FCC Test Report

Report No.: AGC03569141101FE02

FCC ID	: 2ADRFU1S
APPLICATION PURPOSE	: Original Equipment
PRODUCT DESIGNATION	: Mobile Phone
BRAND NAME	: iRULU
MODEL NAME	: U1S
CLIENT	: USA 111 INC
DATE OF ISSUE	: Dec.04, 2014
STANDARD(S)	: FCC Part 22H & 24E Rules
REPORT VERSION	: V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd.

AGC

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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Dec.04, 2014	Valid	Original Report

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Applicant	USA 111 INC	
Address	191 W. Nationwide Blvd., Ste 300, Columbus, OH 43215	
Manufacturer	Shenzhen Allland Networking Co., Ltd.	
Address	Fourth Floor, #B Building, Weiyulong Industrial Park, Xuegang North Road #16, Bantian Street, Longgang District, Shenzhen	
Product Designation	Mobile Phone	
Brand Name	iRULU	
Test Model	U1S	
Date of test	Dec.01, 2014 to Dec.04, 2014	
Deviation	None	
Condition of Test Sample	Normal	

1. VERIFICATION OF COMPLIANCE

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C 63.4:2003 and TIA/EIA 603. The sample tested as described in this report is in compliance with the FCC Rules Part 22H and 24E.

The test results of this report relate only to the tested sample identified in this report.

Tested By :	Sant Here			
	Bart Xie	Dec.04, 2014		
Reviewed By :	kid	et tony		
	Kidd Yang	Dec.04, 2014		
Approved By:	Ssya	- 2hang		

Solger Zhang

Dec.04, 2014

2. GENERAL INFORMATION

2.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Mobile Phone		
Hardware version:	G317 C4 V1.1		
Software version:	G317_C4_F2_U1S_V1.2_S20141030		
Frequency Bands:	GSM 850 PCS 1900 (U.S. Bands) GSM 900 DCS 1800 (Non-U.S. Bands) UMTS FDD Band II UMTS FDD Band V (U.S. Bands) UMTS FDD Band I UMTS FDD Band VIII (Non-U.S. Bands)		
Antenna:	PIFA Antenna		
Antenna gain:	-1.0dBi(GSM/WCDMA 850), -0.8dBi (GSM/WCDMA 1900)		
Power Supply:	DC 3.8V by Battery		
Battery parameter:	DC3.8V/1850 mAh		
Adapter Input:	AC100-240V, 50/60Hz, 0.2A		
Adapter Output:	DC5V, 1000mA		
Dual Card:	WCDMA / GSM Card Slot GSM Card Slot		
GPRS Class	12		
Extreme Vol. Limits:	DC3.4 V to 4.2 V (Normal: DC3.8 V)		
Extreme Temp. Tolerance	-10℃ to +50℃		
*** Note: The High Voltage DC4.2V and Low Voltage DC3.4V were declared by manufacturer, The			

EUT couldn't be operating normally with higher or lower voltage.

Other functions have been performed according to verification procedure except for Bluetooth and MS function. Card 1 can't transmit with Card 2 simultaneously.

*** **Note:** The maximum power levels are GSM for MCS-4: GMSK link, and RMC 12.2kbps mode for WCDMA band II, WCDMA band V, only these modes were used for all tests.

We found out the test mode with the highest power level after we analyze all the data rates. So we chose worst case as a representative.

WCDMA Card Slot:

	Maximum ERP/EIRP Max. Conducted Power		Max. Average
	(dBm)	(dBm)	Burst Power (dBm)
GSM 850	30.49	32.62	31.91
PCS 1900	27.56	29.56	28.84
UMTS BAND II	21.68	23.23	22.71
UMTS BAND V	21.57	23.43	22.92

GSM Card Slot:

	Maximum ERP/EIRP	Max. Conducted Power	Max. Average
	(dBm)	(dBm)	Burst Power (dBm)
GSM 850	30.11	32.28	31.62
PCS 1900	27.32	29.13	28.46

2.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2ADRFU1S**, filing to comply with the FCC Part 22H&24E requirements.

2.3 TEST METHODOLOGY

The radiated emission testing was performed according to the procedures of ANSI C 63.4: 2003; TIA/EIA 603 and FCC CFR 47 Rules of 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057. KDB 971168 D01 Power Meas License Digital Systems v02r01

2.4 TEST FACILITY

The test site used to collect the radiated data is located at: Attestation of Global Compliance (Shenzhen) Co., Ltd. 2/F., Building 2, No.1-No.4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Bao'an District, Shenzhen, Guangdong, China FCC register No.: 259865

2.5 MEASUREMENT INSTRUMENTS

Name of Equipment	Manufacturer	Model	Calibration Date	Calibration Due.
SPECTRUM ANALYZER	AGILENT	E4440A	Feb.17,2014	Feb.16,2015
TEST RECEIVER	R&S	ESCI	July 25, 2014	July 24, 2015
COMMUNICATION TESTER	AGILENT	8960	July 25, 2014	July 24, 2015
COMMUNICATION TESTER	R&S	CMU200	July 25, 2014	July 24, 2015
SIGNAL GENERATOR	AGILENT	E4438C	Feb.23,2014	Feb. 22,2015
LISN	R&S	ESH3-Z5	July 25, 2014	July 24, 2015
CLIMATE CHAMBER	ALBATROSS		July 25, 2014	July 24, 2015
Loop Antenna	A.H.	SAS-562B	May 10, 2014	May 09, 2015
WIDEBAND REQUENCY ANTENNA	SCHWARZBECK	VULB9168	Aug.16, 2014	Aug.15, 2015
Substitution Antenna	EMCO	3142C	Aug.16, 2014	Aug.15, 2015
Substitution Antenna	EM	EM-AH-10180	Apr.19, 2014	Apr.18, 2015
Horn Antenna	EM	EM-AH-10180	Feb.17,2014	Feb.16,2015
Horn Antenna	A.H. Systems Inc.	SAS-574	June 6, 2014	June 5, 2015
Radiation Cable 1	Sat	RE1	June 4, 2014	June 3, 2015
Radiation Cable 2	Sat	RE2	June 4, 2014	June 3, 2015
Conduction Cable	Sat	CE1	June 4, 2014	June 3, 2015

2.6 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with EUT intended for FCC grant together.

2.7 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

3. SYSTEM TEST CONFIGURATION

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

Item Number	Item Description		FCC Rules	
1	Output Dowor	Conducted output power	2.1046/22.913(a) (2) / 24.232	
1	Output Power	Radiated output power	(c)	
2	Peak-to-Average	Dook to Average Ratio	24.222(d)	
2	Ratio	Peak-to-Average Ratio	24.232(d)	
		Conducted		
3	Spurious Emission	spurious emission	2.1051 / 22.917 / 24.238	
		Radiated spurious emission		
4	Mains Conducted Emission		15.107 / 15.207	
5	Frequency Stability		2.1055/22.355 /24.235	
6	Occupied Bandwidth		2.1049 (h)(i)	
7	Emission Bandwidth		22.917(a)/24.238(a)	
8	Band Edge		22.917(a)/24.238(a)	

3.3 GENERAL TECHNICAL REQUIREMENTS

3.4 CONFIGURATION OF EUT SYSTEM

Fig. 2-1 Configuration of EUT System

EUT

Accessory

Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Mobile Phone	U1S	FCCID:2ADRFU1S	EUT
2	Adapter	U1S	DC5V / 1000mA	Accessory
3	Battery	U1S	DC3.8V / 1850 mAh	Accessory
4	Earphone	U1S	N/A	Accessory
5	USB Cable	U1S	N/A	Accessory

***Note: All the accessories have been used during the test. The following "EUT" in setup diagram means EUT system.

Item Number	Item Description		FCC Rules	Result	
		Conducted Output Power	2.1046/22.913(a) (2) /		
1	1 Output Power	Radiated Output Power	24.232 (c)	Pass	
2	Peak-to-Average Ratio	Peak-to-Average Ratio	24.232(d)	Pass	
		Conducted			
3	Spurious Emission	Purious Emission Radiated Spurious Emission	2.1051 / 22.917 / 24.238	Pass	
4	Mains Conducted Em	ission	15.107 / 15.207	Pass	
5	Frequency Stability		2.1055/22.355 /24.235	Pass	
6	Occupied Bandwidth		2.1049 (h)(i)	Pass	
7	Emission Bandwidth		22.917(a)/24.238(a)	Pass	
8	Band Edge		22.917(a)/24.238(a)	Pass	

4. SUMMARY OF TEST RESULTS

5. DESCRIPTION OF TEST MODES

During the testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication Tester (CMU 200) to ensure max power transmission and proper modulation. Three channels (The top channel, the middle channel and the bottom channel) were chosen for testing on both GSM and PCS frequency band. ***Note: GSM/GPRS 850, GSM/GPRS 1900, WCDMA/HSPA band II, WCDMA/HSPA band V, mode have

been tested during the test.

The worst condition was recorded in the test report if no other modes test data.

6. OUTPUT POWER

6.1 CONDUCTED OUTPUT POWER

6.1.1 MEASUREMENT METHOD

The transmitter output port was connected to base station.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

Measure the maximum burst average power and average power for other modulation signal.

The EUT was setup for the max output power with pseudo random data modulation. Power was measured with Spectrum Analyzer. The measurements were performed on all modes (GSM/GPRS850, GSM/GPRS1900, WCDMA/HSPA band II, WCDMA/HSPA band V) at 3 typical channels (the Top Channel, the Middle Channel and the Bottom Channel) for each band.

Conducted Output Power Limits for GSM850/EDGE band						
Mode	Nominal Peak Power	Tolerance(dB)				
GSM	33 dBm (2W)	- 2				
	Conducted Output Power Limits for PCS1900/EDGE band					
Mode	Mode Nominal Peak Power Tolerance(dB)					
GSM	30 dBm (1W)	- 2				
	Conducted Output Power Limits for UMTS	band II				
Mode	Nominal Peak Power	Tolerance(dB)				
WCDMA	24 dBm (0.25W)	- 2				
	Conducted Output Power Limits for UMTS band V					
Mode	Nominal Peak Power	Tolerance(dB)				
WCDMA	24 dBm (0.25W)	- 2				

6.1.2 MEASUREMENT RESULT

Mada	Frequency	Reference	Peak	Tolerance	Avg.Burst	Duty cycle	Frame
Mode	(MHz)	Power	Power		Power	Factor(dB)	Power(dBm)
	824.2	33	32.62	-0.38	31.91	-9	22.91
GSM850	836.6	33	32.57	-0.43	31.89	-9	22.89
	848.8	33	32.49	-0.51	31.82	-9	22.82
	824.2	33	32.42	-0.58	31.68	-9	22.68
GPRS850	836.6	33	32.38	-0.62	31.64	-9	22.64
(1 Slot)	848.8	33	32.36	-0.64	31.59	-9	22.59
	824.2	30	29.59	-0.41	28.88	-6	22.88
GPRS850	836.6	30	29.55	-0.45	28.85	-6	22.85
(2 Slot)	848.8	30	29.48	-0.52	28.83	-6	22.83
	824.2	28.23	27.66	-0.57	26.97	-4.26	22.71
GPRS850	836.6	28.23	27.62	-0.61	26.92	-4.26	22.66
(3 Slot)	848.8	28.23	27.61	-0.62	26.87	-4.26	22.61
GPRS850	824.2	27	26.67	-0.33	25.96	-3	22.96
	836.6	27	26.64	-0.36	25.94	-3	22.94
(4 Slot)	848.8	27	26.62	-0.38	25.93	-3	22.93

GSM 850:

Mode	Frequency (MHz)	Reference Power	Peak Power	Tolerance	Avg.Burst Power	Duty cycle Factor(dB)	Frame Power(dBm)
	1850.2	30	29.56	-0.44	28.84	-9	19.84
GSM1900	1880	30	29.53	-0.47	28.78	-9	19.78
	1909.8	30	29.49	-0.51	28.73	-9	19.73
GPRS1900	1850.2	30	29.43	-0.57	28.68	-9	19.68
(1 Slot)	1880	30	29.41	-0.59	28.64	-9	19.64
(1 300)	1909.8	30	29.35	-0.65	28.62	-9	19.62
GPRS1900	1850.2	27	26.72	-0.28	25.97	-6	19.97
(2 Slot)	1880	27	26.68	-0.32	25.92	-6	19.92
(2 3101)	1909.8	27	26.65	-0.35	25.89	-6	19.89
GPRS1900	1850.2	25.23	24.74	-0.49	23.86	-4.26	19.6
	1880	25.23	24.73	-0.5	23.83	-4.26	19.57
(3 Slot)	1909.8	25.23	24.68	-0.55	23.81	-4.26	19.55
00004000	1850.2	24	23.67	-0.33	22.98	-3	19.98
GPRS1900	1880	24	23.66	-0.34	22.92	-3	19.92
(4 Slot)	1909.8	24	23.63	-0.37	22.87	-3	19.87

