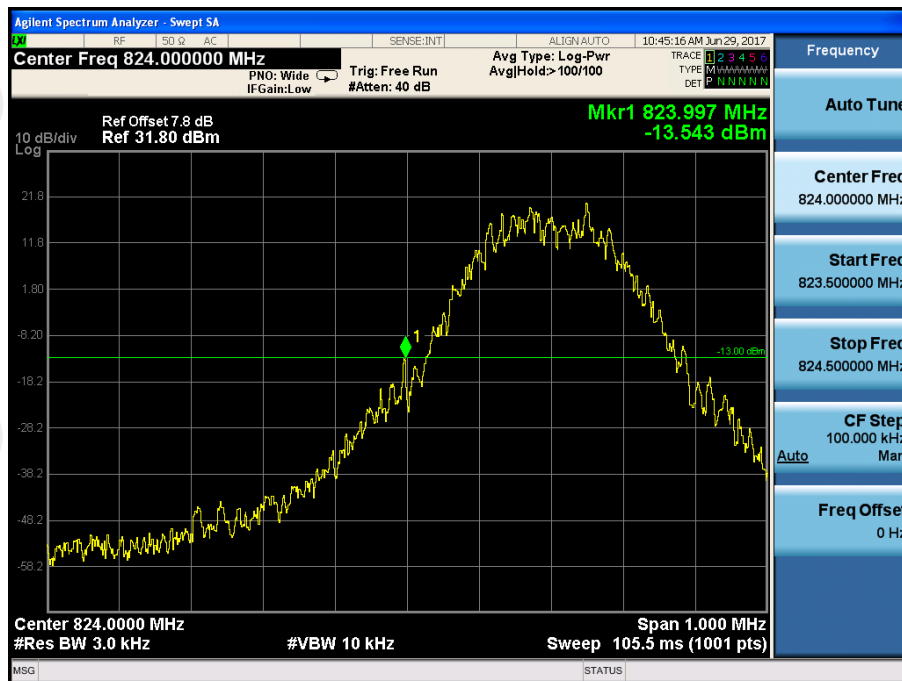


Higher Band Edge Plot on Channel 810

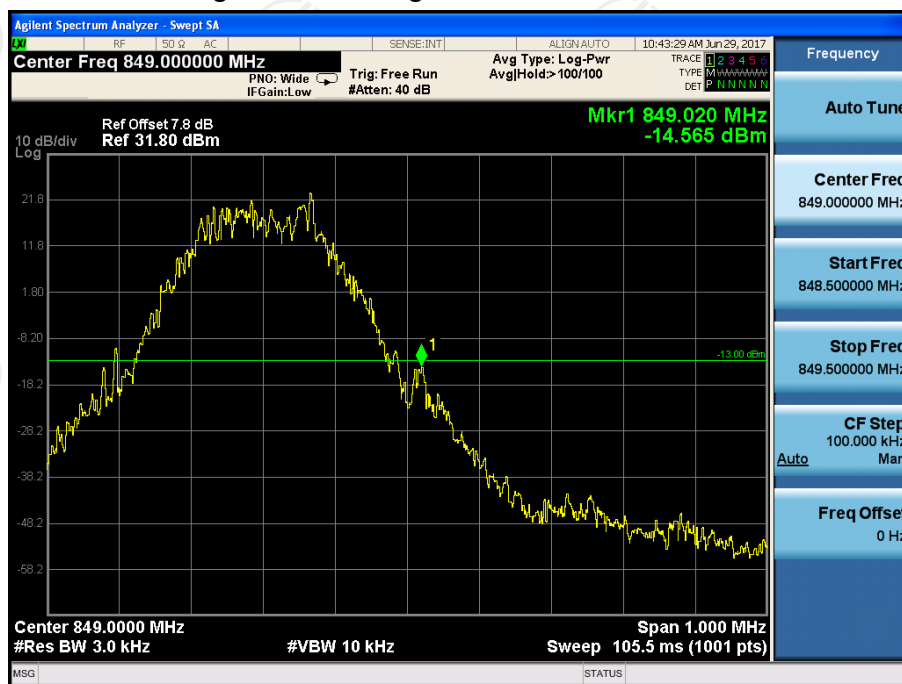


Band:	EGPRS 850	Test Mode:	EGPRS Class 8 Link (8PSK)
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Lower Band Edge Plot on Channel 128

