

IIAC MRA



Report No.: SZEM190301170306

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TEST REPORT

Application No.: SZEM1903011703CR

Applicant: Hytera Communications Corporation Limited

Address of Applicant: Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road,

Nanshan District, Shenzhen, 518057, China

Manufacturer: Hytera Communications Corporation Limited

Address of Manufacturer: Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road,

Nanshan District, Shenzhen, 518057, China

Equipment Under Test (EUT):

EUT Name: PoC LTE Terminal

Model No.: PNC370 Trade mark: Hytera

FCC ID: YAMPNC370 Standard(s): 47 CFR Part 2;

> 47 CFR Part 22 subpart H 47 CFR Part 24 subpart E 47 CFR Part 27 subpart C

Date of Receipt: 2019-03-14

Date of Test: 2019-03-15 to 2019-04-01

Date of Issue: 2019-04-04

Test Result: Pass

Keny Xu EMC Laboratory Manager

Ceny. Ku



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



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	Revision Record					
Version	Version Chapter Date Modifier					
01		2019-04-04		Original		

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



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Test Summary

Test Item	FCC Rule No.	Requirements	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §22.913, §24.232, §27.50(d)	ERP≤7W(WCDMA BAND V) EIRP≤ 2W(WCDMA BAND II) EIRP≤ 1W(WCDMA BAND IV)	PASS
Peak-Average Ratio	§24.232, §27.50(d)	≤13dB	PASS
Modulation Characteristics	§2.1047	Digital modulation	PASS
Bandwidth	§2.1049(h), §22.917, §24.238, §27.53(h)	OBW: No limit EBW: No limit	PASS
Band Edge Compliance	§2.1051, §22.917, §24.238, §27.53(h)	≤ -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, \$27.53(h)	≤ -13dBm	PASS
Field strength of spurious radiation	\$2.1051, \$22.917, \$24.238, \$27.53(h)	≤ -13dBm	PASS
Frequency stability	§2.1055, §22.355, §24.235, §27.54	≤ ±2.5ppm	PASS



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General Information

Details of E.U.T. 4.1

Switching Power Supply
Model: S010WU0500200
Input: AC 100-240V, 50/60Hz, 400mA
Output: DC 5.0V, 2000mA
DC 3.6V, 3100mAh rechargeable battery which charged by USB port
Portable production
WCDMA Band II/ WCDMA Band IV/ WCDMA Band V
QPSK
14
6
24
WCDMA Band II:4M16F9W
WCDMA Band IV: 4M16F9W
WCDMA Band V: 4M17F9W
LDS Antenna
0dBi
-30 °C to +50 °C
3.06VDC to 4.14VDC (nominal: 3.6VDC)



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4.2 **Test Frequency**

Took woods.	TV/DV	RF Channel			
Test mode:	TX/RX	Low (L)	Middle (M)	High (H) Channel 4233 846.6 MHz	
WCDMA Band ∨	TV	Channel 4132	Channel 4182	Channel 4233	
	TX	826.4MHz	836.4 MHz	846.6 MHz	
	DV	Channel 4357	Channel 4407	Channel 4458	
	RX	871.4 MHz	881.4 MHz	891.6 MHz	

Toot modes	TV/DV			
Test mode:	TX/RX	Low (L)	Middle (M)	High (H) Channel 1513 1752.6 MHz Channel 1738 2152 6 MHz
WCDMA Band IV	TV	Channel 1312	Channel 1413	Channel 1513
	TX	1712.4 MHz	1732.6 MHz	1752.6 MHz
	DV	Channel 1537	Channel 1638	Channel 1738
	RX	2112.4 MHz	2132.6 MHz	2152.6 MHz

Test mode:	TX/RX		RF Channel		
	IA/NA	Low (L)	Middle (M)	High (H) Channel 9538	
WCDMA Band II	TV	Channel 9262	Channel 9400	Channel 9538	
	TX	1852.4 MHz	1880.0 MHz	1907.6 MHz	
	DV	Channel 9662	Channel 9800	Channel 9938	
	RX	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 ℃	
Voltage:	VL	3.06 V	
	VN	3.6 V	
	VH	4.14 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 x 10 ⁻⁸
2	Occupied Bandwidth	3%
3	RF conducted power	0.75dB
4	Conducted Spurious emissions	0.75dB
_	DE Dadieted verses	4.5dB (below 1GHz)
5	RF Radiated power	4.8dB (above 1GHz)
	Dadieted Courieus amissies test	4.5dB (Below 1GHz)
6	Radiated Spurious emission test	4.8dB (Above 1GHz)
7	Temperature test	1℃
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:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 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:

· CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

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					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date	Cal. Due date
DC Power Supply	ZhaoXin	PS-3005D	SEM011-05	2018-09-25	2019-09-24
Spectrum Analyzer (20Hz-43GHz)	Rohde & Schwarz	FSU43	SEM004-08	2018-04-13	2019-04-12
Signal Analyzer (10Hz-40GHz)	Rohde & Schwarz	FSV40	SEM008-04	2018-04-02	2019-04-01
Signal Generator (9kHz-40GHz)	KEYSIGHT	N5173B	SEM006-05	2018-09-27	2019-09-26
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.6	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2018-07-12	2019-07-11
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2018-04-02	2019-04-01
Universal Radio Communication Tester	Rohde & Schwarz	CMU200	SEM010-02	2018-04-02	2019-04-01
Power Splitter	Narda	4324-2	0168	N/A	N/A

RE in Chamber					
Test 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
EXA Signal Analyzer (10Hz-44GHz)	Agilent Technologies Inc	N9010A	SEM004-12	2018-04-13	2019-04-12
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-01	2017-06-27	2020-06-26
Horn Antenna (800MHz-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2017-10-17	2020-10-16
Amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2018-09-25	2019-09-24
Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2018-11-12	2019-11-11
Pre-amplifier (26-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2018-04-02	2019-04-01
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2018-07-12	2019-07-11



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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

RE in Chamber					
Test 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
MXE EMI Receiver (20Hz-8.4GHz)	Agilent Technologies	N9038A	SEM004-05	2018-09-25	2019-09-24
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2017-06-27	2020-06-26
Pre-amplifier	Agilent Technologies	8447D	SEM005-01	2018-04-02	2019-04-01
(0.1-1300MHz)	Aglient rechnologies	04470	2EIVI002-01	2019-04-01	2020-03-31
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2018-07-12	2019-07-11
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 equipmen	t					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2017-09-29	2018-09-28	
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B SEM002-04		2017-09-29	2018-09-28	
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2017-09-29	2018-09-28	
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2017-04-18	2018-04-17	



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Radio Spectrum Matter Test Results 6

6.1 **Effective (Isotropic) Radiated Power Output Data**

§2.1046, §22.913, §24.232, §27.50(d) Test Requirement: Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: ERP≤7W(WCDMA BAND V)

> EIRP≤ 2W(WCDMA BAND II) EIRP≤ 1W(WCDMA BAND IV)

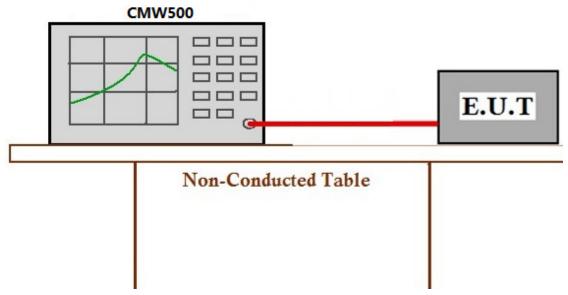
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: Humidity: 57 % RH Atmospheric Pressure: 1015 mbar

z: Tx mode, Keep the EUT in transmitting mode. Test mode:

6.1.2 Test Setup Diagram



6.1.3 **Measurement Data**



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			Test	band: \	NCDMA Ba	nd V				
(Conducted outpu	t power	(dBm)		Antenna	Antenna	FCC	: ERP(d	Bm)	Limit
C	Channel	4132	4182	4233	gain (dBd)	gain (dBi)	4132	4182	4233	(dBm)
WCDMA	12.2kbps RMC	22.88	22.89	22.79	-2.15	0	20.73	20.74	20.64	38.45
	Subtest 1	23.13	22.93	22.97	-2.15	0	20.98	20.78	20.82	38.45
HCDDA	Subtest 2	23.09	22.93	22.96	-2.15	0	20.94	20.78	20.81	38.45
HSDPA	Subtest 3	23.10	22.93	22.94	-2.15	0	20.95	20.78	20.79	38.45
	Subtest 4	23.11	22.92	22.94	-2.15	0	20.96	20.77	20.79	38.45
	Subtest 1	22.31	21.85	21.93	-2.15	0	20.16	19.7	19.78	38.45
LICLIDA	Subtest 2	21.04	21.38	21.35	-2.15	0	18.89	19.23	19.2	38.45
HSUPA	Subtest 3	21.14	20.96	21.17	-2.15	0	18.99	18.81	19.02	38.45
	Subtest 4	21.71	21.54	21.75	-2.15	0	19.56	19.39	19.6	38.45
	Subtest 1	22.60	22.20	22.40	-2.15	0	20.45	20.05	20.25	38.45
DC-	Subtest 2	23.11	22.91	22.95	-2.15	0	20.96	20.76	20.8	38.45
HSDPA	Subtest 3	23.06	22.88	22.91	-2.15	0	20.91	20.73	20.76	38.45
	Subtest 4	23.09	22.90	22.90	-2.15	0	20.94	20.75	20.75	38.45

Note:

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



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	Test band: WCDMA Band IV												
	Conducted out	put power	(dBm)		Antenna	FC	Limit						
(Channel	1312	1413	1513	gain (dBi)	1312	1413	1513	(dBm)				
WCDMA	12.2kbps RMC	23.62	23.56	23.64	0	23.62	23.56	23.64	30				
	Subtest 1	23.59	23.53	23.77	0	23.59	23.53	23.77	30				
HSDPA	Subtest 2	23.32	23.47	23.42	0	23.32	23.47	23.42	30				
ПОДРА	Subtest 3	23.35	23.47	23.49	0	23.35	23.47	23.49	30				
	Subtest 4	23.30	23.45	23.47	0	23.30	23.45	23.47	30				
	Subtest 1	22.42	22.42	22.48	0	22.42	22.42	22.48	30				
LICLIDA	Subtest 2	21.40	21.35	21.41	0	21.40	21.35	21.41	30				
HSUPA	Subtest 3	21.34	21.35	21.42	0	21.34	21.35	21.42	30				
	Subtest 4	21.60	21.96	21.59	0	21.60	21.96	21.59	30				
	Subtest 1	22.72	22.84	22.77	0	22.72	22.84	22.77	30				
DC-	Subtest 2	23.31	23.45	23.48	0	23.31	23.45	23.48	30				
HSDPA	Subtest 3	23.30	23.33	23.46	0	23.30	23.33	23.46	30				
	Subtest 4	23.32	23.42	23.45	0	23.32	23.42	23.45	30				

Note:

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

	Test band: WCDMA Band II												
	Conducted out	tput power	(dBm)		Antenna	FC	Limit						
C	Channel	9262	9400	9538	gain (dBi)	9262	9400	9538	(dBm)				
WCDMA	12.2kbps RMC	22.98	23.04	23.09	0	22.98	23.04	23.09	33				
	Subtest 1	23.37	23.43	23.47	0	23.37	23.43	23.47	33				
HSDPA	Subtest 2	23.36	23.41	23.45	0	23.36	23.41	23.45	33				
порра	Subtest 3	23.31	23.42	23.46	0	23.31	23.42	23.46	33				
	Subtest 4	23.35	23.41	23.43	0	23.35	23.41	23.43	33				
	Subtest 1	22.47	22.46	22.49	0	22.47	22.46	22.49	33				
LIGUDA	Subtest 2	21.44	21.30	21.47	0	21.44	21.30	21.47	33				
HSUPA	Subtest 3	21.31	21.39	21.47	0	21.31	21.39	21.47	33				
	Subtest 4	21.62	21.97	21.57	0	21.62	21.97	21.57	33				
	Subtest 1	22.70	22.80	22.70	0	22.70	22.80	22.70	33				
DC-	Subtest 2	23.34	23.41	23.44	0	23.34	23.41	23.44	33				
HSDPA	Subtest 3	23.32	23.38	23.42	0	23.32	23.38	23.42	33				
	Subtest 4	23.30	23.40	23.40	0	23.30	23.40	23.40	33				

Note:

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



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6.2 Peak-Average Ratio

Test Requirement: §24.232, §27.50(d)

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

Limit: ≤13dB

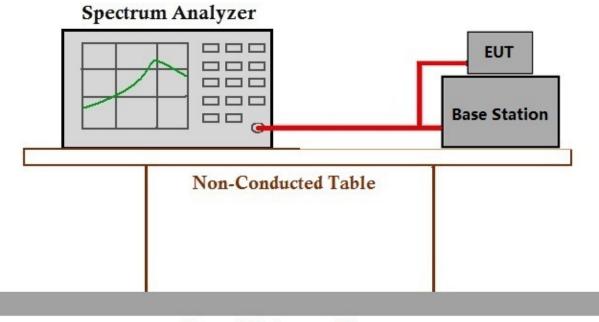
6.2.1 E.U.T. Operation

Operating Environment:

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

Test mode: z: Tx mode, Keep the EUT in transmitting mode.

6.2.2 Test Setup Diagram



Ground Reference Plane

6.2.3 Measurement Data



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Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
		LCH	3.16	13	PASS
WCDMA BAND II	HSDPA	MCH	2.80	13	PASS
		HCH	2.76	13	PASS
		LCH	3.32	13	PASS
WCDMA BAND IV	HSDPA	MCH	3.16	13	PASS
		HCH	3.12	13	PASS
		LCH	3.48	13	PASS
WCDMA BAND V	HSDPA	MCH	3.04	13	PASS
		HCH	2.88	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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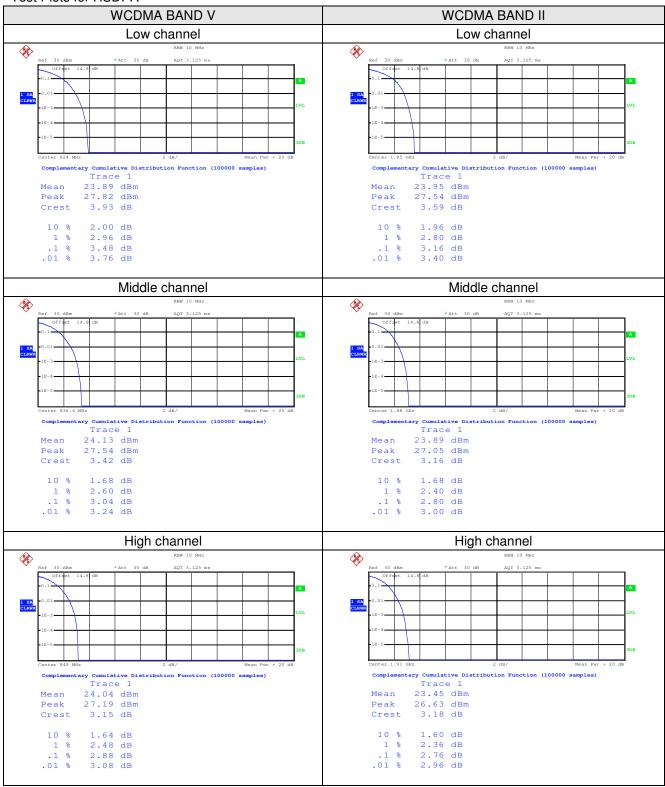
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Test Plots for HSDPA