PCS 1900:

UMTS BAND II

Mode	Frequency (MHz)	Reference power	Peak Power	Tolerance	Avg.Burst Power
	1852.6	24	23.23	-0.77	22.71
WCDMA 1900 RMC	1880	24	23.21	-0.79	22.68
	1907.4	24	23.19	-0.81	22.64
	1852.6	24	22.73	-1.27	22.25
WCDMA 1900 AMR	1880	24	22.71	-1.29	22.24
	1907.4	24	22.68	-1.32	22.21
	1852.6	24	22.63	-1.37	22.18
HSDPA Subtest 1	1880	24	22.61	-1.39	22.16
	1907.4	24	22.66	-1.34	22.13
	1852.6	24	22.76	-1.24	22.26
HSDPA Subtest 2	1880	24	22.69	-1.31	22.19
	1907.4	24	22.65	-1.35	22.18
	1852.6	24	22.63	-1.37	22.14
HSDPA Subtest 3	1880	24	22.61	-1.39	22.12
	1907.4	24	22.65	-1.35	22.11
	1852.6	24	22.77	-1.23	22.24
HSDPA Subtest 4	1880	24	22.72	-1.28	22.22
	1907.4	24	22.68	-1.32	22.18
	1852.6	24	22.63	-1.37	22.26
HSUPA Subtest 1	1880	24	22.69	-1.31	22.25
	1907.4	24	22.64	-1.36	22.16
	1852.6	24	22.68	-1.32	22.16
HSUPA Subtest 2	1880	24	22.65	-1.35	22.14
	1907.4	24	22.66	-1.34	22.13
	1852.6	24	22.63	-1.37	22.21
HSUPA Subtest 3	1880	24	22.61	-1.39	22.15
	1907.4	24	22.68	-1.32	22.12
	1852.6	24	22.77	-1.23	22.31
HSUPA Subtest 4	1880	24	22.72	-1.28	22.29
	1907.4	24	22.67	-1.33	22.16
	1852.6	24	22.75	-1.25	22.28
HSUPA Subtest 5	1880	24	22.66	-1.34	22.19
	1907.4	24	22.65	-1.35	22.15

UMTS BAND V

Mode	Frequency (MHz)	Reference power	Peak Power	Tolerance	Avg.Burst Power
	826.6	24	23.43	-0.57	22.92
WCDMA 850 RMC	836.4	24	23.36	-0.64	22.82
	846.4	24	23.28	-0.72	22.76
	826.6	24	22.75	-1.25	22.35
WCDMA 850 AMR	836.4	24	22.72	-1.28	22.32
	846.4	24	22.67	-1.33	22.27
	826.6	24	22.71	-1.29	22.29
HSDPA Subtest 1	836.4	24	22.66	-1.34	22.26
	846.4	24	22.64	-1.36	22.21
	826.6	24	22.73	-1.27	22.34
HSDPA Subtest 2	836.4	24	22.68	-1.32	22.19
	846.4	24	22.65	-1.35	22.16
	826.6	24	22.72	-1.28	22.21
HSDPA Subtest 3	836.4	24	22.69	-1.31	22.19
Sublest 3	846.4	24	22.64	-1.36	22.14
	826.6	24	22.65	-1.35	22.27
HSDPA Subtest 4	836.4	24	22.62	-1.38	22.26
Sublest 4	846.4	24	22.59	-1.41	22.11
	826.6	24	22.74	-1.26	22.28
HSUPA Subtest 1	836.4	24	22.63	-1.37	22.23
	846.4	24	22.67	-1.33	22.19
	826.6	24	22.72	-1.28	22.25
HSUPA Subtest 2	836.4	24	22.71	-1.29	22.18
Sublest 2	846.4	24	22.67	-1.33	22.16
	826.6	24	22.65	-1.35	22.13
HSUPA	836.4	24	22.63	-1.37	22.17
Subtest 3	846.4	24	22.62	-1.38	22.14
	826.6	24	22.66	-1.34	22.12
HSUPA	836.4	24	22.64	-1.36	22.18
Subtest 4	846.4	24	22.62	-1.38	22.11
	826.6	24	22.67	-1.33	22.16
HSUPA	836.4	24	22.58	-1.42	22.09
Subtest 5	846.4	24	22.55	-1.45	22.12

According to 3GPP 25.101 sub-clause 6.2.2, the maximum output power is allowed to be reduced by following the table.

Table 6.1aA: UE maximum output power with HS-DPCCH and E-DCH

UE Transmit Channel Configuration	CM(db)	MPR(db)		
For all combinations of ,DPDCH,DPCCH	0≤ CM≤3.5			
HS-DPDCH, E-DPDCH and E-DPCCH		MAX(CM-1,0)		
Note: CM=1 for β_{c}/β_{d} =12/15, β_{hs}/β_{c} =24/15.For all other combinations of DPDCH, DPCCH,				
HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.				

The device supports MPR to solve linearity issues (ACLR or SEM) due to the higher peak-to average ratios (PAR) of the HSUPA signal. This prevents saturating the full range of the TX DAC inside of device and provides a reduced power output to the RF transceiver chip according to the Cubic Metric (a function of the combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH).

When E-DPDCH channels are present the beta gains on those channels are reduced firsts to try to get the power under the allowed limit. If the beta gains are lowered as far as possible, then a hard limiting is applied at the maximum allowed level.

The SW currently recalculates the cubic metric every time the beta gains on the E-DPDCH are reduced. The cubic metric will likely get lower each time this is done .However, there is no reported reduction of maximum output power in the HSUPA mode since the device also provides a compensate for the power back-off by increasing the gain of TX_AGC in the transceiver (PA) device.

The end effect is that the DUT output power is identical to the case where there is no MPR in the device.

6.2 RADIATED OUTPUT POWER

6.2.1 MEASUREMENT METHOD

The measurements procedures specified in TIA-603C-2004 were applied.

- 1 In an anechoic antenna test chamber, a half-wave dipole antenna for the frequency band of interest is placed at the reference centre of the chamber. An RF Signal source for the frequency band of interest is connected to the dipole with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A known (measured) power (Pin) is applied to the input of the dipole, and the power received (Pr) at the chamber's probe antenna is recorded.
- 2 The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established as ARpl=Pin + 2.15 - Pr. The ARpl is the attenuation of "reference path loss", and including the gain of receive antenna, the cable loss and the air loss. The measurement results are obtained as described below: Power=PMea+ARpl
- 3 The EUT is substituted for the dipole at the reference centre of the chamber and a scan is performed to obtain the radiation pattern.
- 4 From the radiation pattern, the co-ordinates where the maximum antenna gain occurs are identified.
- 5 The EUT is then put into continuously transmitting mode at its maximum power level.
- 6 Power mode measurements are performed with the receiving antenna placed at the coordinates determined in Step 3 to determine the output power as defined in Rule 24.232 (b) and (c). The "reference path loss" from Step1 is added to this result.
- 7 This value is EIRP since the measurement is calibrated using a half-wave dipole antenna of known gain (2.15 dBi) and known input power (Pin).
- 8 ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi..

6.2.2 PROVISIONS APPLICABLE

This is the test for the maximum radiated power from the EUT. Rule Part 24.232(b) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage." Rule Part 22.913(a) specifies "Maximum ERP. The effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts."

Mode	Nominal Peak Power	
GSM 850	<=38.45 dBm (7W)	
PCS 1900	<=33 dBm (2W)	
UMTS BAND II	<=33 dBm (2W)	
UMTS BANDV	<=38.45 dBm (7W)	

6.2.3 MEASUREMENT RESULT

Radiated Power (ERP) for GSM 850					
		Re	sult	Conclusion	
Mode	Frequency	Max. Peak ERP	Polarization		
		(dBm)	Of Max. ERP		
	824.2	30.49	Horizontal	Pass	
	836.6	30.43	Horizontal	Pass	
GSM850	848.8	30.38	Horizontal	Pass	
GSIMOSU	824.2	28.76	Vertical	Pass	
	836.6	28.57	Vertical	Pass	
	848.8	28.52	Vertical	Pass	

Radiated Power (E.I.R.P) for PCS 1900					
		Res	Result		
Mode	Frequency	Max. Peak	Polarization	Conclusion	
		E.I.R.P.(dBm)	Of Max. E.I.R.P.		
	1850.2	27.56	Horizontal	Pass	
	1880.0	27.52	Horizontal	Pass	
GSM 1900	1909.8	27.46	Horizontal	Pass	
001011300	1850.2	26.58	Vertical	Pass	
	1880.0	26.53	Vertical	Pass	
	1909.8	26.44	Vertical	Pass	

Radiated Power (E.I.R.P) for UMTS band II					
		Result			
Mode	Frequency	Max. Peak E.I.R.P	Polarization		
		(dBm)	Of Max. E.I.R.P		
	1852.6	21.68	Horizontal	Pass	
	1880	21.62	Horizontal	Pass	
RMC	1907.4	21.57	Horizontal	Pass	
12.2kbps	1852.6	21.39	Vertical	Pass	
	1880	21.35	Vertical	Pass	
	1907.4	21.33	Vertical	Pass	

Radiated Power (ERP) for UMTS band V					
		R	Result		
Mode	Frequency	Max. Peak ERP	Polarization	Conclusion	
		(dBm)	Of Max. E.I.R.P.		
	826.6	21.57	Horizontal	Pass	
	836.4	21.46	Horizontal	Pass	
RMC	846.4	21.39	Horizontal	Pass	
12.2kbps	826.6	21.45	Vertical	Pass	
	836.4	21.38	Vertical	Pass	
	846.4	21.35	Vertical	Pass	

Note: Above is worst mode data.

6.3. PEAK-TO-AVERAGE RATIO

6.3.1 MEASUREMENT METHOD

Use one of the procedures presented in 4.1 to measure the total peak power and record as PPk. Use one of the applicable procedures presented 4.2 to measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

PAPR (dB) = PPk (dBm) - PAvg (dBm).

6.3.2 PROVISIONS APPLICABLE

This is the test for the Peak-to-Average Ratio from the EUT.

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

6.3.3 MEASUREMENT RESULT

Modes	GSM850(GSM)		
Channel	128	190	251
onamici	(Low)	(Mid)	(High)
Frequency	824.2	836.6	848.8
(MHz)	024.2	030.0	040.0
Peak-To-Average Ratio (dB)/GSM	0.71	0.68	0.67

Modes	PCS 1900 (GSM)		
Channel	512	661	810
	(Low)	(Mid)	(High)
Frequency	1850.2	1880	1909.8
(MHz)	1050.2	1000	1909.0
Peak-To-Average Ratio (dB)/GSM	0.72	0.75	0.76

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Modes	UMTS BAND II		
Channel	9663	9800	9937
Onamier	(Low)	(Mid)	(High)
Frequency	1852.6	1880	1907.4
(MHz)	1052.0	1000	1907.4
Peak-To-Average Ratio (dB)	0.52	0.53	0.55

Modes	UMTS BAND V		
Channel	4358	4407	4457
Channel	(Low)	(Mid)	(High)
Frequency	826.6	836.6	846.4
(MHz)			040.4
Peak-To-Average Ratio (dB)	0.51	0.54	0.52

7. OCCUPIED BANDWIDTH

7.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

7.2 PROVISIONS APPLICABLE

The emission bandwidth is defined as two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power

7.3 MEASUREMENT RESULT

APPENDIX A:BANDWIDTH

Test Results

Test	Test	Test	Occupied Bandwidth	Emission Bandwidth	Verdict
Band	Mode	Channel	(KHZ)	(KHZ)	verdict
		LCH	247.81	310.43	PASS
GSM850	GSM	MCH	245.25	310.64	PASS
		НСН	246.69	318.31	PASS

