

Report No.: SZEM191102008504
Page: 1 of 69**TEST REPORT****Application No.:**

SZEM1911020085CR

Applicant:

Surf Communication Solutions Ltd.

Address of Applicant:

7 Hamada Street, Yokneam Ilit20692, Israel.

Manufacturer:

1. Surf Communication Solutions Ltd.

Address of Manufacturer:

2. Dongguan Aomeijia Electronic Co., Ltd

1. 7 Hamada St., P.O.B. 343 Yoqneam Hi-Tech Park 2069205 Yokneam, Israel

2. Lefushan Industry Zone, Youganpu Vilage, Fenggang Town, Dongguan, Guangdong Province, P.R.China

Factory:

Surf Communication Solutions Ltd.

Address of Factory:

7 Hamada St., P.O.B. 343 Yoqneam Hi-Tech Park 2069205 Yokneam, Israel

Equipment Under Test (EUT):

Dash Camera

EUT Name:

AI-12, SF450 ♣

Model No.:

♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.

Trade mark:

Surfsight AI-12

FCC ID:

2APWTAI-12S

Standard(s) :

47 CFR Part 2

47 CFR Part 22 subpart H

47 CFR Part 24 subpart E

Date of Receipt:

2019-11-12

Date of Test:

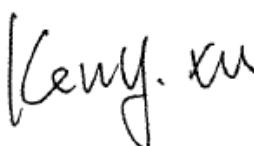
2019-11-13 to 2019-12-04

Date of Issue:

2019-12-09

Test Result:**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu
EMC Laboratory Manager

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2019-12-09		Original

Authorized for issue by:			
		 Edison Li /Project Engineer	
		 Eric Fu /Reviewer	

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2 Test Summary

Test Item	FCC Rule No.	Requirements	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §22.913, §24.232	ERP≤7W(GPRS850/ WCDMA BAND V) EIRP≤2W(GPRS1900/ WCDMA BAND II)	PASS
Peak-Average Ratio	§24.232	≤13dB	PASS
Modulation Characteristics	§2.1047	Digital modulation	PASS
Bandwidth	§2.1049(h)	OBW: No limit EBW: No limit	PASS
Band Edge Compliance	§2.1051, §22.917, §24.238	≤ -13dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	PASS
Spurious emissions at antenna terminals	§2.1051, §22.917, §24.238	≤ -13dBm	PASS
Field strength of spurious radiation	§2.1051, §22.917, §24.238	≤ -13dBm	PASS
Frequency stability	§2.1055, §22.355, §24.235	±2.5ppm	PASS

Remark:

Model No.: AI-12, SF450

Only the model SF450 was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, only different on model name.

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 3.7V, 550mAh rechargeable battery which charged by DC power port DC5V/2A from external power
Sample Type:	Fixed Device
Support Network:	GPRS, EGPRS, WCDMA
Operation Frequency Band:	GPRS850/GPRS1900/ WCDMA Band II/ WCDMA Band V
Modulation Type:	GMSK for GPRS/EGPRS; 8PSK for EGPRS; QPSK for WCDMA
GPRS Multi-slots Class:	33
EGPRS Multi-slots Class:	33
HSDPA UE Category:	13
HSUPA UE Category:	6
Power Class:	4, tested with power level 5(GSM850) 1, tested with power level 0(GSM1900)
Designation of Emissions	GPRS850: 244KGXW, EGPRS850: 241KG7W
	GPRS1900: 245KGXW, EGPRS1900: 246KG7W
	WCDMA Band II:4M16F9W
	WCDMA Band V: 4M14F9W
Antenna Type:	Integral
Antenna Gain:	Antenna2: 1dBi
Extreme temp. Tolerance:	-30°C to +50°C
Extreme vol. Limits:	3.14VDC to 4.25VDC (nominal: 3.7VDC)

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4.2 Test Frequency

Test mode:	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
GPRS850	TX	Channel 128	Channel 190	Channel 251
		824.2MHz	836.6 MHz	848.8 MHz
	RX	Channel 128	Channel 190	Channel 251
		869.2 MHz	881.6 MHz	893.8 MHz
GPRS1900	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
	TX	Channel 512	Channel 661	Channel 810
		1850.2MHz	1880.0 MHz	1909.8 MHz
	RX	Channel 512	Channel 661	Channel 810
		1930.2 MHz	1960.0 MHz	1989.8 MHz

Test mode:	TX/RX	RF Channel		
		Low (L)	Middle (M)	High (H)
WCDMA Band V	TX	Channel 4132	Channel 4182	Channel 4233
		826.4MHz	836.4 MHz	846.6 MHz
	RX	Channel 4357	Channel 4407	Channel 4458
		871.4 MHz	881.4 MHz	891.6 MHz
WCDMA Band II	TX/RX	RF Channel		
		Low (L)	Middle (M)	High (H)
	TX	Channel 9262	Channel 9400	Channel 9538
		1852.4 MHz	1880.0 MHz	1907.6 MHz
	RX	Channel 9662	Channel 9800	Channel 9938
		1932.4 MHz	1960.0 MHz	1987.6 MHz

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4.3 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	52%	
Atmospheric Pressure:	1015Pa	
Temperature:	TN	25 °C
Voltage:	VL	3.14 V
	VN	3.7 V
	VH	4.25 V

NOTE: VL= lower extreme test voltage

VN= nominal voltage

VH= upper extreme test voltage

TN= normal temperature

4.4 Description of Support Units

The EUT has been tested independent unit.

4.5 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.25×10^{-8}
2	Occupied Bandwidth	3%
3	RF conducted power	0.75dB
4	Conducted Spurious emissions	0.75dB
5	RF Radiated power	4.5dB (below 1GHz) 4.8dB (above 1GHz)
6	Radiated Spurious emission test	4.5dB (Below 1GHz) 4.8dB (Above 1GHz)
7	Temperature test	1 °C
8	Humidity test	3%
9	Supply voltages	1.5%
10	Time	3%

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4.6 Test Location

All tests were performed at:

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518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.7 Test Facility

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

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.8 Deviation from Standards

None

4.9 Abnormalities from Standard Conditions

None

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5 Equipment List

RF Conducted Test					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Zhao Xin	KXN-6020D	SEM011-08	2019-09-24	2020-09-23
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2019-09-24	2020-09-23
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2019-07-11	2020-07-10
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2019-09-24	2020-09-23
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2019-09-24	2020-09-23
Electric and Magnetic Field Analyzer	Narda	NBM-550/EHP-50F	EMC2143	2018-02-07	2020-02-06
Electric Field Probe(100KHz-3GHz)	WANDEL & GOLTERMANN	EMR-20	EMC0907	2019-05-21	2020-05-20
EMF Tester	Narda	ELT-400	SZE039-4	2019-07-08	2020-07-07
Radio Communication Analyzer	Anritsu	MT8820C	SEM010-04	2019-04-02	2020-04-01
Universal Radio Communication Tester	Rohde & Schwarz	CMU200	SEM010-02	2019-04-02	2020-04-01
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2019-04-02	2020-04-01
Signal Analyzer (10Hz-40GHz)	Rohde & Schwarz	FSV40	SEM008-04	2019-04-01	2020-03-31
Power Splitter	Narda	4324-2	0168	N/A	N/A

RE in chamber					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-08-05	2020-08-04
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2019-07-11	2020-07-10
EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2019-09-24	2020-09-23
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2017-06-27	2020-06-26
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2019-04-01	2020-03-31
Substitution Antenna	ETS-Lindgren	3142C	SEM003-01	2017-06-27	2020-06-26
Signal Generator	R&S	SMA100A	102174	2018-07-12	2019-07-11

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RE in chamber					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2019-07-11	2020-07-10
EXA Spectrum Analyzer	AgilentTechnologies Inc	N9010A	SEM004-12	2019-04-12	2020-04-11
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Horn Antenna(15GHz-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2017-10-17	2020-10-16
Pre-Amplifier(0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2019-09-24	2020-09-23
Pre-amplifier(18-26GHz)	Rohde & Schwarz	CH14-H052	SEM005-17	2019-04-01	2020-03-31
Pre-amplifier(26GHz-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2019-04-01	2020-03-31
DC Power Supply	Zhao Xin	KXN-6020D	SEM011-08	2019-09-24	2020-09-23
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21
Substitution Antenna	ETS-Lindgren	3142C	SEM003-01	2017-06-27	2020-06-26
Signal Generator	R&S	SMA100A	102174	2018-07-12	2019-07-11

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2019-09-26	2020-09-25
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2019-09-26	2020-09-25
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2019-09-26	2020-09-25
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2019-04-04	2020-04-03

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6 Radio Spectrum Matter Test Results

6.1 Effective (Isotropic) Radiated Power Output Data

Test Requirement: §2.1046, §22.913, §24.232

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: $ERP \leq 7W$ (GPRS850)

$EIRP \leq 2W$ (GPRS1900)

$ERP \leq 7W$ (WCDMA BAND V)

$EIRP \leq 2W$ (WCDMA BAND II)

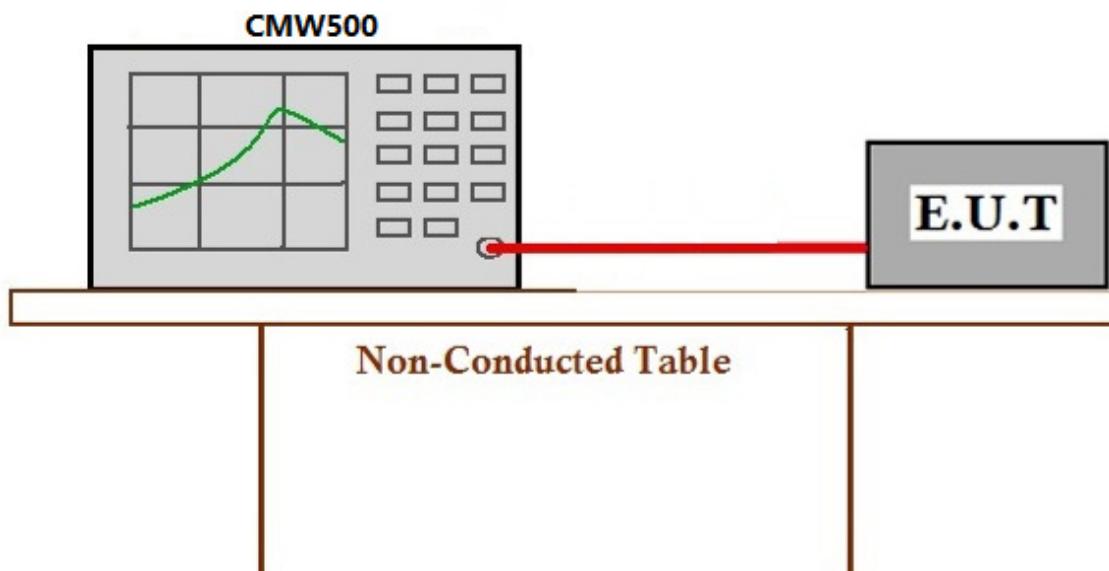
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar

Test mode: f: TX mode_Keep the EUT in transmitting mode.

6.1.2 Test Setup Diagram



6.1.3 Measurement Data

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Test band: GPRS850										
Conducted output power(dBm)				Antenna gain (dBd)	Antenna gain (dBi)	FCC: ERP(dBm)			Limit (dBm)	
Channel		128	190	251		128	190	251		
GPRS/EGPRS (GMSK)	1 TX Slot	32.56	32.65	32.78	-2.15	1	31.41	31.5	31.63	38.45
	2 TX Slots	31.75	31.68	31.74	-2.15	1	30.6	30.53	30.59	38.45
	3 TX Slots	30.16	30.22	30.11	-2.15	1	29.01	29.07	28.96	38.45
	4 TX Slots	27.04	27.10	27.06	-2.15	1	25.89	25.95	25.91	38.45
EGPRS(8PSK)	1 TX Slot	24.71	24.81	24.82	-2.15	1	23.56	23.66	23.67	38.45
	2 TX Slots	24.16	24.21	24.04	-2.15	1	23.01	23.06	22.89	38.45
	3 TX Slots	23.78	23.85	23.69	-2.15	1	22.63	22.7	22.54	38.45
	4 TX Slots	22.51	22.59	22.43	-2.15	1	21.36	21.44	21.28	38.45

Note:

- 1) dBd= dBi-2.15
- 2) ERP= Conducted output power+Antenna gain (dBd)
- 3) EIRP= Conducted output power+Antenna gain (dBi)

Test band: GPRS1900										
Conducted output power(dBm)				Antenna gain (dBi)	FCC: EIRP(dBm)			Limit (dBm)		
Channel		512	661	810	512	661	810			
GPRS/EGPRS (GMSK)	1 TX Slot	29.68	29.85	29.64	1	30.68	30.85	30.64	33	
	2 TX Slots	28.54	28.63	28.52	1	29.54	29.63	29.52	33	
	3 TX Slots	27.46	26.67	26.55	1	28.46	27.67	27.55	33	
	4 TX Slots	24.97	24.54	24.68	1	25.97	25.54	25.68	33	
EGPRS(8PSK)	1 TX Slot	25.63	25.64	25.67	1	26.63	26.64	26.67	33	
	2 TX Slots	24.84	24.78	24.86	1	25.84	25.78	25.86	33	
	3 TX Slots	22.75	22.84	22.79	1	23.75	23.84	23.79	33	
	4 TX Slots	21.58	21.74	21.84	1	22.58	22.74	22.84	33	

Note:

- 1) EIRP= Conducted output power+Antenna gain (dBi)

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Test band: WCDMA Band V										
Conducted output power(dBm)					Antenna gain (dBd)	Antenna gain (dBi)	FCC: ERP(dBm)			Limit (dBm)
Channel		4132	4182	4233			4132	4182	4233	
WCDMA	12.2kbps RMC	23.75	23.77	23.76	-2.15	1	22.6	22.62	22.61	38.45
HSDPA	Subtest 1	23.73	23.73	23.77	-2.15	1	22.58	22.58	22.62	38.45
	Subtest 2	23.11	22.12	22.13	-2.15	1	21.96	20.97	20.98	38.45
	Subtest 3	23.05	22.03	22.04	-2.15	1	21.9	20.88	20.89	38.45
	Subtest 4	23.01	22.99	22.98	-2.15	1	21.86	21.84	21.83	38.45
HSUPA	Subtest 1	22.77	21.75	21.77	-2.15	1	21.62	20.6	20.62	38.45
	Subtest 2	21.54	21.42	21.55	-2.15	1	20.39	20.27	20.4	38.45
	Subtest 3	21.34	20.99	21.27	-2.15	1	20.19	19.84	20.12	38.45
	Subtest 4	21.31	21.34	21.55	-2.15	1	20.16	20.19	20.4	38.45

Note:

- 1) dBd= dBi-2.15
- 2) ERP= Conducted output power+Antenna gain (dBd)
- 3) EIRP= Conducted output power+Antenna gain (dBi)

Test band: WCDMA Band II										
Conducted output power(dBm)					Antenna gain (dBi)	FCC: EIRP(dBm)			Limit (dBm)	
Channel		9262	9400	9538		9262	9400	9538		
WCDMA	12.2kbps RMC	23.68	23.69	23.70	1	24.68	24.69	24.7	33	
HSDPA	Subtest 1	23.67	23.63	23.67	1	24.67	24.63	24.67	33	
	Subtest 2	23.32	23.31	23.35	1	24.32	24.31	24.35	33	
	Subtest 3	23.31	23.32	23.36	1	24.31	24.32	24.36	33	
	Subtest 4	23.15	23.11	23.13	1	24.15	24.11	24.13	33	
HSUPA	Subtest 1	22.77	22.76	22.79	1	23.77	23.76	23.79	33	
	Subtest 2	21.84	21.80	21.87	1	22.84	22.8	22.87	33	
	Subtest 3	21.51	21.49	21.47	1	22.51	22.49	22.47	33	
	Subtest 4	21.32	21.37	21.37	1	22.32	22.37	22.37	33	

Note:

- 1) EIRP= Conducted output power+Antenna gain (dBi)

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6.2 Peak-Average Ratio

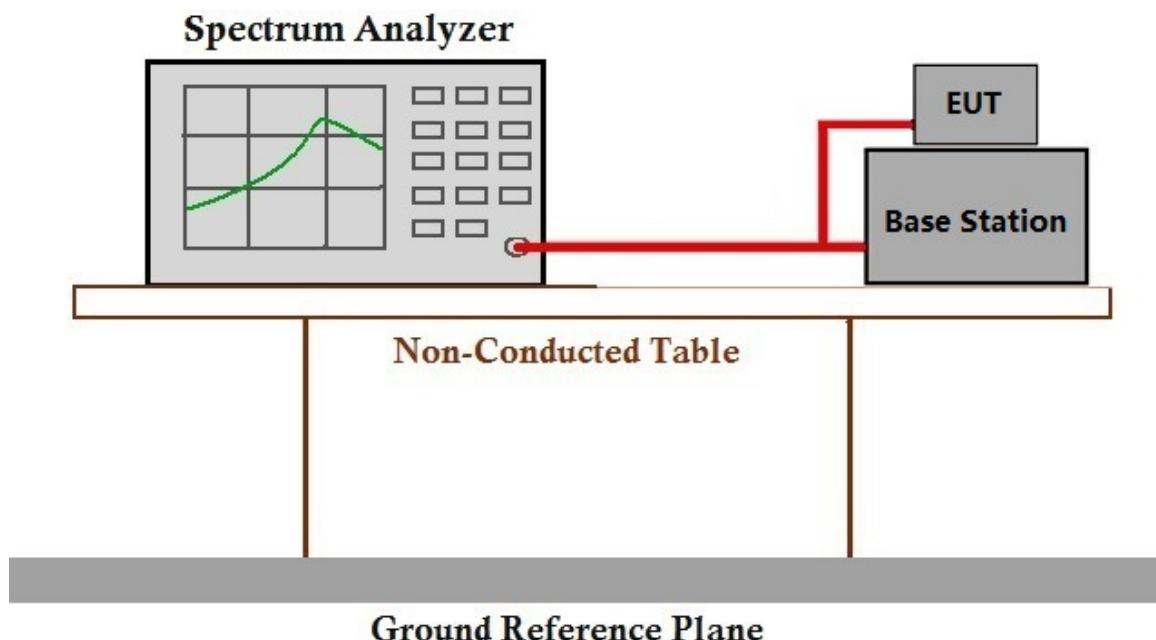
Test Requirement: §24.232
Test Method: ANSI C63.26, KDB 971168 D01 v03
Limit: ≤13dB

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar
Test mode: f: TX mode_Keep the EUT in transmitting mode.

6.2.2 Test Setup Diagram



6.2.3 Measurement Data



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Test mode	Test Band	Test result (dB)			Limit (dB)	Verdict
		LCH	MCH	HCH		
GSM	GPRS850	9.68	7.76	7.72	13	Pass
	EGPRS850	8.48	8.44	8.60	13	Pass
	GPRS1900	7.68	10.20	8.72	13	Pass
	EGPRS1900	10.48	10.80	11.28	13	Pass

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA 850	WCDMA	LCH	3.04	13	PASS
		MCH	3.12	13	PASS
		HCH	3.08	13	PASS
WCDMA 1900	WCDMA	LCH	2.80	13	PASS
		MCH	2.84	13	PASS
		HCH	2.80	13	PASS

Note: All modes have been tested and we found HSDPA mode has the worst test result. Only record the worst test result.

