

TEST REPORT

FCC ID: 2AGEB-3503

Product: Mobile intelligent data terminal

Model No.: 3503

Additional Model No.: 3506

Trade Mark: ZKC

Report No.: TCT171225E081

Issued Date: Mar. 30, 2018

Issued for:

Shenzhen ZKC Software Technology Co., Ltd
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Issued By:

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Appendix A: Photographs of Test Setup

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1. Test Certification

Product:	Mobile intelligent data terminal
Model No.:	3503
Additional Model:	3506
Trade Mark:	ZKC
Applicant:	Shenzhen ZKC Software Technology Co., Ltd
Address:	1st Floor, No. 1 Block, Zhongkenuo Industry Park, Beiqi Road, Xixiang Town, Bao'an District, Shenzhen, China
Manufacturer:	Shenzhen ZKC Software Technology Co., Ltd
Address:	1st Floor, No. 1 Block, Zhongkenuo Industry Park, Beiqi Road, Xixiang Town, Bao'an District, Shenzhen, China
Date of Test:	Dec. 26, 2017 – Mar. 29, 2018
Applicable Standards:	FCC CFR Title 47 Part 2 FCC CFR Title 47 Part22 FCC CFR Title 47 Part24

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:



Jin Wang

Date:

Mar. 29, 2018

Reviewed By:



Bery

Date:

Mar. 30, 2018

Approved By:



Tomsin

Date:

Mar. 30, 2018

2. Test Result Summary

Requirement	CFR 47 Section	Result
Conducted Output Power	§22.913; §2.1046 §24.232;	PASS
Peak-to-Average Ratio	§2.1046; §24.232(d)	PASS
Effective Radiated Power	§2.1046; §22.913(a) §24.232;	PASS
Equivalent Isotropic Radiated Power	§2.1046; §22.913(a) §24.232;	PASS
Occupied Bandwidth	§2.1049	PASS
Band Edge	§2.1051 §22.917(a) §24.238(a)	PASS
Conducted Spurious Emission	§2.1051; §22.917 §24.238;	PASS
Field Strength of Spurious Radiation	§2.1053; §22.917(a) §24.238;	PASS
Frequency Stability for Temperature & Voltage	§2.1055; §22.355 §24.235;	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 Name:	Mobile intelligent data terminal
Model :	3503
Additional Model:	3506
Trade Mark:	ZKC
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 ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 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 II: 1932.4 MHz ~ 1987.6 MHz
Maximum Output Power to Antenna:	GSM850: 33.12dBm GSM1900: 29.91dBm GPRS 850: 33.12dBm GPRS 1900: 29.50dBm EGPRS850: 28.87dBm EGPRS1900: 25.82dBm WCDMA Band V: 22.76dBm WCDMA Band II: 22.48dBm
99% Occupied Bandwidth:	GSM850: 243KGXM GSM1900: 247KGXM EGPRS850 Class 12: 249KG7W EGPRS1900 Class 12: 244KG7W WCDMA Band V RMC 12.2Kbps: 4M15F9W WCDMA Band II RMC 12.2Kbps: 4M16F9W
Type of Modulation:	GSM/GPRS: GMSK EGPRS: GMSK/8PSK WCDMA/HSDPA/HSUPA: QPSK
Antenna Type:	Internal Antenna
Antenna Gain:	GSM/GPRS/EGPRS 850: 1dBi GSM/GPRS/EGPRS 1900: 1dBi WCDMA Band V: 1dBi WCDMA Band II: 1dBi
Power Supply:	Rechargeable Li-ion Battery DC3.7V
AC adapter:	Adapter Information: Model: MX520U

	Input: 100-240V~ 50/60Hz 0.35A Output: 5V - 2A
Remark:	All models above are identical in interior structure, electrical circuits and components, and just exterior size and 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 V		WCDMA Band II	
Channel:	Frequency (MHz)	Channel:	Frequency (MHz)
4132	826.40	9262	1852.40
4133	826.60	9263	1852.60
....			
4182	836.40	9399	1879.80
4183	836.60	9400	1880.00
4184	836.80	9401	1880.20
...	...	...	...
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.

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
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.



The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level. The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Example: $\text{Offset (dB)} = \text{RF cable loss (dB)} + \text{attenuator factor (dB)}$
 $= 8(\text{dB})$

5. Facilities and Accreditations

5.1. Facilities

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

- FCC - Registration No.: 645098

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: 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China

TEL: +86-755-27673339

5.3. Measurement Uncertainty

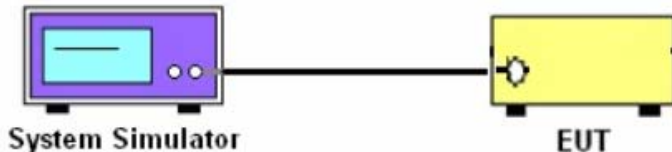
The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

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)
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
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 representing a cable connects it to a yellow box on the right labeled 'EUT' (Equipment Under Test), which has a circular port on its 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	Sep. 27, 2018
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 27, 2018
Antenna Connector	TCT	RFC-02	N/A	Sep. 27, 2018

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

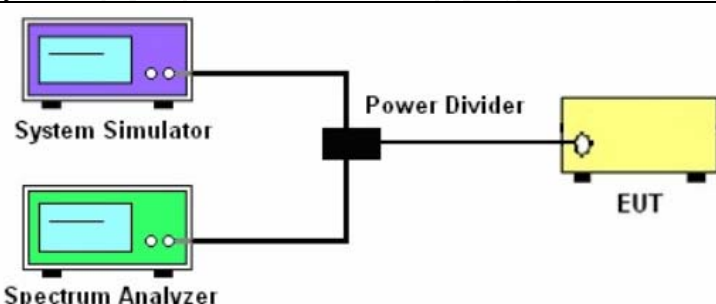
6.1.3. Test data

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	33.07	33.12	33.06	29.87	29.91	29.89
GPRS class8	32.62	32.69	32.63	29.43	29.50	29.46
GPRS class10	31.82	31.88	31.85	28.65	28.71	28.68
GPRS class11	30.92	30.93	30.85	27.75	27.81	27.68
GPRS class12	29.81	29.95	29.82	26.64	26.74	26.70
EGPRS class8	28.82	28.87	28.80	25.75	25.82	25.78
EGPRS class10	28.05	28.08	28.12	24.97	25.03	25.00
EGPRS class11	27.12	27.18	27.05	24.07	24.13	24.00
EGPRS class12	26.00	26.13	26.11	22.96	23.06	23.02
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	22.42	22.48	22.41	22.63	22.76	22.69
HSDPA Subtest-1	21.90	22.04	21.93	22.13	22.28	22.22
HSDPA Subtest-2	21.61	21.73	21.66	21.84	21.97	21.92
HSDPA Subtest-3	21.55	21.69	21.62	21.79	21.95	21.86
HSDPA Subtest-4	21.49	21.67	21.61	21.73	21.91	21.83
HSUPA Subtest-1	21.22	21.33	21.28	21.49	21.62	21.52
HSUPA Subtest-2	21.15	21.28	21.22	21.39	21.52	21.45
HSUPA Subtest-3	21.10	20.91	20.88	21.32	21.13	21.12
HSUPA Subtest-4	20.71	20.85	20.73	20.92	21.12	21.00
HSUPA Subtest-5	20.62	20.65	20.67	20.86	20.95	20.91

6.2. Peak to Average Ratio

6.2.1. Test Specification

Test Requirement:	FCC part 24.232(d) ; FCC part 22.913;
Test Method:	FCC KDB 971168 D01v03 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 illustrates the test setup. A System Simulator (represented by a purple box) and a Spectrum Analyzer (represented by a green box) are connected to a Power Divider (represented by a black box). The Power Divider is then connected to the EUT (Equipment Under Test, represented by a yellow box).
Test Procedure:	1. The testing follows FCC KDB 971168 D01v03 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	Sep. 27, 2018
Spectrum Analyzer	Agilent	N9020A	MY49100060	Sep. 27, 2018
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 27, 2018
Antenna Connector	TCT	RFC-02	N/A	Sep. 27, 2018

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)	2.81	2.82	2.83	5.78	5.80	5.80

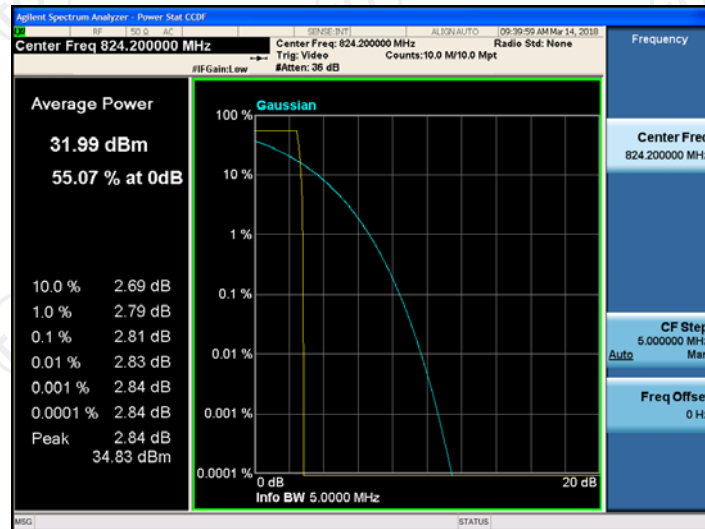
PCS Band						
Mode	GSM 1900			GSM 1900 (EGPRS class 8)		
Channel	512	661	810	512	661	810
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8
Peak-to-Average Ratio (dB)	2.87	2.89	2.93	5.89	5.94	6.00

Cellular Band						
Mode	WCDMA Band V (RMC 12.2Kbps)			WCDMA Band II (RMC 12.2Kbps)		
Channel	4132	4183	4233	9262	9400	9538
Frequency (MHz)	826.4	836.6	846.8	1852.4	1880	1907.6
Peak-to-Average Ratio (dB)	3.07	2.98	2.82	2.91	3.08	2.67