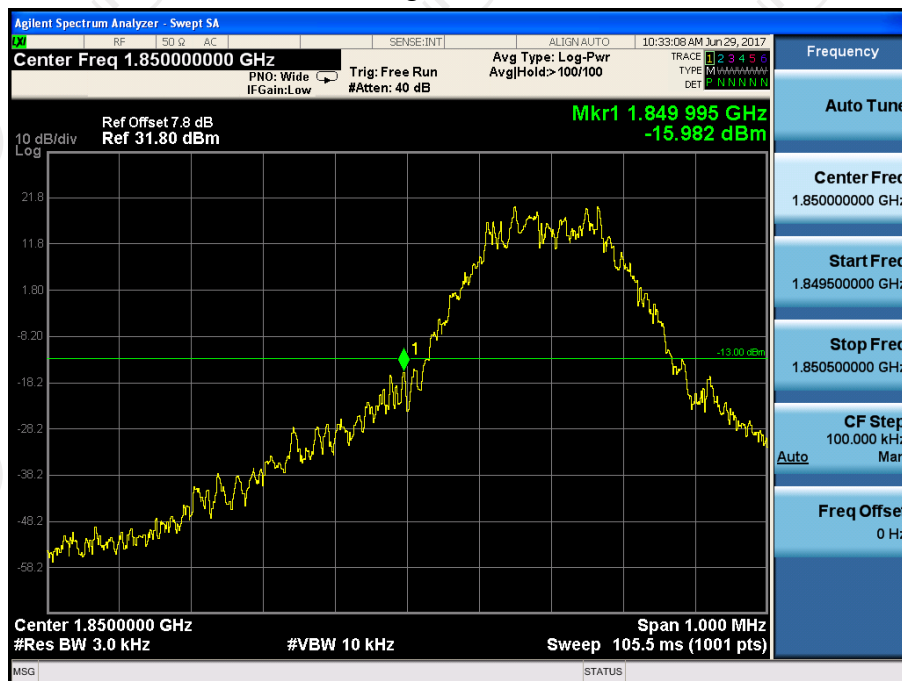


Higher Band Edge Plot on Channel 251

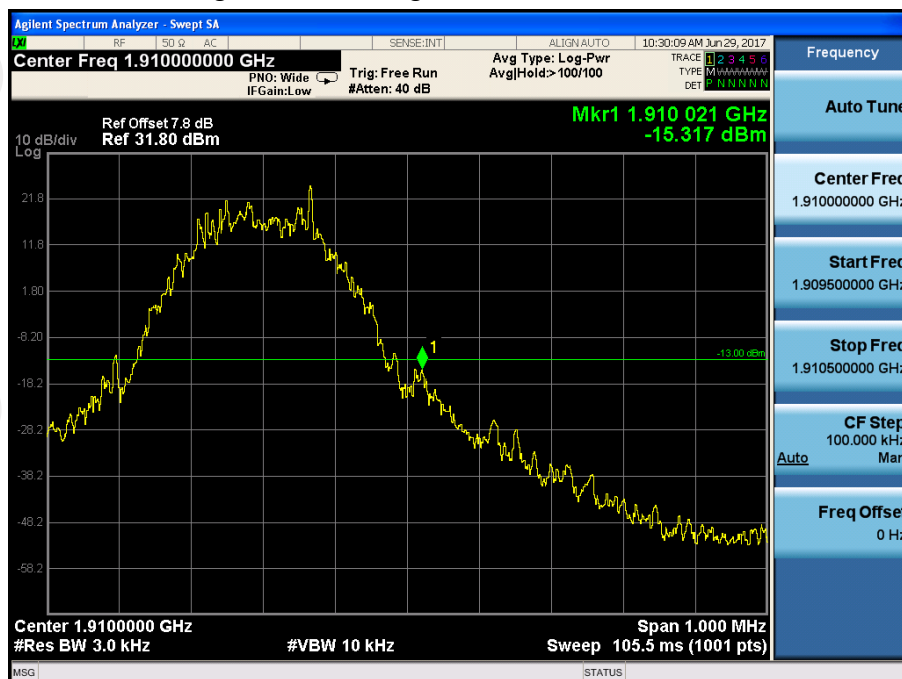


Band:	EGPRS 1900	Test Mode:	EGPRS Class 8 Link (8PSK)
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Lower Band Edge Plot on Channel 512

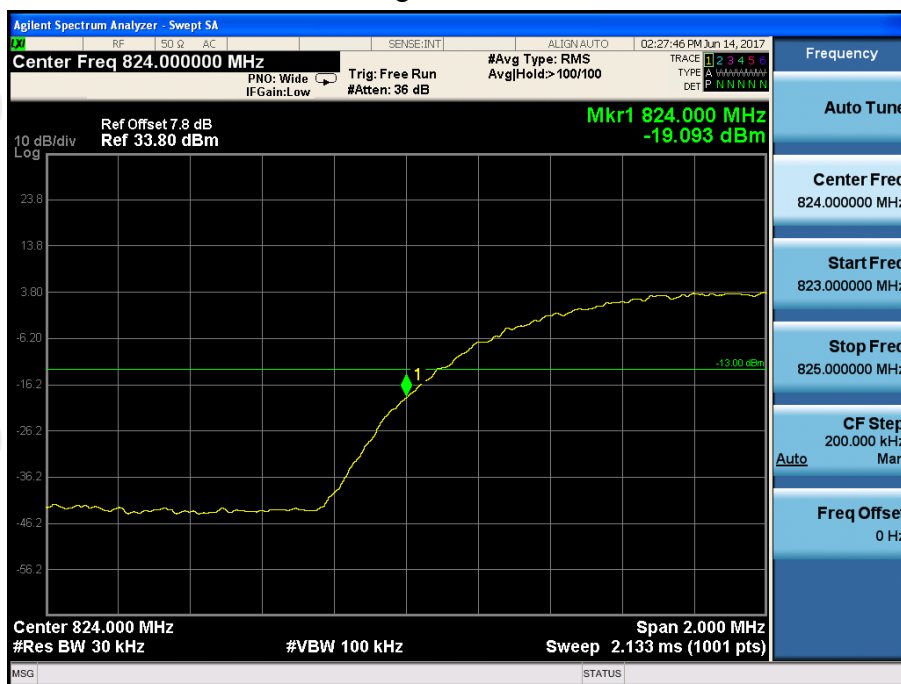


Higher Band Edge Plot on Channel 810



Band:	WCDMA Band V	Test Mode:	RMC 12.2Kbps Link (QPSK)
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Lower Band Edge Plot on Channel 4132



Higher Band Edge Plot on Channel 4233