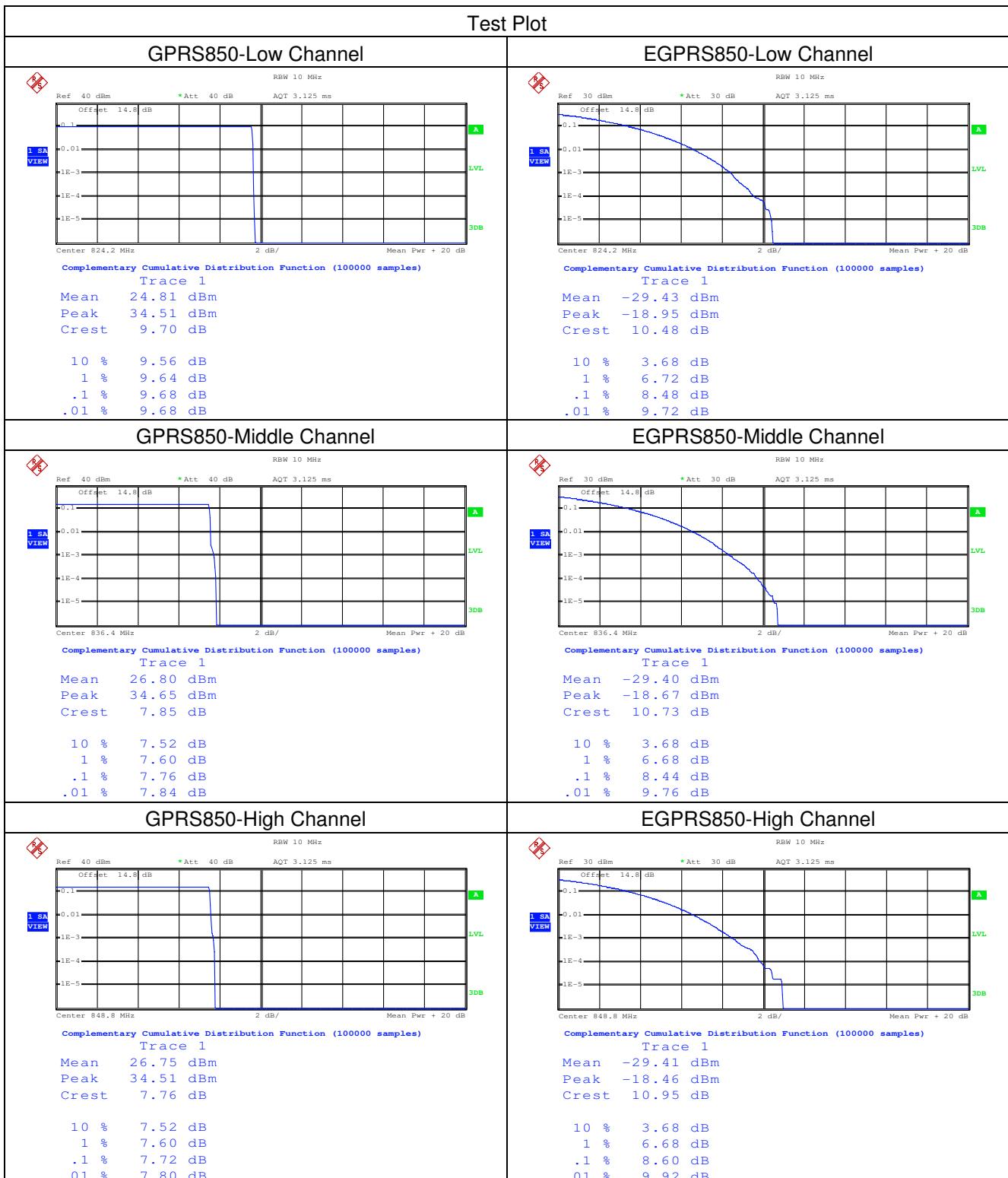
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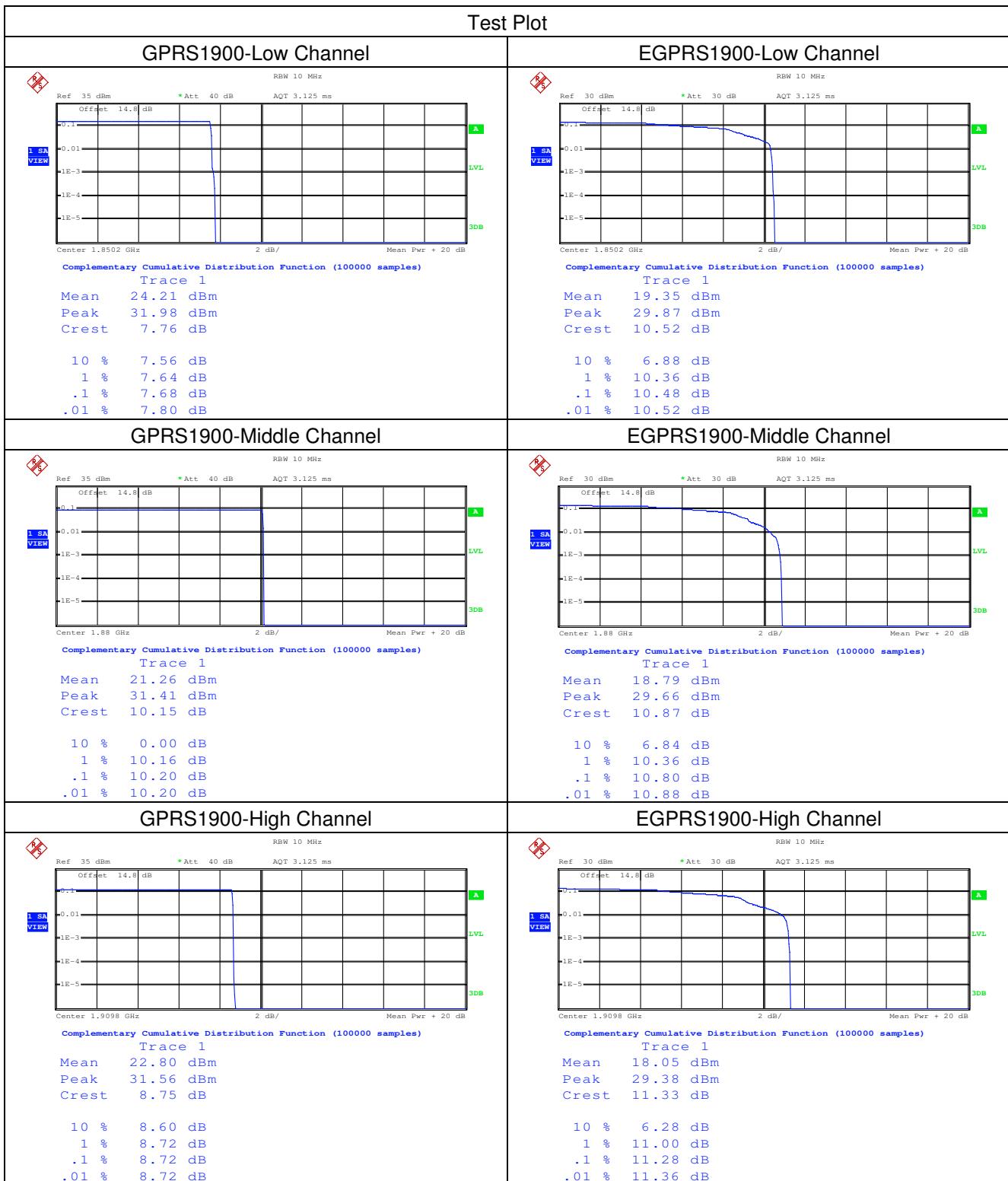
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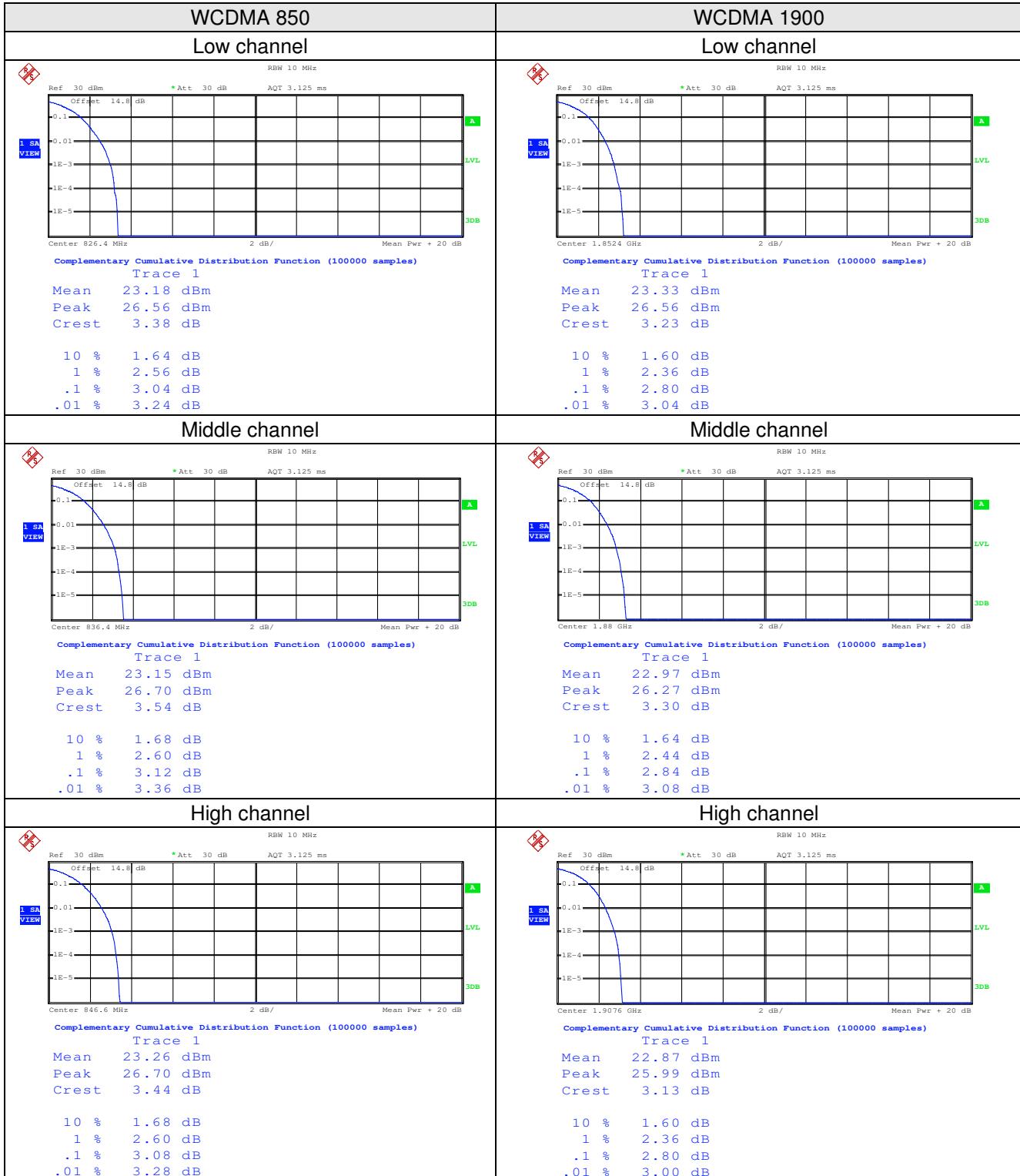


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Test Plots for WCDMA


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6.3 Bandwidth

Test Requirement: §2.1049(h), §22.917, §24.238

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: OBW: No limit

EBW: No limit

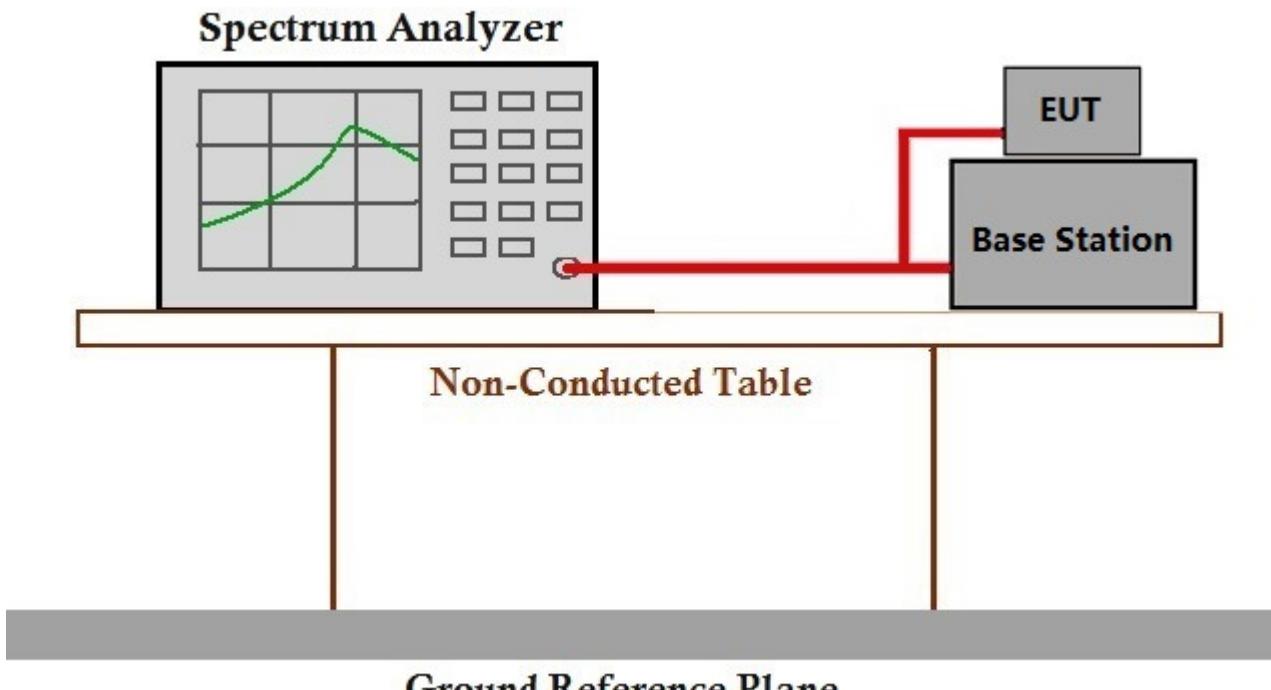
6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar

Test mode: f: TX mode_Keep the EUT in transmitting mode.

6.3.2 Test Setup Diagram



6.3.3 Measurement Data

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Test mode	Test Band	Test result of 26dB Bandwidth (KHz)			Limit (dB)	Verdict
		LCH	MCH	HCH		
GSM	GPRS850	307.00	313.00	311.00	N/A	Pass
	EGPRS850	290.00	294.00	286.00	N/A	Pass
	GPRS1900	309.00	316.00	317.00	N/A	Pass
	EGPRS1900	302.00	299.00	302.00	N/A	Pass

Test mode	Test Band	Test result of Occupied Bandwidth (KHz)			Limit (dB)	Verdict
		LCH	MCH	HCH		
GSM	GPRS850	242.00	244.00	244.00	N/A	Pass
	EGPRS850	240.00	238.00	241.00	N/A	Pass
	GPRS1900	242.00	245.00	245.00	N/A	Pass
	EGPRS1900	245.00	246.00	244.00	N/A	Pass

Test Band	Test Mode	Test Channel	26dB Bandwidth (MHz)	Occupied Bandwidth (MHz)	Verdict
WCDMA 850	WCDMA	LCH	4.71	4.14	PASS
		MCH	4.72	4.14	PASS
		HCH	4.72	4.13	PASS
WCDMA 1900	WCDMA	LCH	4.74	4.16	PASS
		MCH	4.72	4.13	PASS
		HCH	4.72	4.15	PASS

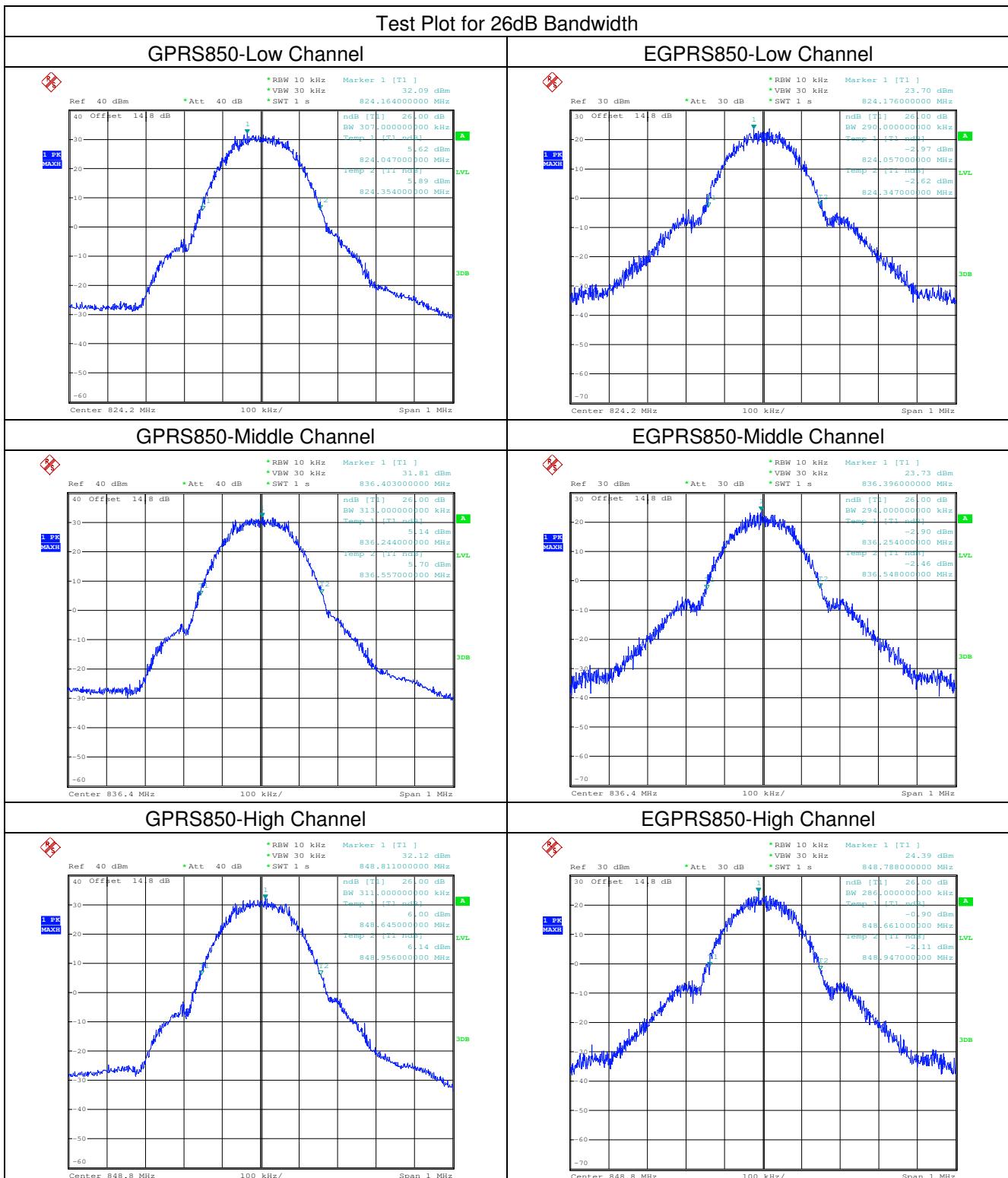
Note: All modes have been tested and we found HSDPA mode has the worst test result. Only record the worst test result.