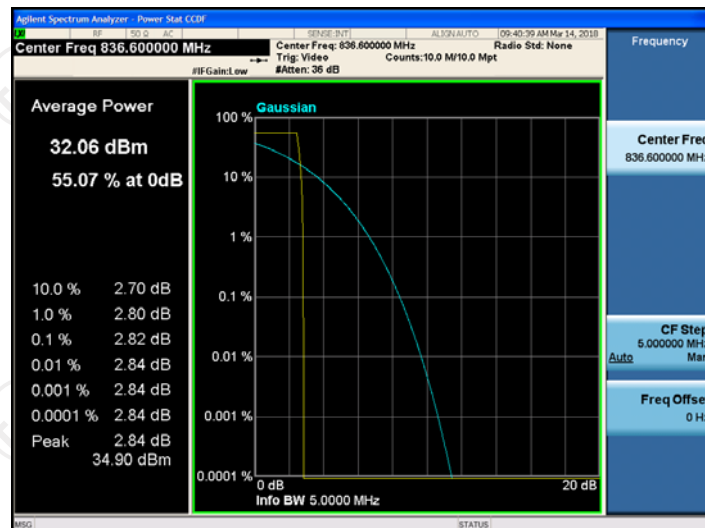
Test plots as follows:

GSM 850

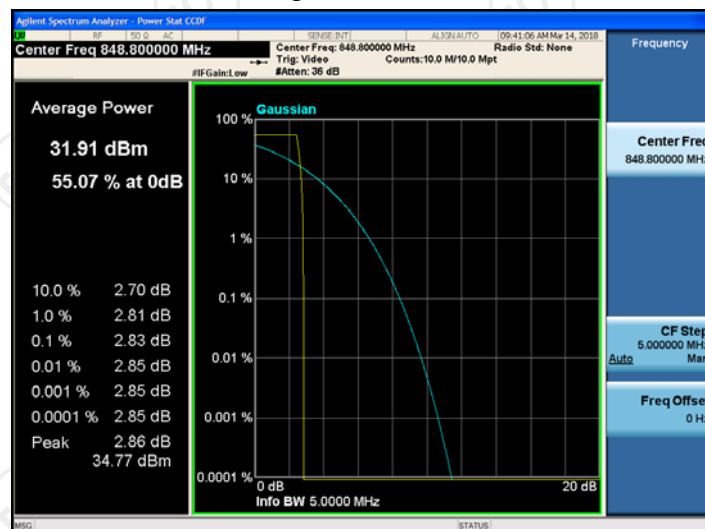
Peak-to-Average Ratio on Channel 128



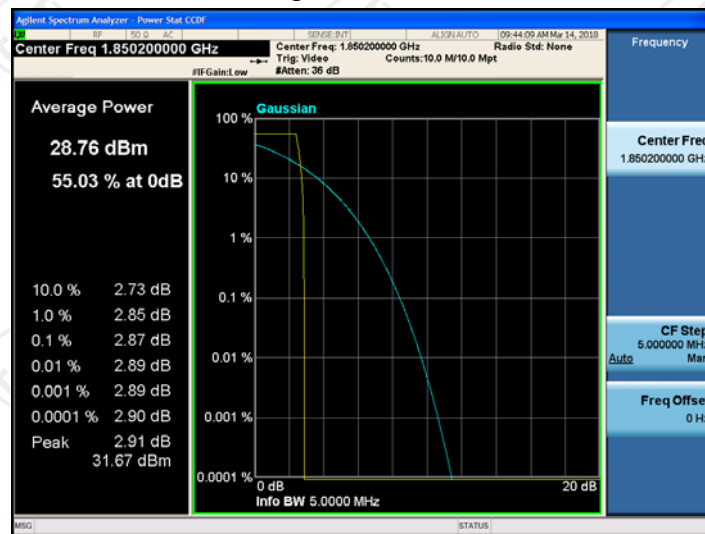
Peak-to-Average Ratio on Channel 190



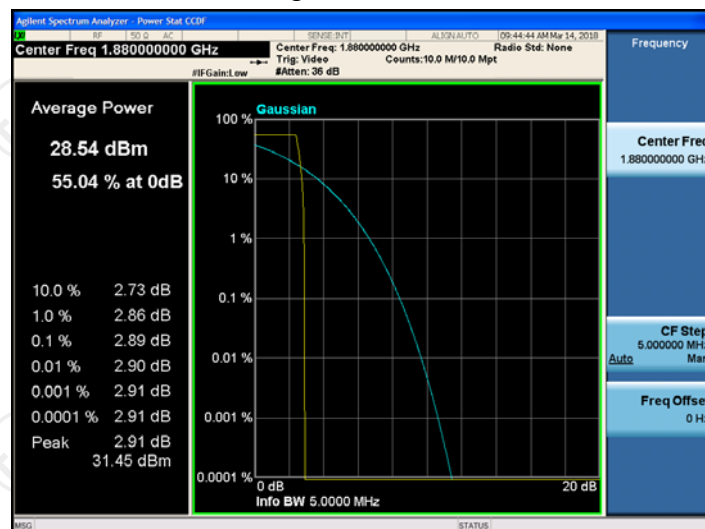
Peak-to-Average Ratio on Channel 251



Peak-to-Average Ratio on Channel 512



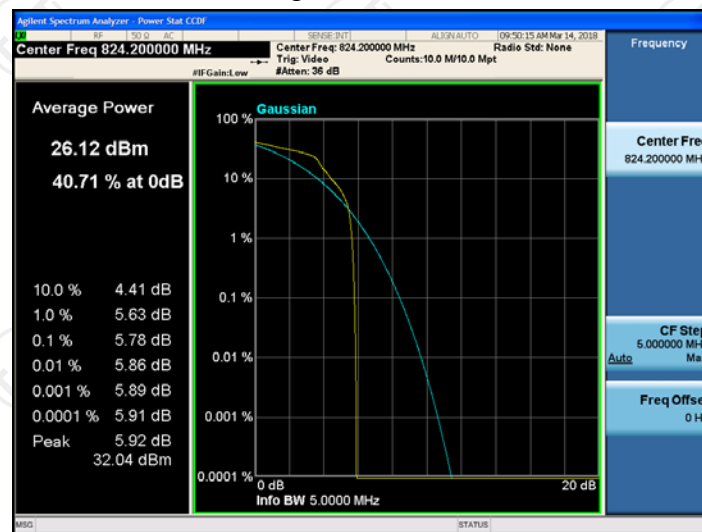
Peak-to-Average Ratio on Channel 661



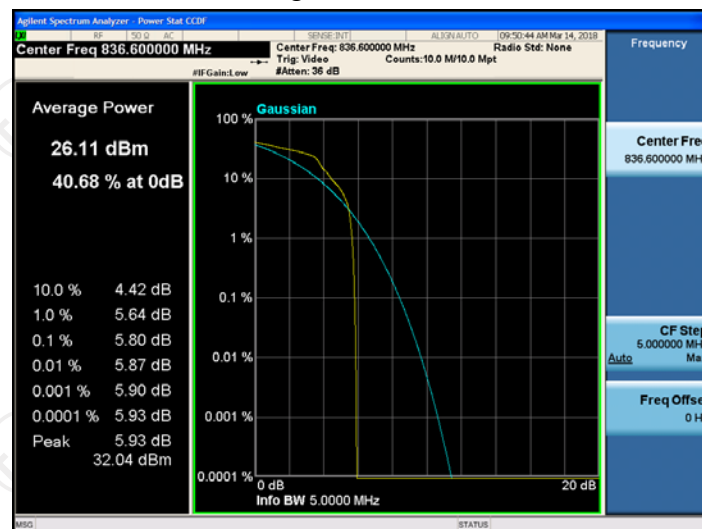
Peak-to-Average Ratio on Channel 810



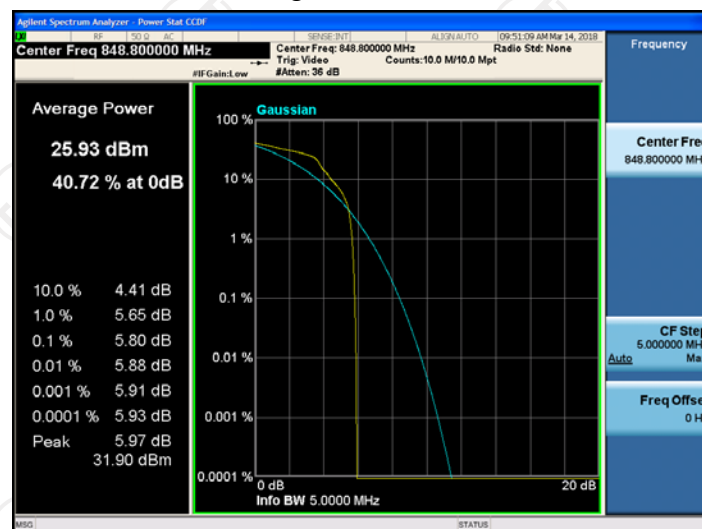
Peak-to-Average Ratio on Channel 128



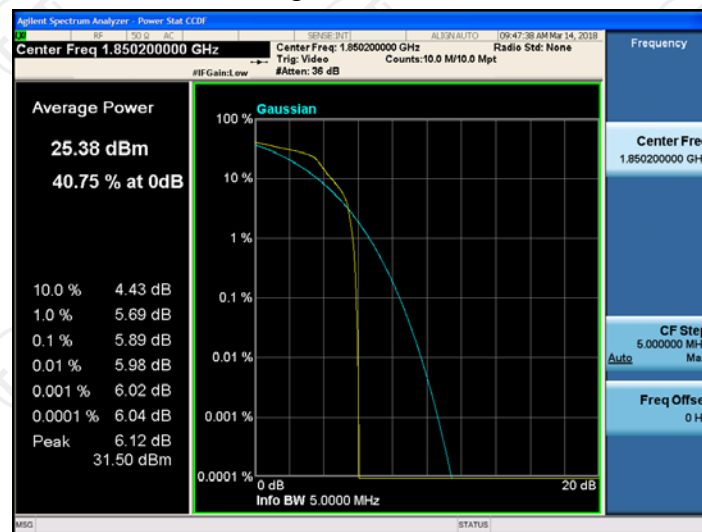
Peak-to-Average Ratio on Channel 189



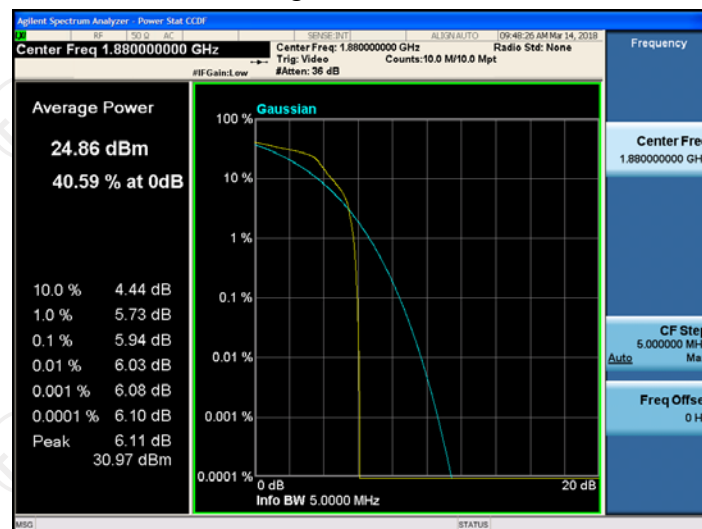
Peak-to-Average Ratio on Channel 251



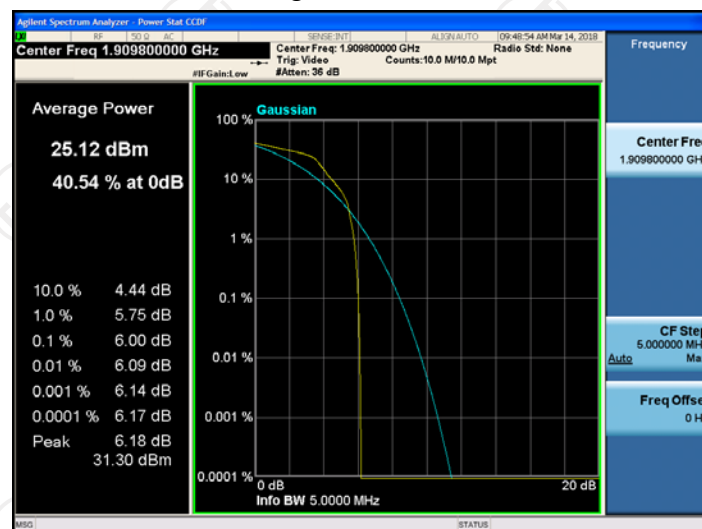
Peak-to-Average Ratio on Channel 512



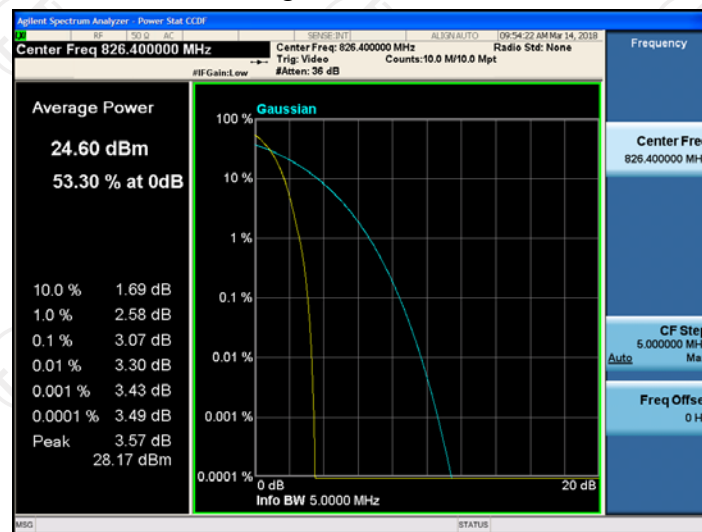
Peak-to-Average Ratio on Channel 661



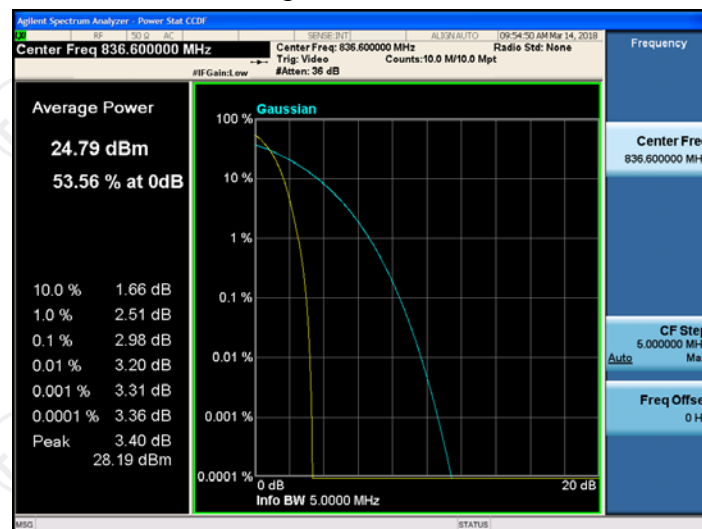
Peak-to-Average Ratio on Channel 810



Peak-to-Average Ratio on Channel 4132



Peak-to-Average Ratio on Channel 4183