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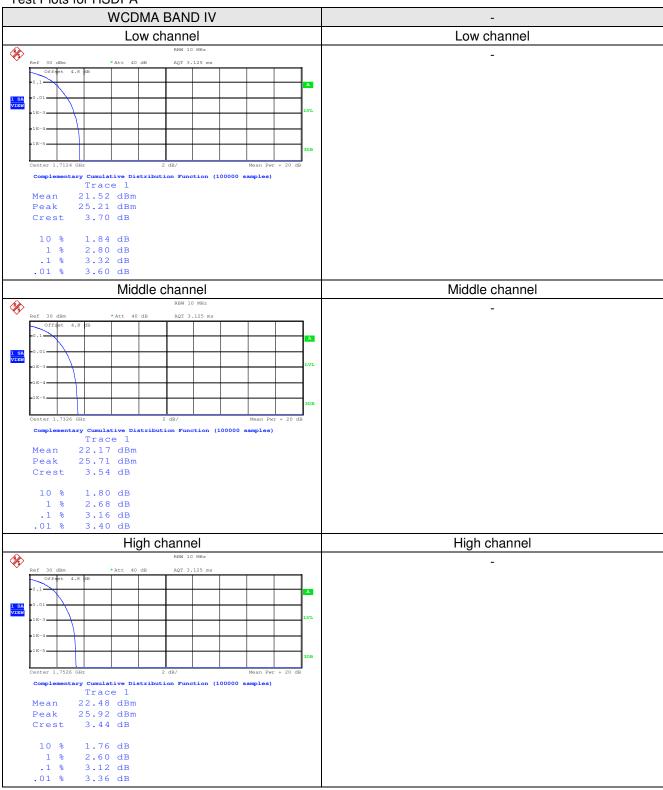
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Test Plots for HSDPA





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6.3 **Bandwidth**

Test Requirement: §2.1049(h), §22.917, §24.238, §27.53(h) Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: **OBW:** No limit

EBW: No limit

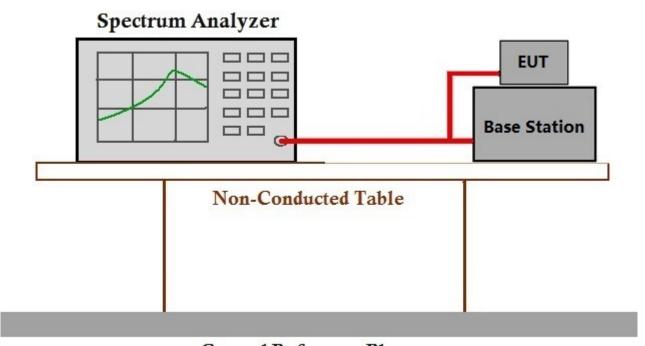
6.3.1 E.U.T. Operation

Operating Environment:

Temperature: Humidity: 57 % RH Atmospheric Pressure: 1015 mbar

Test mode: z: Tx mode, Keep the EUT in transmitting mode.

6.3.2 Test Setup Diagram



Ground Reference Plane

6.3.3 **Measurement Data**



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Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
		LCH	4.15	4.73	PASS
WCDMA BAND V	HSDPA	MCH	4.14	4.71	PASS
B/ ((VB V		HCH	4.16	4.74	PASS
		LCH	4.15	4.73	PASS
WCDMA BAND IV	HSDPA	MCH	4.14	4.71	PASS
B) (IVB IV		HCH	4.16	4.74	PASS
		LCH	4.17	4.76	PASS
WCDMA BAND II	HSDPA	MCH	4.17	4.71	PASS
B/ ((14B)))		HCH	4.17	4.78	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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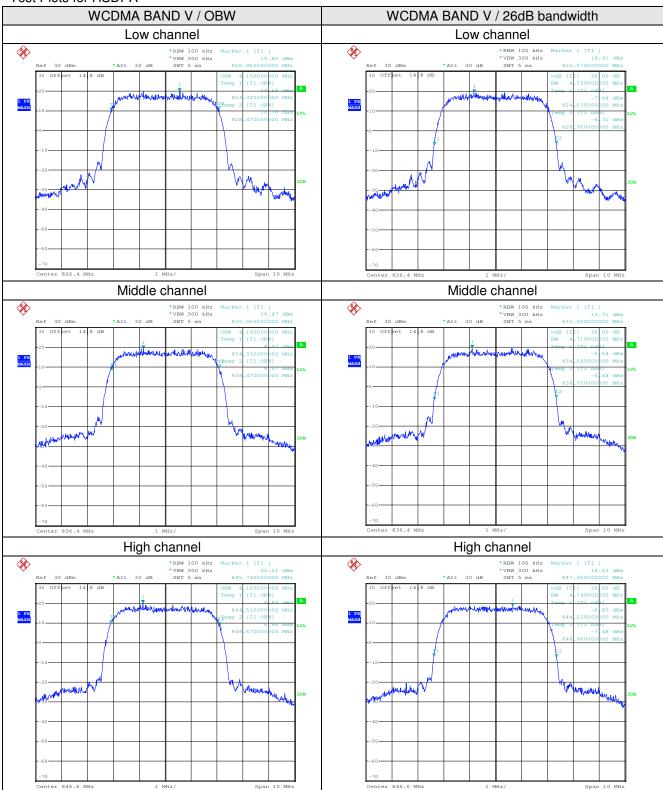
of enal: <u>CM. Doceneck@ssg.com</u> No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86–755) 26012053 f (86–755) 26710594 www.sgsgroup.com.cn 中国 · 深圳 · 科技园中区M–10栋一号厂房 邮编: 518057 t (86–755) 26012053 f (86–755) 26710594 sgs.china@sgs.com



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Test Plots for HSDPA





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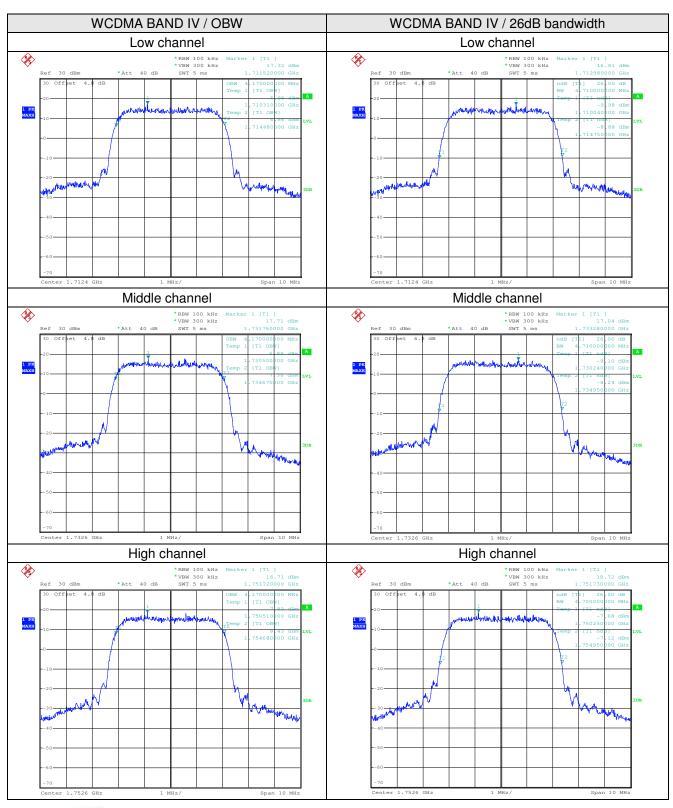
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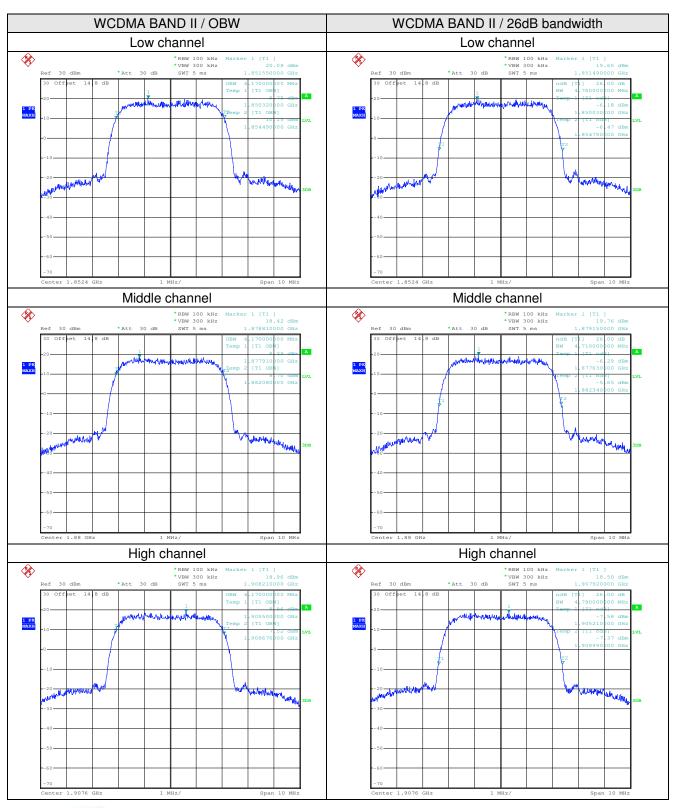
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6.4 Band Edge Compliance