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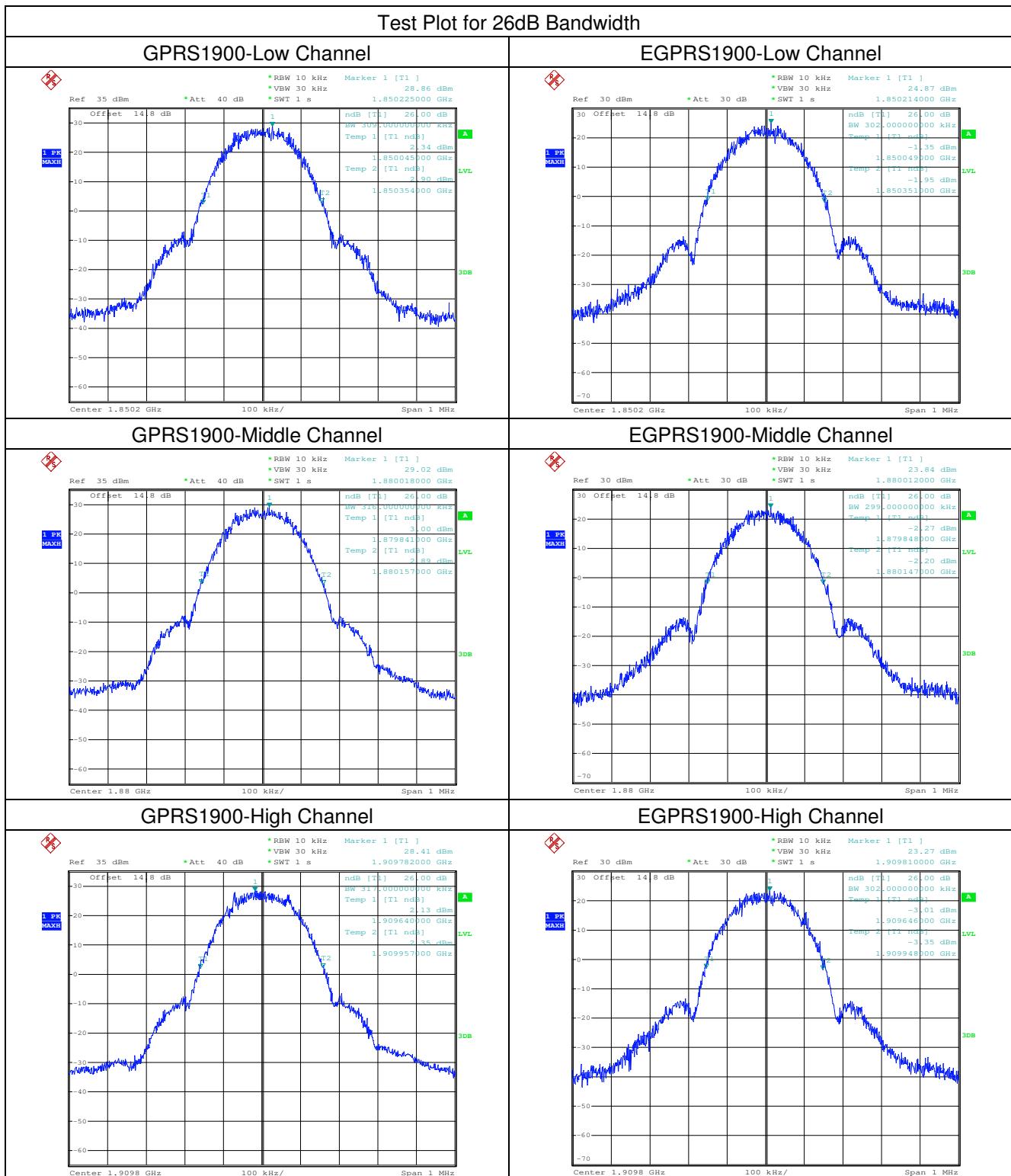
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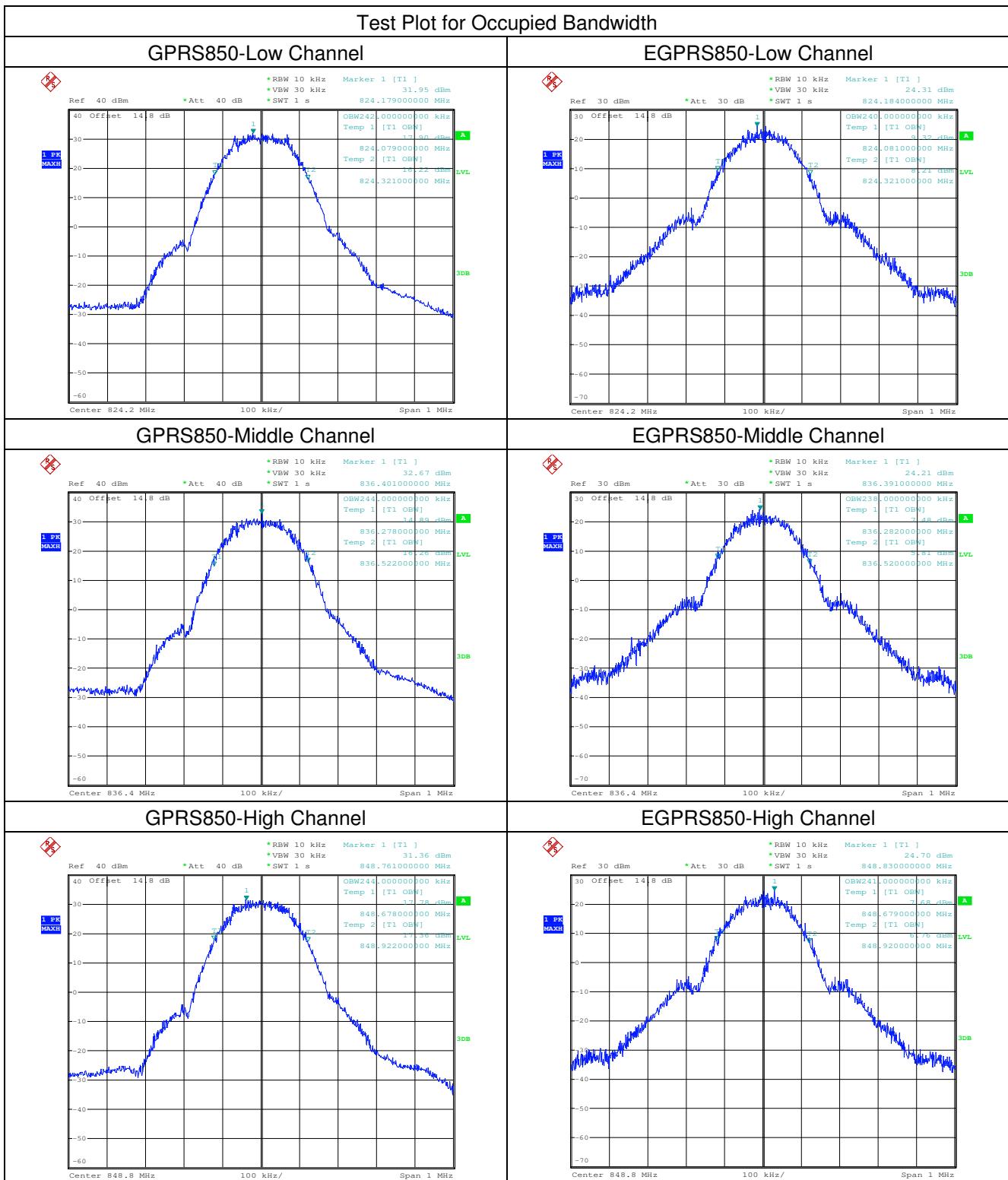
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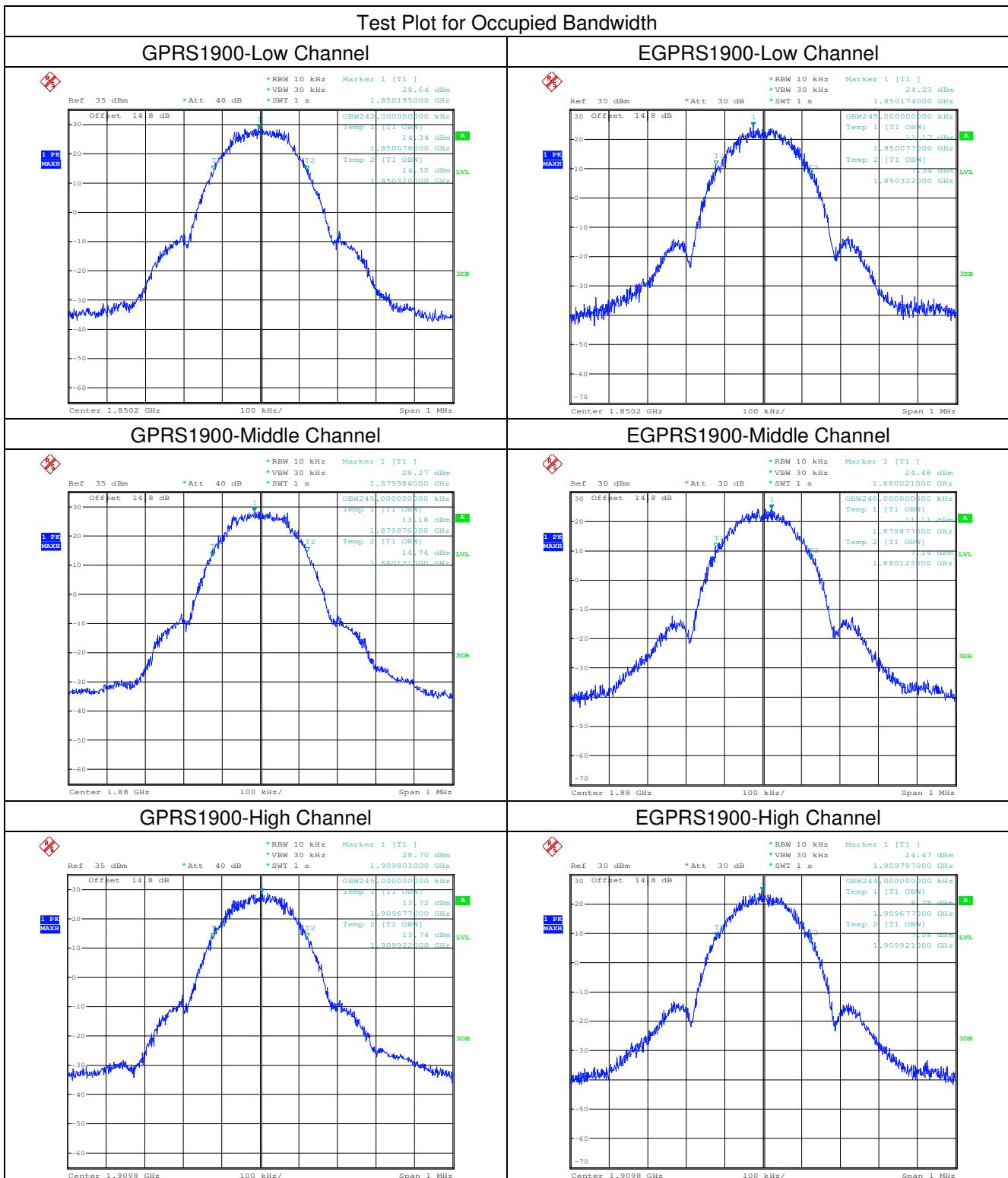
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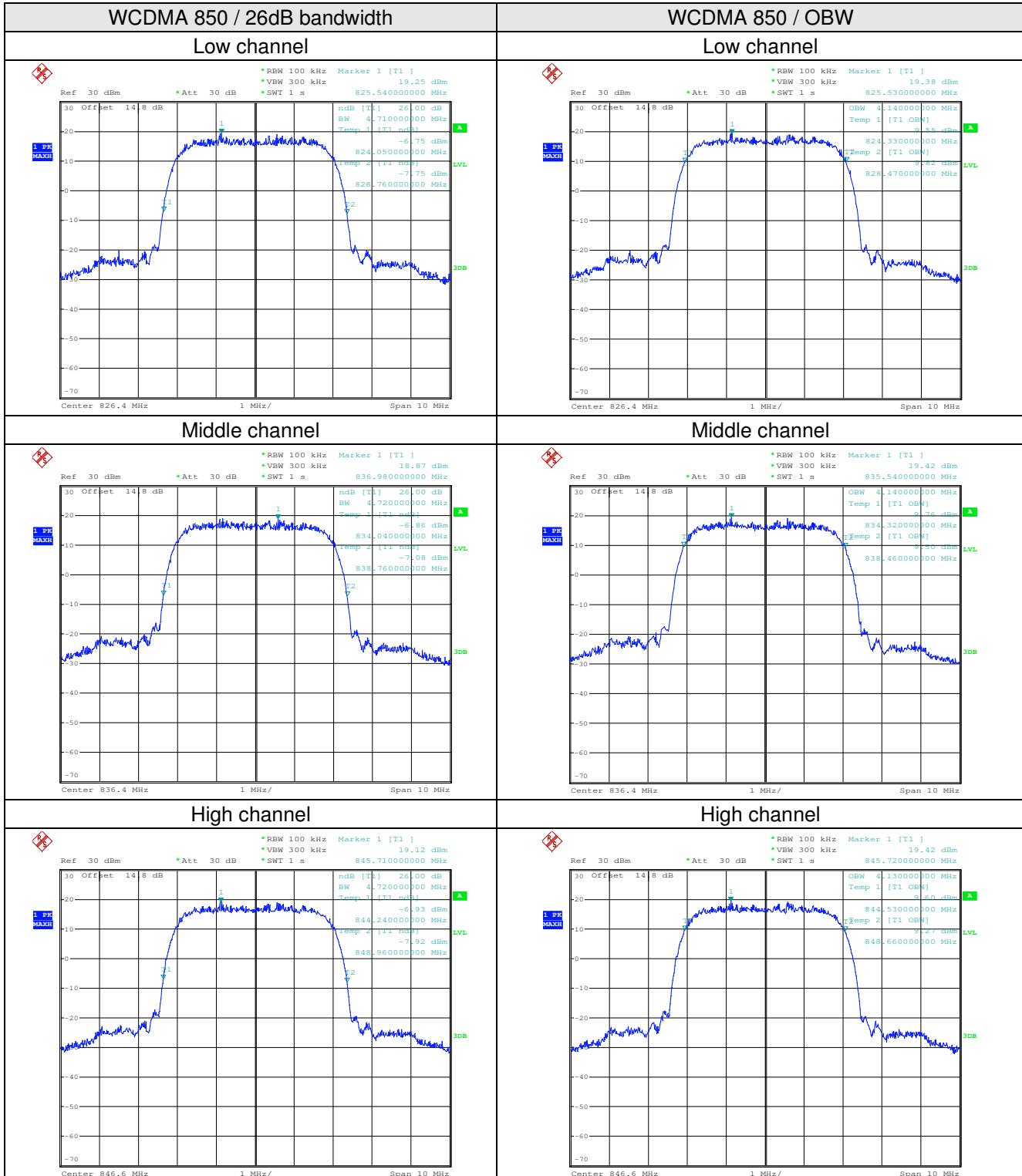
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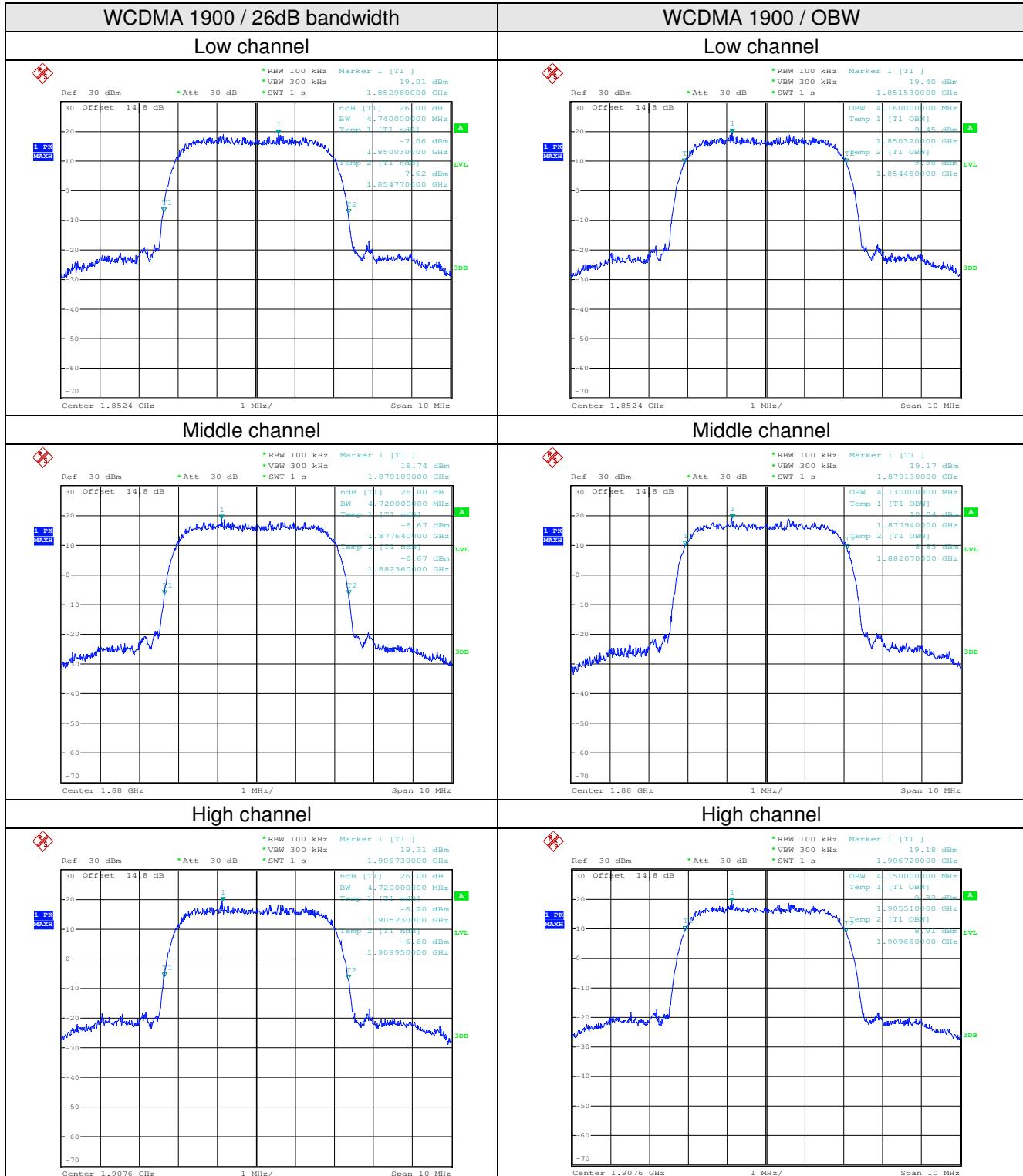


Test Plots for WCDMA


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6.4 Band Edge Compliance

Test Requirement: §2.1051, §22.917, §24.238

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: ≤ -13dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.

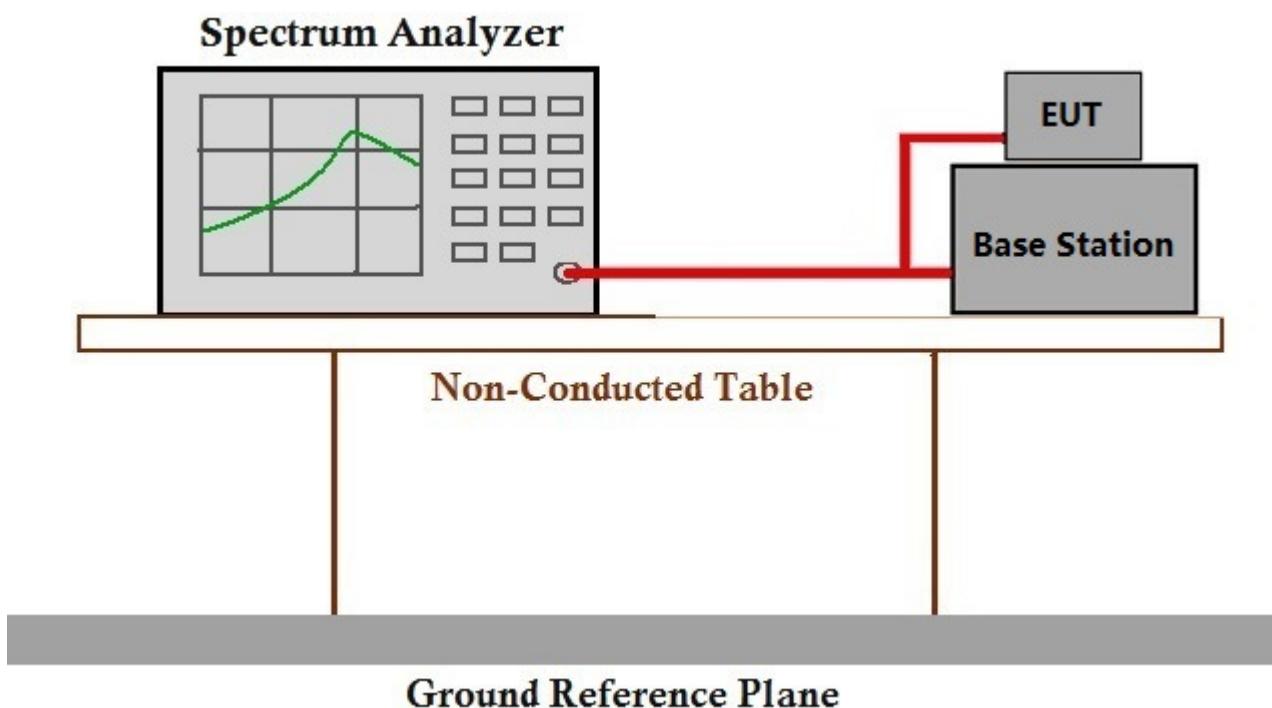
6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar

Test mode: f: TX mode_Keep the EUT in transmitting mode.