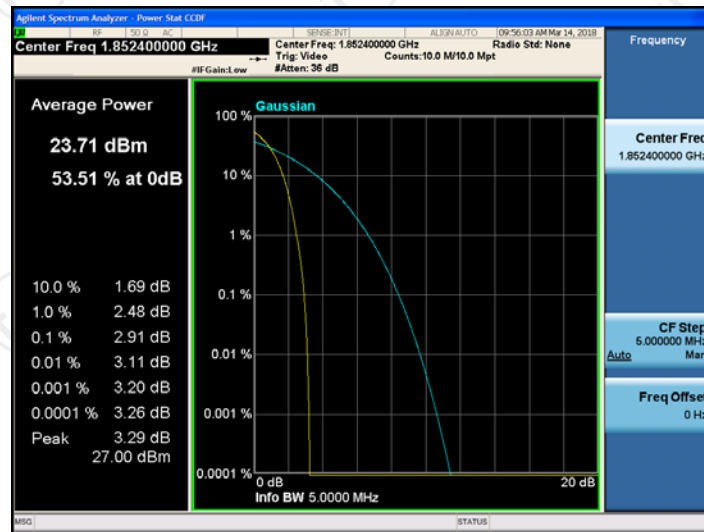


Peak-to-Average Ratio on Channel 4233

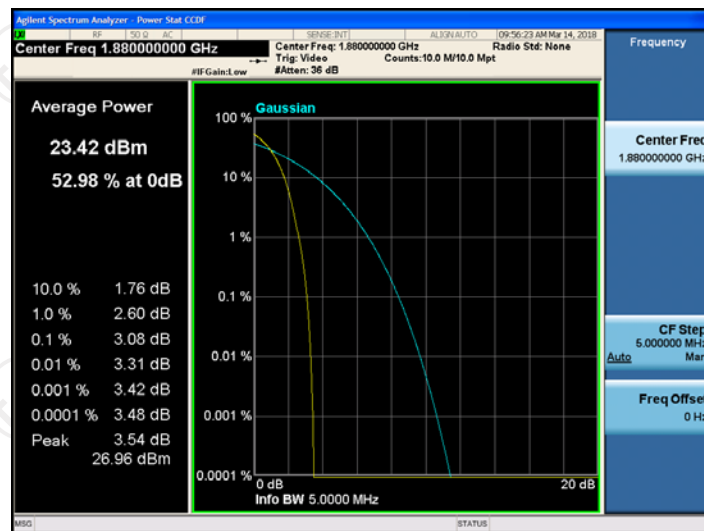


WCDMA Band II 12.2Kbps

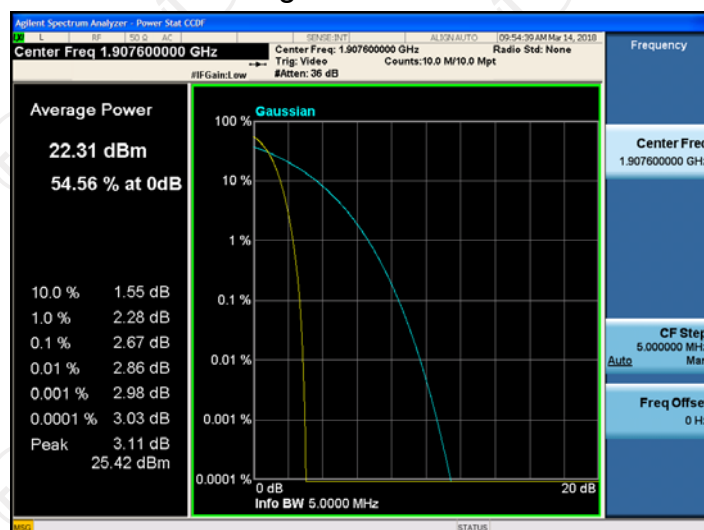
Peak-to-Average Ratio on Channel 9262



Peak-to-Average Ratio on Channel 9400

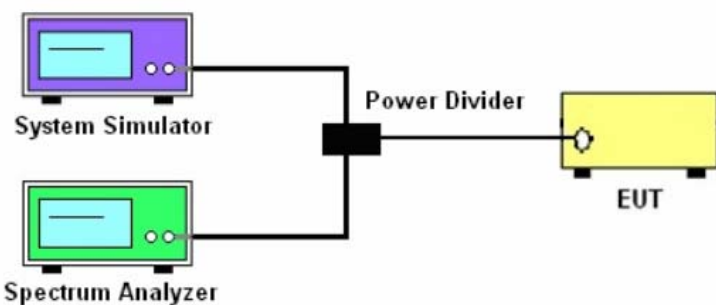


Peak-to-Average Ratio on Channel 9538



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:	 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 System Simulator and Spectrum Analyzer are connected to the Power Divider via separate lines. The Power Divider has two outputs: one connected to the System Simulator and the other connected to the EUT. The Spectrum Analyzer is connected to the Power Divider via a line that branches off from the line connecting the System Simulator to the Power Divider.
Test Procedure:	1. The testing follows FCC KDB 971168 D01v03 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	Sep. 27, 2018
Spectrum Analyzer	Agilent	N9020A	MY49100060	Sep. 27, 2018
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 27, 2018
Antenna Connector	TCT	RFC-02	N/A	Sep. 27, 2018