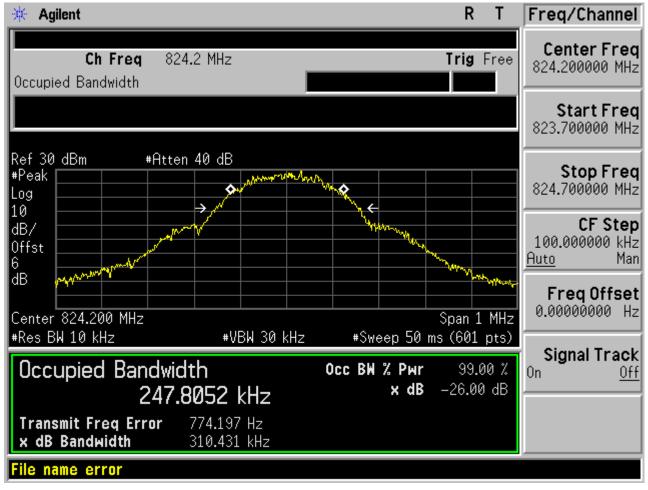
Test Band	Test	Test	Occupied Bandwidth	Emission Bandwidth	Verdict
	Mode	Channel	(KHZ)	(KHZ)	
		LCH	245.65	313.57	PASS
GSM1900	GSM	MCH	248.29	313.52	PASS
		HCH	245.71	321.41	PASS

For GSM

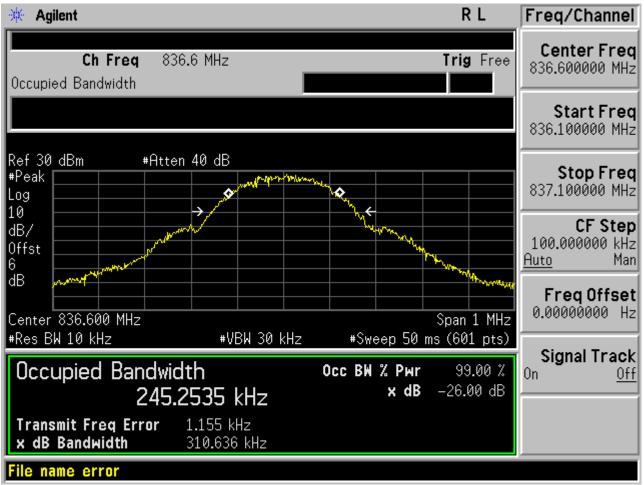
Test Band=GSM850

Test Mode=GSM

Test Channel=LCH

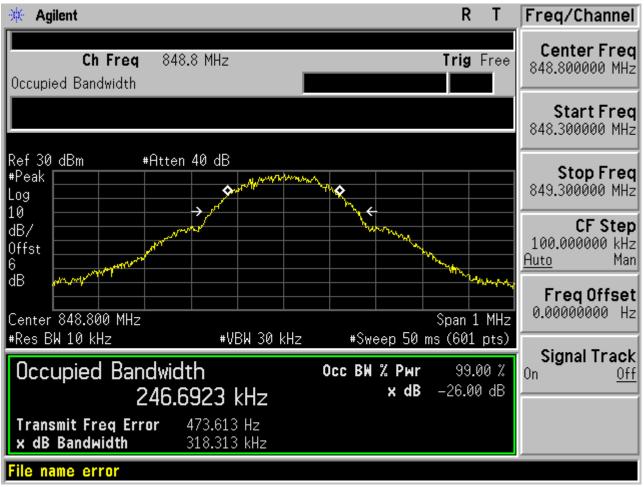


Test Channel=MCH



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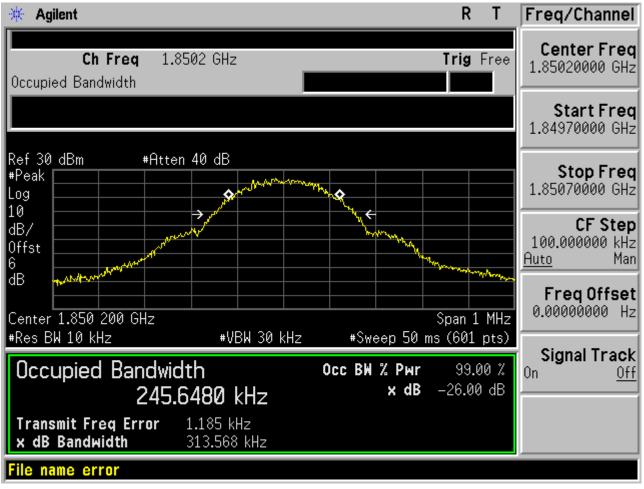
Test Channel=HCH



Test Band=GSM1900

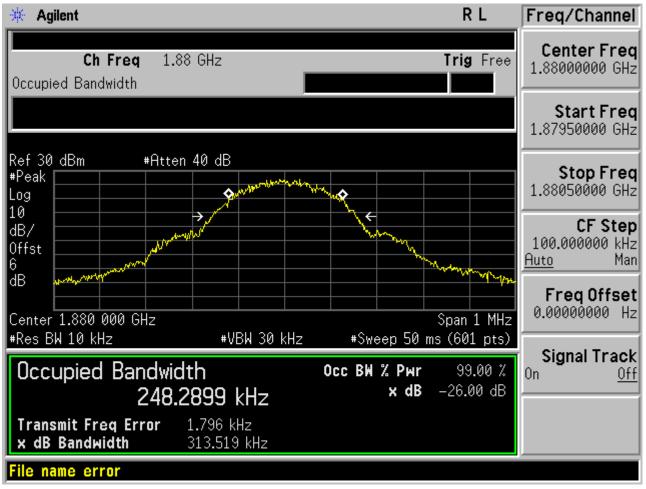
Test Mode=GSM

Test Channel=LCH



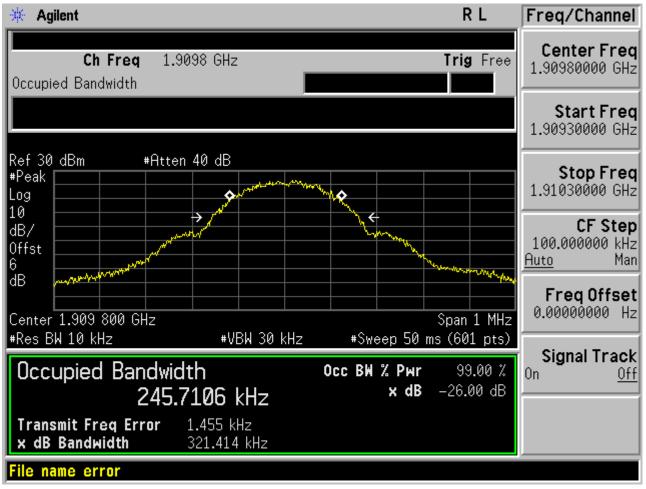
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Test Channel=MCH



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Test Channel=HCH



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Test Band	Test	Test	Occupied Bandwidth	Emission Bandwidth	Verdi
	Mode	Channel	(KHZ)	(KHZ)	ct
		LCH	4142.0	4683	PASS
WCDMA8 50	UMTS	MCH	4150.0	4678	PASS
50		HCH	4144.2	4679	PASS

Test Band	Test	Test	Occupied Bandwidth	Emission Bandwidth	Verdi
	Mode	Channel	(KHZ)	(KHZ)	ct
		LCH	4161.5	4698	PASS
WCDMA1 900	UMTS	MCH	4153.8	4704	PASS
300		HCH	4154.6	4704	PASS

For WCDMA

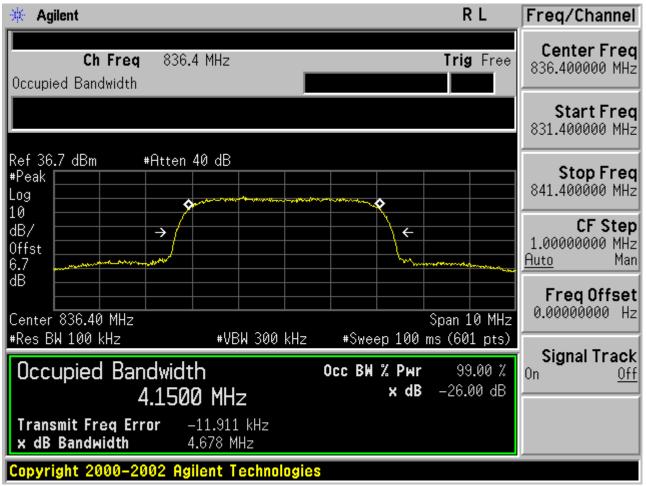
Test Band=WCDMA850

Test Mode=UMTS

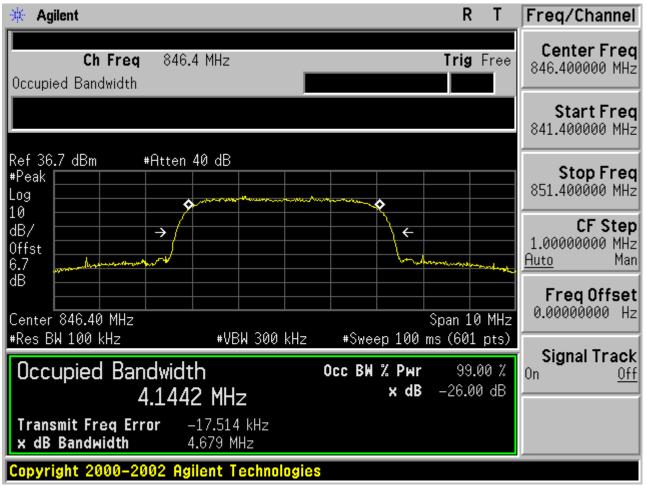
Test Channel=LCH

* Agilent	RT	Freq/Channel
Ch Freq 826.6 MHz Occupied Bandwidth	Trig Free	Center Freq 826.600000 MHz
		Start Freq 821.600000 MHz
Ref 36.7 dBm #Atten 40 dB #Peak Log 10	•	Stop Freq 831.600000 MHz
dB/ →		CF Step 1.0000000 MHz <u>Auto</u> Man
dB	Span 10 MHz	FreqOffset 0.00000000 Hz
*Res BW 100 kHz *VBW 300 Occupied Bandwidth 4.1420 MHz) kHz #Sweep 100 ms (601 pts) Осс ВМ % Рыг 99.00 % х dB -26.00 dB	Signal Track ^{On <u>Off</u>}
Transmit Freq Error-2.054 kHz× dB Bandwidth4.683 MHz		
Copyright 2000-2002 Agilent Techno	ologies	

Test Channel=MCH

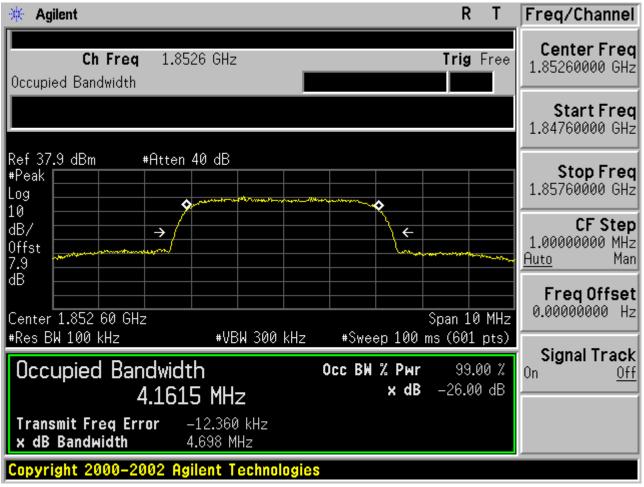


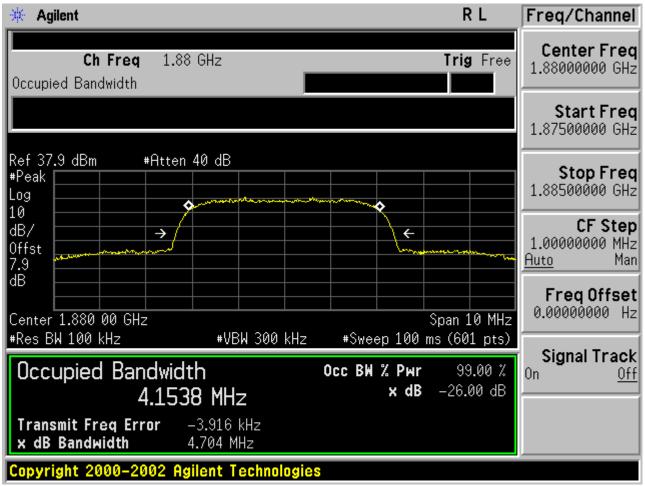
Test Channel=HCH



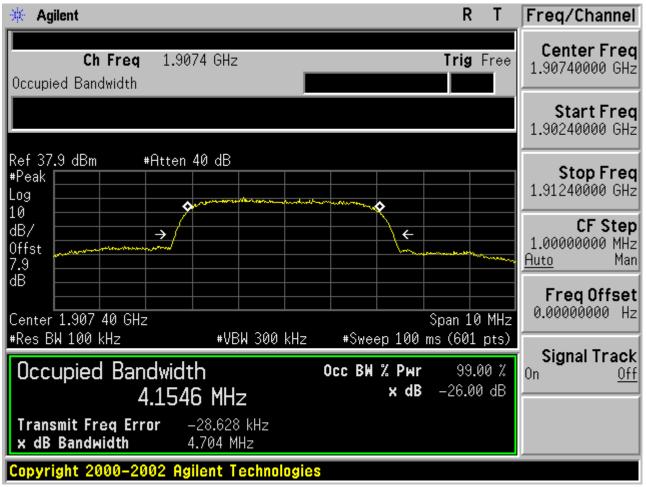
Test Band=WCDMA1900

Test Mode=UMTS





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8. BAND EDGE

8.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

8.2 PROVISIONS APPLICABLE

As Specified in FCC rules of 22.917(a) and 24.238(a)