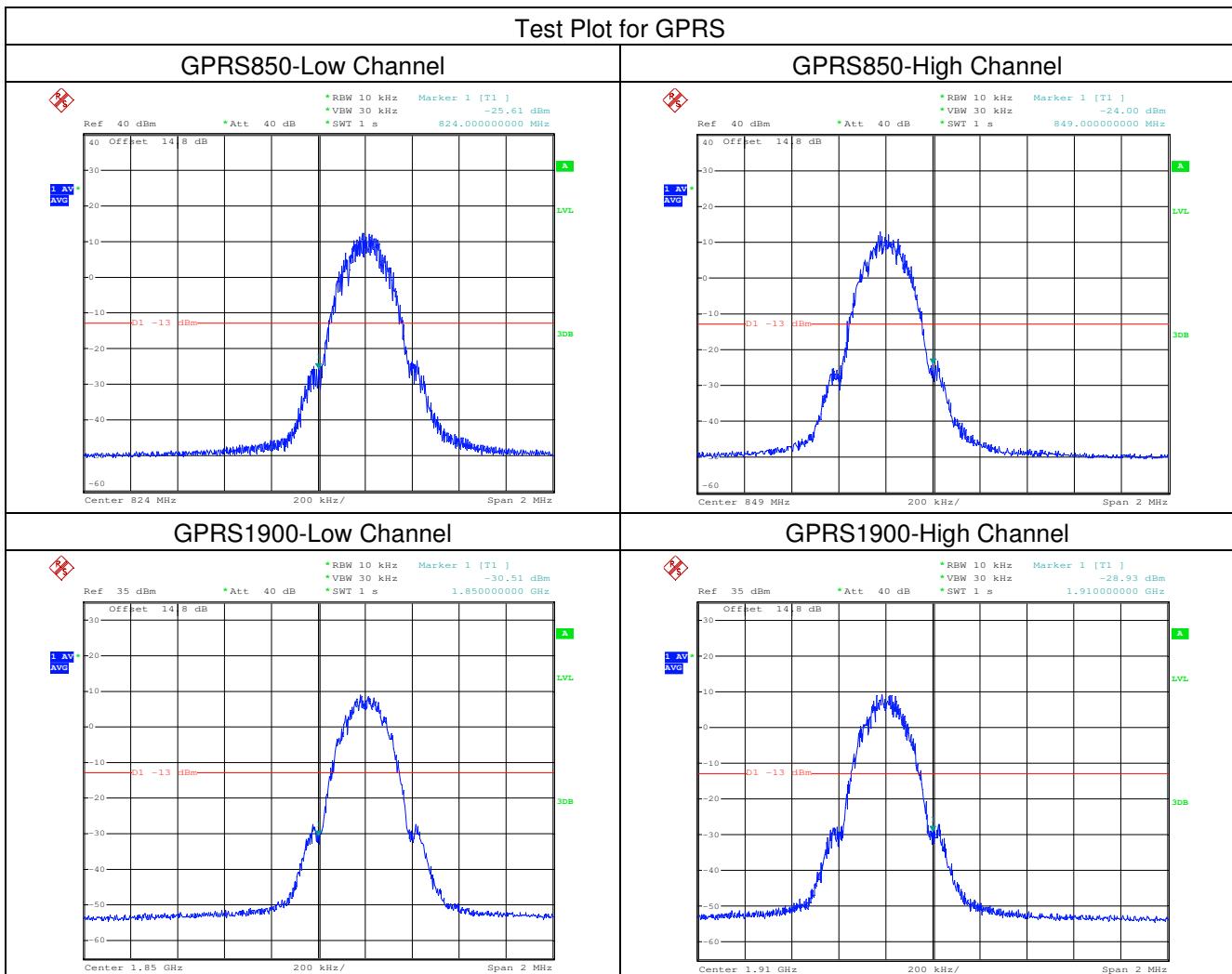
6.4.2 Test Setup Diagram



6.4.3 Measurement Data

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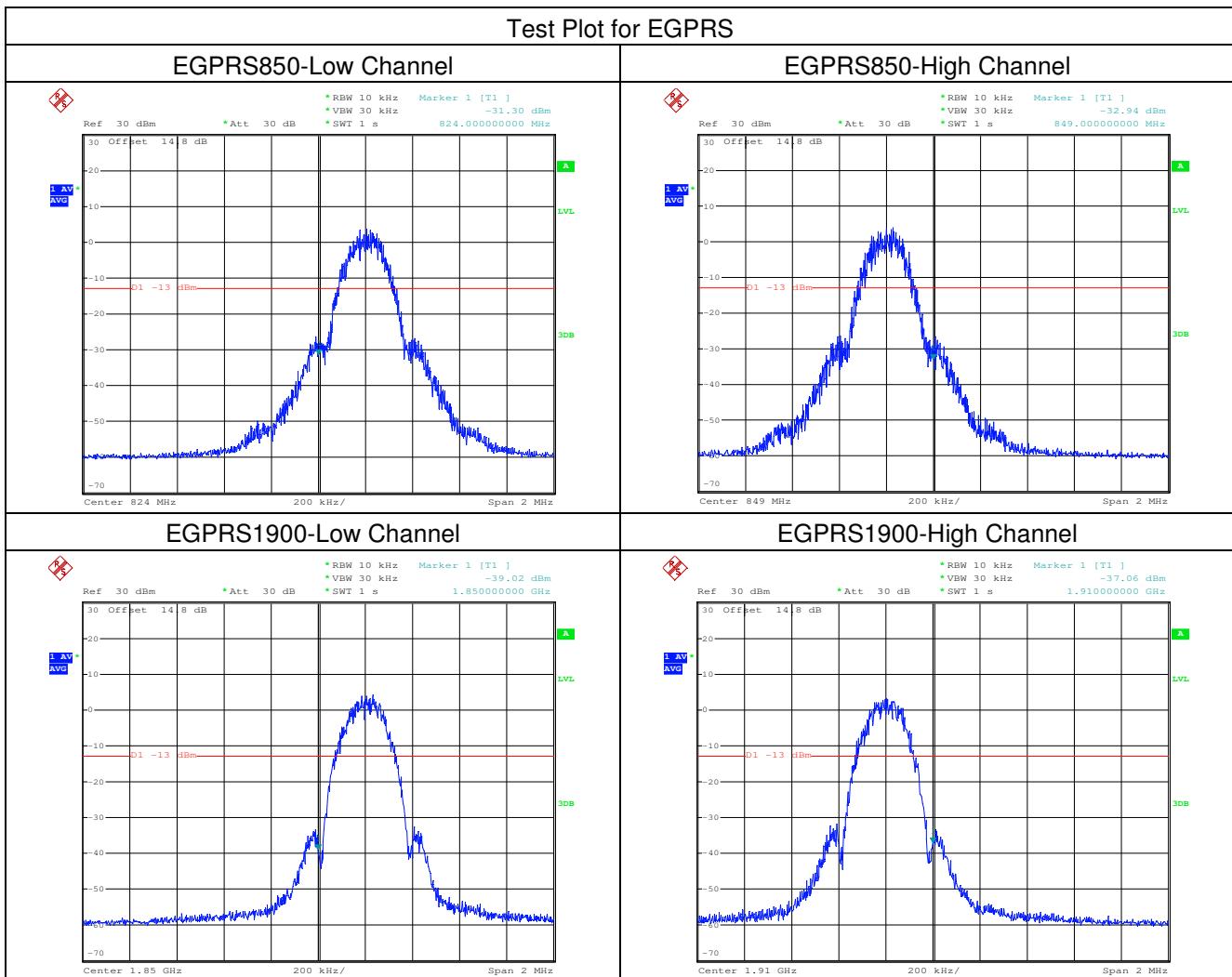
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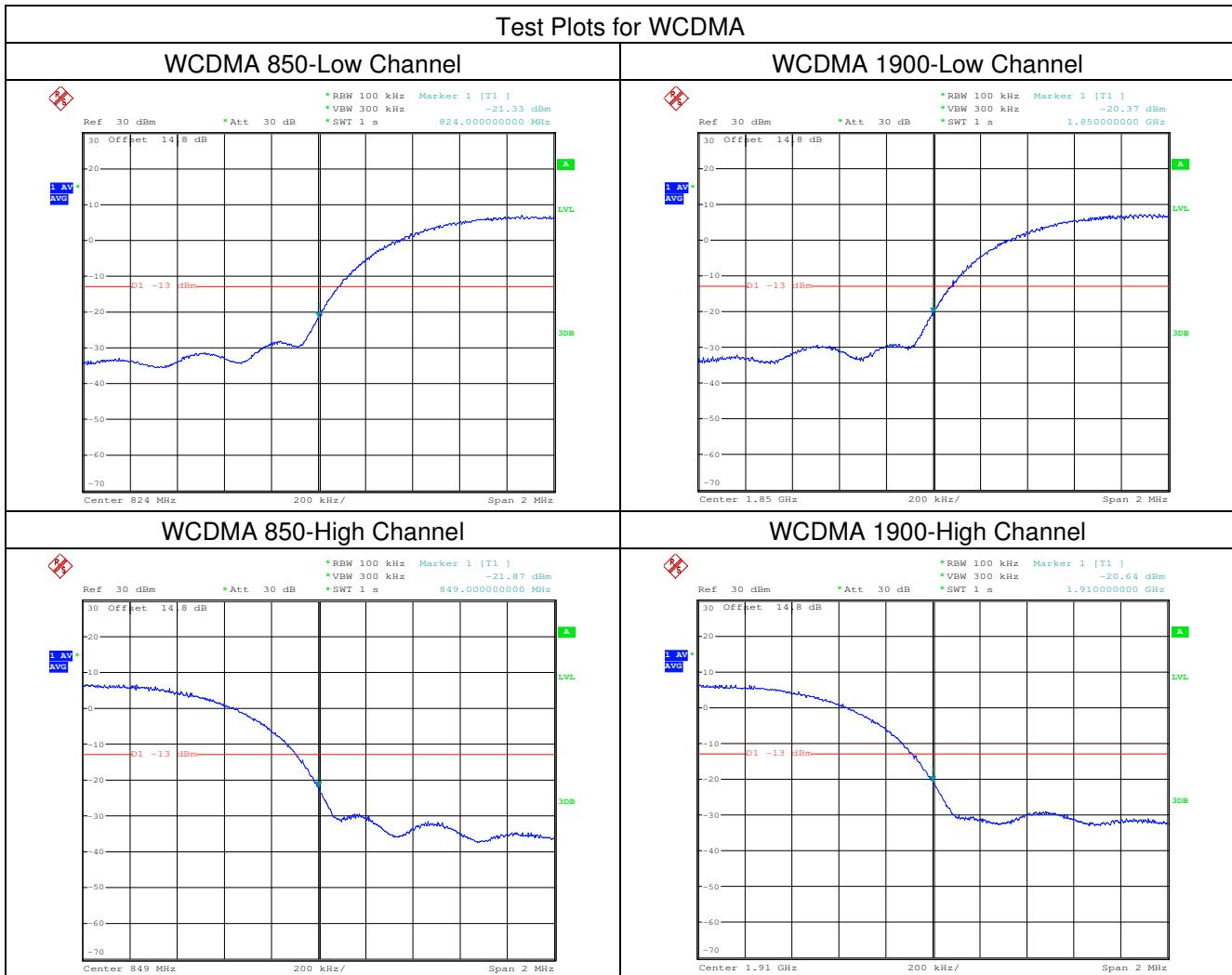
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6.5 Spurious emissions at antenna terminals

Test Requirement: §2.1051, §22.917, §24.238

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: ≤ -13dBm

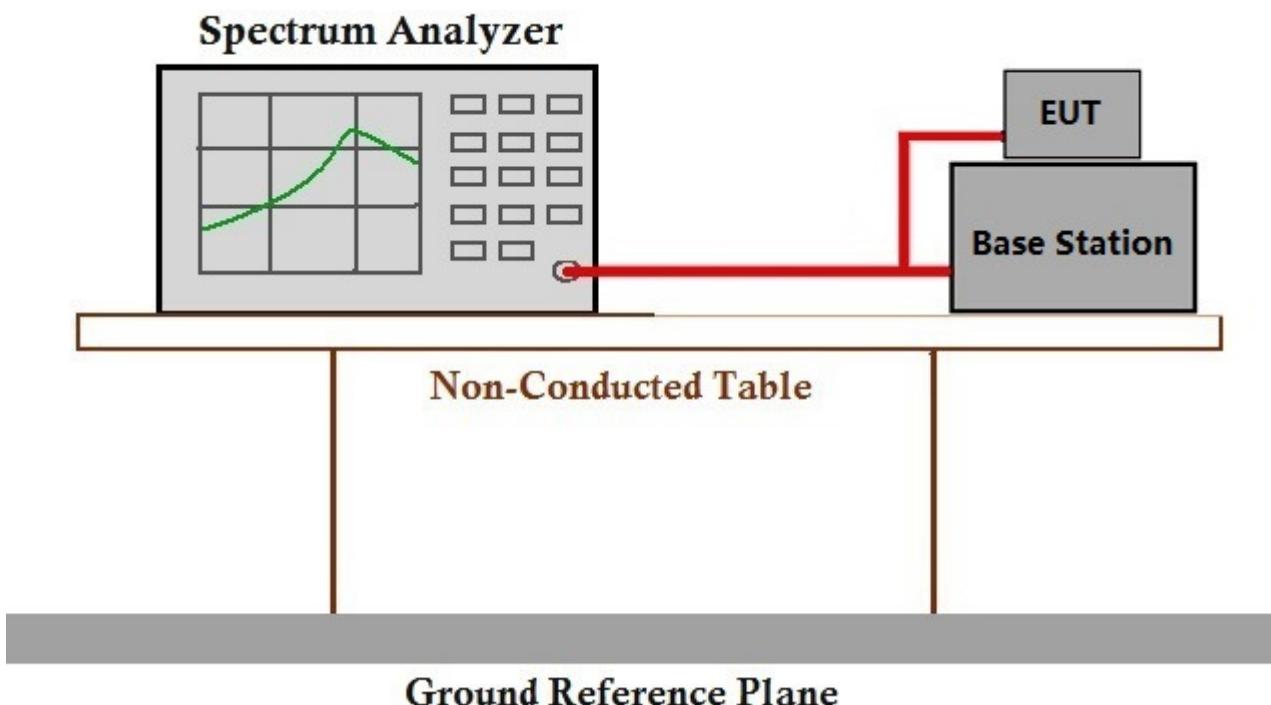
6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar

Test mode: f: TX mode_Keep the EUT in transmitting mode.