Test Requirement: \$2.1051, \$22.917, \$24.238, \$27.53(h)
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

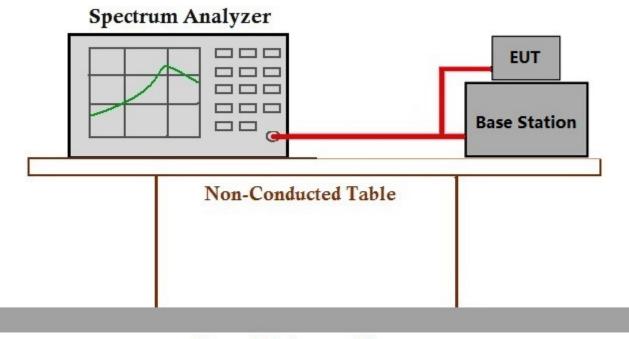
6.4.1 E.U.T. Operation

Operating Environment:

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

Test mode: z: Tx mode, Keep the EUT in transmitting mode.

6.4.2 Test Setup Diagram



Ground Reference Plane

6.4.3 Measurement Data



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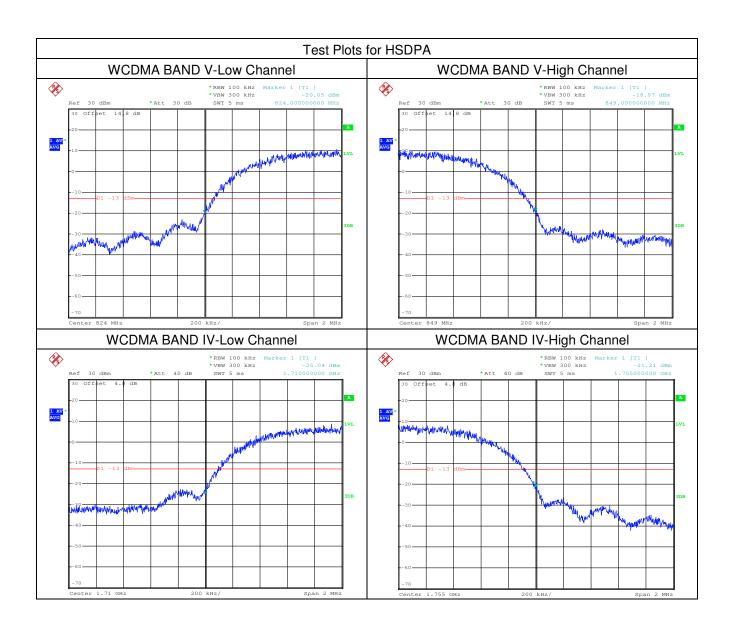
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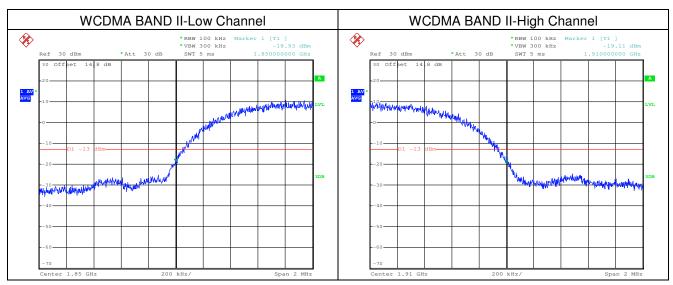
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Note: All modes have been tested and we found HSDPA mode has the worst test result. Only record the worst test result.



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6.5 Spurious emissions at antenna terminals

Test Requirement: §2.1051, §22.917, §24.238, §27.53(h) ANSI C63.26, KDB 971168 D01 v03 Test Method:

Limit: ≤ -13dBm

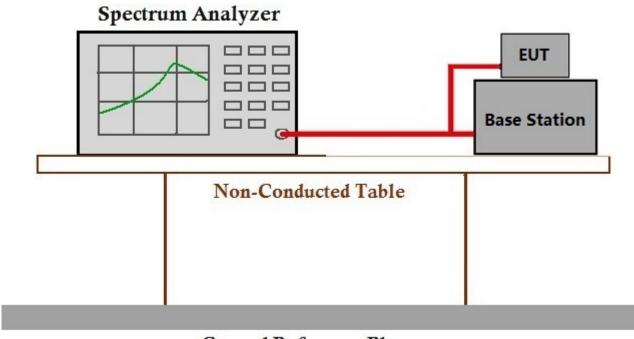
6.5.1 **E.U.T. Operation**

Operating Environment:

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

Test mode: z: Tx mode, Keep the EUT in transmitting mode.

6.5.2 Test Setup Diagram



Ground Reference Plane

6.5.3 **Measurement Data**

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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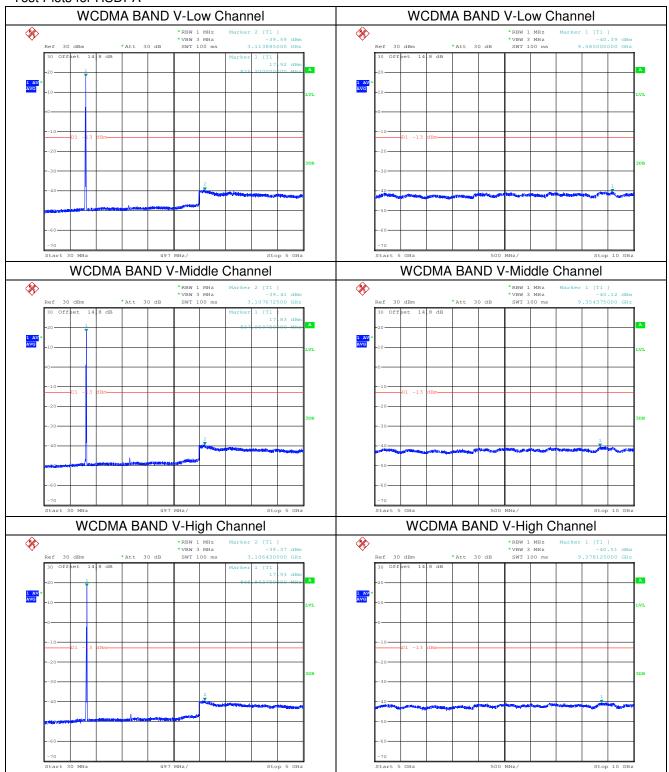
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Test Plots for HSDPA