8.3 MEASUREMENT RESULT

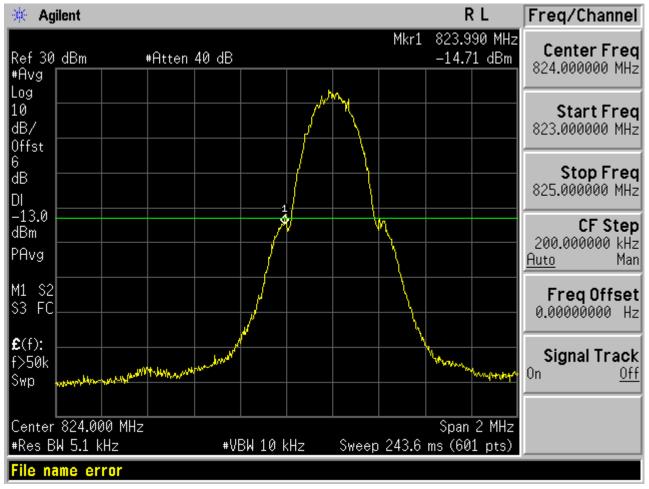
APPENDIX B: BAND EDGES COMPLIANCE

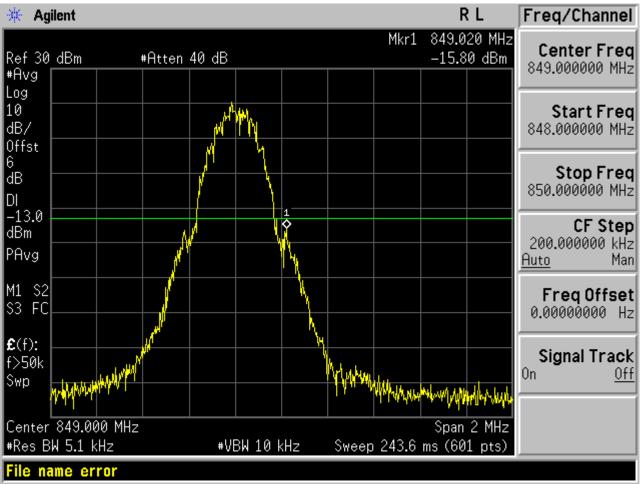
Test Results

For GSM

Test Band=GSM850

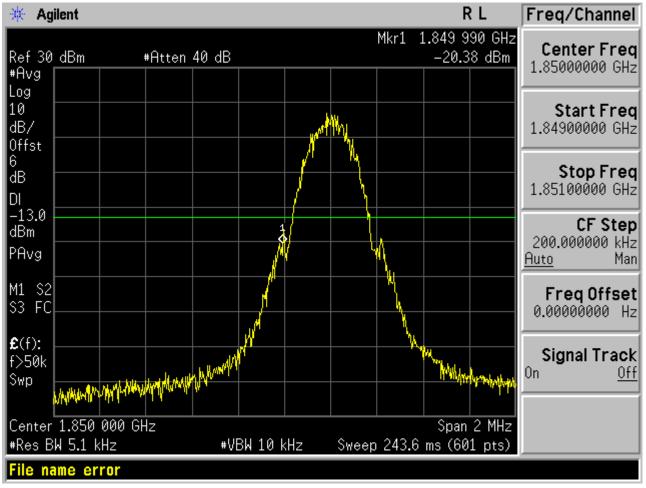
Test Mode=GSM

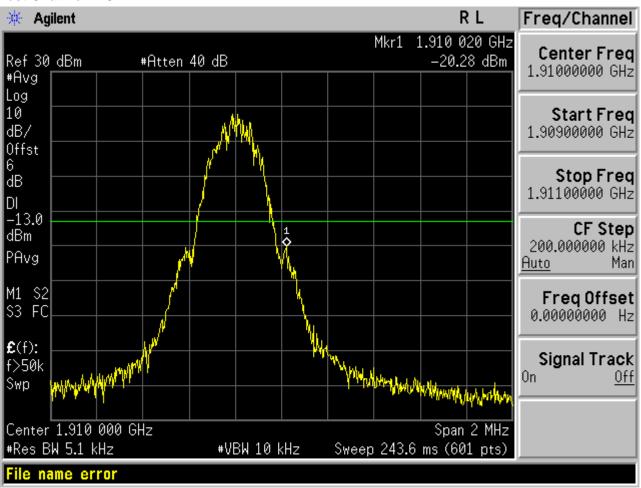




Test Band=GSM1900

Test Mode=GSM

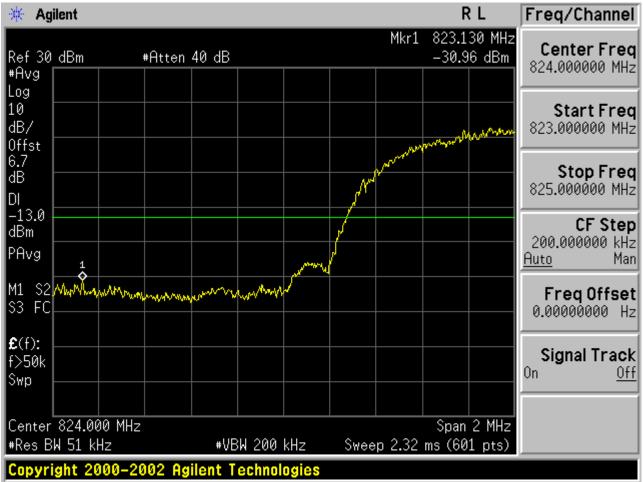




For WCDMA

Test Band=WCDMA850

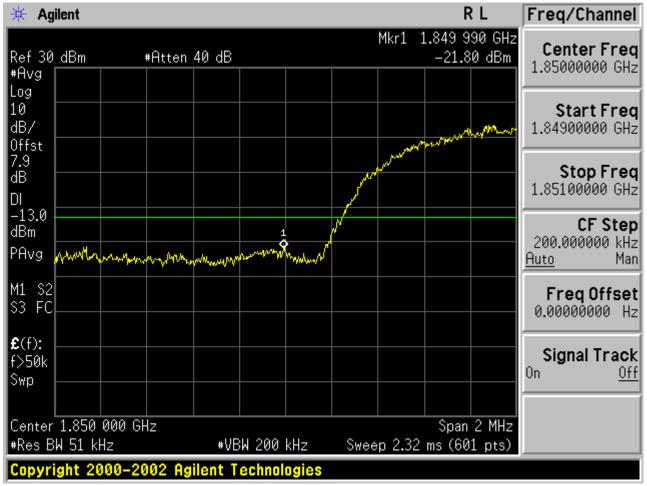
Test Mode=UMTS

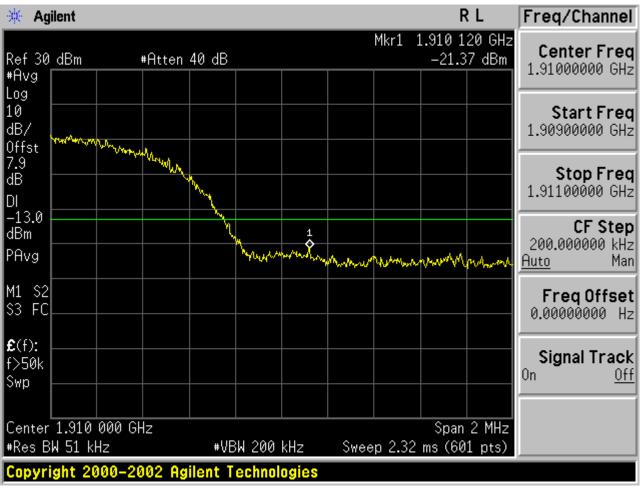




Test Band=WCDMA1900

Test Mode=UMTS





9. SPURIOUS EMISSION

9.1 CONDUCTED SPURIOUS EMISSION

9.1.1 MEASUREMENT METHOD

The following steps outline the procedure used to measure the conducted emissions from the EUT. 1, Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency. For the equipment of PCS1900 band, this equates to a frequency range of 30 MHz to 19.1 GHz, data taken from 30 MHz to 20 GHz. For GSM 850, data taken from 30 MHz to 9 GHz. 2, Determine EUT transmit frequencies: the following typical channels were chosen to conducted emissions testing.

Typical Channels for testing of GSM 850						
Channel	Frequency (MHz)					
128	824.2					
190	836.6					
251	848.8					

Typical Channels for testing of PCS 1900						
Channel	Frequency (MHz)					
512	1850.2					
661	1880.0					
810	1909.8					

Typical Channels for testing of UMTS band II							
Channel	Frequency (MHz)						
9663	1852.6						
9800	1880						
9937	1907.4						

Typical Channels for testing of UMTS band V						
Channel	Frequency (MHz)					
4358	826.6					
4407	836.4					
4457	846.4					

9.1.2 PROVISIONS APPLICABLE

On any frequency outside frequency band of the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

9.1.3 MEASUREMENT RESULT

APPENDIX C: SPURIOUS EMISSION AT ANTENNA TERMINAL

Test Results

Test Band=GSM850

Test Mode=GSM

🔆 Agilent			RL	Freq/Channel
#Avg	40 dB		514.5 MHz 6.24 dBm	Center Freq 515.000000 MHz
Log 10 dB/ Offst				Start Freq 30.0000000 MHz
6 dB DI				Stop Freq 1.00000000 GHz
-13.0 dBm PAvg				CF Step 97.0000000 MHz <u>Auto</u> Man
M1 S2 S3 FC	2			FreqOffset 0.00000000 Hz
£(f): FTun Swp		······································	1 - 1 - 1	Signal Track ^{On <u>Off</u>}
Center 515.0 MHz #Res BW 1 MHz	#VBW 3 MHz	Span #Sweep 100 ms (1	970 MHz 000 pts)	
File name error				

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Mkr1 7.757 GHz -38.02 dBm Center Freq 5.0000000 GHz Log	🔆 Agilent				RL	Freq/Channel
10 dB/ dB	#Avg	#Atten	40 dB			
dB DI Stop Freq 9.0000000 GHz -13.0 GB CF Step 800.000000 MHz PAvg GB M1 S2 GB M1 S2 S3 FC GE GE GE GE É(f): M1 S2 GE GE GE Swp GE GE GE GE Center 5.000 GHz #VBW 3 MHz #Sweep 100.5 ms (8190 pts) GHz	10 dB/					
dBm PAvg CF Step PAvg 1 800.000000 MHz M1 S2 1 1 S3 FC 1 1 É(f): 1 1 FTun 1 1 Swp 1 1 Center 5.000 GHz #VBW 3 MHz #Sweep 100.5 ms (8190 pts)	6 dB DI					Stop Freq 9.00000000 GHz
S3 FC £(f): FTun Swp Center 5.000 GHz #Res BW 1 MHz *VBW 3 MHz *VBW 3 MHz *Sweep 100.5 ms (8190 pts)	dBm					800.000000 MHz
E(f): Signal Track Swp Signal Track Center 5.000 GHz Span 8 GHz *Res BW 1 MHz *VBW 3 MHz *Sweep 100.5 ms (8190 pts)		1 A			a thile is the la	
#Res BW 1 MHz #VBW 3 MHz #Sweep 100.5 ms (8190 pts)	FTun					
		z	#VBW 3	MHz #Swee		

🔆 Agilent				RL	Freq/Channel
Ref 33 dBm #Avg	#Atten 40 dB		Mkr	2 514.5 MHz -46.29 dBm	Center Freq 515.000000 MHz
Log 10 dB/ Offst				÷	Start Freq 30.0000000 MHz
6 dB DI					Stop Freq 1.00000000 GHz
-13.0 dBm PAvg					CF Step 97.0000000 MHz <u>Auto</u> Man
M1 S2 S3 FC		2			FreqOffset 0.00000000 Hz
£(f): FTun Swp			**************************************	, , , , , , , , , , , , , , , , , , ,	Signal Track On <u>Off</u>
Center 515.0 #Res BW 1 MH		/BW 3 MHz	s #Sweep 100 m	òpan 970 MHz s (1000 pts)	
File name er	ror				