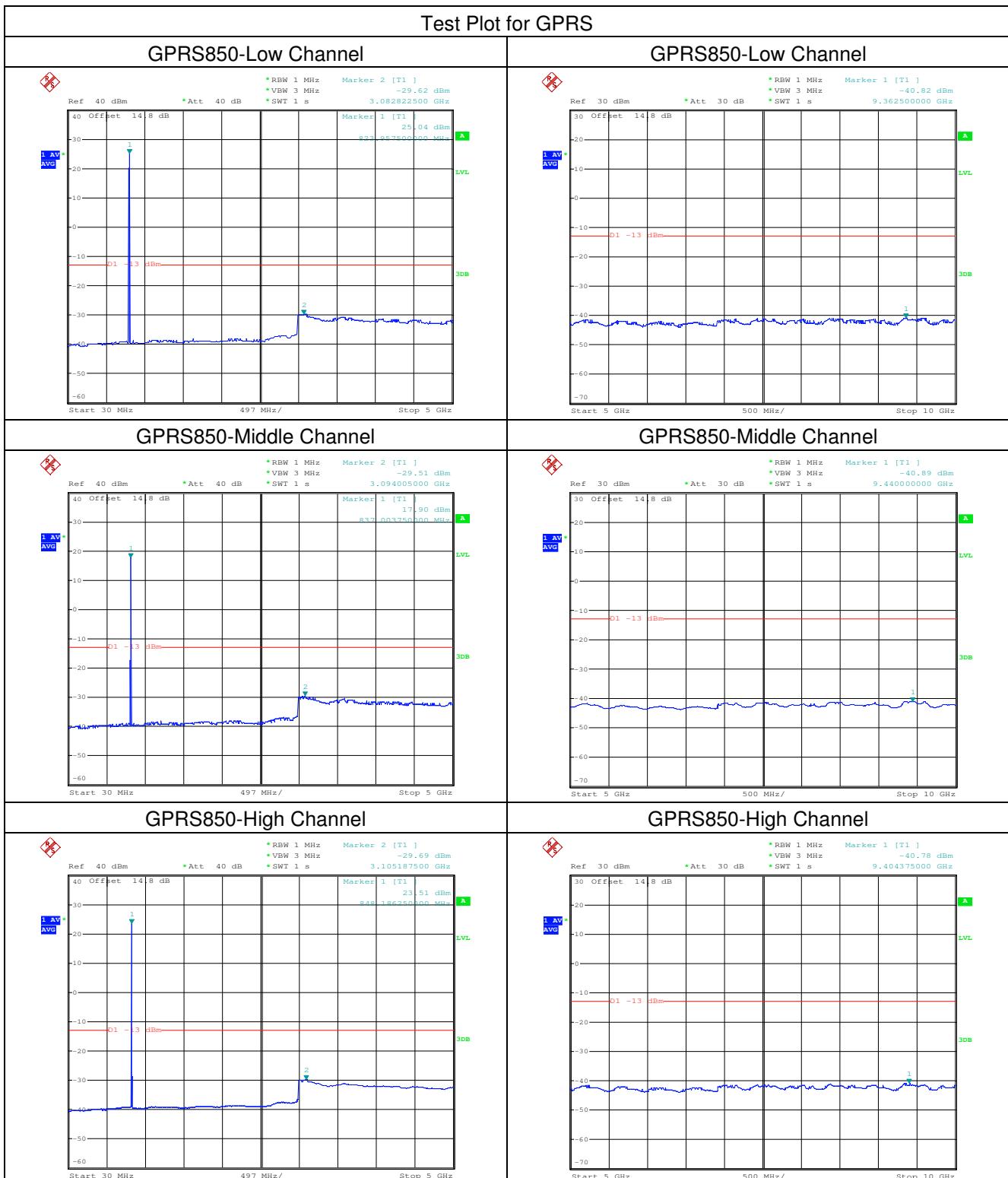
6.5.2 Test Setup Diagram



6.5.3 Measurement Data

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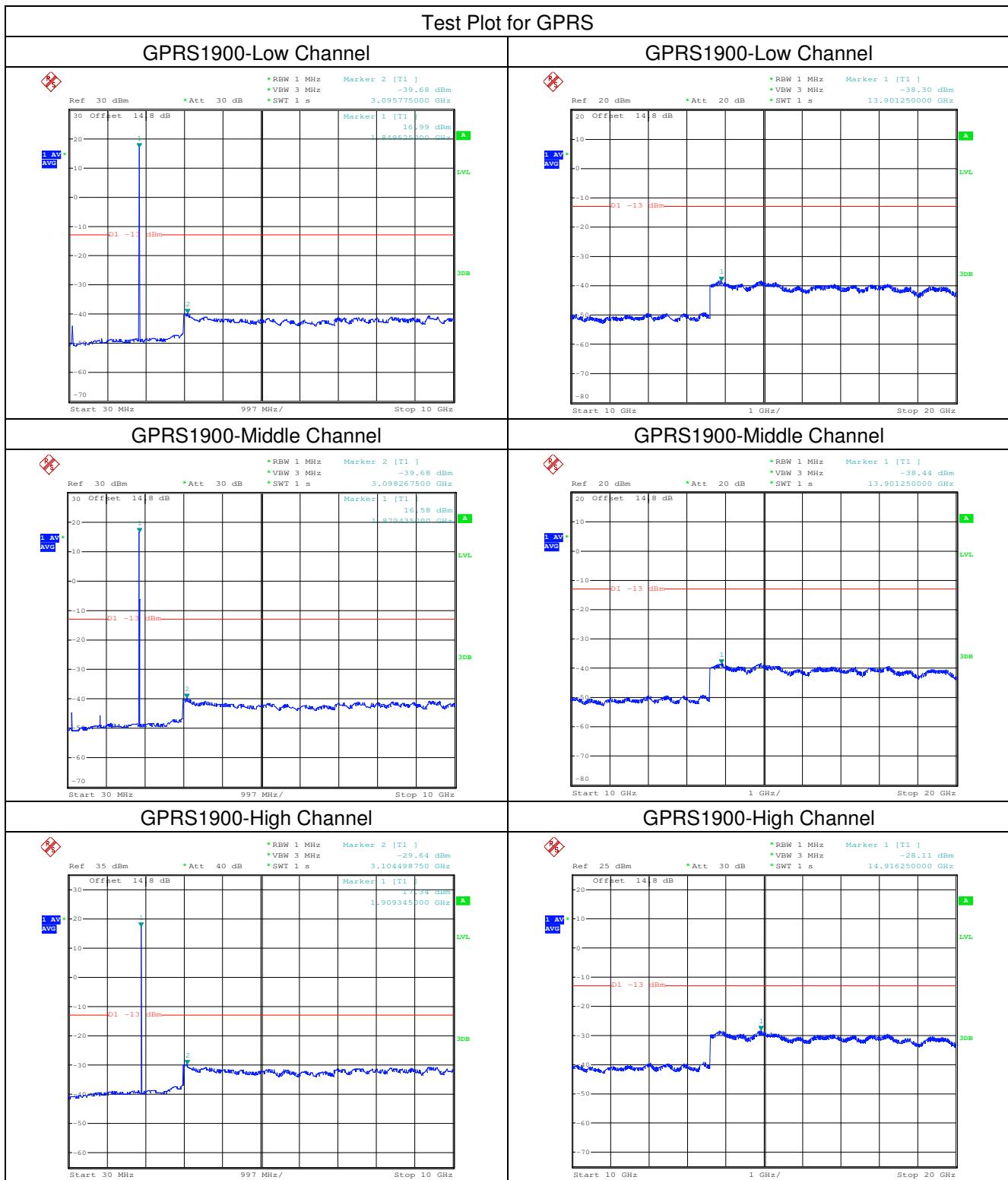
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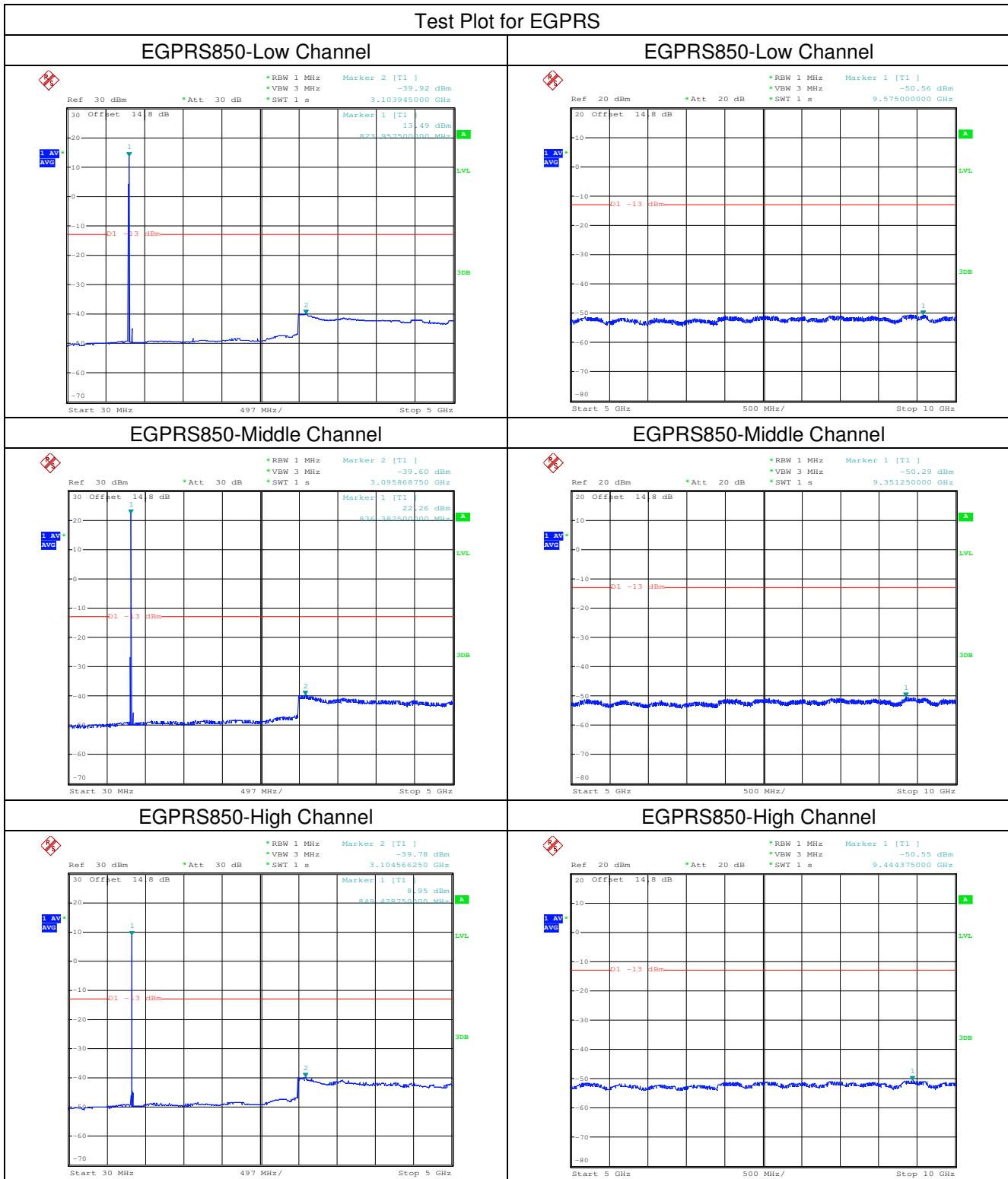
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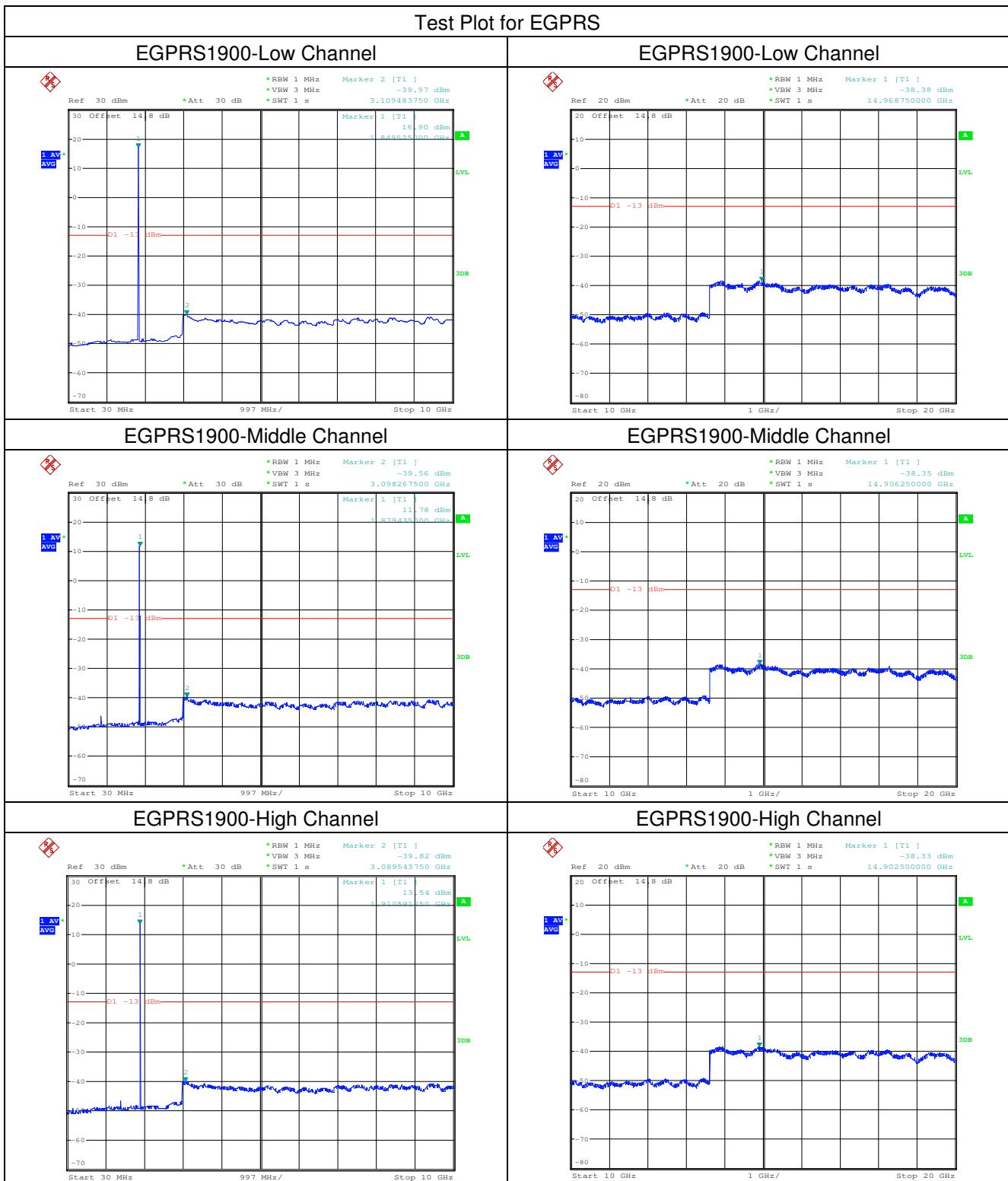


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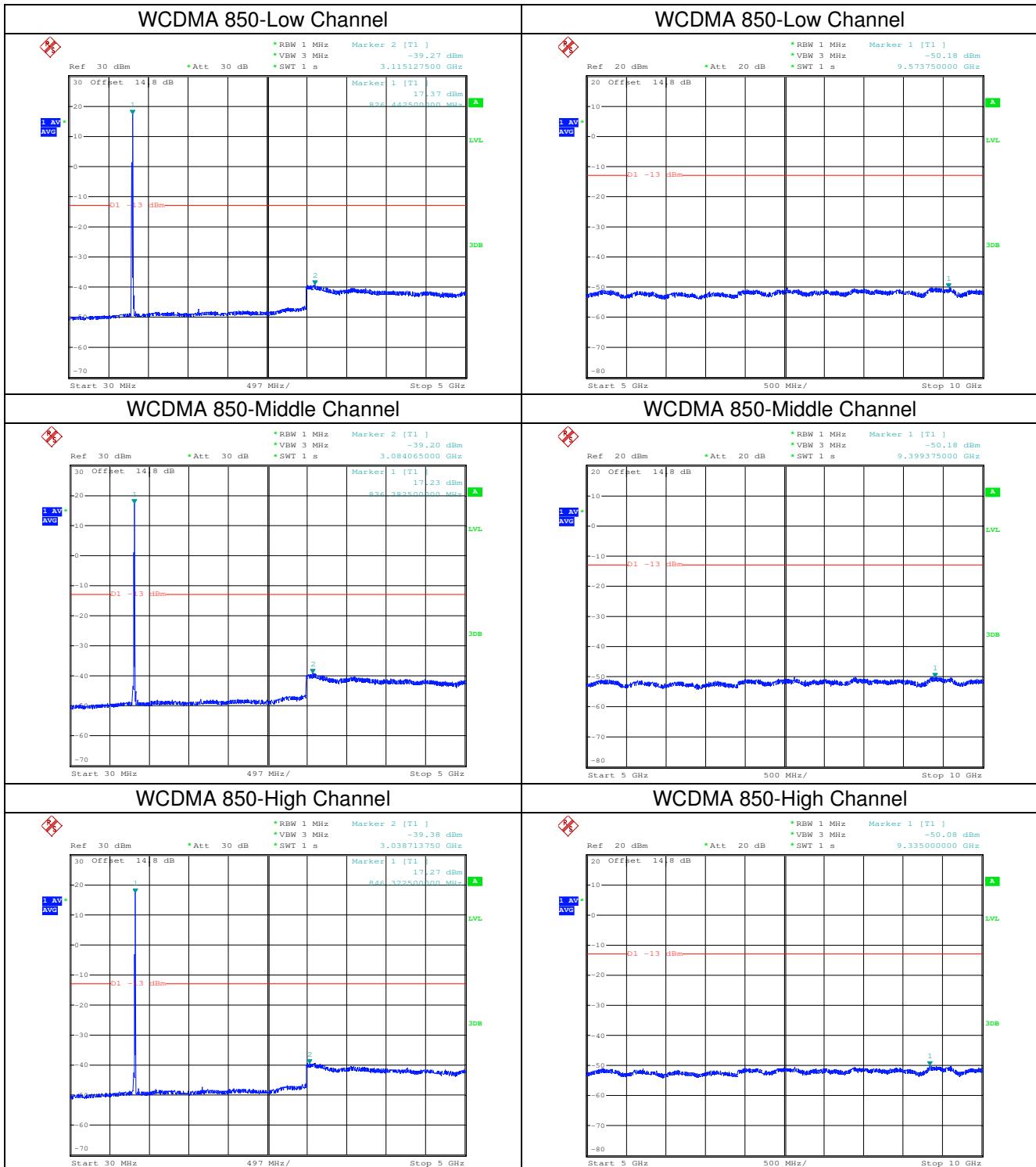
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Test Plots for WCDMA


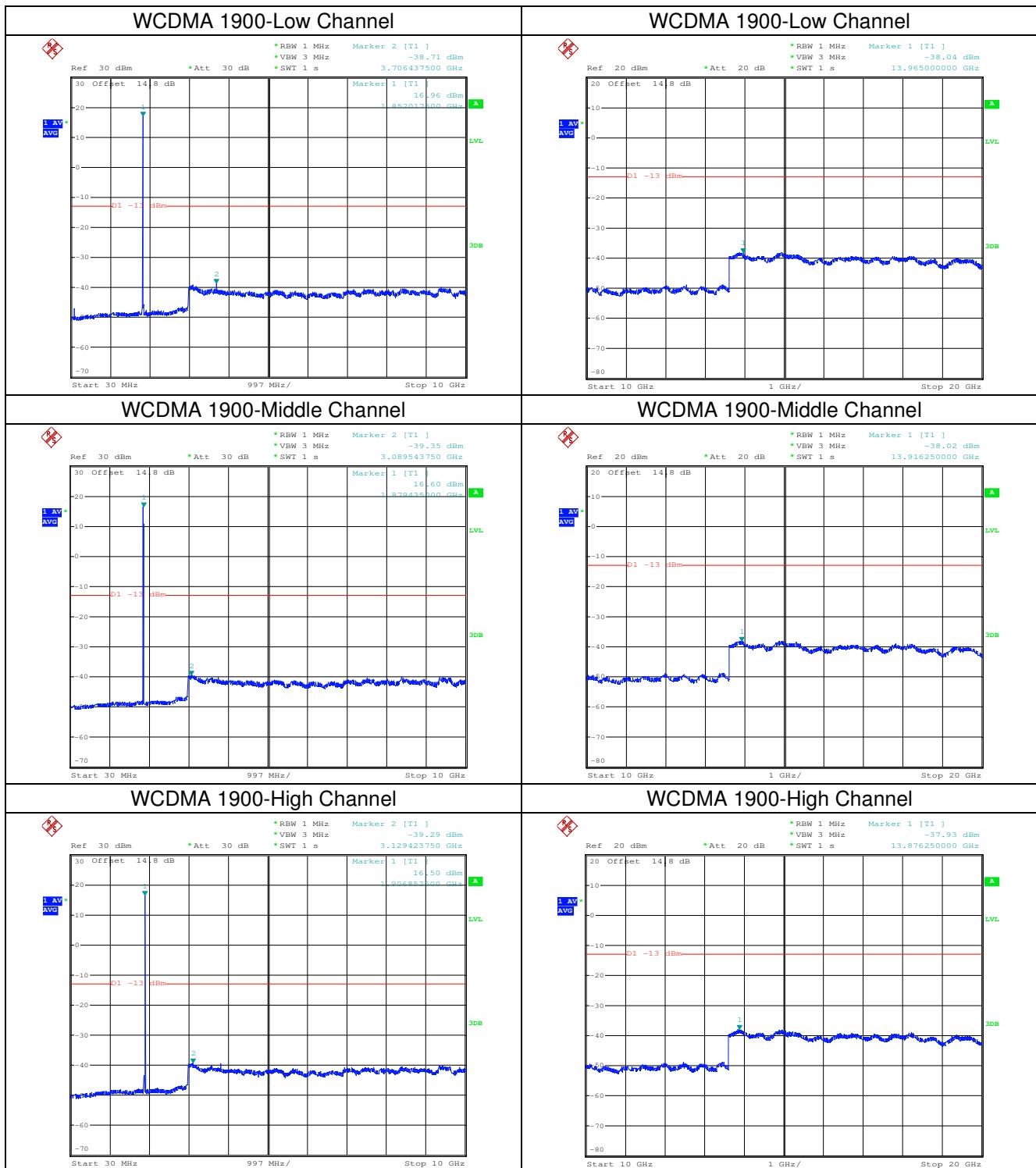
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6.6 Field strength of spurious radiation

Test Requirement: §2.1051, §22.917, §24.238,

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: ≤ -13dBm

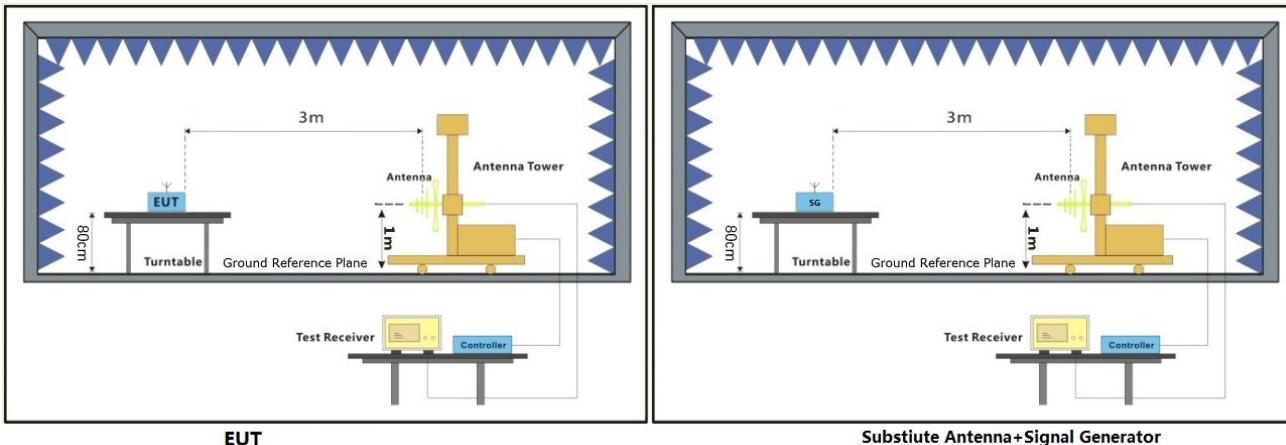
6.6.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar

Test mode: f: TX mode_Keep the EUT in transmitting mode.

6.6.2 Test Setup Diagram



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6.6.3 Measurement Procedure and Data**Test Procedure:**

- (1) On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.
- (2) The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
- (3) The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
- (4) The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- (5) The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
- (6) The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- (7) The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
- (8) The maximum signal level detected by the measuring receiver shall be noted.
- (9) The measurement shall be repeated with the test antenna set to horizontal polarization.
- (10) Replace the antenna with a proper Antenna (substitution antenna).
- (11) The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.
- (12) The substitution antenna shall be connected to a calibrated signal generator.
- (13) If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- (14) The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
- (15) The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
- (16) The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
- (17) The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

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GPRS850-Low channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1652.8	-44.51	0.52	6	-41.18	-13	-28.18	Horizontal	Pass
2479.2	-45.99	0.53	5.8	-42.87	-13	-29.87	Horizontal	Pass
3305.6	-53.49	0.65	6.2	-50.09	-13	-37.09	Horizontal	Pass
1652.8	-42.32	0.52	6	-38.99	-13	-25.99	Vertical	Pass
2479.2	-51.86	0.53	5.8	-48.74	-13	-35.74	Vertical	Pass
3305.6	-53.82	0.65	6.2	-50.42	-13	-37.42	Vertical	Pass

GPRS850-Middle channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1672.8	-42.92	0.52	6	-39.59	-13	-26.59	Horizontal	Pass
2509.2	-48.32	0.59	5.3	-45.76	-13	-32.76	Horizontal	Pass
3345.6	-54.45	0.65	6.2	-51.05	-13	-38.05	Horizontal	Pass
1672.8	-44.48	0.52	6	-41.15	-13	-28.15	Vertical	Pass
2509.2	-48.83	0.59	5.3	-46.27	-13	-33.27	Vertical	Pass
3345.6	-55.75	0.65	6.2	-52.35	-13	-39.35	Vertical	Pass

GPRS850-High channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1693.2	-36.64	0.52	6	-33.31	-13	-20.31	Horizontal	Pass
2539.8	-49.21	0.59	5.3	-46.65	-13	-33.65	Horizontal	Pass
3386.4	-53.78	0.65	6.2	-50.38	-13	-37.38	Horizontal	Pass
1693.2	-37.61	0.52	6	-34.28	-13	-21.28	Vertical	Pass
2539.8	-53.35	0.59	5.3	-50.79	-13	-37.79	Vertical	Pass
3386.4	-52.47	0.65	6.2	-49.07	-13	-36.07	Vertical	Pass

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GPRS1900-Low channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3704.8	-54.82	0.71	7.6	-47.93	-13	-34.93	Horizontal	Pass
5557.2	-54.12	0.85	10.3	-44.67	-13	-31.67	Horizontal	Pass
7409.6	-56.67	1	12.9	-44.77	-13	-31.77	Horizontal	Pass
3704.8	-58.04	0.71	7.6	-51.15	-13	-38.15	Vertical	Pass
5557.2	-50.17	0.85	10.3	-40.72	-13	-27.72	Vertical	Pass
7409.6	-57.39	1	12.9	-45.49	-13	-32.49	Vertical	Pass

GPRS1900-Middle channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3760	-58.67	0.71	7.6	-51.78	-13	-38.78	Horizontal	Pass
5640	-56.59	0.85	10.3	-47.14	-13	-34.14	Horizontal	Pass
7520	-58.81	0.99	13.2	-46.6	-13	-33.6	Horizontal	Pass
3760	-56.4	0.71	7.6	-49.51	-13	-36.51	Vertical	Pass
5640	-56.34	0.85	10.3	-46.89	-13	-33.89	Vertical	Pass
7520	-58.56	0.99	13.2	-46.35	-13	-33.35	Vertical	Pass