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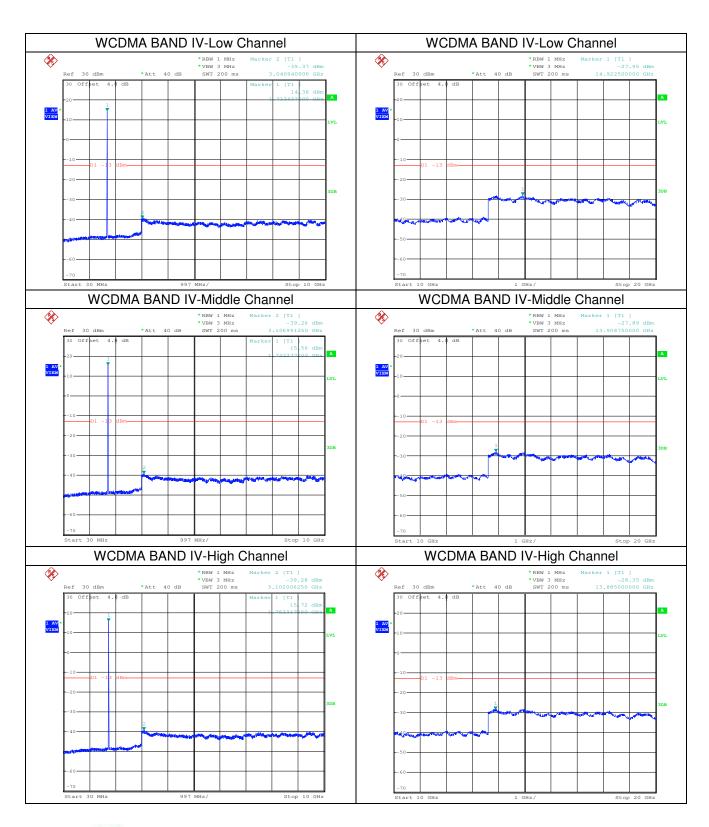
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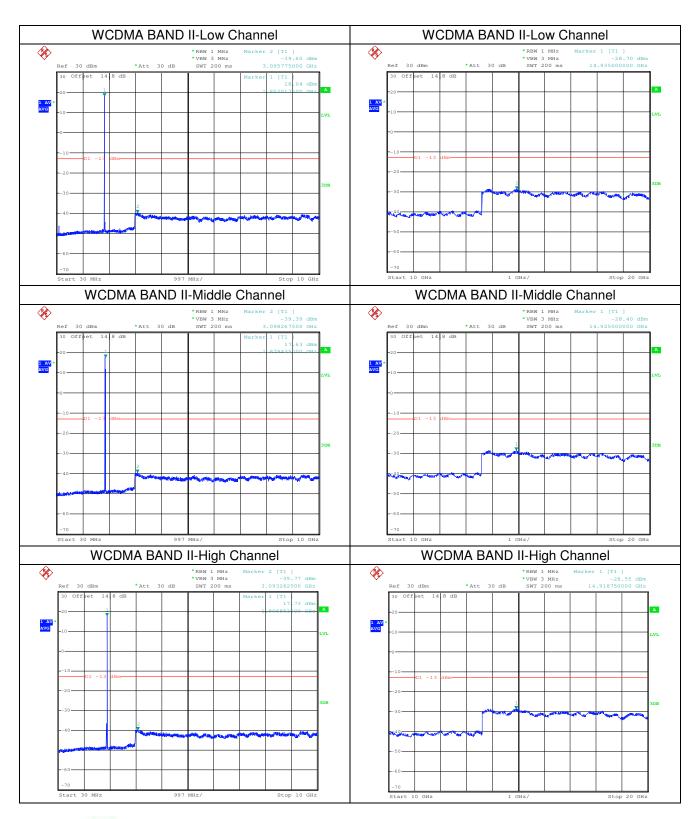
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6.6 Field strength of spurious radiation

Test Requirement: \$2.1051, \$22.917, \$24.238, \$27.53(h)
Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: ≤ -13dBm

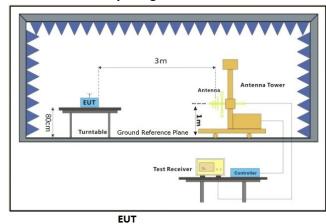
6.6.1 E.U.T. Operation

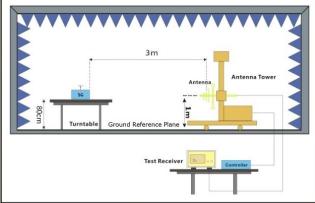
Operating Environment:

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

Test mode: z: Tx mode, Keep the EUT in transmitting mode.

6.6.2 Test Setup Diagram





Substiute Antenna+Signal Generator



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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 a declared by the user.
- (2) The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to corres to the transmitter.
- (3) The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-r detector was used for the measurement as indicated on the report. The detector selection is based how close the emission level was approaching the limit.
- (4) The transmitter shall be switched on; if possible, without the modulation and the measurement recei 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 measuri receiver detects a maximum signal level.
- (6) The transmitter shall than be rotated through 360 in the horizontal plane, until the maximum signal le 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 inc the sensitivity of the measuring receiver.
- (14)The test antenna shall be raised and lowered through the specified range of the height to ensure the maximum signal is received.
- (15)The input signal to substitution antenna shall be adjusted to the level that produces a level detected 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 a change of input attenuator eatting of the measuring receiver



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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	-66.27	0.52	6	-60.79	-13	-47.79	Horizontal	Pass				
2479.2	-61.34	0.53	5.8	-56.07	-13	-43.07	Horizontal	Pass				
3305.6	-58.58	0.65	6.2	-53.03	-13	-40.03	Horizontal	Pass				
1652.8	-66.13	0.52	6	-60.65	-13	-47.65	Vertical	Pass				
2479.2	-61.19	0.53	5.8	-55.92	-13	-42.92	Vertical	Pass				
3305.6	-58.82	0.65	6.2	-53.27	-13	-40.27	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	-65.62	0.52	6	-60.14	-13	-47.14	Horizontal	Pass					
2509.2	-61.98	0.59	5.3	-57.27	-13	-44.27	Horizontal	Pass					
3345.6	-58.1	0.65	6.2	-52.55	-13	-39.55	Horizontal	Pass					
1672.8	-66.15	0.52	6	-60.67	-13	-47.67	Vertical	Pass					
2509.2	-61.77	0.59	5.3	-57.06	-13	-44.06	Vertical	Pass					
3345.6	-59.12	0.65	6.2	-53.57	-13	-40.57	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	-65.68	0.52	6	-60.2	-13	-47.2	Horizontal	Pass					
2539.8	-60.51	0.59	5.3	-55.8	-13	-42.8	Horizontal	Pass					
3386.4	-57.81	0.65	6.2	-52.26	-13	-39.26	Horizontal	Pass					
1693.2	-67.61	0.52	6	-62.13	-13	-49.13	Vertical	Pass					
2539.8	-61.23	0.59	5.3	-56.52	-13	-43.52	Vertical	Pass					
3386.4	-58.75	0.65	6.2	-53.2	-13	-40.2	Vertical	Pass					



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	WCDMA Band IV-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			
3424.8	-58.7	0.65	6.2	-53.15	-13	-40.15	Horizontal	Pass			
5137.2	-57.26	0.82	9.6	-48.48	-13	-35.48	Horizontal	Pass			
6849.6	-56.57	0.95	11.8	-45.72	-13	-32.72	Horizontal	Pass			
3424.8	-59.78	0.65	6.2	-54.23	-13	-41.23	Vertical	Pass			
5137.2	-55.25	0.82	9.6	-46.47	-13	-33.47	Vertical	Pass			
6849.6	-55.77	0.95	11.8	-44.92	-13	-31.92	Vertical	Pass			

			WCDMA Ba	nd IV-Mide	dle channel			
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3465.2	-58.2	0.65	6.2	-52.65	-13	-39.65	Horizontal	Pass
5197.8	-57.11	0.82	9.6	-48.33	-13	-35.33	Horizontal	Pass
6930.4	-57.73	0.95	11.8	-46.88	-13	-33.88	Horizontal	Pass
3465.2	-57.66	0.65	6.2	-52.11	-13	-39.11	Vertical	Pass
5197.8	-56.32	0.82	9.6	-47.54	-13	-34.54	Vertical	Pass
6930.4	-56.64	0.95	11.8	-45.79	-13	-32.79	Vertical	Pass