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Mkr1 4.183 GHz Center Freq Ref 33 dBm *Atten 40 dB -36.68 dBm *Avg -36.68 dBm Log -36.68 dBm 10 -36.68 dBm 11 -36.68 dBm 12 -36.68 dBm 13.0 -36.68 dBm 14.0 -36.68 dBm 15.0 -36.68 dBm 16.0 -36.68 dBm 16	🔆 Agilent					RL	Freq/Channel
10 Start Freq dB/ 0ffst 6 6 dB 0 DI 0 -13.0 0 dBm 0 PAvg 0 M1 S2 1 S3 FC 1 E(f): 1 FTun 1 Swp 1	#Avg	#Atten	40 dB				
6 dB DI -13.0 dBm	10 dB/						
dBm PAvg S00.00000 MHz M1 S2 1 S3 FC £(f): Freq Offset Swp Signal Track On Off	6 dB DI						Stop Freq 9.00000000 GHz
S3 FC £(f): FTun Swp	dBm						800.000000 MHz
FTun Signal Track Swp On Off	M1 S2 S3 FC			a tu juga triandi a triange	و الم الدارية الم المارية.	tilus, calibilita	
Center 5.000 GHz Span 8 GHz	FTun						
<pre>#Res BW 1 MHz #VBW 3 MHz #Sweep 100.5 ms (8190 pts)</pre> File name error	#Res BW 1 MH	lz	#VBW 31	MHz #Swee			

🔆 Agilent			R	T Freq/Channel
Ref 33 dBm #Avg	#Atten 40 dB		Mkr2 514.5 -46.34 d	Contor Lroa
Log 10 dB/ Offst				Start Freq 30.0000000 MHz
6 dB DI				Stop Freq 1.00000000 GHz
-13.0 dBm PAvg				CF Step 97.0000000 MHz <u>Auto</u> Man
M1 S2 S3 FC		2		Freq Offset 0.00000000 Hz
£(f): FTun Swp		>	,, ,, ,, ,,,,,,,,,,,,,,,,,,,,	Signal Track
Center 515.0 M #Res BW 1 MHz	: #VB	W 3 MHz #Sv	Span 970 veep 100 ms (1000 p	
File name err	or			

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🔆 Agilent	:							R	L	Freq/Channel
Ref 33 dBi #Avg	m	#Atten 4	10 dB				Mki		13 GHz 0 dBm	Center Freq 5.00000000 GHz
Log 10 dB/ Offst										Start Freq 1.00000000 GHz
6 dB DI										Stop Freq 9.00000000 GHz
-13.0 dBm PAvg										CF Step 800.00000 MHz <u>Auto</u> Man
M1 S2 S3 FC				lind kan burburbar	die das deserv		1 البنية المانغة إل		ton dire de de	FreqOffset 0.00000000 Hz
£(f): FTun Swp										Signal Track ^{On <u>Off</u>}
Center 5.0 #Res BW 1	MHz		#V[3W 3 M	Hz #	Sweep	100.5 m		8 GHz 0 pts)	
File name	error									

Test Band=GSM1900

Test Mode=GSM

🔆 Agilent					RL	Freq/Channel
Ref 33 dBm #Avg	#Atten	40 dB			581.5 MHz 5.63 dBm	Center Freq 515.000000 MHz
Log 10 dB/ Offst						Start Freq 30.0000000 MHz
6 dB DI						Stop Freq 1.00000000 GHz
-13.0 dBm PAvg						CF Step 97.0000000 MHz <u>Auto</u> Man
M1 S2 S3 FC						FreqOffset 0.00000000 Hz
£(f): FTun Swp		<u></u>			* * * * * * * * * * * * * * * * * * *	Signal Track ^{On <u>Off</u>}
Center 515.0 #Res BW 1 MH		#VBW 3 1	MHz #Sw	Span Span eep 100 ms (1	970 MHz 000 pts)	
File name er	ror					

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🔆 Agilent					RT	Freq/Channel
Ref 33 dBm #Avg	1	ten 40 dB		Mk	(r2 4.000 G -43.96 dB	Contor Frod
Log 10 dB/ Offst	♦					Start Freq 1.00000000 GHz
6 dB DI -13.0						Stop Freq 7.00000000 GHz
dBm PAvg						CF Step 600.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC		يەردۇرىيە بەردە ^{ردۇر} تۇرۇرىيە بەردە	2	for her law day and the	and the second second	FreqOffset 0.00000000 Hz
£(f): Horne FTun Swp						Signal Track
Center 4.000 #Res BW 1 MH	łz	#VBW 3	3 MHz #Sv	veep 100.4 r	Span 6 G ms (6200 pt	
File name er	rror					

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🔆 Agi	lent								F	₹ L	Freq/Channel
Ref 33 #Avg	dBm		#Atten	40 dB				Mkr:		01 GHz 8 dBm	Center Freq 10.3000000 GHz
Log 10 dB/ Offst											Start Freq 7.00000000 GHz
6 dB DI											Stop Freq 13.6000000 GHz
-13.0 dBm PAvg											CF Step 660.000000 MHz <u>Auto</u> Man
				nahulatata, s	kayan katala da bi	latta des			district.		FreqOffset 0.00000000 Hz
€(f): FTun Swp											Signal Track On <u>Off</u>
Center #Res Bl				#V	вызм	Hz #	Sweep	100.2 m		.6 GHz 0 pts)	
File na	me er	ror									

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🔆 Agi	ilent						R	L	Freq/Channel
Ref 34 #Avg	dBm	#Atten	40 dB			Mkr:		99 GHz 9 dBm	Center Freq 16.8000000 GHz
Log 10 dB/ Offst									Start Freq 13.6000000 GHz
6 dB DI									Stop Freq 20.0000000 GHz
-13.0 dBm PAvg									CF Step 640.00000 MHz <u>Auto</u> Man
M1 S2 S3 FC	n alaa ahii a ahii a na da			ite din ditan		la chu a chu a		d, de de la des	FreqOffset 0.00000000 Hz
£ (f): FTun Swp									Signal Track ^{On <u>Off</u>}
#Res B	16.800 GH W 1 MHz	z	#VBI	↓ 3 MHz	#Sweep (Span 6 is (640		
File na	me error								

🔆 Agilent					RL	Freq/Channel
Ref 33 dBm #Avg	#Atten	40 dB			456.3 MHz 15.44 dBm	Center Freq 515.000000 MHz
Log 10 dB/ Offst						Start Freq 30.0000000 MHz
6 dB DI -13.0						Stop Freq 1.00000000 GHz
dBm PAvg						CF Step 97.0000000 MHz <u>Auto</u> Man
M1 S2 S3 FC						Freq Offset 0.00000000 Hz
£(f): FTun Swp			······································			Signal Track ^{On <u>Off</u>}
Center 515.0 #Res BW 1 M	Hz	#VBW 3 N	1 1Hz #Swe	Spar Spar ep 100 ms (;	1 970 MHz 1000 pts)	
File name e	rrur					

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🔆 Agilent	ł					RT	Freq/Channel
Ref 33 dB #Avg	1	#Atten 40 dB			Mkr2 4.0 -43.	000 GHz 00 dBm	Center Freq 4.00000000 GHz
Log 10 dB/ Offst							Start Freq 1.00000000 GHz
6 dB DI -13.0							Stop Freq 7.00000000 GHz
dBm PAvg							CF Step 600.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC £(f):		and the second	2	اه او او او او او او		المياية في المراجع الم	Freq Offset 0.00000000 Hz
FTun Swp							Signal Track ^{On <u>Off</u>}
Center 4.0 #Res BW 1		#V	BW 3 MHz	#Sweep 10	⊥ Spar 00.4 ms (62)	1 6 GHz 00 pts)	
File name	error						

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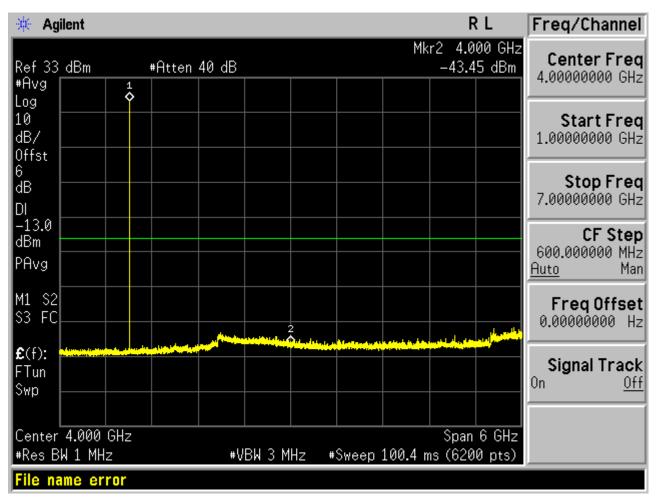
🔆 Ag	ilent								F	≀ L	Freq/Channel
Ref 33 #Avg	dBm		#Atten	40 dB				Mkr		45 GHz 8 dBm	Center Freq 10.3000000 GHz
Log 10 dB/ Offst											Start Freq 7.00000000 GHz
6 dB DI											Stop Freq 13.6000000 GHz
-13.0 dBm PAvg											CF Step 660.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC	والم الفاري والم	وال المرام		htth	dage.da		an atila an	المرادي الم	addiese allege geb		FreqOffset 0.00000000 Hz
£ (f): FTun Swp											Signal Track On <u>Off</u>
	10.300 W 1 MH			#V	вы з м	Hz #	Sweep	100.2 n		.6 GHz 0 pts)	
File na	ime er	ror									

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🔆 Ag	ilent								F	۲ L	Freq/Channel
Ref 34 #Avg	dBm		#Atten	40 dB				Mkr:		77 GHz 8 dBm	Center Freq 16.8000000 GHz
Log 10 dB/ Offst											Start Freq 13.6000000 GHz
6 dB DI											Stop Freq 20.0000000 GHz
-13.0 dBm PAvg											CF Step 640.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC			detadasse		وينافهم إدخاه		ادر في ماظرور ا	ورار والعالية وال		i de la dista	FreqOffset 0.00000000 Hz
€(f): FTun Swp											Signal Track On <u>Off</u>
Center #Res B	16.800 W 1 MH			#V	BW 3 M	Hz #	Sweep	100.3 m		.4 GHz 0 pts)	
File na	ame er	ror									

🔆 Agilent				RL	Freq/Channel
Ref 33 dBm #Avg	#Atten 40	dB	Mkr	1 578.6 MHz -45.56 dBm	Center Freq 515.000000 MHz
Log 10 dB/ Offst					Start Freq 30.0000000 MHz
6 dB DI					Stop Freq 1.00000000 GHz
-13.0 dBm PAvg					CF Step 97.0000000 MHz <u>Auto</u> Man
M1 S2 S3 FC					FreqOffset 0.00000000 Hz
£(f): FTun Swp		<u> </u>	••••••••••••••••••••••••••••••••••••••		Signal Track On <u>Off</u>
Center 515.0 #Res BW 1 MH:		#VBW 3 MHz	S #Sweep 100 m	opan 970 MHz s (1000 pts)	
File name er	or				

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🔆 Agile	ent					RL	Freq/Channel
Ref 33 (#Avg	dBm	#Atten 40 dB				9.549 GHz 4.66 dBm	Center Freq 10.3000000 GHz
Log 10 dB/ Offst							Start Freq 7.00000000 GHz
6 dB DI							Stop Freq 13.6000000 GHz
-13.0 dBm PAvg							CF Step 660.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC			sia)	s		ada ada da da	FreqOffset 0.00000000 Hz
€(f): - FTun Swp -							Signal Track ^{On <u>Off</u>}
Center : #Res BW	 10.300 GHz 1 MHz	#V	BW 3 MHz	#Sweep	Spar 100.2 ms (6	n 6.6 GHz 3800 pts)	
File nam	me error						