GPRS1900-High channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3815.2	-56.84	0.71	7.6	-49.95	-13	-36.95	Horizontal	Pass
5722.8	-55.79	0.85	10.3	-46.34	-13	-33.34	Horizontal	Pass
7630.4	-56.3	0.99	13.2	-44.09	-13	-31.09	Horizontal	Pass
3815.2	-56.67	0.71	7.6	-49.78	-13	-36.78	Vertical	Pass
5722.8	-55.23	0.85	10.3	-45.78	-13	-32.78	Vertical	Pass
7630.4	-56.82	0.99	13.2	-44.61	-13	-31.61	Vertical	Pass

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EDGE850-Low channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1652.8	-46.88	0.52	6	-43.55	-13	-30.55	Horizontal	Pass
2479.2	-49.49	0.53	5.8	-46.37	-13	-33.37	Horizontal	Pass
3305.6	-53.99	0.65	6.2	-50.59	-13	-37.59	Horizontal	Pass
1652.8	-46.49	0.52	6	-43.16	-13	-30.16	Vertical	Pass
2479.2	-50.98	0.53	5.8	-47.86	-13	-34.86	Vertical	Pass
3305.6	-54.63	0.65	6.2	-51.23	-13	-38.23	Vertical	Pass

EDGE850-Middle channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1672.8	-45.29	0.52	6	-41.96	-13	-28.96	Horizontal	Pass
2509.2	-45.62	0.59	5.3	-43.06	-13	-30.06	Horizontal	Pass
3345.6	-55.38	0.65	6.2	-51.98	-13	-38.98	Horizontal	Pass
1672.8	-46.89	0.52	6	-43.56	-13	-30.56	Vertical	Pass
2509.2	-51.59	0.59	5.3	-49.03	-13	-36.03	Vertical	Pass
3345.6	-57.56	0.65	6.2	-54.16	-13	-41.16	Vertical	Pass

EDGE850-High channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1693.2	-44.5	0.52	6	-41.17	-13	-28.17	Horizontal	Pass
2539.8	-48.73	0.59	5.3	-46.17	-13	-33.17	Horizontal	Pass
3386.4	-57.18	0.65	6.2	-53.78	-13	-40.78	Horizontal	Pass
1693.2	-47.9	0.52	6	-44.57	-13	-31.57	Vertical	Pass
2539.8	-52.88	0.59	5.3	-50.32	-13	-37.32	Vertical	Pass
3386.4	-54.9	0.65	6.2	-51.5	-13	-38.5	Vertical	Pass

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EDGE1900-Low channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3704.8	-58.27	0.71	7.6	-51.38	-13	-38.38	Horizontal	Pass
5557.2	-56.06	0.85	10.3	-46.61	-13	-33.61	Horizontal	Pass
7409.6	-57.96	1	12.9	-46.06	-13	-33.06	Horizontal	Pass
3704.8	-59.05	0.71	7.6	-52.16	-13	-39.16	Vertical	Pass
5557.2	-57.36	0.85	10.3	-47.91	-13	-34.91	Vertical	Pass
7409.6	-58.3	1	12.9	-46.4	-13	-33.4	Vertical	Pass

EDGE1900-Middle channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3760	-58.84	0.71	7.6	-51.95	-13	-38.95	Horizontal	Pass
5640	-57	0.85	10.3	-47.55	-13	-34.55	Horizontal	Pass
7520	-58.39	0.99	13.2	-46.18	-13	-33.18	Horizontal	Pass
3760	-58.58	0.71	7.6	-51.69	-13	-38.69	Vertical	Pass
5640	-57.06	0.85	10.3	-47.61	-13	-34.61	Vertical	Pass
7520	-58.41	0.99	13.2	-46.2	-13	-33.2	Vertical	Pass

EDGE1900-High channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3815.2	-58.81	0.71	7.6	-51.92	-13	-38.92	Horizontal	Pass
5722.8	-56.6	0.85	10.3	-47.15	-13	-34.15	Horizontal	Pass
7630.4	-58.11	0.99	13.2	-45.9	-13	-32.9	Horizontal	Pass
3815.2	-58.36	0.71	7.6	-51.47	-13	-38.47	Vertical	Pass
5722.8	-57.9	0.85	10.3	-48.45	-13	-35.45	Vertical	Pass
7630.4	-57.2	0.99	13.2	-44.99	-13	-31.99	Vertical	Pass

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WCDMA Band V-Low channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1652.8	-46.52	0.52	6	-43.19	-13	-30.19	Horizontal	Pass
2479.2	-55.87	0.53	5.8	-52.75	-13	-39.75	Horizontal	Pass
3305.6	-54.71	0.65	6.2	-51.31	-13	-38.31	Horizontal	Pass
1652.8	-52.92	0.52	6	-49.59	-13	-36.59	Vertical	Pass
2479.2	-57.16	0.53	5.8	-54.04	-13	-41.04	Vertical	Pass
3305.6	-54.61	0.65	6.2	-51.21	-13	-38.21	Vertical	Pass

WCDMA Band V-Middle channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1672.8	-49.61	0.52	6	-46.28	-13	-33.28	Horizontal	Pass
2509.2	-56.57	0.59	5.3	-54.01	-13	-41.01	Horizontal	Pass
3345.6	-55.31	0.65	6.2	-51.91	-13	-38.91	Horizontal	Pass
1672.8	-57.51	0.52	6	-54.18	-13	-41.18	Vertical	Pass
2509.2	-57.8	0.59	5.3	-55.24	-13	-42.24	Vertical	Pass
3345.6	-55.6	0.65	6.2	-52.2	-13	-39.2	Vertical	Pass

WCDMA Band V-High channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1693.2	-49.33	0.52	6	-46	-13	-33	Horizontal	Pass
2539.8	-55.06	0.59	5.3	-52.5	-13	-39.5	Horizontal	Pass
3386.4	-54.58	0.65	6.2	-51.18	-13	-38.18	Horizontal	Pass
1693.2	-55.39	0.52	6	-52.06	-13	-39.06	Vertical	Pass
2539.8	-56.6	0.59	5.3	-54.04	-13	-41.04	Vertical	Pass
3386.4	-53.06	0.65	6.2	-49.66	-13	-36.66	Vertical	Pass

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WCDMA Band II-Low channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3704.8	-44.21	0.71	7.6	-37.32	-13	-24.32	Horizontal	Pass
5557.2	-53.07	0.85	10.3	-43.62	-13	-30.62	Horizontal	Pass
7409.6	-56.26	1	12.9	-44.36	-13	-31.36	Horizontal	Pass
3704.8	-43.83	0.71	7.6	-36.94	-13	-23.94	Vertical	Pass
5557.2	-54.99	0.85	10.3	-45.54	-13	-32.54	Vertical	Pass
7409.6	-57.06	1	12.9	-45.16	-13	-32.16	Vertical	Pass

WCDMA Band II-Middle channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3760	-49.29	0.71	7.6	-42.4	-13	-29.4	Horizontal	Pass
5640	-56.09	0.85	10.3	-46.64	-13	-33.64	Horizontal	Pass
7520	-58.14	0.99	13.2	-45.93	-13	-32.93	Horizontal	Pass
3760	-50.22	0.71	7.6	-43.33	-13	-30.33	Vertical	Pass
5640	-55.69	0.85	10.3	-46.24	-13	-33.24	Vertical	Pass
7520	-58.29	0.99	13.2	-46.08	-13	-33.08	Vertical	Pass

WCDMA Band II-High channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3815.2	-48.25	0.71	7.6	-41.36	-13	-28.36	Horizontal	Pass
5722.8	-55.07	0.85	10.3	-45.62	-13	-32.62	Horizontal	Pass
7630.4	-56.93	0.99	13.2	-44.72	-13	-31.72	Horizontal	Pass
3815.2	-48.95	0.71	7.6	-42.06	-13	-29.06	Vertical	Pass
5722.8	-53.6	0.85	10.3	-44.15	-13	-31.15	Vertical	Pass
7630.4	-56.88	0.99	13.2	-44.67	-13	-31.67	Vertical	Pass

Note: All modes have been tested and we found HSDPA mode has the worst test result. Only record the worst test result.

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6.7 Frequency stability

Test Requirement: §2.1055, §22.355, §24.235

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: ±2.5ppm.

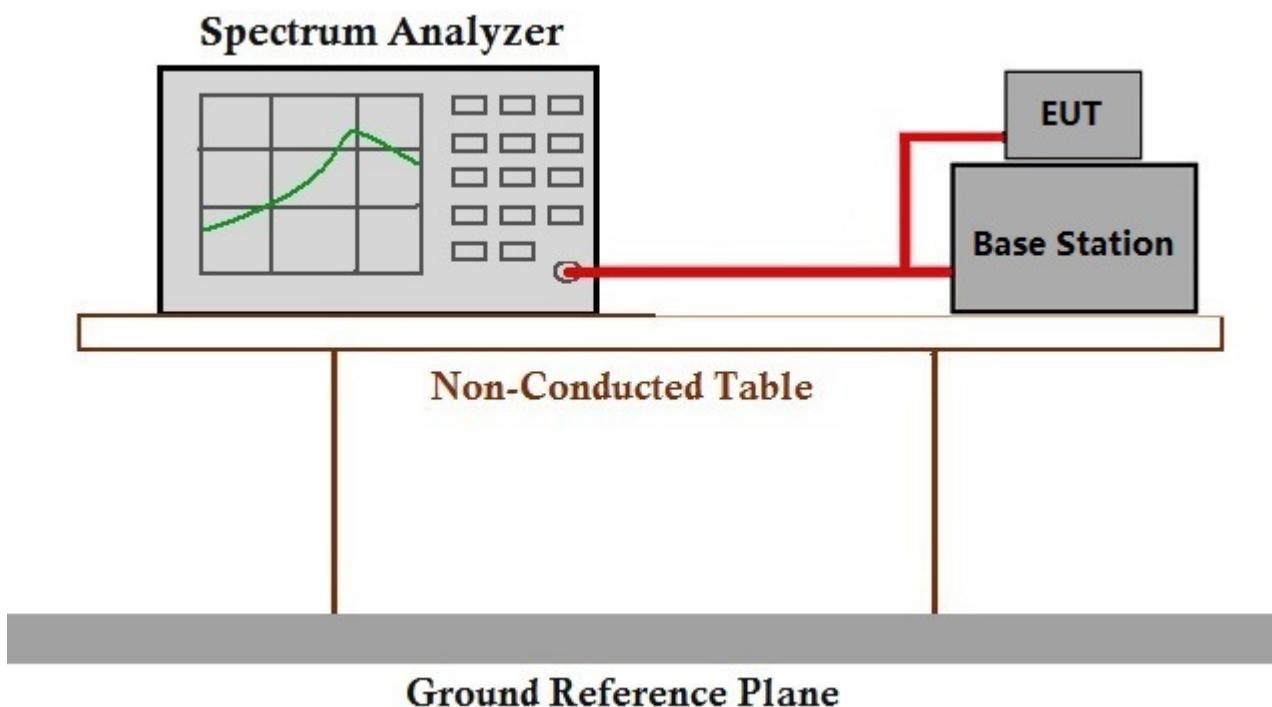
6.7.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar

Test mode: f: TX mode_Keep the EUT in transmitting mode.

6.7.2 Test Setup Diagram



6.7.3 Measurement Data

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Frequency Error VS. Voltage

Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM 850	GPRS	LCH	TN	VL	2.96	0.003590	PASS
				VN	1.88	0.002280	PASS
				VH	-3.2	-0.003882	PASS
		MCH	TN	VL	-1.82	-0.002175	PASS
				VN	-1.18	-0.001410	PASS
				VH	-3.87	-0.004626	PASS
		HCH	TN	VL	4.13	0.004866	PASS
				VN	-0.71	-0.000836	PASS
				VH	-2.06	-0.002427	PASS
	EGPRS	LCH	TN	VL	-3.5	-0.004246	PASS
				VN	1.57	0.001904	PASS
				VH	-2.37	-0.002875	PASS
		MCH	TN	VL	3.91	0.004674	PASS
				VN	2.63	0.003144	PASS
				VH	-4.37	-0.005224	PASS
		HCH	TN	VL	1.2	0.001414	PASS
				VN	-3.11	-0.003664	PASS
				VH	2.57	0.003028	PASS

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Test Band	Test mode:	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM 1900	GPRS	LCH	TN	VL	-3.79	-0.002048	PASS
				VN	3.14	0.001697	PASS
				VH	2.57	0.001389	PASS
		MCH	TN	VL	2.06	0.001096	PASS
				VN	-1.84	-0.000979	PASS
				VH	4.22	0.002245	PASS
		HCH	TN	VL	-1.81	-0.000948	PASS
				VN	3.14	0.001644	PASS
				VH	-3.43	-0.001796	PASS
	EGPRS	LCH	TN	VL	2.09	0.001130	PASS
				VN	-3.05	-0.001648	PASS
				VH	3.62	0.001957	PASS
		MCH	TN	VL	-3.42	-0.001819	PASS
				VN	2.65	0.001410	PASS
				VH	1.7	0.000904	PASS
		HCH	TN	VL	-1.53	-0.000801	PASS
				VN	4.71	0.002466	PASS
				VH	-4.03	-0.002110	PASS

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Frequency Error VS. Temperature

Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM 850	LCH	VN	LCH	-30	2.18	0.002645	PASS
				-20	2.1	0.002548	PASS
				-10	2.39	0.002900	PASS
				0	-1.93	-0.002342	PASS
				10	1.38	0.001674	PASS
				20	-4.41	-0.005351	PASS
				30	2.04	0.002475	PASS
				40	-0.29	-0.000352	PASS
				50	-3.21	-0.003895	PASS
	GPRS	VN	MCH	-30	-1.77	-0.002116	PASS
				-20	-1.84	-0.002199	PASS
				-10	-0.25	-0.000299	PASS
				0	-2.74	-0.003275	PASS
				10	2.28	0.002725	PASS
				20	3.09	0.003694	PASS
				30	1.95	0.002331	PASS
				40	1.34	0.001602	PASS
				50	-3.86	-0.004614	PASS
	HCH	VN	HCH	-30	4.22	0.004972	PASS
				-20	4.24	0.004995	PASS
				-10	4.03	0.004748	PASS
				0	-4.93	-0.005808	PASS
				10	2.04	0.002403	PASS
				20	-1.69	-0.001991	PASS
				30	4.06	0.004783	PASS
				40	0.21	0.000247	PASS
				50	-3.73	-0.004394	PASS

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GSM 850	EGPRS	LCH	VN	-30	-1.86	-0.002257	PASS
				-20	-1.9	-0.002305	PASS
				-10	2.71	0.003288	PASS
				0	-3.59	-0.004356	PASS
				10	2.02	0.002451	PASS
				20	-3.44	-0.004174	PASS
				30	-4.18	-0.005072	PASS
				40	-4	-0.004853	PASS
				50	-3.42	-0.004149	PASS
	EGPRS	MCH	VN	-30	-1.9	-0.002271	PASS
				-20	-1.93	-0.002307	PASS
				-10	3.98	0.004757	PASS
				0	-4.71	-0.005630	PASS
				10	2.2	0.002630	PASS
				20	-3.52	-0.004208	PASS
				30	-3.26	-0.003897	PASS
				40	-2.18	-0.002606	PASS
				50	-3.41	-0.004076	PASS
	EGPRS	HCH	VN	-30	-3.52	-0.004147	PASS
				-20	-3.47	-0.004088	PASS
				-10	-2.41	-0.002839	PASS
				0	-2.11	-0.002486	PASS
				10	-2.4	-0.002828	PASS
				20	1.57	0.001850	PASS
				30	-4.41	-0.005196	PASS
				40	-3.23	-0.003805	PASS
				50	-2.67	-0.003146	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM 1900	LCH	VN	LCH	-30	-2.78	-0.001503	PASS
				-20	-2.79	-0.001508	PASS
				-10	-3.96	-0.002140	PASS
				0	3.02	0.001632	PASS
				10	-3.24	-0.001751	PASS
				20	-0.17	-0.000092	PASS
				30	1.93	0.001043	PASS
				40	-2.87	-0.001551	PASS
				50	-2.26	-0.001221	PASS
	GPRS	VN	MCH	-30	-3.98	-0.002117	PASS
				-20	-3.99	-0.002122	PASS
				-10	1.71	0.000910	PASS
				0	-2.16	-0.001149	PASS
				10	4.75	0.002527	PASS
				20	-3.46	-0.001840	PASS
				30	-1.59	-0.000846	PASS
				40	-3.52	-0.001872	PASS
				50	-4.3	-0.002287	PASS
	HCH	VN	HCH	-30	-2.87	-0.001503	PASS
				-20	-2.88	-0.001508	PASS
				-10	3.69	0.001932	PASS
				0	2.01	0.001052	PASS
				10	-0.18	-0.000094	PASS
				20	-3.08	-0.001613	PASS
				30	-3.95	-0.002068	PASS
				40	1.82	0.000953	PASS
				50	-2.78	-0.001456	PASS

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Test Band	Test mode:	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM 1900	EGPRS	LCH	VN	-30	-2.62	-0.001416	PASS
				-20	-2.63	-0.001421	PASS
				-10	-4.5	-0.002432	PASS
				0	1.9	0.001027	PASS
				10	-2.3	-0.001243	PASS
				20	-1.99	-0.001076	PASS
				30	-4.28	-0.002313	PASS
				40	1.89	0.001022	PASS
				50	-3.53	-0.001908	PASS
	EGPRS	MCH	VN	-30	-3.21	-0.001707	PASS
				-20	-3.2	-0.001702	PASS
				-10	-2.38	-0.001266	PASS
				0	-4.02	-0.002138	PASS
				10	1.68	0.000894	PASS
				20	-3	-0.001596	PASS
				30	-1.88	-0.001000	PASS
				40	-3.5	-0.001862	PASS
				50	1.07	0.000569	PASS
	EGPRS	HCH	VN	-30	-2.8	-0.001466	PASS
				-20	-2.81	-0.001471	PASS
				-10	3.17	0.001660	PASS
				0	2.01	0.001052	PASS
				10	-3.19	-0.001670	PASS
				20	-4.51	-0.002362	PASS
				30	-3.61	-0.001890	PASS
				40	-2.4	-0.001257	PASS
				50	-2.09	-0.001094	PASS

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Frequency Error VS. Voltage

Test Band	Test mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA V	HSDPA	LCH	TN	VL	3.01	0.003651	PASS
				VN	1.93	0.002341	PASS
				VH	-3.15	-0.003821	PASS
		MCH	TN	VL	-1.77	-0.002116	PASS
				VN	-1.13	-0.001351	PASS
				VH	-3.82	-0.004566	PASS
		HCH	TN	VL	4.18	0.004925	PASS
				VN	-0.66	-0.000778	PASS
				VH	-2.01	-0.002368	PASS
	HSUPA	LCH	TN	VL	-3.45	-0.004185	PASS
				VN	1.62	0.001965	PASS
				VH	-2.32	-0.002814	PASS
		MCH	TN	VL	3.96	0.004733	PASS
				VN	2.68	0.003203	PASS
				VH	-4.32	-0.005164	PASS
		HCH	TN	VL	1.25	0.001473	PASS
				VN	-3.06	-0.003605	PASS
				VH	2.62	0.003087	PASS

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Test Band	Test mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA II	HSDPA	LCH	TN	VL	-4.51	-0.002438	PASS
				VN	2.42	0.001308	PASS
				VH	1.85	0.001000	PASS
		MCH	TN	VL	1.34	0.000713	PASS
				VN	-2.56	-0.001362	PASS
				VH	3.5	0.001862	PASS
		HCH	TN	VL	-2.53	-0.001325	PASS
				VN	2.42	0.001267	PASS
				VH	-4.15	-0.002173	PASS
	HSUPA	LCH	TN	VL	1.37	0.000740	PASS
				VN	-3.77	-0.002038	PASS
				VH	2.9	0.001567	PASS
		MCH	TN	VL	-4.14	-0.002202	PASS
				VN	1.93	0.001027	PASS
				VH	0.98	0.000521	PASS
		HCH	TN	VL	-2.25	-0.001178	PASS
				VN	3.99	0.002089	PASS
				VH	-4.75	-0.002487	PASS

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Frequency Error VS. Temperature

Test Band	Test mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA V	HSDPA	LCH	VN	-30	-1.96	-0.002378	PASS
				-20	-2	-0.002427	PASS
				-10	2.61	0.003167	PASS
				0	-3.69	-0.004477	PASS
				10	1.92	0.002330	PASS
				20	-3.54	-0.004295	PASS
				30	-4.28	-0.005193	PASS
				40	-4.1	-0.004975	PASS
				50	-3.52	-0.004271	PASS
		MCH	VN	-30	-2	-0.002391	PASS
				-20	-2.03	-0.002426	PASS
				-10	3.88	0.004638	PASS
				0	-4.81	-0.005749	PASS
				10	2.1	0.002510	PASS
				20	-3.62	-0.004327	PASS
				30	-3.36	-0.004016	PASS
				40	-2.28	-0.002725	PASS
				50	-3.51	-0.004196	PASS
		HCH	VN	-30	-3.62	-0.004265	PASS
				-20	-3.57	-0.004206	PASS
				-10	-2.51	-0.002957	PASS
				0	-2.21	-0.002604	PASS
				10	-2.5	-0.002945	PASS
				20	1.47	0.001732	PASS
				30	-4.51	-0.005313	PASS
				40	-3.33	-0.003923	PASS
				50	-2.77	-0.003263	PASS