	WCDMA Band IV-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			
3505.2	-58.44	0.71	7.6	-51.55	-13	-38.55	Horizontal	Pass			
5257.8	-56.92	0.82	9.6	-48.14	-13	-35.14	Horizontal	Pass			
7010.4	-58.38	1	12.9	-46.48	-13	-33.48	Horizontal	Pass			
3505.2	-58.9	0.71	7.6	-52.01	-13	-39.01	Vertical	Pass			
5257.8	-57.35	0.82	9.6	-48.57	-13	-35.57	Vertical	Pass			
7010.4	-58.39	1	12.9	-46.49	-13	-33.49	Vertical	Pass			



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			WCDMA E	Band II-Lov	v 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	-59.98	0.71	7.6	-53.09	-13	-40.09	Horizontal	Pass
5557.2	-58.04	0.85	10.3	-48.59	-13	-35.59	Horizontal	Pass
7409.6	-57.56	1	12.9	-45.66	-13	-32.66	Horizontal	Pass
3704.8	-60.94	0.71	7.6	-54.05	-13	-41.05	Vertical	Pass
5557.2	-56.3	0.85	10.3	-46.85	-13	-33.85	Vertical	Pass
7409.6	-56.57	1	12.9	-44.67	-13	-31.67	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	-59.83	0.71	7.6	-52.94	-13	-39.94	Horizontal	Pass			
5640	-57.72	0.85	10.3	-48.27	-13	-35.27	Horizontal	Pass			
7520	-58.88	0.99	13.2	-46.67	-13	-33.67	Horizontal	Pass			
3760	-59.21	0.71	7.6	-52.32	-13	-39.32	Vertical	Pass			
5640	-56.75	0.85	10.3	-47.3	-13	-34.3	Vertical	Pass			
7520	-58.15	0.99	13.2	-45.94	-13	-32.94	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	-58.67	0.71	7.6	-51.78	-13	-38.78	Horizontal	Pass			
5722.8	-58.05	0.85	10.3	-48.6	-13	-35.6	Horizontal	Pass			
7630.4	-58.49	0.99	13.2	-46.28	-13	-33.28	Horizontal	Pass			
3815.2	-59.07	0.71	7.6	-52.18	-13	-39.18	Vertical	Pass			
5722.8	-57.65	0.85	10.3	-48.2	-13	-35.2	Vertical	Pass			
7630.4	-58.41	0.99	13.2	-46.2	-13	-33.2	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, §27.54 Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: ≤ ±2.5ppm.

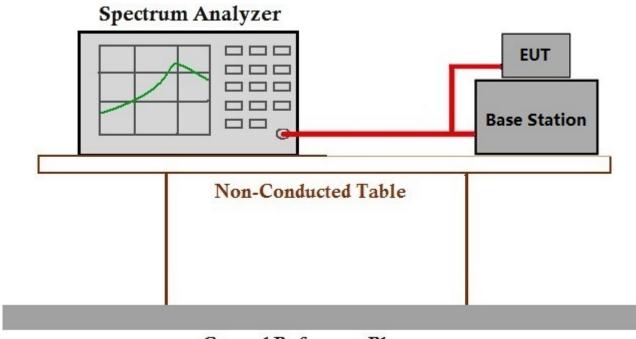
6.7.1 **E.U.T. Operation**

Operating Environment:

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

Test mode: z: Tx mode, Keep the EUT in transmitting mode.

6.7.2 Test Setup Diagram



Ground Reference Plane

Measurement Data 6.7.3



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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
				VL	2.89	0.003497	PASS
		LCH	TN	VN	1.81	0.002190	PASS
				VH	-3.27	-0.003957	PASS
				VL	-1.89	-0.002260	PASS
	HSDPA	MCH	TN	VN	-1.25	-0.001495	PASS
				VH	-3.94	-0.004711	PASS
		НСН	TN	VL	4.06	0.004796	PASS
				VN	-0.78	-0.000921	PASS
WCDMA				VH	-2.13	-0.002516	PASS
V		LCH	TN	VL	-3.57	-0.004320	PASS
				VN	1.5	0.001815	PASS
				VH	-2.44	-0.002953	PASS
				VL	3.84	0.004591	PASS
	HSUPA	MCH	TN	VN	2.56	0.003061	PASS
				VH	-4.44	-0.005308	PASS
				VL	1.13	0.001335	PASS
		HCH	TN	VN	-3.18	-0.003756	PASS
				VH	2.5	0.002953	PASS



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Test Band	Test mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				VL	-4.73	-0.002527	PASS
		LCH	TN	VN	2.2	0.001114	PASS
				VH	1.63	0.000843	PASS
				VL	1.12	0.000525	PASS
	HSDPA	MCH	TN	VN	-2.78	-0.001433	PASS
				VH	3.28	0.001702	PASS
		нсн	TN	VL	-2.75	-0.001415	PASS
				VN	2.2	0.001122	PASS
WCDMA				VH	-4.37	-0.002245	PASS
IV		LCH	TN	VL	1.15	0.000656	PASS
				VN	-3.99	-0.002113	PASS
				VH	2.68	0.001472	PASS
				VL	-4.36	-0.002325	PASS
	HSUPA	MCH	TN	VN	1.71	0.000945	PASS
				VH	0.76	0.000452	PASS
				VL	-2.47	-0.001233	PASS
		HCH	TN	VN	3.77	0.001936	PASS
				VH	-4.97	-0.002674	PASS



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Test Band	Test mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				VL	-4.73	-0.002553	PASS
		LCH	TN	VN	2.2	0.001188	PASS
				VH	1.63	0.000880	PASS
				VL	1.12	0.000596	PASS
	HSDPA	MCH	TN	VN	-2.78	-0.001479	PASS
				VH	3.28	0.001745	PASS
		нсн	TN	VL	-2.75	-0.001442	PASS
				VN	2.2	0.001153	PASS
WCDMA				VH	-4.37	-0.002291	PASS
II			TN	VL	1.15	0.000621	PASS
		LCH		VN	-3.99	-0.002154	PASS
				VH	2.68	0.001447	PASS
				VL	-4.36	-0.002319	PASS
	HSUPA	MCH	TN	VN	1.71	0.000910	PASS
				VH	0.76	0.000404	PASS
				VL	-2.47	-0.001295	PASS
		HCH	TN	VN	3.77	0.001976	PASS
				VH	-4.97	-0.002605	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
				-30	-2.24	-0.002718	PASS
				-20	-2.28	-0.002766	PASS
				-10	2.33	0.002827	PASS
				0	-3.97	-0.004817	PASS
		LCH	VN	10	1.64	0.001990	PASS
				20	-3.82	-0.004635	PASS
				30	-4.56	-0.005533	PASS
				40	-4.38	-0.005314	PASS
				50	-3.8	-0.004611	PASS
				-30	-2.28	-0.002726	PASS
	HSDPA	МСН	VN	-20	-2.31	-0.002761	PASS
				-10	3.6	0.004303	PASS
WCDMA				0	-5.09	-0.006084	PASS
V				10	1.82	0.002175	PASS
V				20	-3.9	-0.004662	PASS
				30	-3.64	-0.004351	PASS
				40	-2.56	-0.003060	PASS
				50	-3.79	-0.004530	PASS
				-30	-3.9	-0.004607	PASS
				-20	-3.85	-0.004548	PASS
				-10	-2.79	-0.003296	PASS
				0	-2.49	-0.002941	PASS
		HCH	VN	10	-2.78	-0.003284	PASS
				20	1.19	0.001406	PASS
				30	-4.79	-0.005658	PASS
				40	-3.61	-0.004264	PASS
				50	-3.05	-0.003603	PASS