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)	243.70	239.34	241.74	238.74	249.02	247.05
26dB BW (kHz)	313.9	315.8	314.0	308.1	308.8	312.1

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)	247.04	245.89	243.68	243.81	241.78	243.29
26dB BW (kHz)	317.3	311.2	318.8	317.7	309.7	311.2

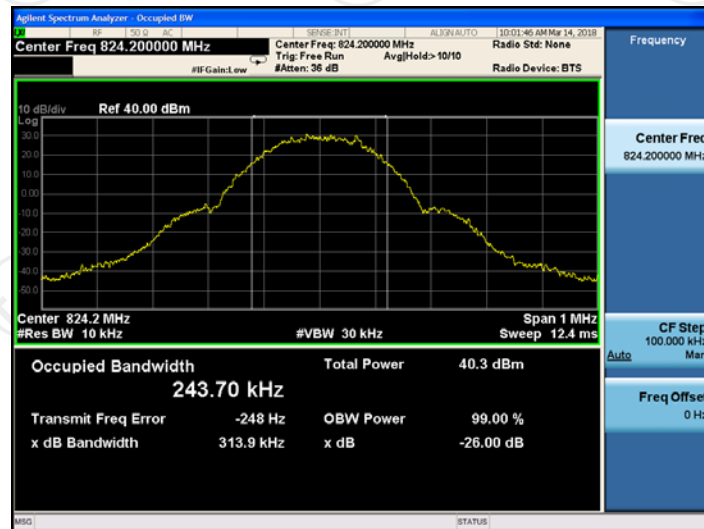
Cellular Band			
Mode	WCDMA Band V (RMC 12.2Kbps)		
Channel	4132	4183	4233
Frequency (MHz)	826.4	836.6	846.6
99% OBW (kHz)	4147.1	4132.9	4131.1
26dB BW (kHz)	4730	4727	4718

Cellular Band			
Mode	WCDMA Band II (RMC 12.2Kbps)		
Channel	9262	9400	9538
Frequency (MHz)	1852.4	1880	1907.6
99% OBW (kHz)	4146.1	4163.7	4151.4
26dB BW (kHz)	4726	4732	4726

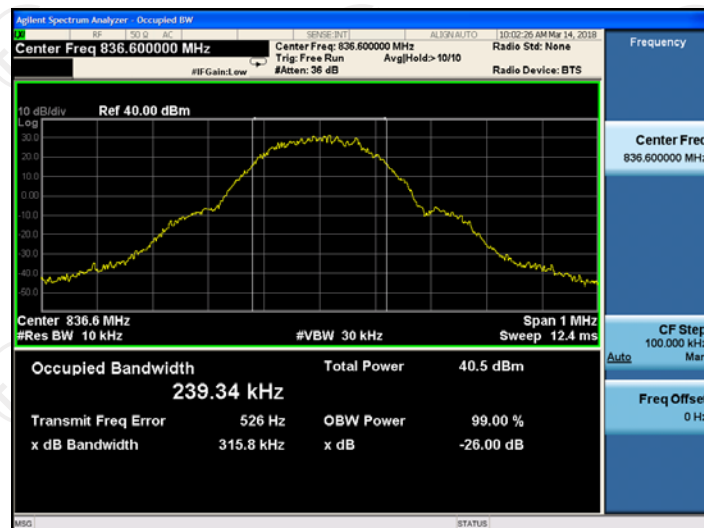
Test plots as follows:

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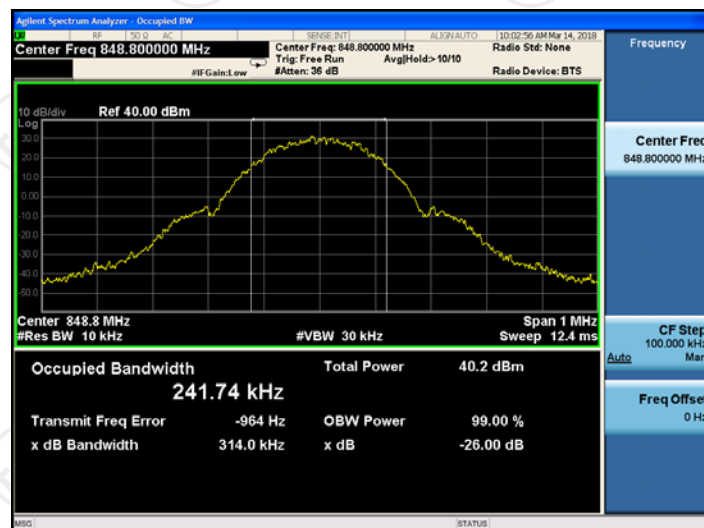
26dB&99% Occupied Bandwidth Plot on Channel 128



26dB&99% Occupied Bandwidth Plot on Channel 190

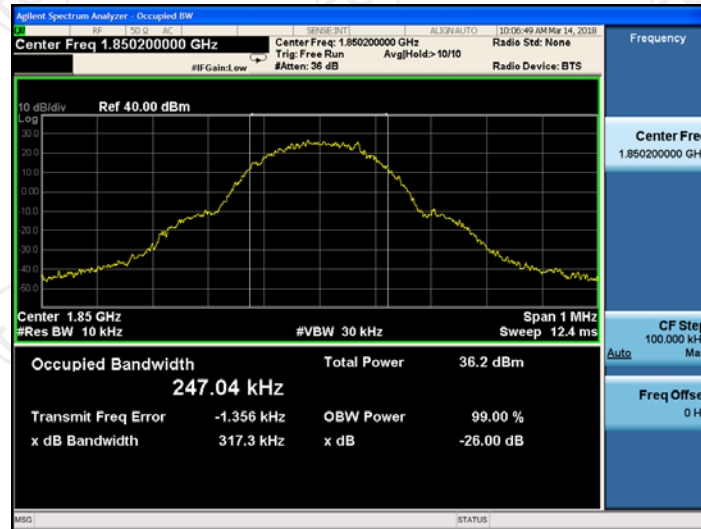


26dB&99% Occupied Bandwidth Plot on Channel 251

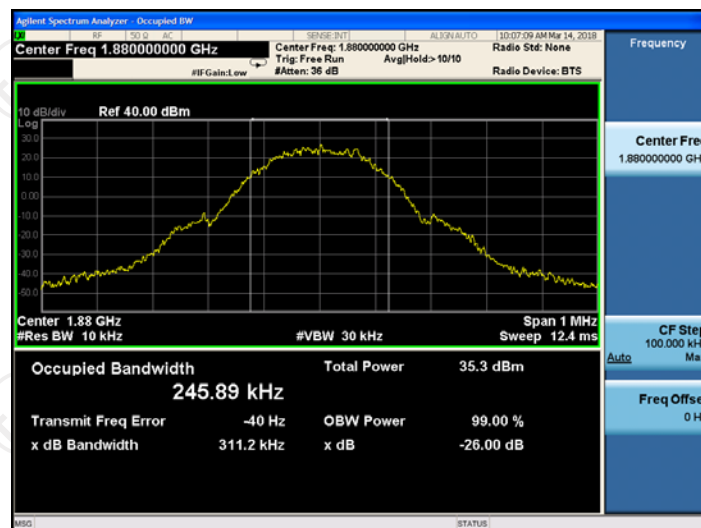


Band:	GSM 1900	Test Mode:	GSM Link (GMSK)
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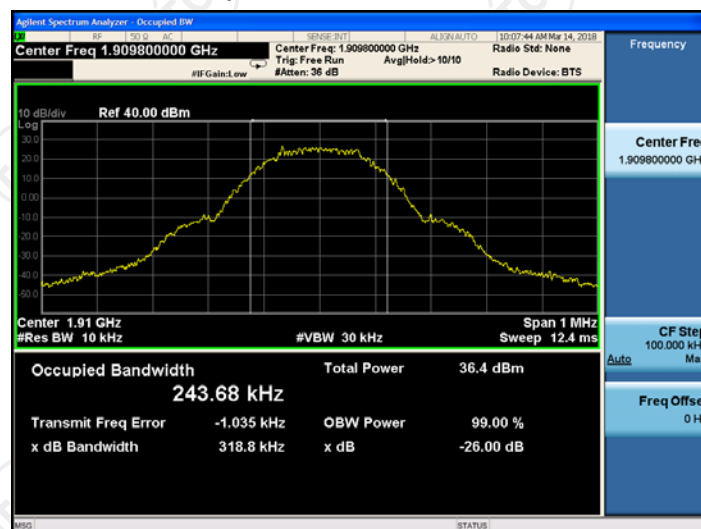
26dB&99% Occupied Bandwidth Plot on Channel 512