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Test Band	Test mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA II	HSDPA	LCH	VN	-30	-2.28	-0.001232	PASS
				-20	-2.29	-0.001238	PASS
				-10	-3.46	-0.001870	PASS
				0	3.52	0.001902	PASS
				10	-2.74	-0.001481	PASS
				20	0.33	0.000178	PASS
				30	2.43	0.001313	PASS
				40	-2.37	-0.001281	PASS
				50	-1.76	-0.000951	PASS
		MCH	VN	-30	-3.48	-0.001851	PASS
				-20	-3.49	-0.001856	PASS
				-10	2.21	0.001176	PASS
				0	-1.66	-0.000883	PASS
				10	5.25	0.002793	PASS
				20	-2.96	-0.001574	PASS
				30	-1.09	-0.000580	PASS
				40	-3.02	-0.001606	PASS
				50	-3.8	-0.002021	PASS
		HCH	VN	-30	-2.37	-0.001241	PASS
				-20	-2.38	-0.001246	PASS
				-10	4.19	0.002194	PASS
				0	2.51	0.001314	PASS
				10	0.32	0.000168	PASS
				20	-2.58	-0.001351	PASS
				30	-3.45	-0.001806	PASS
				40	2.32	0.001215	PASS
				50	-2.28	-0.001194	PASS

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Test Band	Test mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA V	HSUPA	LCH	VN	-30	-0.98	-0.001189	PASS
				-20	-1.02	-0.001238	PASS
				-10	3.59	0.004356	PASS
				0	-2.71	-0.003288	PASS
				10	2.9	0.003519	PASS
				20	-2.56	-0.003106	PASS
				30	-3.3	-0.004004	PASS
				40	-3.12	-0.003785	PASS
				50	-2.54	-0.003082	PASS
		MCH	VN	-30	-1.02	-0.001219	PASS
				-20	-1.05	-0.001255	PASS
				-10	4.86	0.005809	PASS
				0	-3.83	-0.004578	PASS
				10	3.08	0.003682	PASS
				20	-2.64	-0.003156	PASS
				30	-2.38	-0.002845	PASS
				40	-1.3	-0.001554	PASS
				50	-2.53	-0.003024	PASS
		HCH	VN	-30	-2.64	-0.003110	PASS
				-20	-2.59	-0.003051	PASS
				-10	-1.53	-0.001803	PASS
				0	-1.23	-0.001449	PASS
				10	-1.52	-0.001791	PASS
				20	2.45	0.002886	PASS
				30	-3.53	-0.004159	PASS
				40	-2.35	-0.002769	PASS
				50	-1.79	-0.002109	PASS

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Test Band	Test mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA II	HSUPA	LCH	VN	-30	-3.33	-0.001800	PASS
				-20	-3.34	-0.001805	PASS
				-10	-4.51	-0.002438	PASS
				0	2.47	0.001335	PASS
				10	-3.79	-0.002048	PASS
				20	-0.72	-0.000389	PASS
				30	1.38	0.000746	PASS
				40	-3.42	-0.001848	PASS
				50	-2.81	-0.001519	PASS
		MCH	VN	-30	-4.53	-0.002410	PASS
				-20	-4.54	-0.002415	PASS
				-10	1.16	0.000617	PASS
				0	-2.71	-0.001441	PASS
				10	4.2	0.002234	PASS
				20	-4.01	-0.002133	PASS
				30	-2.14	-0.001138	PASS
				40	-4.07	-0.002165	PASS
				50	-4.85	-0.002580	PASS
		HCH	VN	-30	-3.42	-0.001791	PASS
				-20	-3.43	-0.001796	PASS
				-10	3.14	0.001644	PASS
				0	1.46	0.000764	PASS
				10	-0.73	-0.000382	PASS
				20	-3.63	-0.001901	PASS
				30	-4.5	-0.002356	PASS
				40	1.27	0.000665	PASS
				50	-3.33	-0.001744	PASS

Note: All modes have been tested and we found HSDPA and HSUPA mode has the worst test result. Only record the worst test result.

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6.8 Modulation Characteristics

Test Requirement: §2.1047

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: Digital modulation

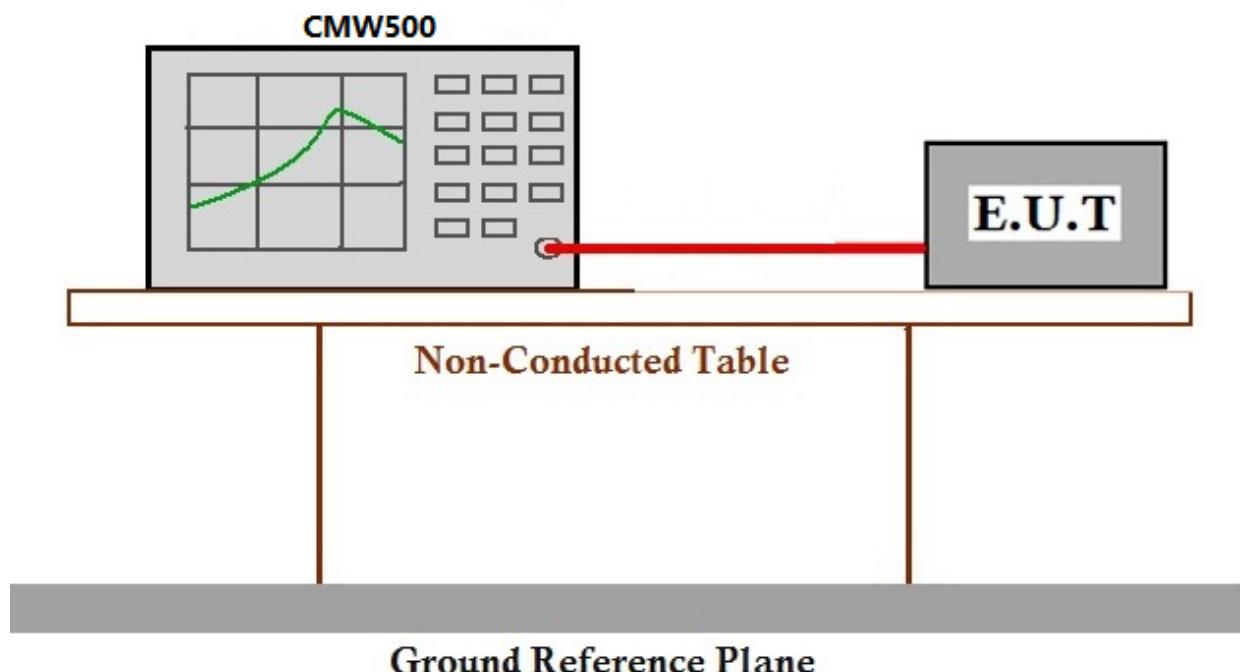
6.8.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 57 % RH Atmospheric Pressure: 1015 mbar

Test mode: f: TX mode_Keep the EUT in transmitting mode.

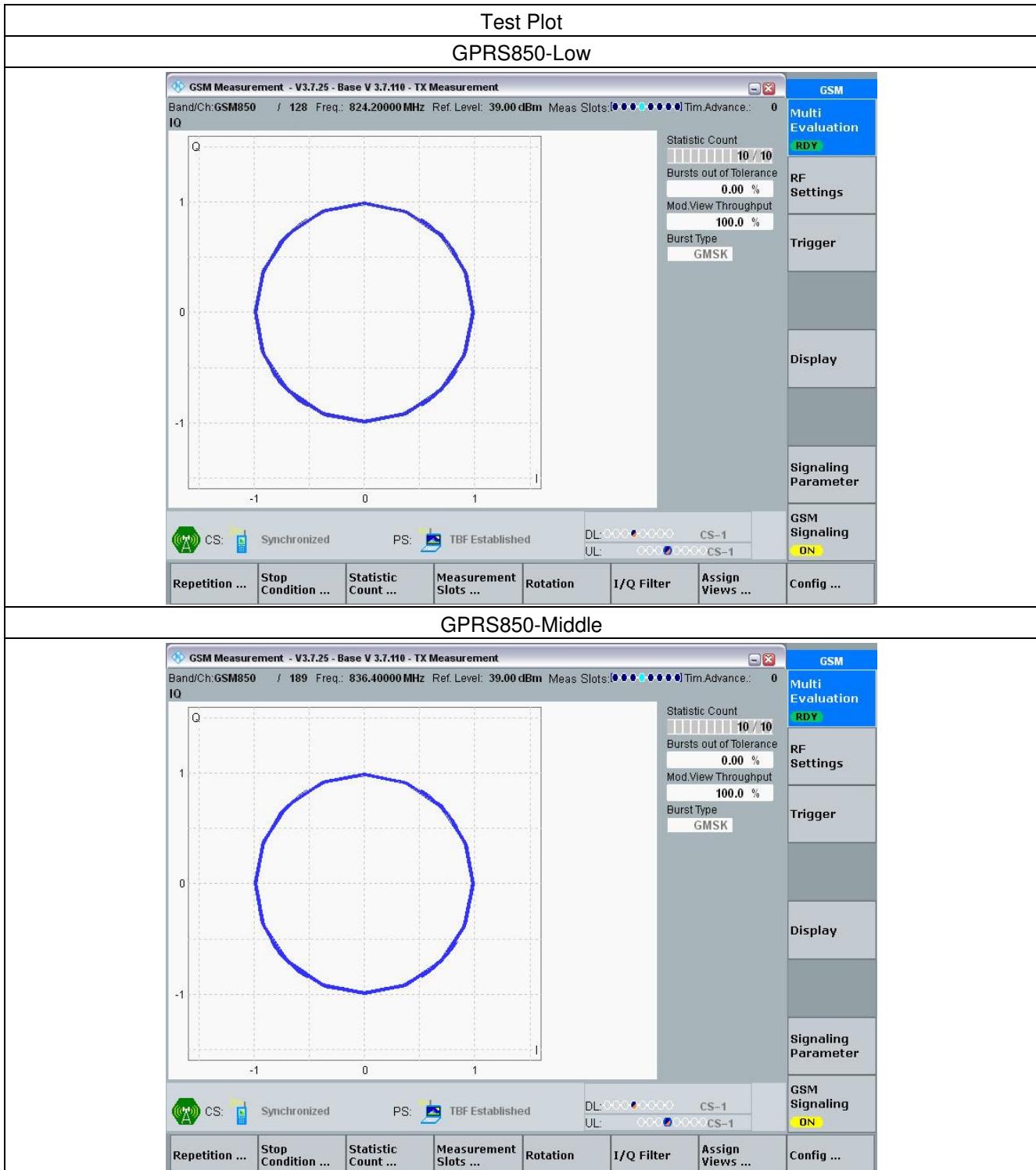
6.8.2 Test Setup Diagram



6.8.3 Measurement Data

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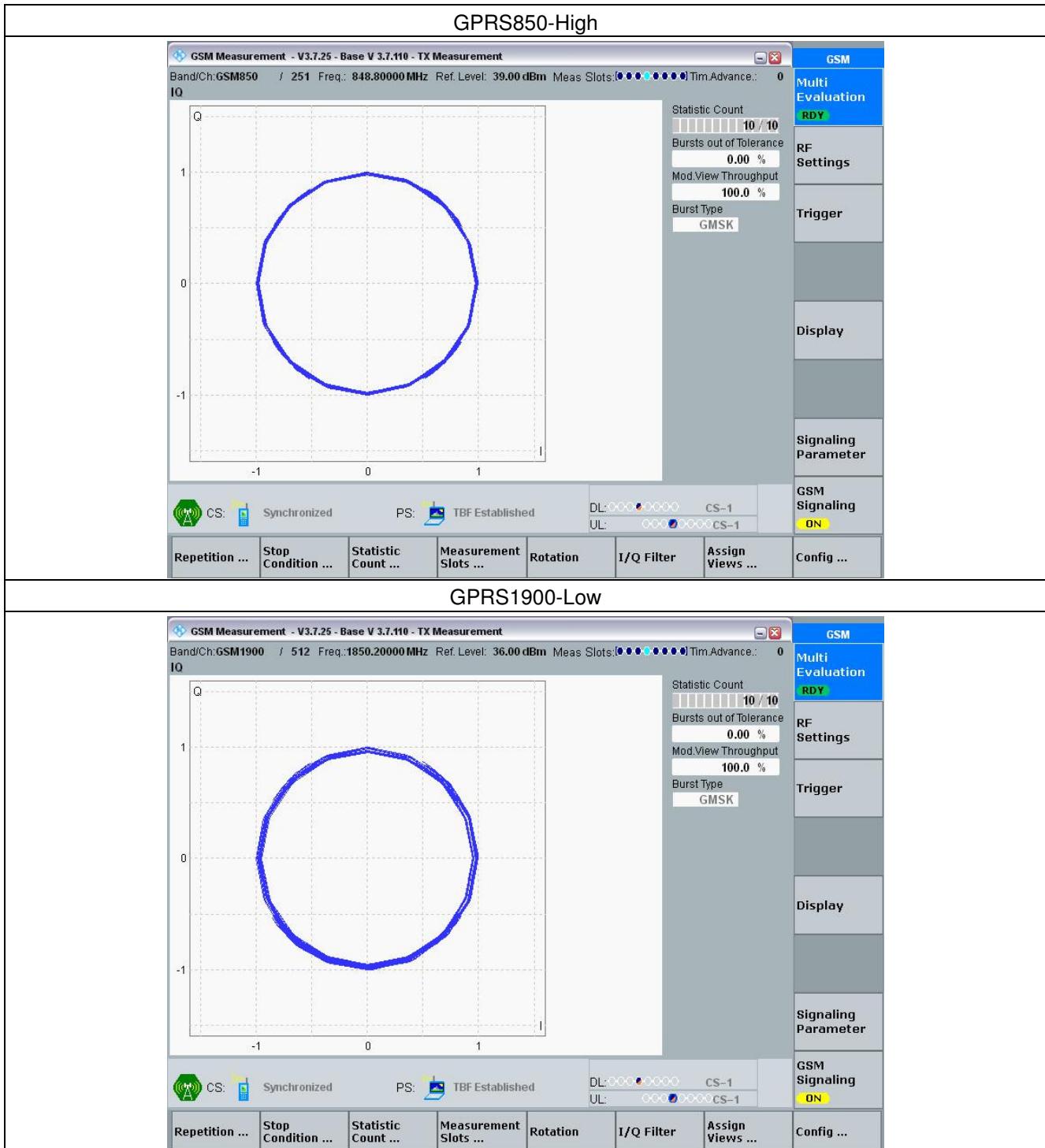
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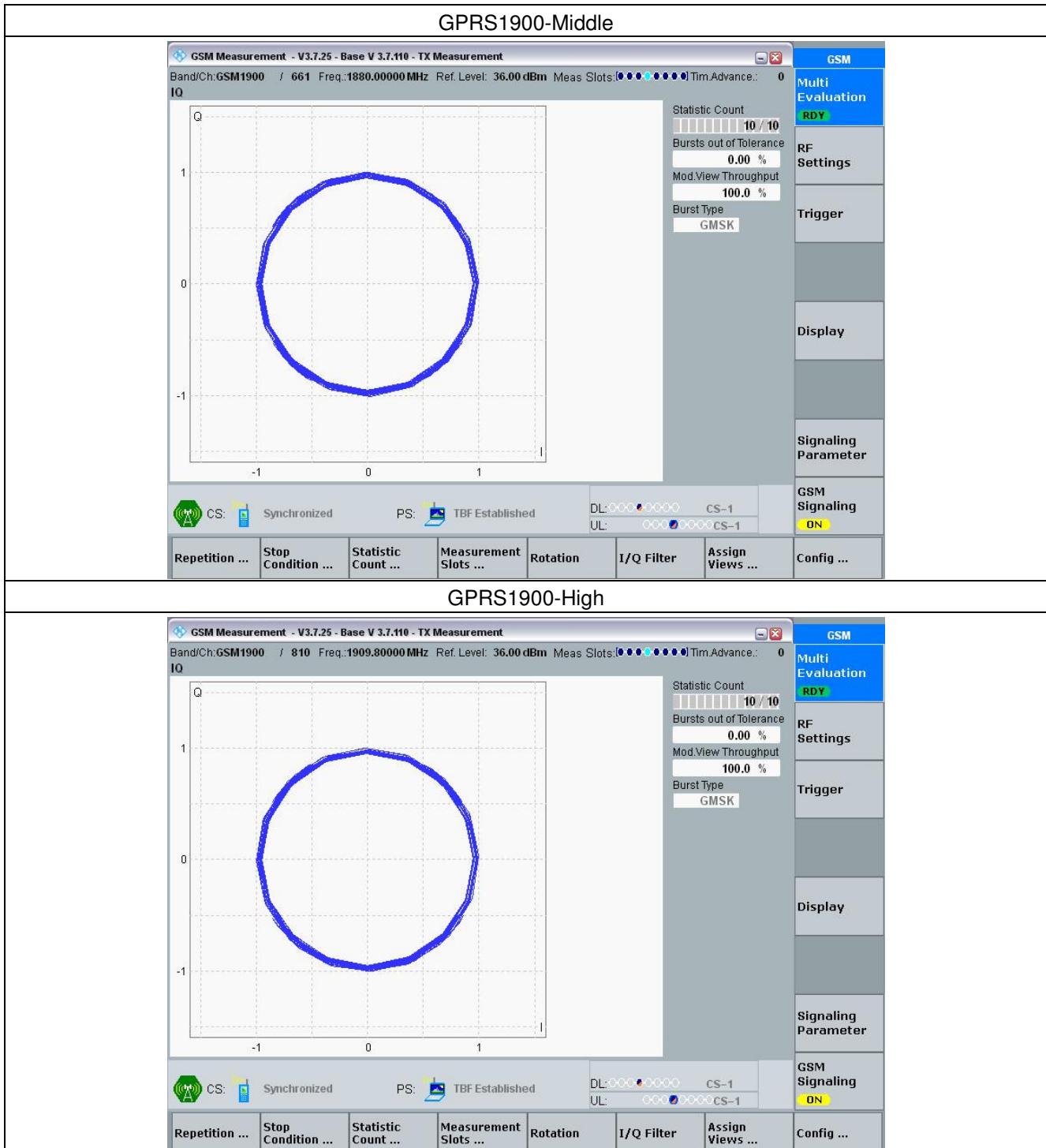
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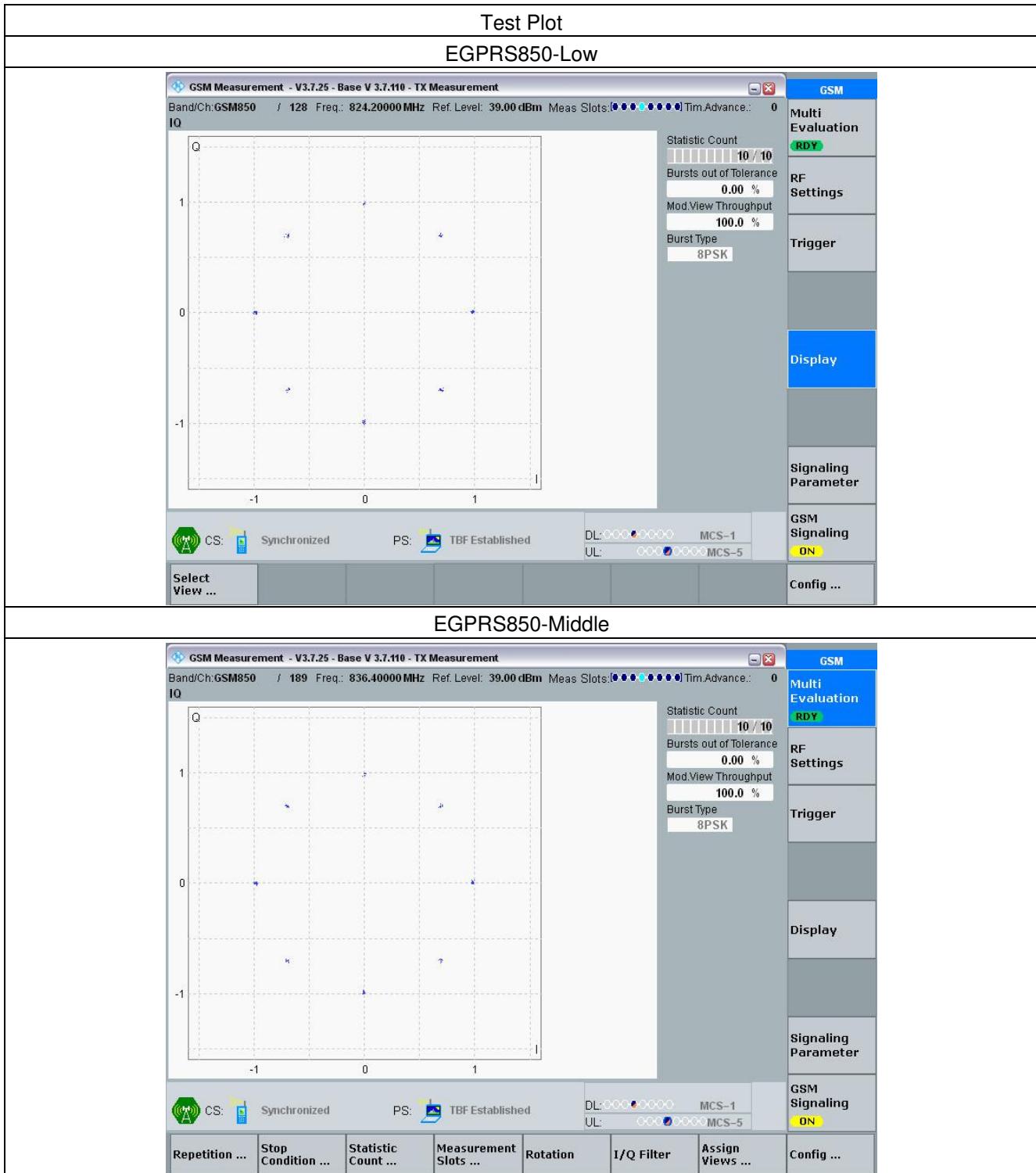