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Test Band	Test mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-30	-2.72	-0.001424	PASS
				-20	-2.73	-0.001415	PASS
				-10	-3.9	-0.002144	PASS
				0	3.08	0.001602	PASS
		LCH	VN	10	-3.18	-0.001762	PASS
				20	-0.11	-0.000021	PASS
				30	1.99	0.001003	PASS
				40	-2.81	-0.001575	PASS
				50	-2.2	-0.001124	PASS
				-30	-3.92	-0.002013	PASS
	HSDPA	МСН	VN	-20	-3.93	-0.002032	PASS
				-10	1.77	0.000901	PASS
WCDMA				0	-2.1	-0.001158	PASS
IV				10	4.81	0.002570	PASS
l v				20	-3.4	-0.001846	PASS
				30	-1.53	-0.000844	PASS
				40	-3.46	-0.001885	PASS
				50	-4.24	-0.002216	PASS
				-30	-2.81	-0.001424	PASS
				-20	-2.82	-0.001413	PASS
				-10	3.75	0.001912	PASS
				0	2.07	0.001011	PASS
		HCH	VN	10	-0.12	-0.000021	PASS
				20	-3.02	-0.001533	PASS
				30	-3.89	-0.002059	PASS
				40	1.88	0.000945	PASS
				50	-2.72	-0.001434	PASS



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Test Band	Test mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-30	-2.72	-0.001468	PASS
				-20	-2.73	-0.001474	PASS
				-10	-3.9	-0.002105	PASS
				0	3.08	0.001663	PASS
		LCH	VN	10	-3.18	-0.001717	PASS
				20	-0.11	-0.000059	PASS
				30	1.99	0.001074	PASS
				40	-2.81	-0.001517	PASS
				50	-2.2	-0.001188	PASS
	HSDPA			-30	-3.92	-0.002085	PASS
		МСН	VN	-20	-3.93	-0.002090	PASS
				-10	1.77	0.000941	PASS
WCDMA				0	-2.1	-0.001117	PASS
II				10	4.81	0.002559	PASS
"				20	-3.4	-0.001809	PASS
				30	-1.53	-0.000814	PASS
				40	-3.46	-0.001840	PASS
				50	-4.24	-0.002255	PASS
				-30	-2.81	-0.001473	PASS
				-20	-2.82	-0.001478	PASS
				-10	3.75	0.001966	PASS
				0	2.07	0.001085	PASS
		HCH	VN	10	-0.12	-0.000063	PASS
				20	-3.02	-0.001583	PASS
				30	-3.89	-0.002039	PASS
				40	1.88	0.000986	PASS
				50	-2.72	-0.001426	PASS



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Test Band	Test mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-30	-1.21	-0.001468	PASS
				-20	-1.25	-0.001517	PASS
				-10	3.36	0.004077	PASS
				0	-2.94	-0.003567	PASS
		LCH	VN	10	2.67	0.003240	PASS
				20	-2.79	-0.003385	PASS
				30	-3.53	-0.004283	PASS
				40	-3.35	-0.004065	PASS
				50	-2.77	-0.003361	PASS
				-30	-1.25	-0.001495	PASS
	HSUPA	МСН	VN	-20	-1.28	-0.001530	PASS
				-10	4.63	0.005534	PASS
WCDMA				0	-4.06	-0.004853	PASS
V				10	2.85	0.003407	PASS
V				20	-2.87	-0.003431	PASS
				30	-2.61	-0.003120	PASS
				40	-1.53	-0.001829	PASS
				50	-2.76	-0.003299	PASS
				-30	-2.87	-0.003390	PASS
				-20	-2.82	-0.003331	PASS
				-10	-1.76	-0.002079	PASS
				0	-1.46	-0.001725	PASS
		HCH	VN	10	-1.75	-0.002067	PASS
				20	2.22	0.002622	PASS
				30	-3.76	-0.004441	PASS
				40	-2.58	-0.003047	PASS
				50	-2.02	-0.002386	PASS



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Test Band	Test mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-30	-3.38	-0.001879	PASS
				-20	-3.39	-0.001887	PASS
				-10	-4.56	-0.002413	PASS
				0	2.42	0.001345	PASS
		LCH	VN	10	-3.84	-0.002058	PASS
				20	-0.77	-0.000473	PASS
				30	1.33	0.000756	PASS
				40	-3.47	-0.001845	PASS
				50	-2.86	-0.001583	PASS
				-30	-4.58	-0.002476	PASS
	HSUPA	МСН	VN	-20	-4.59	-0.002488	PASS
				-10	1.11	0.000516	PASS
WCDMA				0	-2.76	-0.001424	PASS
IV				10	4.15	0.002232	PASS
l v				20	-4.06	-0.002112	PASS
				30	-2.19	-0.001107	PASS
				40	-4.12	-0.002145	PASS
				50	-4.9	-0.002655	PASS
				-30	-3.47	-0.001884	PASS
				-20	-3.48	-0.001877	PASS
				-10	3.09	0.001684	PASS
				0	1.41	0.000776	PASS
		HCH	VN	10	-0.78	-0.000445	PASS
				20	-3.68	-0.001981	PASS
				30	-4.55	-0.002342	PASS
				40	1.22	0.000635	PASS
				50	-3.38	-0.001716	PASS



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Test Band	Test mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-30	-3.38	-0.001825	PASS
				-20	-3.39	-0.001830	PASS
				-10	-4.56	-0.002462	PASS
				0	2.42	0.001306	PASS
		LCH	VN	10	-3.84	-0.002073	PASS
				20	-0.77	-0.000416	PASS
				30	1.33	0.000718	PASS
				40	-3.47	-0.001873	PASS
				50	-2.86	-0.001544	PASS
				-30	-4.58	-0.002436	PASS
	HSUPA	МСН	VN	-20	-4.59	-0.002441	PASS
				-10	1.11	0.000590	PASS
WCDMA				0	-2.76	-0.001468	PASS
II				10	4.15	0.002207	PASS
"				20	-4.06	-0.002160	PASS
				30	-2.19	-0.001165	PASS
				40	-4.12	-0.002191	PASS
				50	-4.9	-0.002606	PASS
				-30	-3.47	-0.001819	PASS
				-20	-3.48	-0.001824	PASS
				-10	3.09	0.001620	PASS
				0	1.41	0.000739	PASS
		HCH	VN	10	-0.78	-0.000409	PASS
				20	-3.68	-0.001929	PASS
				30	-4.55	-0.002385	PASS
				40	1.22	0.000640	PASS
				50	-3.38	-0.001772	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

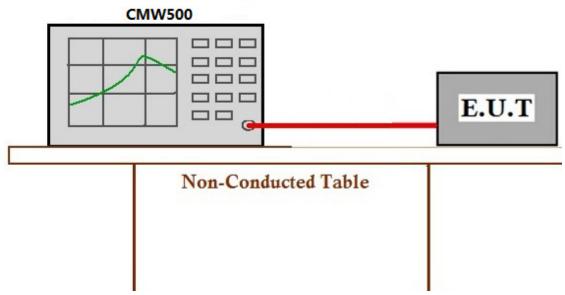
6.8.1 E.U.T. Operation

Operating Environment:

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

Test mode: z: Tx mode, Keep the EUT in transmitting mode.