26dB&99% Occupied Bandwidth Plot on Channel 661

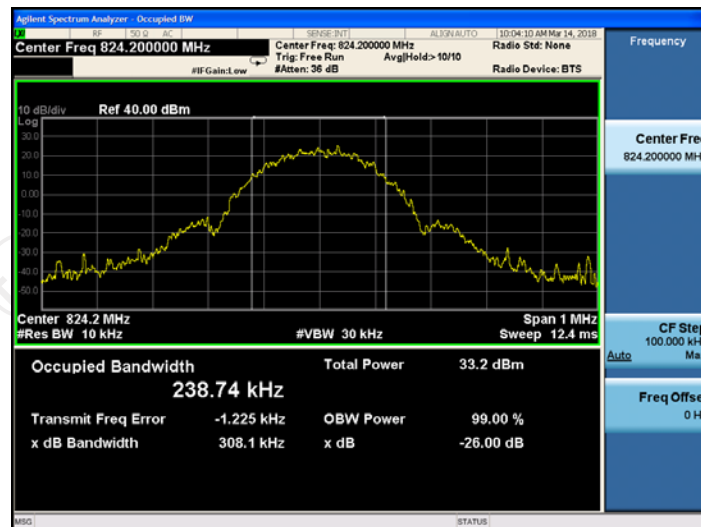


26dB&99% Occupied Bandwidth Plot on Channel 810

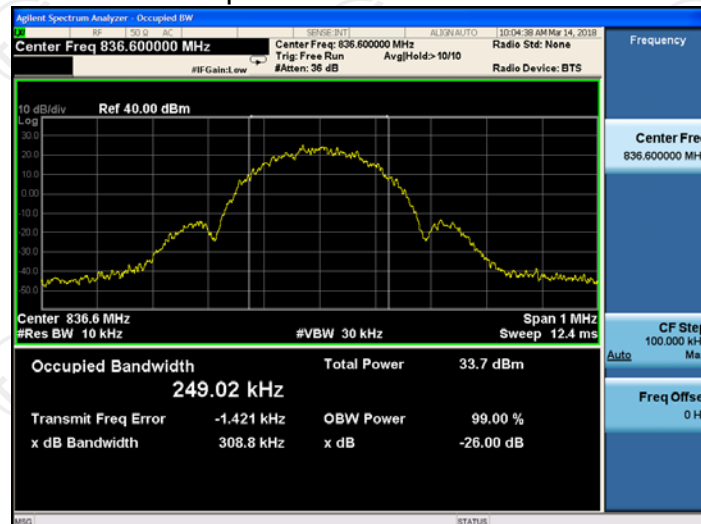


Band:	EGPRS850	Test Mode:	EGPRS Class 8 Link (8PSK)
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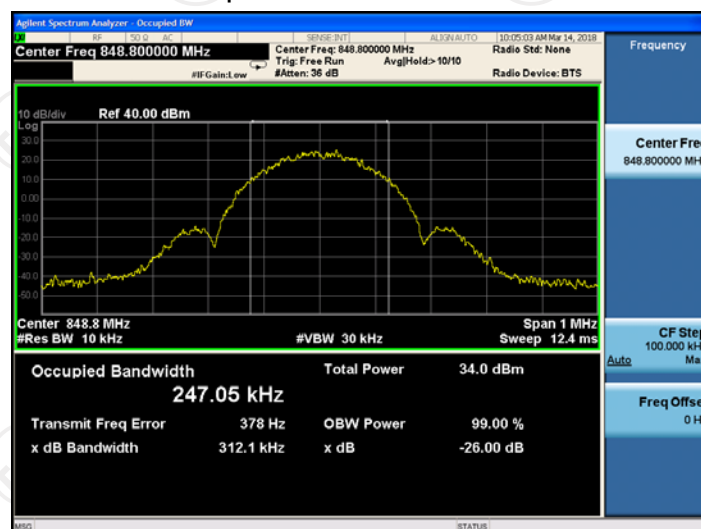
26dB&99% Occupied Bandwidth Plot on Channel 128



26dB&99% Occupied Bandwidth Plot on Channel 190

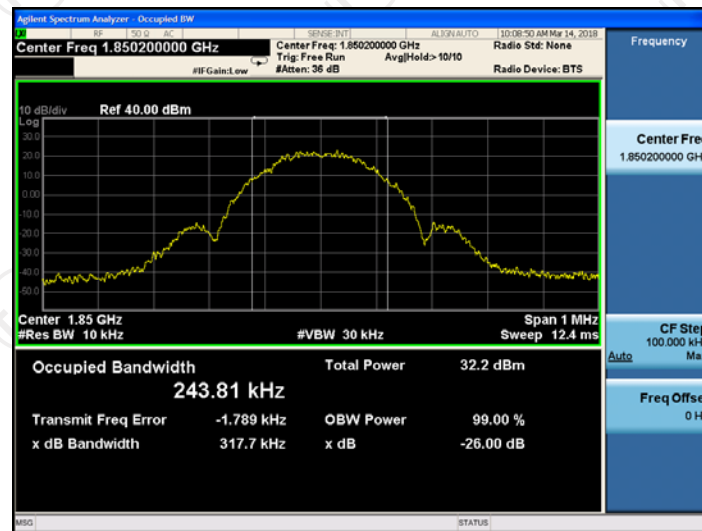


26dB&99% Occupied Bandwidth Plot on Channel 251

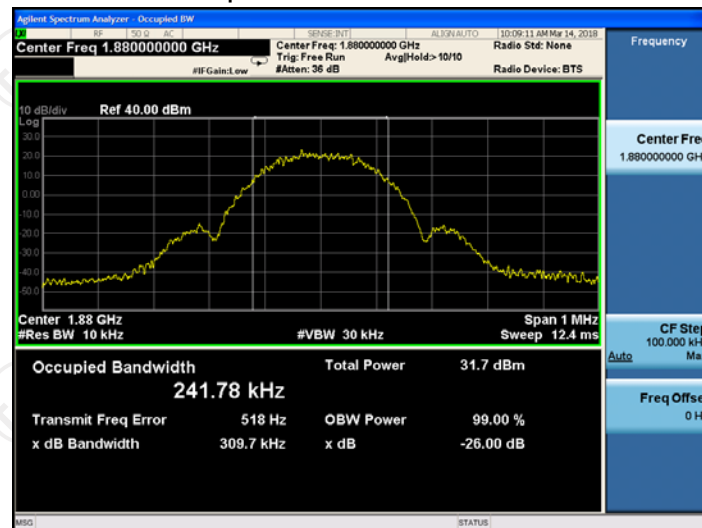


Band:	EGPRS 1900	Test Mode:	EGPRS Class 8 Link (8PSK)
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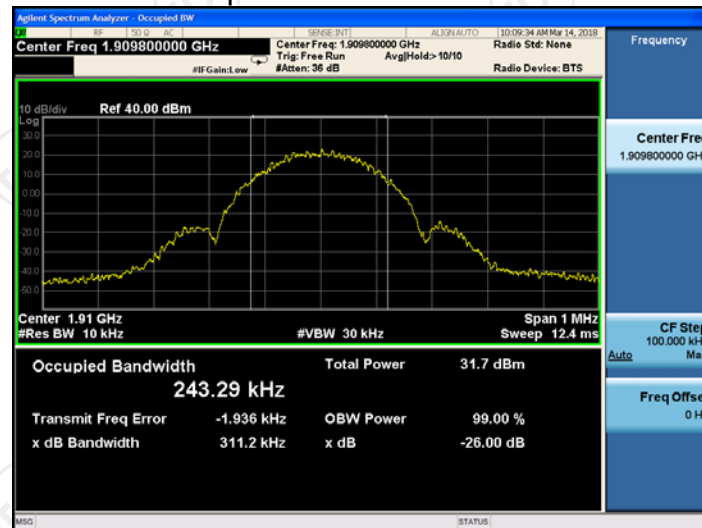
26dB&99% Occupied Bandwidth Plot on Channel 512



26dB&99% Occupied Bandwidth Plot on Channel 661

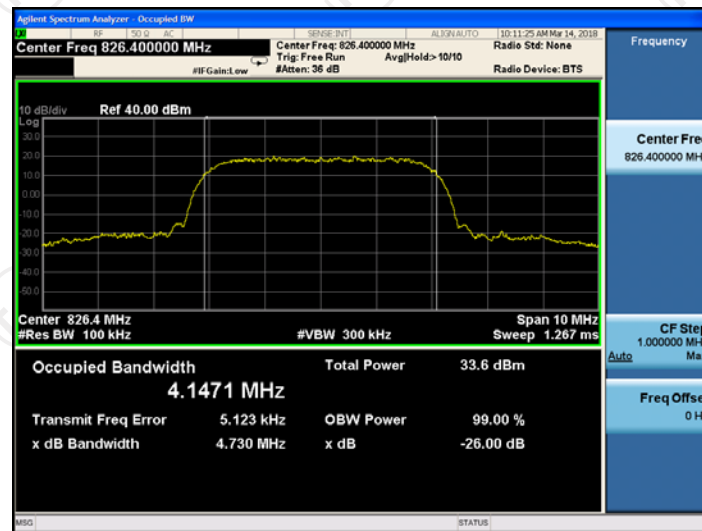


26dB&99% Occupied Bandwidth Plot on Channel 810

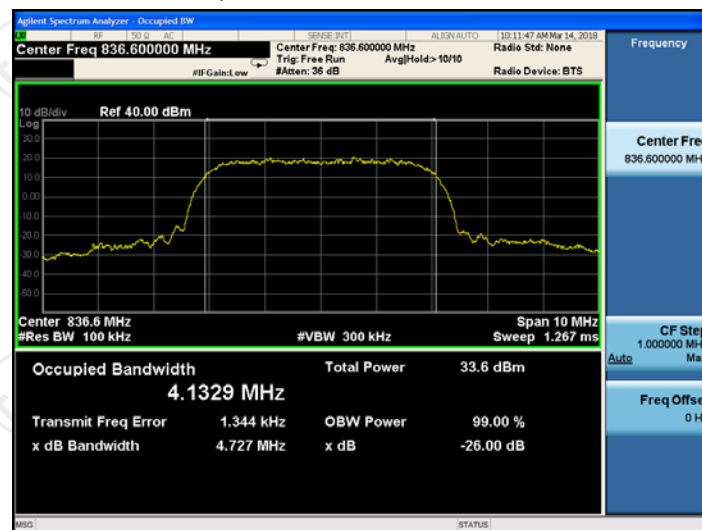


Band:	WCDMA Band V	Test Mode:	RMC 12.2Kbps Link (QPSK)
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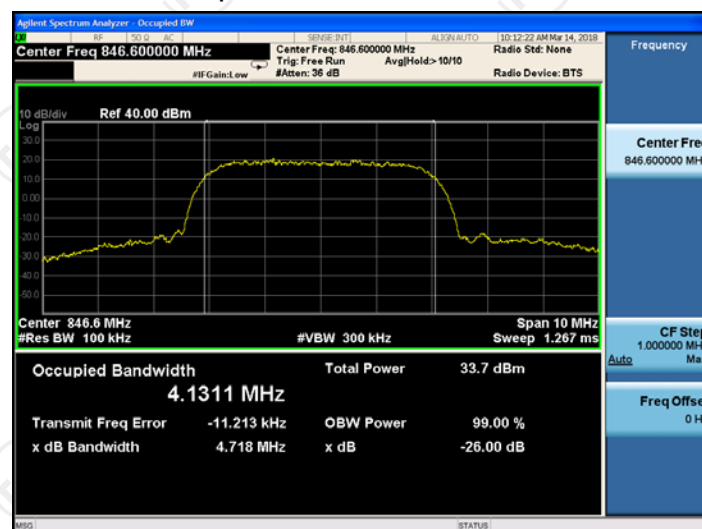
26dB&99% Occupied Bandwidth Plot on Channel 4132