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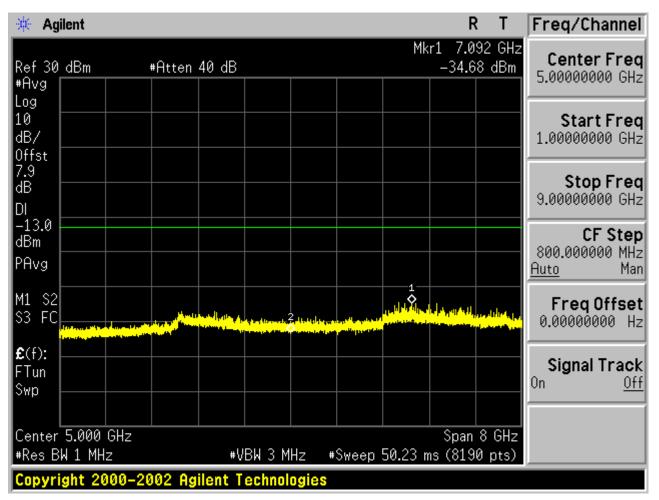
🔆 Ag	ilent								F	L .	Freq/Channel
Ref 34 #Avg	dBm		#Atten	40 dB				Mkr:		37 GHz 4 dBm	Center Freq 16.8000000 GHz
Log 10 dB/ Offst											Start Freq 13.6000000 GHz
6 dB DI											Stop Freq 20.0000000 GHz
-13.0 dBm PAvg											CF Step 640.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC			dulle ditte			aluş de al					FreqOffset 0.00000000 Hz
£ (f): FTun Swp											Signal Track ^{On <u>Off</u>}
#Res B		Z		#V	BW 3 M	Hz #	Sweep	100.3 m	Span 6 ns (640		
File na	ime er	ror									

Test Band=WCDMA850

Test Mode=UMTS

🔆 Agi	ilent				R	Т	Freq/Channel
Ref 30 #Avg	dBm	#Atten 40 dB			2 514. -44.00		Center Freq 515.000000 MHz
Log 10 dB/ Offst					 ;		Start Freq 30.000000 MHz
7.9 dB DI							Stop Freq 1.00000000 GHz
-13.0 dBm PAvg							CF Step 97.0000000 MHz <u>Auto</u> Man
M1 S2 S3 FC £(f):			2		 		FreqOffset 0.00000000 Hz
ETun Swp							Signal Track On <u>Off</u>
	515.0 MHz W 1 MHz	#\	/BW 3 MHz	#Sweep	 oan 970 (1000		
		002 Agilent 1					

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🔆 Ag	jilent								F	? Т	Freq/Channel
Ref 30 #Avg	dBm		#Atten	40 dB				Mk		4.5 MHz 9 dBm	Center Freq 515.000000 MHz
Log 10 dB/ Offst									1		Start Freq 30.0000000 MHz
7.9 dB DI											Stop Freq 1.00000000 GHz
-13.0 dBm PAvg											CF Step 97.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC						2			J		FreqOffset 0.00000000 Hz
£(f): F⊤un Swp											Signal Track On <u>Off</u>
	515.0 W 1 MH			#V	вы з м	Hz #	Sweep	: 50.02 m	Span 97 1s (100		
Copyri	ight 20	00-20)02 Ag	ilent T	echnol	ogies					

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🔆 Ag	jilent								R	Т	Freq/Channel
Ref 30 #Avg	dBm		#Atten	40 dB				Mk		03 GHz 7 dBm	Center Freq 5.00000000 GHz
Log 10 dB/ Offst											Start Freq 1.00000000 GHz
7.9 dB DI											Stop Freq 9.00000000 GHz
-13.0 dBm PAvg											CF Step 800.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC					di kulu ku						FreqOffset 0.00000000 Hz
£(f): F⊤un Swp											Signal Track ^{On <u>Off</u>}
#Res B	5.000 W 1 MH:	Z			вы з м		Sweep	50.23 m		8 GHz 0 pts)	
Copyri	ight 20	00-20)02 Ag	ilent T	echnol	ogies					

🔆 Ag	ilent								F	₹Т	Freq/Channel
Ref 30 #Avg	dBm		#Atten	40 dB				Mk	-44.1	4.5 MHz L5 dBm	Center Freq 515.000000 MHz
Log 10 dB/ Offst											Start Freq 30.0000000 MHz
7.9 dB DI											Stop Freq 1.00000000 GHz
-13.0 dBm PAvg											CF Step 97.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC						2					FreqOffset 0.00000000 Hz
€(f): FTun Swp											Signal Track On <u>Off</u>
Center 515.0 MHz Span 970 MHz #Res BW 1 MHz #VBW 3 MHz #Sweep 50.02 ms (1000 pts)											
Copyright 2000–2002 Agilent Technologies											

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🔆 Ag	ilent								R	Т	Freq/Channel
Ref 30 #Avg	dBm		#Atten	40 dB				Mk		16 GHz 4 dBm	Center Freq 5.00000000 GHz
Log 10 dB/ Offst											Start Freq 1.00000000 GHz
7.9 dB DI											Stop Freq 9.00000000 GHz
-13.0 dBm PAvg											CF Step 800.00000 MHz <u>Auto</u> Man
M1 S2 S3 FC						2 Nikolaan Nima			to to a to		Freq Offset 0.00000000 Hz
€(f): FTun Swp											Signal Track On <u>Off</u>
#Res B	5.000 W 1 MHz	2			вы з м		Sweep	50.23 m		8 GHz 0 pts)	
Copyri	ight 20	00-20)02 Ag	ilent T	echnol	ogies					

Test Band=WCDMA1900

Test Mode=UMTS

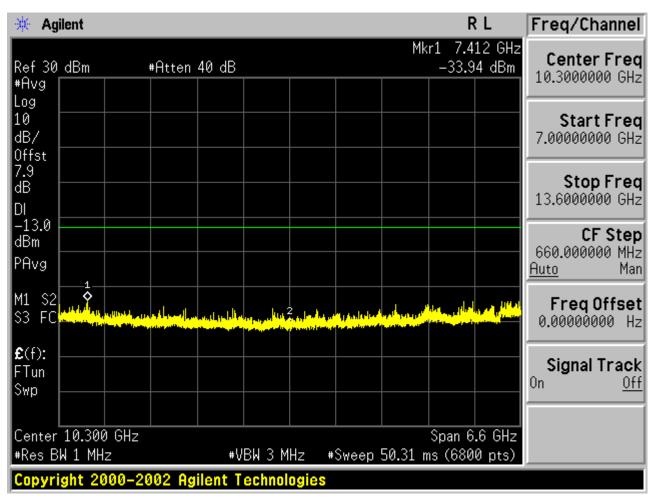
Test Channel=LCH

🔆 Agil	lent					RL	Freq/Channel
Ref 30 #Avg	dBm	#Atten 40 dB			Mkr1 -	447.5 MHz -43.09 dBm	Center Freq 515.000000 MHz
Log 10 dB/ Offst							Start Freq 30.0000000 MHz
7.9 dB DI							Stop Freq 1.00000000 GHz
-13.0 dBm PAvg							CF Step 97.0000000 MHz <u>Auto</u> Man
M1 S2 S3 FC							FreqOffset 0.00000000 Hz
£ (f): FTun Swp							Signal Track On <u>Off</u>
Center #Res Bk	515.0 MHz V 1 MHz	#	VBW 3 MHz	: #Sweep		an 970 MHz (1000 pts)	
Copyrig	ght 2000-20	02 Agilent	Technolog	lies			

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🔆 Agil	ent							F	₹ T	Freq/Channel
Ref 30 #Avg	dBm	#Atten	40 dB				Mk		100 GHz 26 dBm	Center Freq 4.00000000 GHz
Log 10 dB/ Offst										Start Freq 1.00000000 GHz
7.9 dB DI										Stop Freq 7.00000000 GHz
-13.0 dBm PAvg										CF Step 600.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC	t, Nessesse fileseti		an de l'esta per		2			i ja si kuti paste	in <mark>indika</mark>	FreqOffset 0.00000000 Hz
£ (f): - FTun Swp -										Signal Track ^{On <u>Off</u>}
#Res BW				вы з м		Sweep	50.42 n		6 GHz 0 pts)	
Copyrig	ght 2000-2	2002 Ag	ilent T	echnol	ogies					

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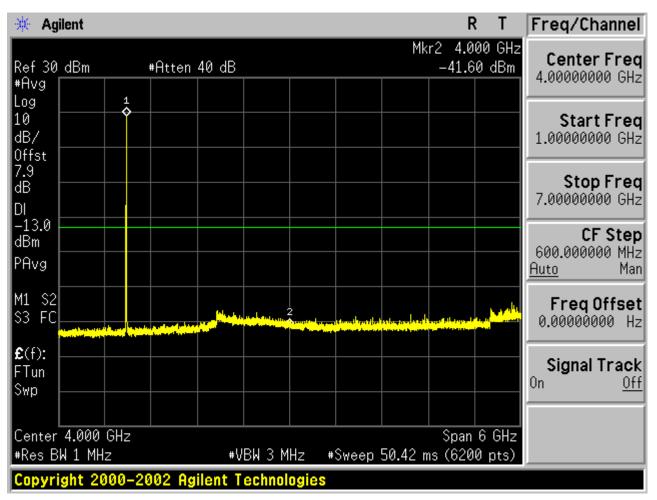
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Mkr1 15.248 GHz Ref 30 dBm *Atten 40 dB -32.01 dBm *Avg -32.01 dBm Log -32.01 dBm 10 -32.01 dBm 10 -32.01 dBm 11 Start Freq 13.6000000 GHz Offst -32.01 dBm 10 -32.01 dBm 10 -32.01 dBm 10 -32.01 dBm 10 -32.01 dBm 11 -32.01 dBm 10 -32.01 dBm 11 -32.01 dBm 11 -32.01 dBm 12 -32.01 dBm 13.00 -32.01 dBm 13.00 -32.01 dBm 14 -32.01 dBm 15.20 -32.01 dBm 13.00 -32.01 dBm 14 -32.01 dBm 15.20 -32.01 dBm 15.20 -32.01 dBm 16.40000000 GHz -32.01 dBm 16.40000000 GHz -32.01 dBm 16.40000000 GHz -32.01 dBm 17.10 -30.01 dBm -30.01 dBm 17.10 -30.01 dBm -30.01 dBm<	🔆 Ag	jilent								R	Т	Freq/Channel
10 dB/ Start Freq 0ffst 13.600000 GHz 13.600000 GHz 7.9 1 1 13.600000 GHz 0ffst 1 1 13.6000000 GHz 01 1 1 13.6000000 GHz -13.0 1 1 1 0 1 1 1 0 1 1 1 1 0 1 1 1 1 0 1 1 1 1 0 1 1 1 1 1 0 1 1 1 1 1 0 1 1 1 1 1 1 0 1 1 1 1 1 1 1 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	#Avg	dBm		#Atten	40 dB				Mkr1			
dB Stop Freq DI -13.0 dBm m PAvg m M1 S2 1 ddd odd odd odd odd odd odd odd odd od	10 dB/ Offst											
dBm PAvg 1 Generalized and the set of the set	dB DI											Stop Freq 20.0000000 GHz
S3 FC Image: S3 FC	dBm			1								640.000000 MHz
FTun Swp Center 16.800 GHz Span 6.4 GHz	53 FC						2 and dalling	a <mark>n la </mark>				
	FTun											
#Res BW 1 MHz #VBW 3 MHz #Sweep 50.34 ms (6400 pts) Copyright 2000-2002 Agilent Technologies	# Res B	SW 1 MH	Z	00 0-		BW 3 M		Sweep				

Test Channel=MCH

🔆 Agilent					RL	Freq/Channel
Ref 30 dBm #Avg	#Atter	n 40 dB		Mkr1 	399.9 MHz 42.94 dBm	Center Freq 515.000000 MHz
Log 10 dB/ Offst						Start Freq 30.0000000 MHz
7.9 dB — DI						Stop Freq 1.00000000 GHz
-13.0 dBm PAvg						CF Step 97.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC	an and an and a second second	1 •	···			Freq Offset 0.00000000 Hz
£(f): FTun Swp						Signal Track ^{On <u>Off</u>}
Center 515. #Res BW 1 M	1Hz	#VBW 3		Spa p 50.02 ms (n 970 MHz 1000 pts)	
copyright	2000-2002 A	glient lechno	nogles			

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🔆 Ag	ilent								F	≀ L	Freq/Channel
Ref 30 #Avg	dBm		#Atten	40 dB				Mkr:		67 GHz '8 dBm	Center Freq 10.3000000 GHz
Log 10 dB/ Offst											Start Freq 7.00000000 GHz
7.9 dB DI											Stop Freq 13.6000000 GHz
-13.0 dBm PAvg											CF Step 660.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC		l- dyg	(d _{eretest} i		وروبي اللغار		وي الله يو	a di li di su			FreqOffset 0.00000000 Hz
£ (f): FTun Swp											Signal Track ^{On <u>Off</u>}
	10.300 W 1 MH			#V	вы з м	Hz #	Sweep	50.31 m		.6 GHz 0 pts)	
Copyri	ight 20	00-20)02 Ag	ilent T	echnol	ogies					