6.8.2 Test Setup Diagram



6.8.3 Measurement Data

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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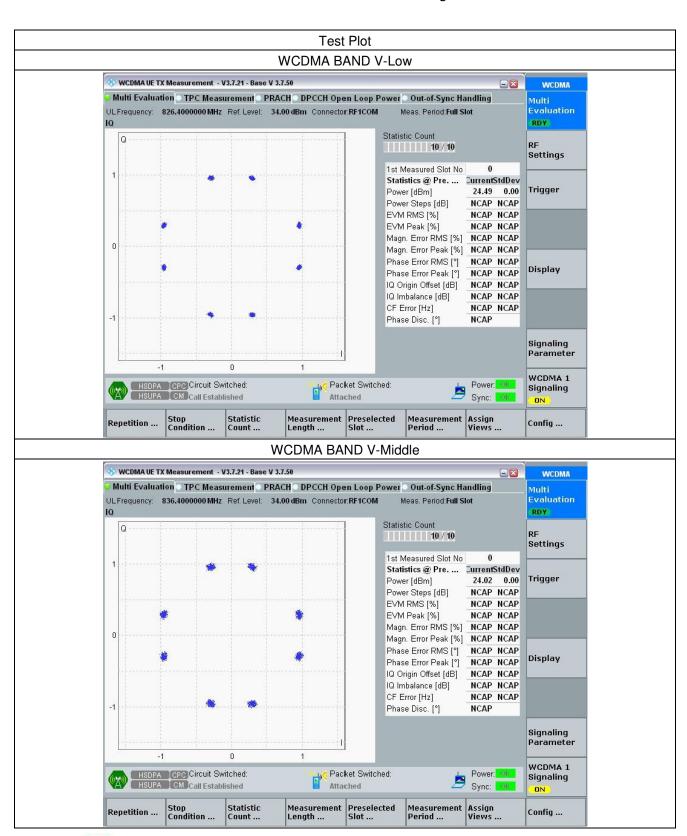
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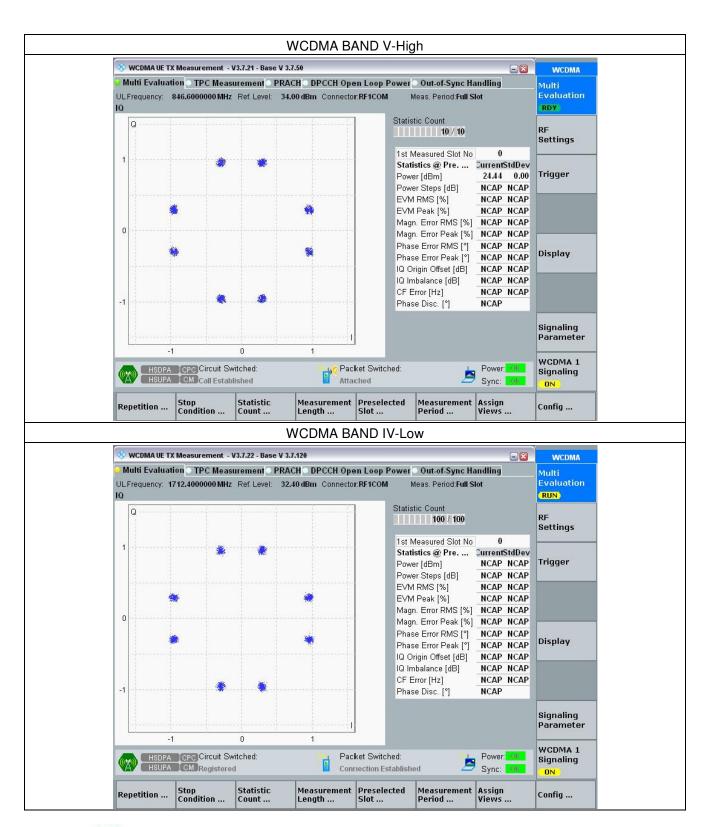
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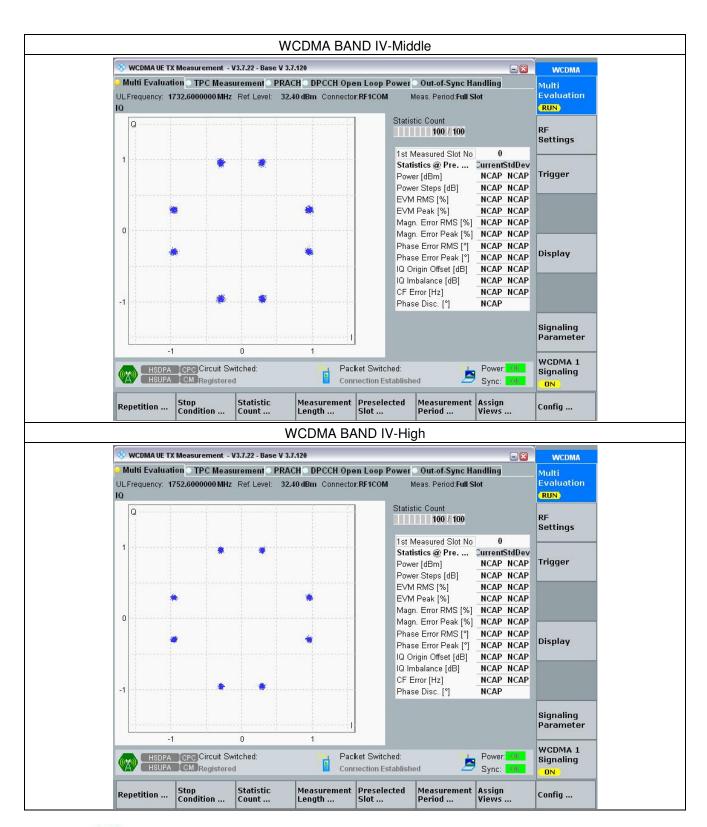
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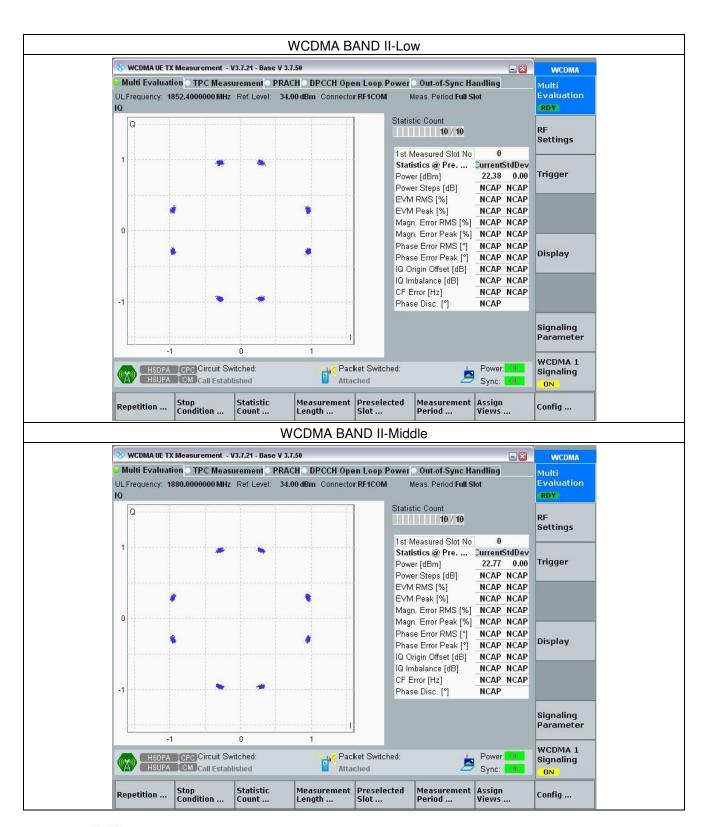
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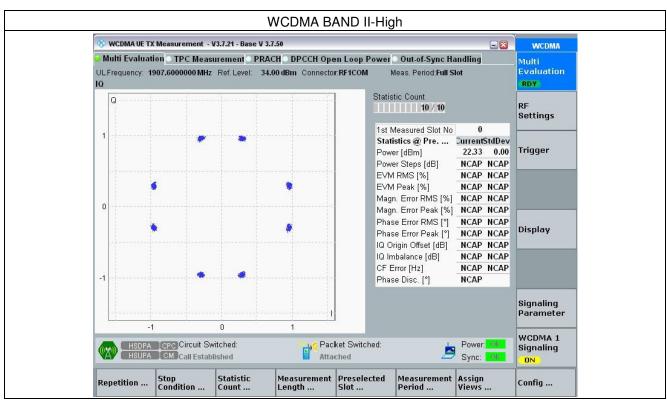
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