26dB&99% Occupied Bandwidth Plot on Channel 4183

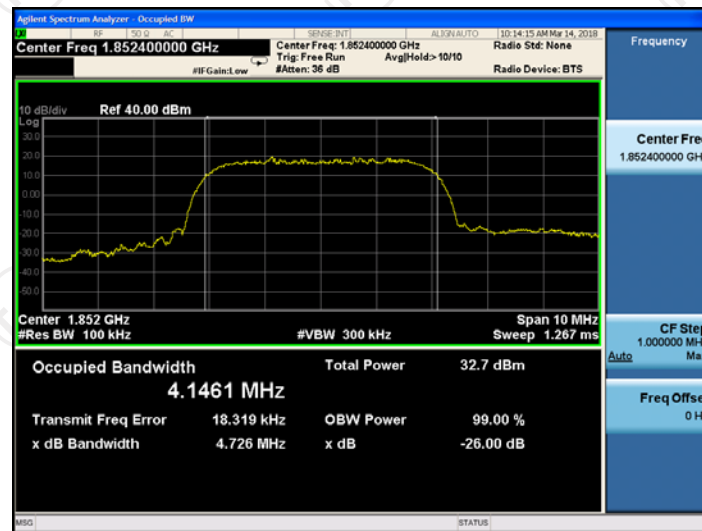


26dB&99% Occupied Bandwidth Plot on Channel 4233

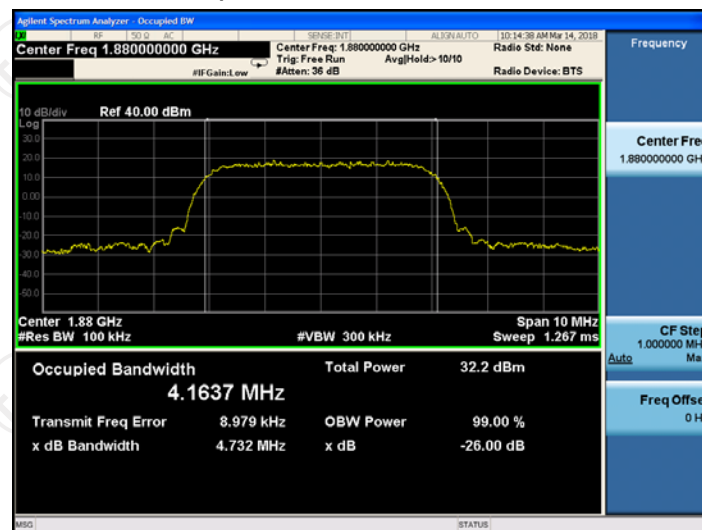


Band:	WCDMA Band II	Test Mode:	RMC 12.2Kbps Link (QPSK)
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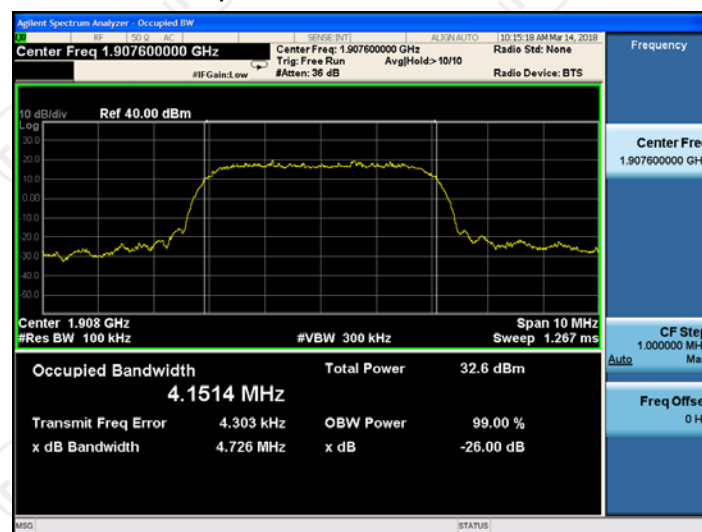
26dB&99% Occupied Bandwidth Plot on Channel 9262



26dB&99% Occupied Bandwidth Plot on Channel 9400

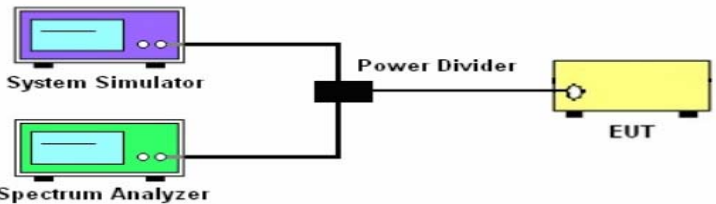


26dB&99% Occupied Bandwidth Plot on Channel 9538



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 (represented by a purple box) and a Spectrum Analyzer (represented by a green box) are connected to a Power Divider (represented by a black box). The Power Divider is then connected to the EUT (Equipment Under Test, represented by a yellow box).
Test Procedure:	1. The testing follows FCC KDB 971168 D01v03 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 $P(\text{Watts}) = P(\text{W}) - [43 + 10\log(P)] (\text{dB}) = [30 + 10\log(P)] (\text{dBm}) - [43 + 10\log(P)] (\text{dB}) = -13\text{dBm}.$
Test Result:	PASS

6.4.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 27, 2018
Spectrum Analyzer	Agilent	N9020A	MY49100060	Sep. 27, 2018
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 27, 2018
Antenna Connector	TCT	RFC-02	N/A	Sep. 27, 2018

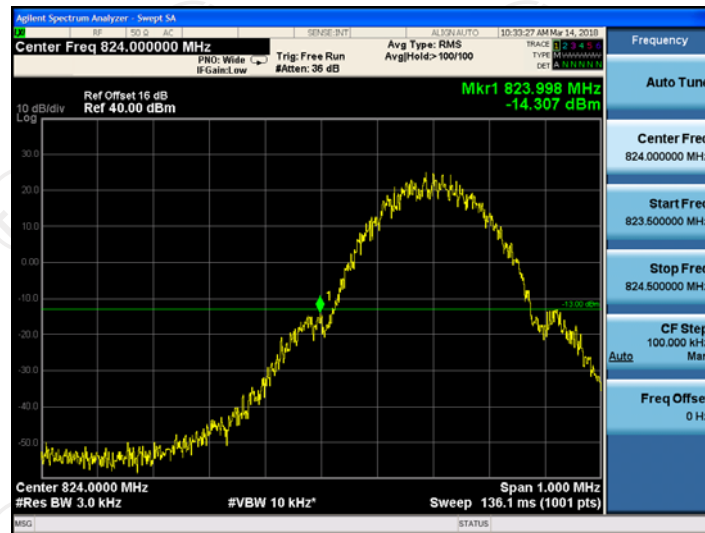
Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.4.3. Test data

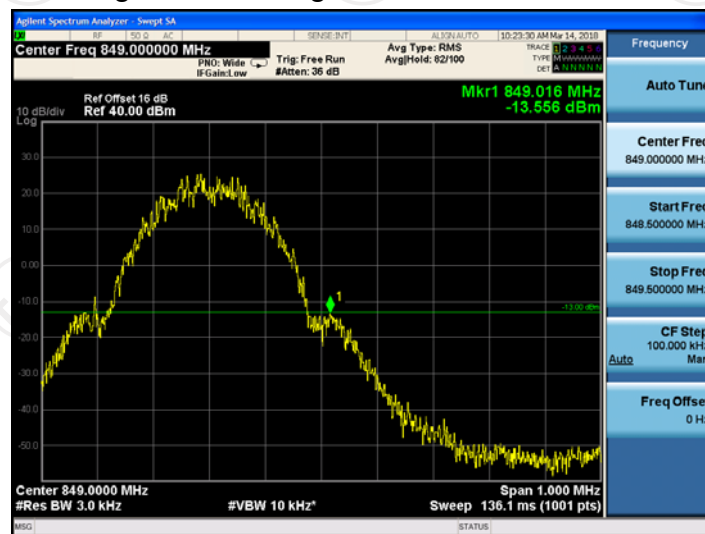
Test plots as follows:

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



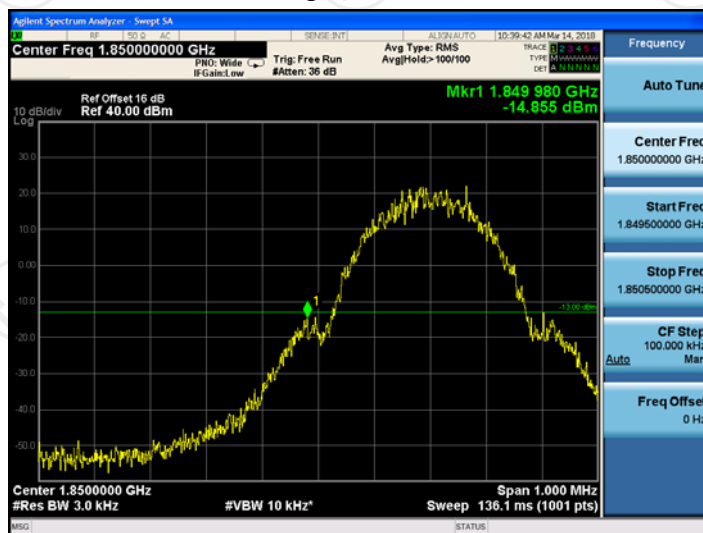
Band:

GSM 1900

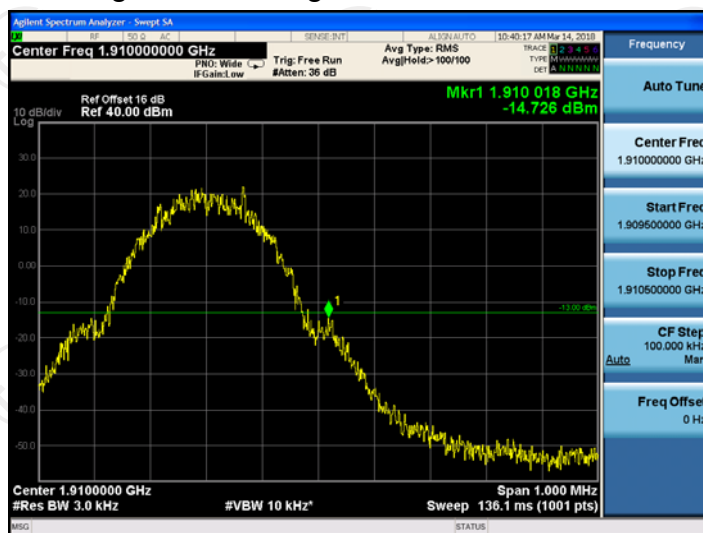
Test Mode:

GSM Link (GMSK)

Lower Band Edge Plot on Channel 512

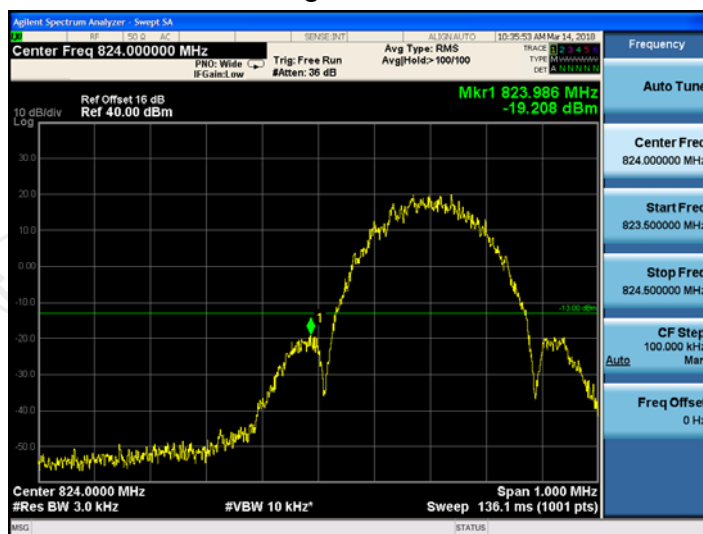


Higher Band Edge Plot on Channel 810

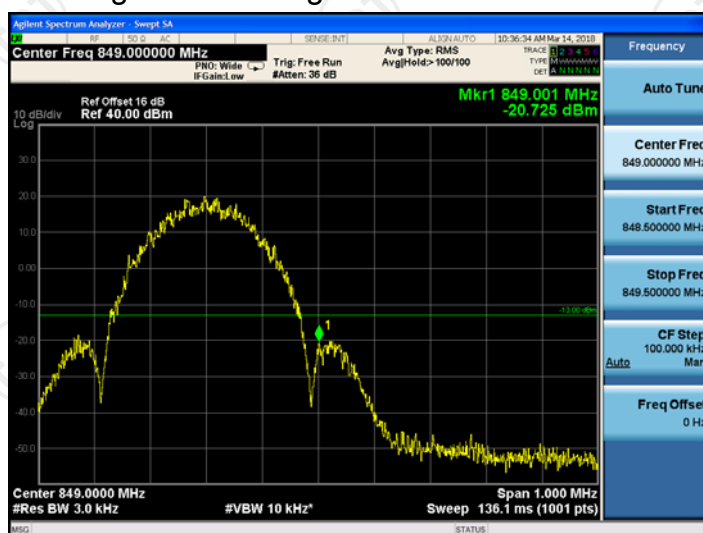


Band:	EGPRS 850	Test Mode:	EGPRS Class 8 Link (8PSK)
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Lower Band Edge Plot on Channel 128

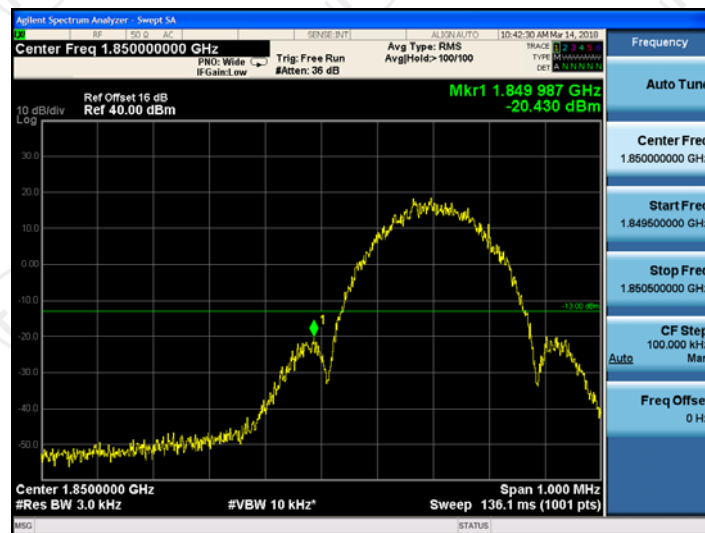


Higher Band Edge Plot on Channel 251

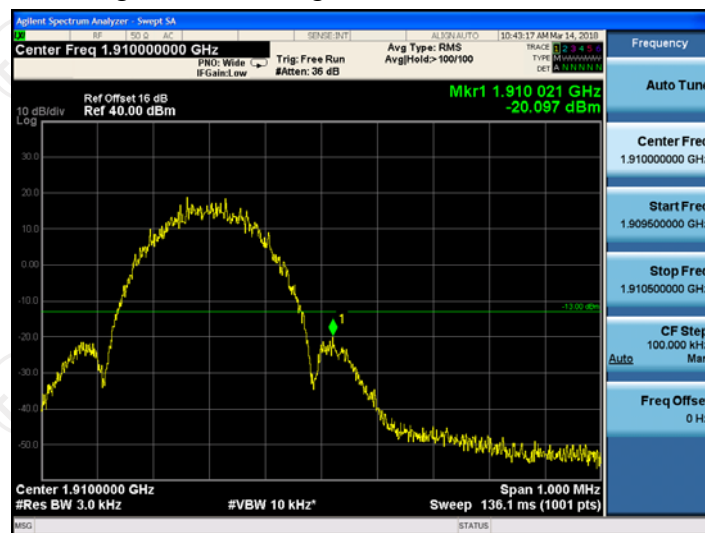


Band:	EGPRS 1900	Test Mode:	EGPRS Class 8 Link (8PSK)
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Lower Band Edge Plot on Channel 512

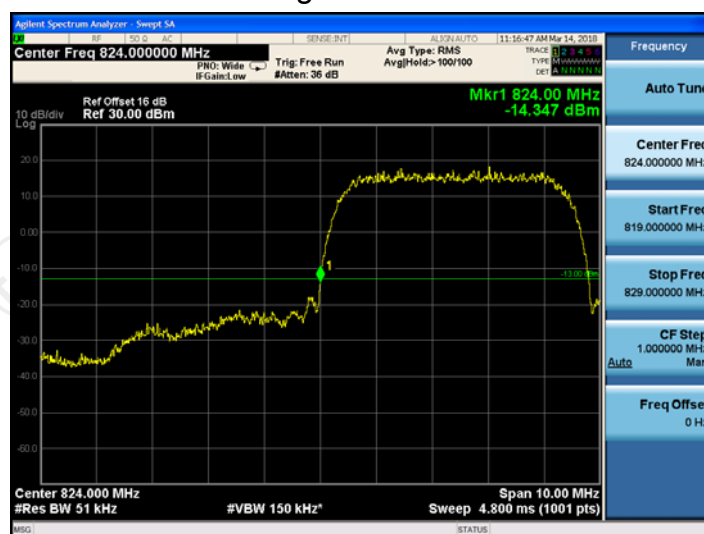


Higher Band Edge Plot on Channel 810



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

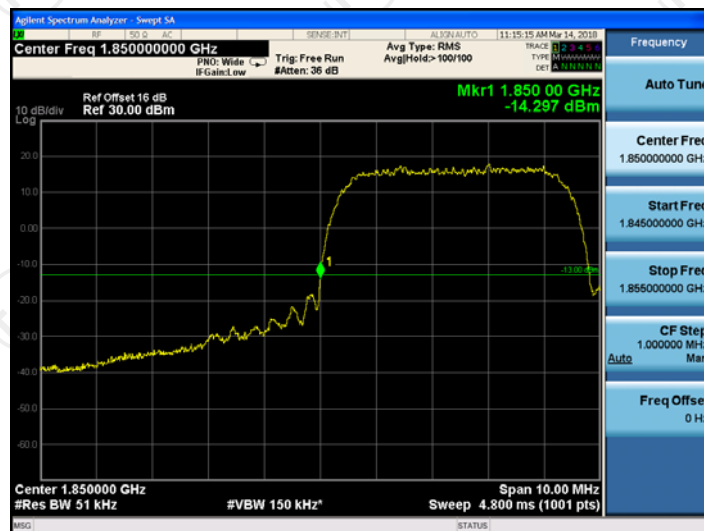


Higher Band Edge Plot on Channel 4233

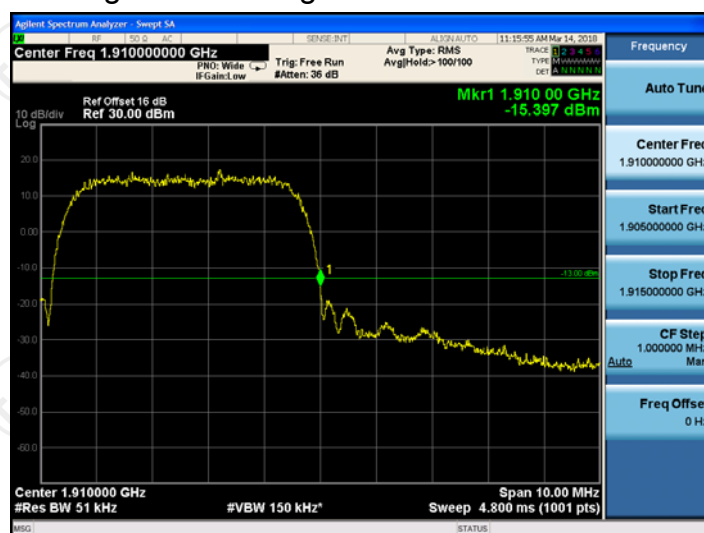


Band:	WCDMA Band II	Test Mode:	RMC 12.2Kbps Link (QPSK)
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Lower Band Edge Plot on Channel 9262