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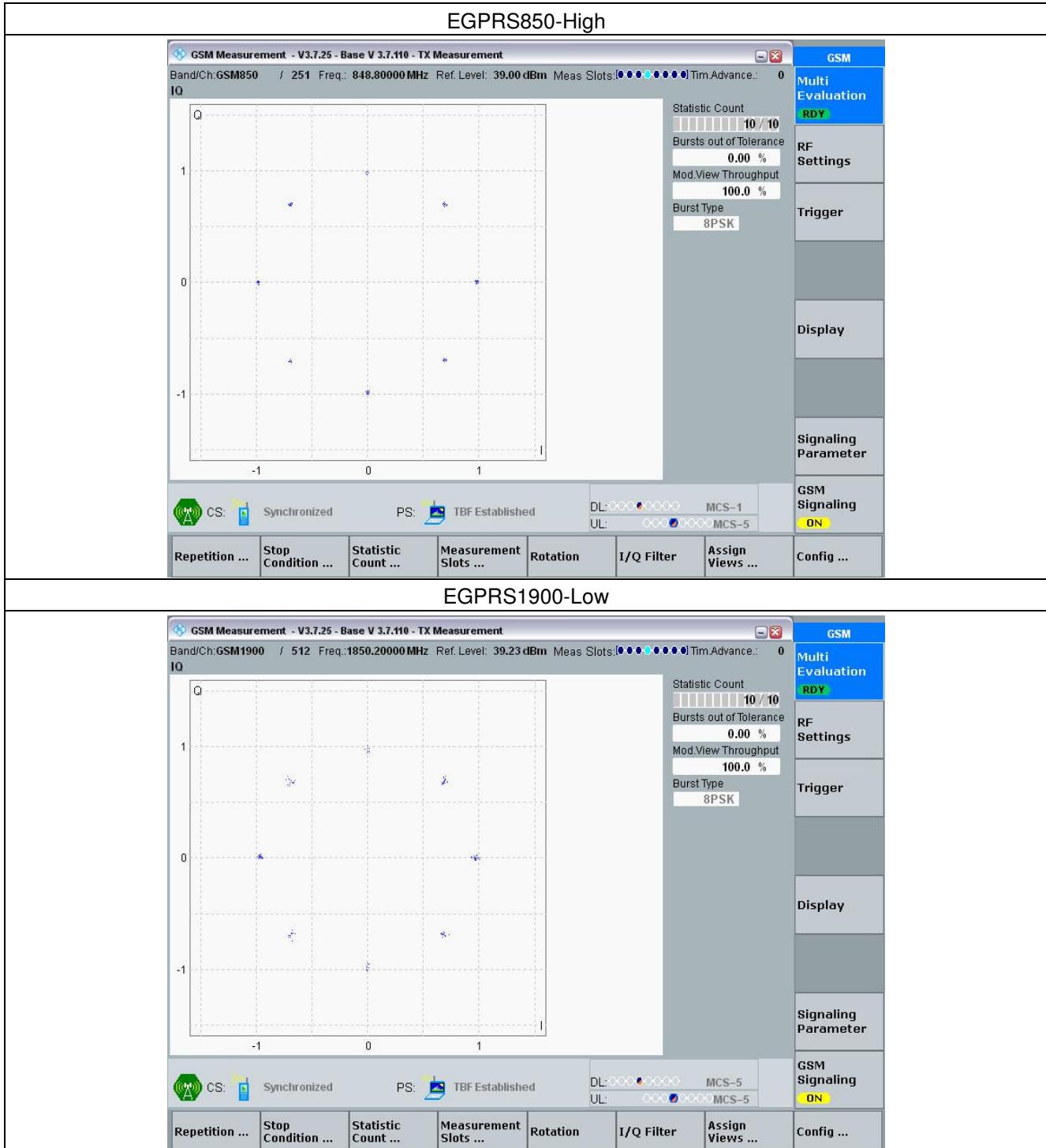


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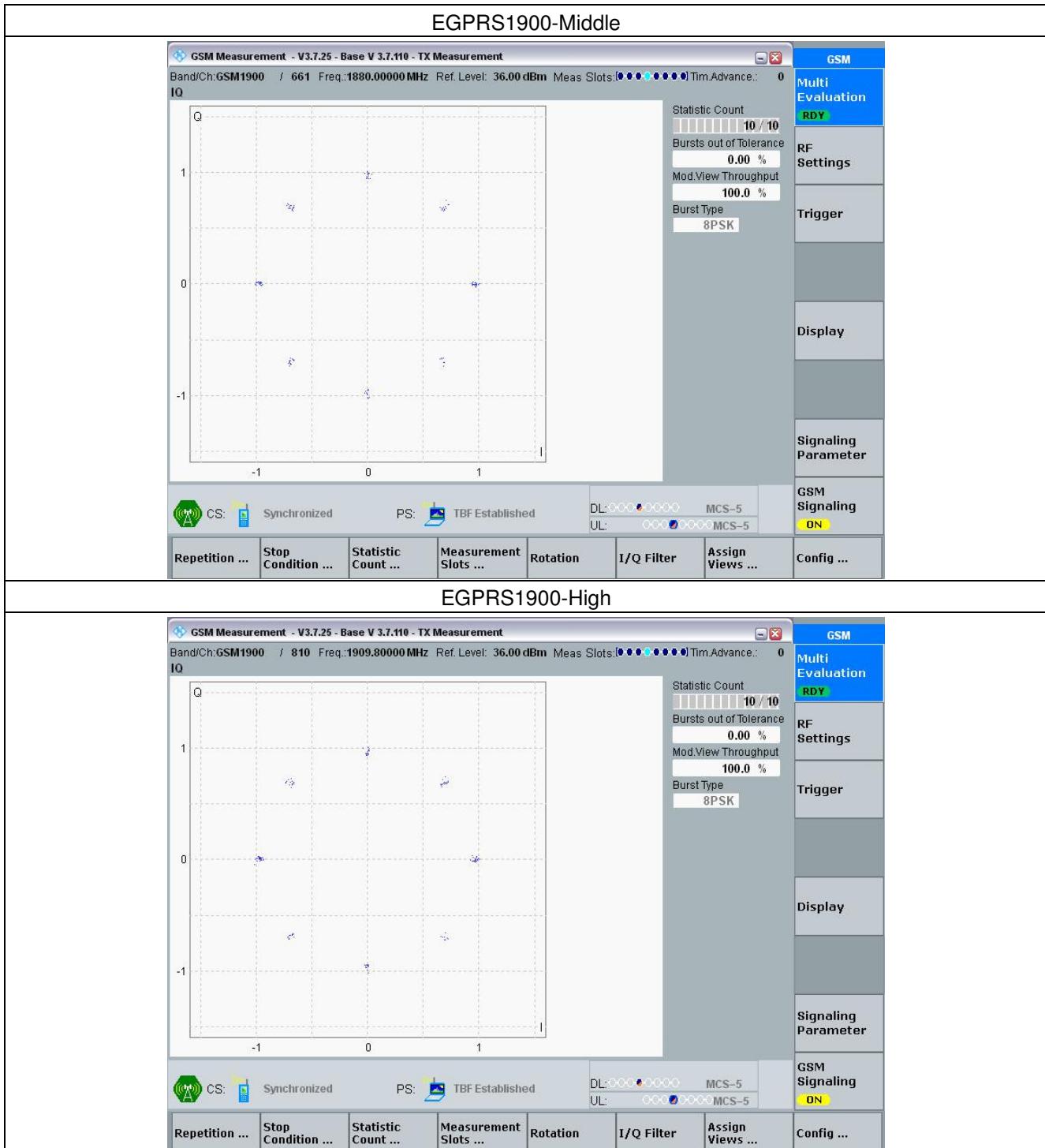
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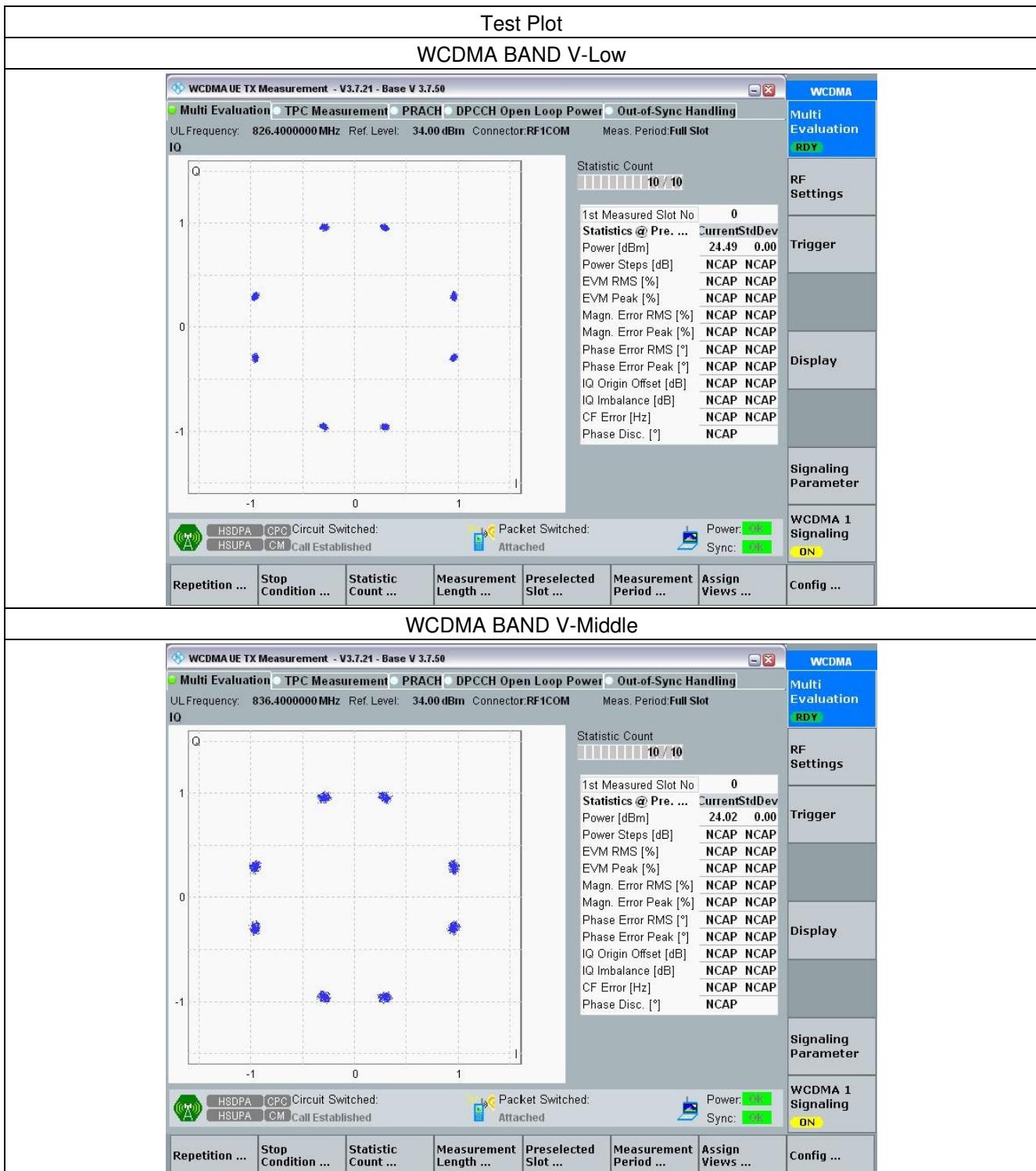


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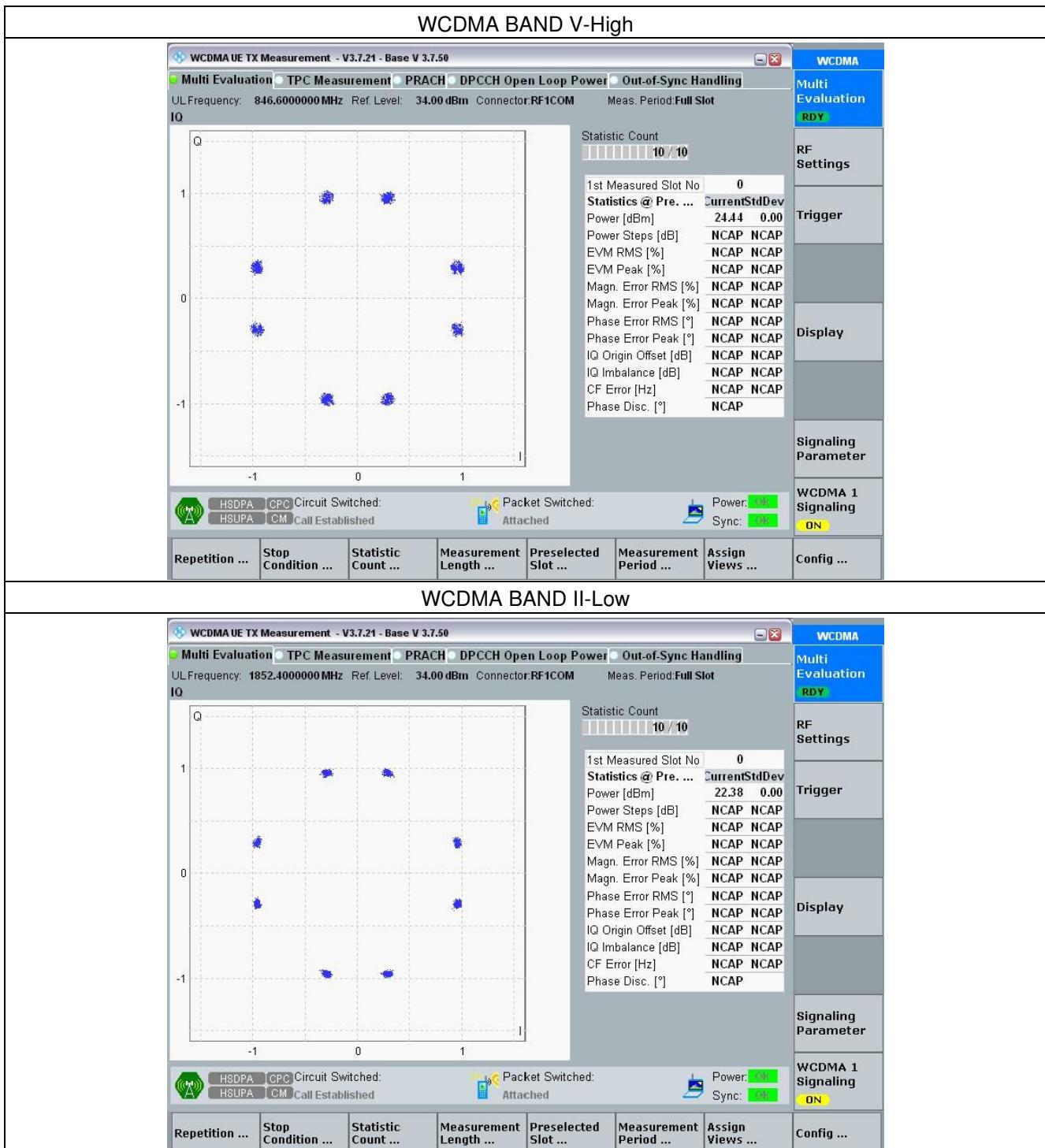
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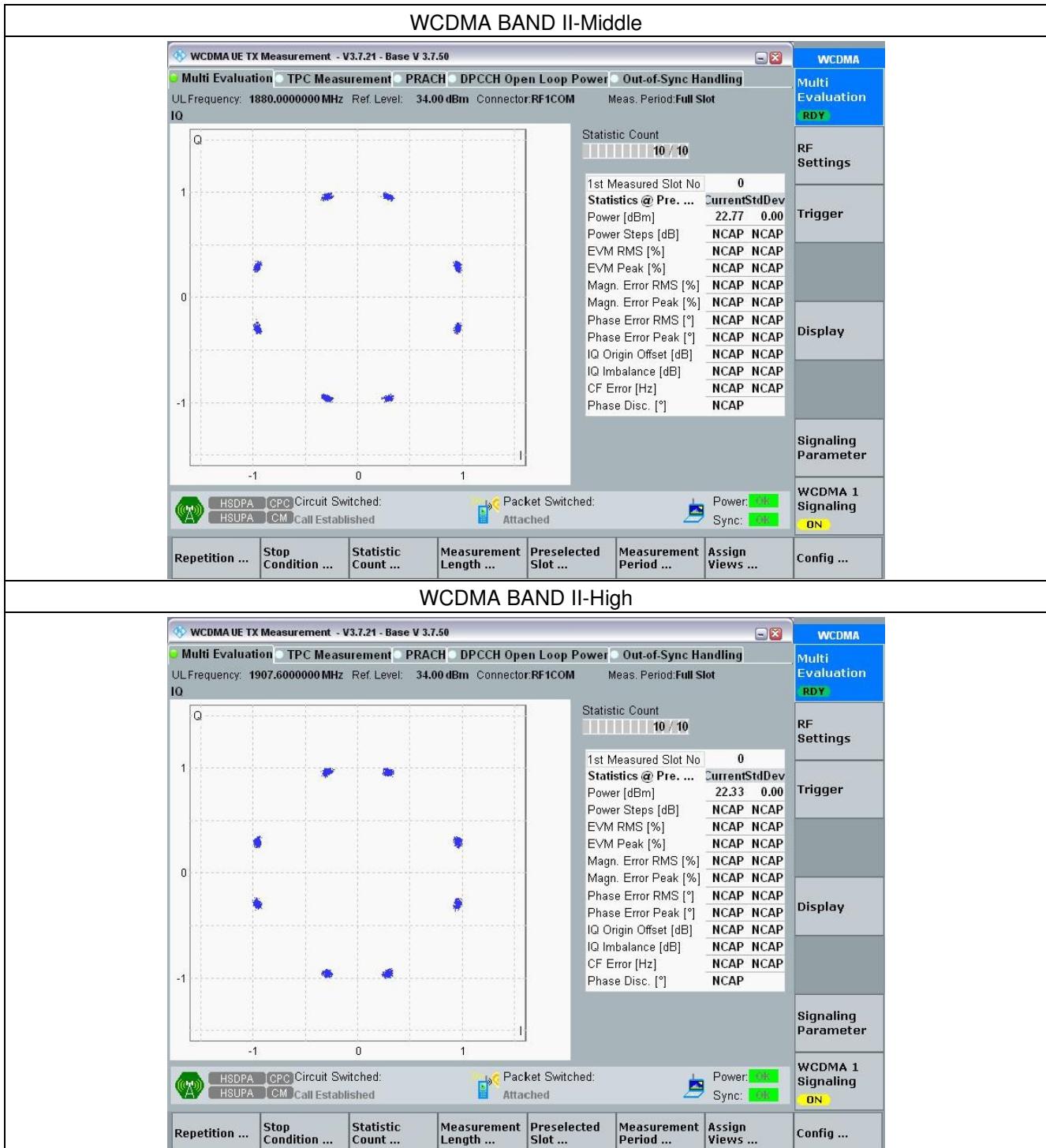
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