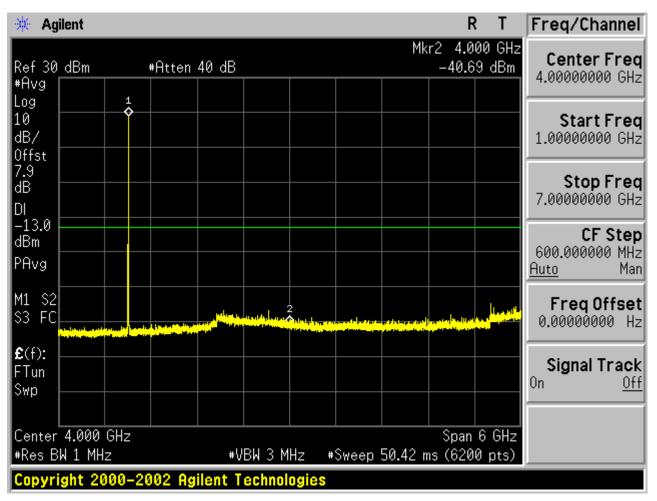
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🔆 Ag	ilent								R	т	Freq/Channel
Ref 30 #Avg	dBm		ŧAtten	40 dB				Mkr:		71 GHz 9 dBm	Center Freq 16.8000000 GHz
Log 10 dB/ Offst											Start Freq 13.6000000 GHz
7.9 dB DI											Stop Freq 20.0000000 GHz
-13.0 dBm PAvg									1		CF Step 640.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC	d I, den sinde					2 National data	atella telle				FreqOffset 0.00000000 Hz
€(f): FTun Swp											Signal Track ^{On <u>Off</u>}
	16.800 W 1 MH:			#V	BW 3 M	Hz #	Sweep	50.34 m		.4 GHz 0 pts)	
Copyri	ight 20	00-20	02 Ag	ilent T	echnol	ogies					

Test Channel=HCH

🔆 Agi	ilent								F	۲L	Freq/Channel
Ref 30 #Avg	dBm		ŧAtten	40 dB				Mk		4.5 MHz 20 dBm	Center Freq 515.000000 MHz
Log 10 dB/ Offst											Start Freq 30.0000000 MHz
7.9 dB DI -13.0											Stop Freq 1.00000000 GHz
dBm PAvg											CF Step 97.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC	د. در بدوری مرد ا						1 •				Freq Offset 0.00000000 Hz
€(f): FTun Swp											Signal Track On <u>Off</u>
	515.0 M W 1 MHz			#V	вы з м	Hz #	Sweep	: 50.02 m		70 MHz 10 pts)	
Copyri	ght 200	00-20	02 Ag	ilent T	echnol	ogies					

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🔆 Ag	jilent								F	₹ L	Freq/Channel
Ref 30 #Avg	dBm		#Atten	40 dB				Mkr:		84 GHz 2 dBm	Center Freq 10.3000000 GHz
Log 10 dB/ Offst											Start Freq 7.00000000 GHz
7.9 dB DI											Stop Freq 13.6000000 GHz
-13.0 dBm PAvg											CF Step 660.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC				a huidh agu		a An I I the second			din in this		FreqOffset 0.00000000 Hz
€(f): FTun Swp											Signal Track On <u>Off</u>
# Res B	10.300 W 1 MH	z			ви з м		Sweep	50.31 m		.6 GHz 0 pts)	
Copyr	ight 20	100-20	102 Ag	llent T	echnol	ogies					

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🔆 Agilent				R	T Freq/Channel
Ref 30 dBm #Avg	#Atten 40 dB		Mkr	1 19.282 (-32.24 dl	Contor From
Log 10 dB/ Offst					Start Freq 13.6000000 GHz
7.9 dB DI					Stop Freq 20.0000000 GHz
-13.0 dBm PAvg				1	CF Step 640.000000 MHz <u>Auto</u> Man
M1 S2 S3 FC	للمتري فيري التدراط والالالالاتين		ار الار المربع الجريم العامير المرابع المربع ال المربع المربع		Freq Offset 0.00000000 Hz
£(f): FTun Swp					Signal Track ^{On <u>Off</u>}
Center 16.800 G #Res BW 1 MHz		3W 3 MHz	#Sweep 50.34 r	Span 6.4 G ns (6400 pt	
	-2002 Agilent Te				

Note: 1. Below 30MHZ no Spurious found and The GSM modes is the worst condition.

2. As no emission found in standby or receive mode, no recording in this report.

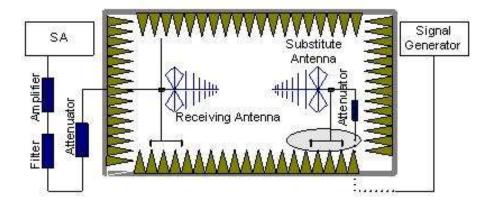
9.2 RADIATED SPURIOUS EMISSION

9.2.1 MEASUREMENT METHOD

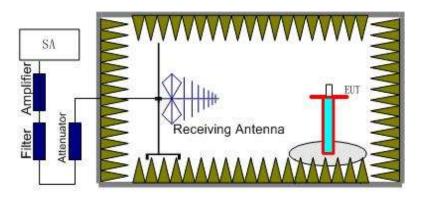
The measurements procedures specified in TIA-603C-2004 were used for testing. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment. The resolution bandwidth is set 1MHz as outlined in Part 24.238. The measurements were performed on all modes(GPRS 850, GPRS 1900, HSPA band II, HSPA band V) at 3 typical channels(the Top Channel, the Middle Channel and the Bottom Channel) for each band.

The procedure of radiated spurious emissions is as follows:

a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, RSE=Rx(dBuV)+CL(dB)+SA(dB)+Gain(dBi)-107(dBuV to dBm) The SA is calibrated using following setup.



b) EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1MHz bandwidth.



Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the PCS 1900 band (1850.2 MHz, 1880 MHz and 1909.8 MHz) ,GSM850 band (824.2MHz, 836.6MHz, 848.8MHz), UMTS band II(1852.6MHz, 1880MHz, 1907.4MHz), UMTS band V(826.6MHz, 836.4MHz, 846.4MHz) . It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.

The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below: Power=P_{Mea}+A_{Rpl}

9.2.2 PROVISIONS APPLICABLE

(a) On any frequency outside a licensee's frequency block (e.g. A, D, B, etc.) within the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

Note: only result the worst condition of each test mode:

9.2.3 MEASUREMENT RESULT

GSM 850:

	The Worst Test Results for Channel 251/848.8 MHz											
Frequency(MHz)	Power(dBm)	ARpl (dBm)	PMea(dBm)	Limit (dBm)	Polarity							
1685.23	-41.48	-5.01	-46.49	-13.00	Horizontal							
2456.12	-42.38	-2.18	-44.56	-13.00	Vertical							
3645.78	-43.49	3.46	-40.03	-13.00	Vertical							
4536.58	-42.31	2.79	-39.52	-13.00	Horizontal							

PCS 1900:

	The Worst Test Results for Channel 810/1909.8MHz											
Frequency(MHz)	Power(dBm)	ARpl (dBm)	PMea(dBm)	Limit (dBm)	Polarity							
1429.36	-43.49	-3.22	-46.71	-13.00	Vertical							
2563.47	-42.37	-0.24	-42.61	-13.00	Vertical							
3645.26	-45.46	3.98	-41.48	-13.00	Horizontal							
4563.56	-45.62	11.56	-34.06	-13.00	Vertical							
5689.25	-44.76	17.89	-26.87	-13.00	Horizontal							

UMTS band II:

	The Worst Test	Results for	Channel 9938	/1907.4MHz	
Frequency(MHz)	Power(dBm)	ARpl (dBm)	PMea(dBm)	Limit (dBm)	Polarity
2000.00	-38.82	-2.25	-41.07	-13.00	Vertical
9548.50	-39.28	-3.03	-42.31	-13.00	Horizontal
13367.40	-42.57	-1.87	-44.44	-13.00	Horizontal
15277.80	-42.63	8.52	-34.11	-13.00	Vertical
17931.60	-44.73	18.7	-26.03	-13.00	Horizontal

	The Worst Tes	t Results for	Channel 4458	3/846.4MHz	
Frequency(MHz)	Power(dBm)	ARpl (dBm)	PMea(dBm)	Limit (dBm)	Polarity
1598.26	-41.64	-2.26	-43.9	-13.00	Vertical
2365.78	-40.37	-3.12	-43.49	-13.00	Horizontal
4967.65	-43.32	-1.74	-45.06	-13.00	Horizontal
6457.86	-42.79	8.74	-34.05	-13.00	Vertical
7896.56	-43.82	17.89	-25.93	-13.00	Horizontal

UMTS band V:

Note: ARpl= Factor=Antenna Factor+ Cable loss-Amplifier gain.

The "Factor" value can be calculated automatically by software of measurement system.

Below 30MHZ no Spurious found and The GSM modes is the worst condition.

10. MAINS CONDUCTED EMISSION

10.1 MEASUREMENT METHOD

The measurement procedure specified in ANSI C63.4-2003 was used for testing. Conducted Emission was measured with travel charger.

10.2 PROVISIONS APPLICABLE

Frequency of Emission (MHz)	Conducted Limit(dBuV)				
	Quasi-Peak	Average			
0.15 – 0.5	66 to 56 *	56 to 46 *			
0.5 – 5	56	46			
5 – 30	60	50			
*Decreases with the logarithm of the frequency.					
*The lower limit shall apply at the transition freque	ncy.				

Note: The GSM850 mode is the worst condition and the test result as following:

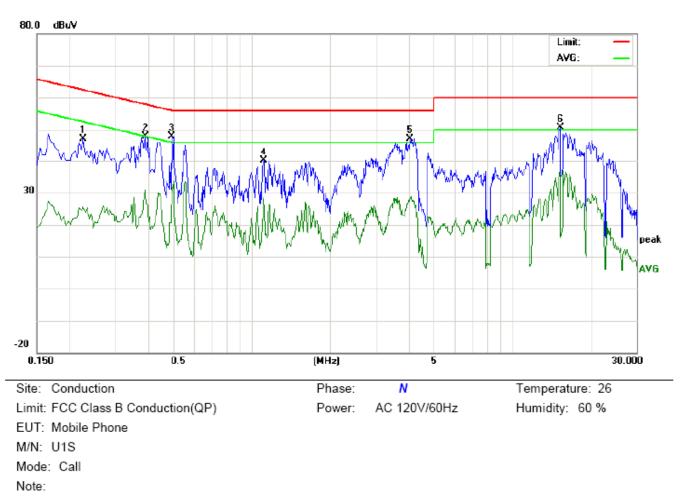
10.3 MEASUREMENT RESULT

80.0 dBuV Limit: AVG: ŝ 30 peak ١VG -20 0.5 (MHz) 30.000 0.150 5 Site: Conduction Phase: L1 Temperature: 26 Limit: FCC Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 60 % EUT: Mobile Phone M/N: U1S Mode: Call

LINE CONDUCTED EMISSION - L

Note:

No.	Freq.	Rea	ading_Level (dBuV)		Correct Factor	Measurement (dBuV)					Margin (dB) P/		Comment	
	(MHz)	Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.2260	44.40		26.99	10.24	54.64		37.23	62.59	52.59	-7.95	-15.36	Р	
2	0.5020	38.35		32.63	10.40	48.75		43.03	56.00	46.00	-7.25	-2.97	Р	
3	0.7180	32.34		19.48	10.34	42.68		29.82	56.00	46.00	-13.32	-16.18	Р	
4	1.6180	31.85		23.74	10.34	42.19		34.08	56.00	46.00	-13.81	-11.92	Р	
5	3.8700	35.04		17.38	10.45	45.49		27.83	56.00	46.00	-10.51	-18.17	Р	
6	15.1940	42.27		29.16	10.12	52.39		39.28	60.00	50.00	-7.61	-10.72	Р	



LINE CONDUCTED EMISSION - N

No.	Freq.	Reading_Level (dBuV)				1	Measurement (dBuV)		Limit (dBuV)		Margin (dB)		P/F	Comment
	(MHz)	Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.2260	36.99		15.33	10.24	47.23		25.57	62.59	52.59	-15.36	-27.02	Р	
2	0.3899	37.58		20.54	10.33	47.91		30.87	58.06	48.06	-10.15	-17.19	Р	
3	0.4940	37.56		21.33	10.40	47.96		31.73	56.10	46.10	-8.14	-14.37	Р	
4	1.1140	29.74		16.89	10.37	40.11		27.26	56.00	46.00	-15.89	-18.74	Р	
5	4.0620	36.78		18.12	10.40	47.18		28.52	56.00	46.00	-8.82	-17.48	Р	
6	15.2420	40.62		25.44	10.12	50.74		35.56	60.00	50.00	-9.26	-14.44	Р	

Note: The GSM850 mode is the worst condition.