Higher Band Edge Plot on Channel 9538



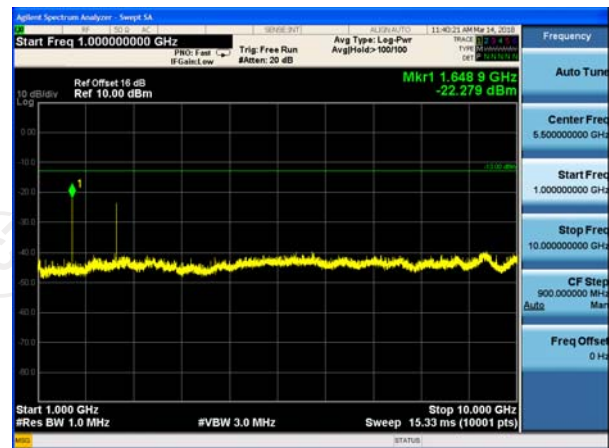
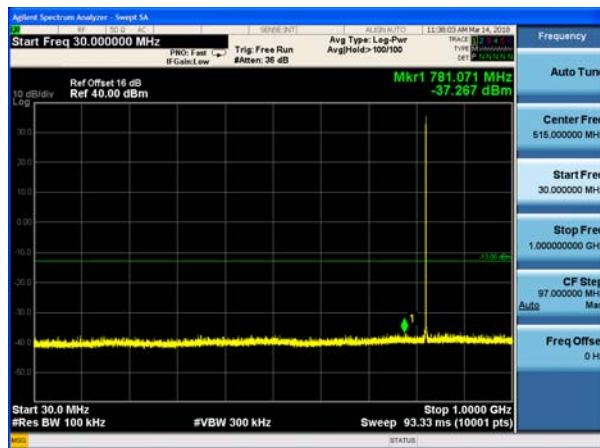
Band:

GSM 850

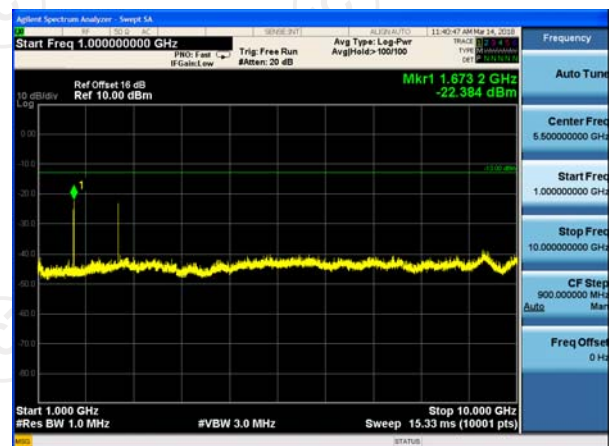
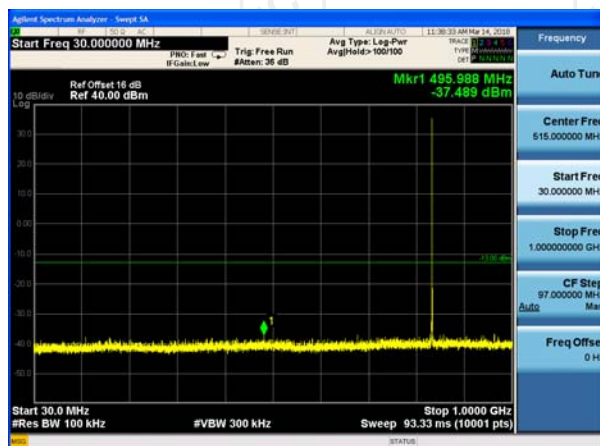
Test Mode:

GSM Link (GMSK)

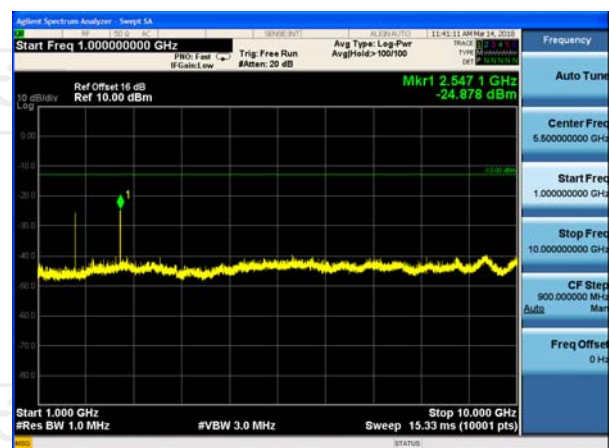
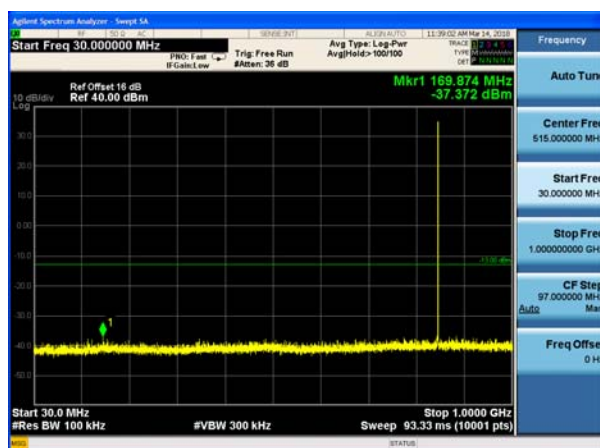
Conducted Spurious Emission on Channel 128



Conducted Spurious Emission on Channel 189



Conducted Spurious Emission on Channel 251



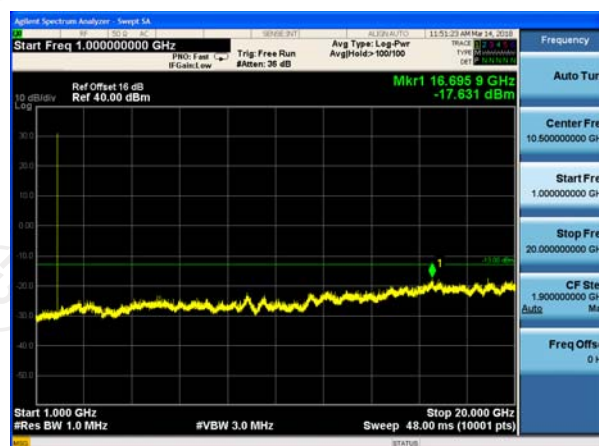
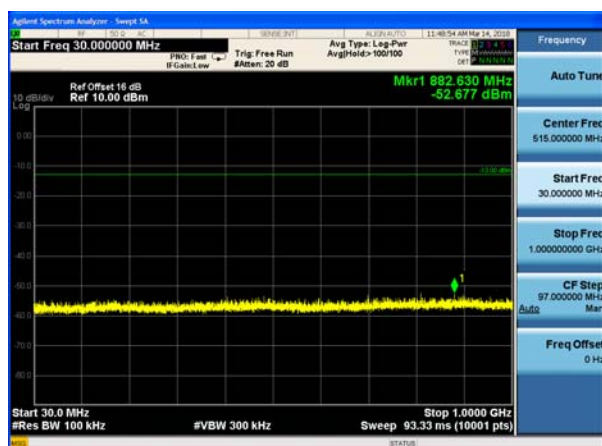
Band:

GSM 1900

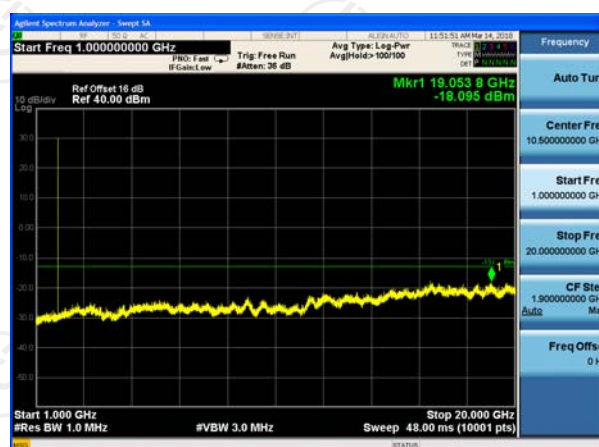
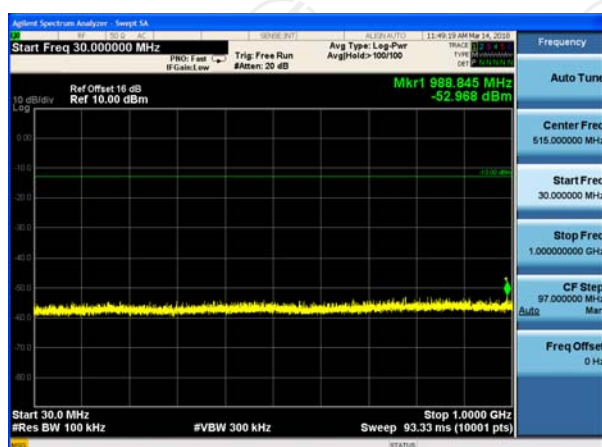
Test Mode:

GSM Link (GMSK)

Conducted Spurious Emission on Channel 512



Conducted Spurious Emission on Channel 661



Conducted Spurious Emission on Channel 810