11. FREQUENCY STABILITY

11.1 MEASUREMENT METHOD

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a "call mode". This is accomplished with the use of R&S CMU200 DIGITAL RADIO COMMUNICATION TESTER.

- 1 , Measure the carrier frequency at room temperature.
- 2 , Subject the EUT to overnight soak at -10 $^\circ\!\!\mathbb{C}.$

3 , With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on channel 661 for PCS 1900 band , channel 190 for GSM 850 band, channel 9400 for UMTS band II and channel 4175 for UMTS band V measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.

4 , Repeat the above measurements at 10° C increments from -10° C to $+55^{\circ}$ C. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.

5 , Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1 1/2 hours unpowered, to allow any self-heating to stabilize, before continuing.

6 , Subject the EUT to overnight soak at +55 $^{\circ}$ C.

7 , With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.

8 , Repeat the above measurements at 10° C increments from +55 $^{\circ}$ C to -10 $^{\circ}$ C. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.

9 , At all temperature levels hold the temperature to +/- 0.5° C during the measurement procedure.

11.2 PROVISIONS APPLICABLE

11.2.1 For Hand carried battery powered equipment

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of between 6.3VDC and 8.5VDC, with a nominal voltage of 7.4VDC. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress. These voltages represent a tolerance of -10 % and +12.5 %. For the purposes of measuring frequency stability these voltage limits are to be used.

11.2.2 For equipment powered by primary supply voltage

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. For this EUT section 2.1055(d)(1) applies. This requires varying primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment, the normal environment temperature is 20°C.

11.3 MEASUREMENT RESULT

Appendix D:Frequency Stability

Test Results

Frequency Error vs. Voltage:

Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Vardiat
Band	Mode	Channel	Temp.	Volt.	(Hz)	(ppm)	(ppm)	Verdict
			ΤN	VL	19.37	0.02	±2.5	PASS
		LCH	ΤN	VN	18.85	0.02	±2.5	PASS
			ΤN	VH	25.89	0.03	±2.5	PASS
			TN	VL	22.79	0.03	±2.5	PASS
GSM850	GSM	MCH	TN	VN	23.31	0.03	±2.5	PASS
			TN	VH	22.02	0.03	±2.5	PASS
			ΤN	VL	20.86	0.02	±2.5	PASS
		HCH	ΤN	VN	24.86	0.03	±2.5	PASS
			TN	VH	23.25	0.03	±2.5	PASS

Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Verdict
Band	Mode	Channel	Temp.	Volt.	(Hz)	(ppm)	(ppm)	
			ΤN	VL	51.66	0.03	±2.5	PASS
		LCH	ΤN	VN	49.01	0.03	±2.5	PASS
			ΤN	VH	66.44	0.04	±2.5	PASS
			ΤN	VL	43.72	0.02	±2.5	PASS
GSM1900	GSM	MCH	ΤN	VN	58.05	0.03	±2.5	PASS
			ΤN	VH	51.27	0.03	±2.5	PASS
			TN	VL	64.06	0.03	±2.5	PASS
		НСН	ΤN	VN	63.15	0.03	±2.5	PASS
			ΤN	VH	53.40	0.03	±2.5	PASS

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Frequency Error vs. Temperature:

Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Verdict
Band	Mode	Channe	Volt.	Temp	(Hz)	(ppm)	(ppm	
		I)	
			VN	-10	19.89	0.02	±2.5	PASS
			VN	0	23.18	0.03	±2.5	PASS
			VN	10	20.15	0.02	±2.5	PASS
GSM850	GSM	LCH	VN	20	22.08	0.03	±2.5	PASS
			VN	30	23.31	0.03	±2.5	PASS
			VN	40	19.95	0.02	±2.5	PASS
			VN	50	21.31	0.03	±2.5	PASS
			VN	-10	27.44	0.03	±2.5	PASS
			VN	0	23.50	0.03	±2.5	PASS
			VN	10	19.31	0.02	±2.5	PASS
GSM850	GSM	MCH	VN	20	18.27	0.02	±2.5	PASS
			VN	30	22.21	0.03	±2.5	PASS
			VN	40	21.57	0.03	±2.5	PASS
			VN	50	22.41	0.03	±2.5	PASS
			VN	-10	25.89	0.03	±2.5	PASS
			VN	0	24.99	0.03	±2.5	PASS
			VN	10	21.18	0.02	±2.5	PASS
GSM850	GSM	НСН	VN	20	26.02	0.03	±2.5	PASS
			VN	30	20.40	0.02	±2.5	PASS
			VN	40	21.31	0.03	±2.5	PASS
			VN	50	23.25	0.03	±2.5	PASS

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Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Verdict
Band	Mode	Chan	Volt.	Temp	(Hz)	(ppm)	(ppm	
		nel)	
			VN	-10	50.50	0.03	±2.5	PASS
			VN	0	55.27	0.03	±2.5	PASS
			VN	10	56.89	0.03	±2.5	PASS
GSM1900	GSM	LCH	VN	20	51.14	0.03	±2.5	PASS
			VN	30	61.86	0.03	±2.5	PASS
			VN	40	57.66	0.03	±2.5	PASS
			VN	50	47.27	0.03	±2.5	PASS
			VN	-10	52.88	0.03	±2.5	PASS
			VN	0	56.05	0.03	±2.5	PASS
			VN	10	52.56	0.03	±2.5	PASS
GSM1900	GSM	MCH	VN	20	59.47	0.03	±2.5	PASS
			VN	30	50.43	0.03	±2.5	PASS
			VN	40	58.31	0.03	±2.5	PASS
			VN	50	53.27	0.03	±2.5	PASS
			VN	-10	58.37	0.03	±2.5	PASS
			VN	0	49.01	0.03	±2.5	PASS
			VN	10	54.50	0.03	±2.5	PASS
GSM1900	GSM	HCH	VN	20	47.27	0.02	±2.5	PASS
			VN	30	54.18	0.03	±2.5	PASS
			VN	40	56.05	0.03	±2.5	PASS
			VN	50	63.80	0.03	±2.5	PASS

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Test Test Test Test Test Freq.Error Freq.vs.rated Limit Verdict Temp. (ppm) Band Mode Channe Volt. (Hz) (ppm L) VL ΤN 10.07 0.01 ±2.5 PASS LCH VN 21.74 ΤN 0.03 ±2.5 PASS VH ±2.5 PASS ΤN 11.90 0.01 ΤN VL 16.25 0.02 PASS ±2.5 WCDMA UMTS MCH VN 21.74 PASS ΤN 0.01 ±2.5 850 ΤN VH 0.02 ±2.5 PASS 16.94 ΤN VL 15.79 0.02 ±2.5 PASS HCH ΤN VN 21.74 0.02 ±2.5 PASS ΤN VH 17.17 0.02 ±2.5 PASS

Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Verdict
Band	Mode	Channe	Temp.	Volt.	(Hz)	(ppm)	(ppm	
		I)	
			TN	VL	32.27	0.02	±2.5	PASS
		LCH	ΤN	VN	24.26	0.01	±2.5	PASS
			TN	VH	32.96	0.02	±2.5	PASS
WCDMA			TN	VL	35.48	0.02	±2.5	PASS
1900	UMTS	MCH	ΤN	VN	24.26	0.02	±2.5	PASS
1900			TN	VH	47.61	0.03	±2.5	PASS
			TN	VL	47.21	0.03	±2.5	PASS
		НСН	TN	VN	24.26	0.02	±2.5	PASS
			TN	VH	25.12	0.02	±2.5	PASS

Frequency Error vs. Voltage:

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Frequency Error vs. Temperature:

Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Verdict													
Band	Mode	Channe	Volt.	Temp	(Hz)	(ppm)	(ppm														
		I.)														
			VN	-10	9.38	0.01	±2.5	PASS													
			VN	0	14.19	0.02	±2.5	PASS													
			VN	10	18.08	0.02	±2.5	PASS													
WCDMA 850	UMTS	LCH	VN	20	11.22	0.01	±2.5	PASS													
000			VN	30	21.74	0.03	±2.5	PASS													
			VN	40	14.65	0.02	±2.5	PASS													
			VN	50	11.22	0.01	±2.5	PASS													
			VN	-10	15.79	0.02	±2.5	PASS													
			VN	0	14.42	0.02	±2.5	PASS													
WCDMA			VN	10	7.32	0.01	±2.5	PASS													
850	UMTS	MCH	VN	20	11.90	0.01	±2.5	PASS													
000			VN	30	17.62	0.02	±2.5	PASS													
			VN	40	16.94	0.02	±2.5	PASS													
			VN	50	16.48	0.02	±2.5	PASS													
			VN	-10	16.02	0.02	±2.5	PASS													
			VN	0	18.08	0.02	±2.5	PASS													
		-				-	-	-	-							VN	10	10.99	0.01	±2.5	PASS
WCDMA	UMTS	НСН	VN	20	16.71	0.02	±2.5	PASS													
850			VN	30	22.89	0.03	±2.5	PASS													
			VN	40	12.59	0.01	±2.5	PASS													
			VN	50	19.23	0.02	±2.5	PASS													

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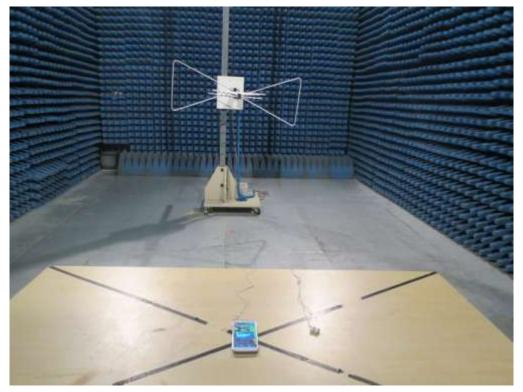
Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Verdict
Band	Mode	Channe	Volt.	Temp	(Hz)	(ppm)	(ppm	
		I)	
			VN	-10	41.66	0.02	±2.5	PASS
			VN	0	35.93	0.02	±2.5	PASS
WCDMA			VN	10	33.19	0.02	±2.5	PASS
1900	UMTS	LCH	VN	20	11.44	0.01	±2.5	PASS
1900			VN	30	38.91	0.02	±2.5	PASS
			VN	40	28.15	0.02	±2.5	PASS
			VN	50	47.84	0.03	±2.5	PASS
			VN	-10	53.79	0.03	±2.5	PASS
			VN	0	47.84	0.03	±2.5	PASS
WCDMA			VN	10	37.08	0.02	±2.5	PASS
1900	UMTS	MCH	VN	20	34.56	0.02	±2.5	PASS
1900			VN	30	46.01	0.02	±2.5	PASS
			VN	40	46.46	0.02	±2.5	PASS
			VN	50	40.74	0.02	±2.5	PASS
			VN	-10	41.18	0.02	±2.5	PASS
			VN	0	39.89	0.02	±2.5	PASS
			VN	10	47.85	0.02	±2.5	PASS
WCDMA 1900	UMTS	НСН	VN	20	47.89	0.02	±2.5	PASS
1900			VN	30	47.88	0.02	±2.5	PASS
			VN	40	47.00	0.02	±2.5	PASS
			VN	50	45.02	0.02	±2.5	PASS

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PHOTOGRAPHS OF TEST SETUP CONDUCTED EMISSION



RADIATED SPURIOUS EMISSION



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TOP VIEW OF EUT



PHOTOGRAPHS OF EUT



FRONT VIEW OF EUT



BOTTOM VIEW OF EUT

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BACK VIEW OF EUT

LEFT VIEW OF EUT



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RIGHT VIEW OF EUT

OPEN VIEW OF EUT-1



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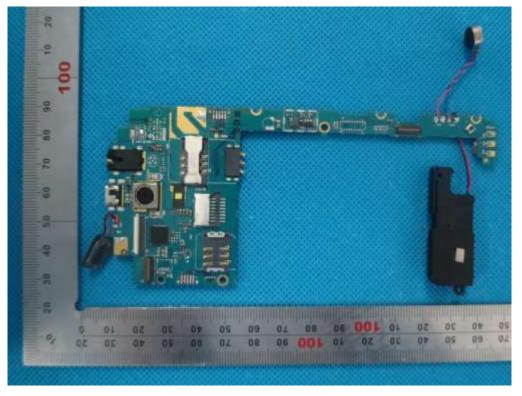


OPEN VIEW OF EUT-2

OPEN VIEW OF EUT-3



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INTERNAL VIEW OF EUT-1

INTERNAL VIEW OF EUT-2



----END OF REPORT----