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MEASUREMENT REPORT FCC PART 22&24 Portable Handset

FCC ID: WL6-TE69SA3

APPLICANT: ELITEGROUP COMPUTER SYSTEMS CO., LTD

- Application Type: Certification
- Product: Tablet PC
- Model No.: TE69SA3
- Brand Name: ECS ELITEGROUP
- FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
- FCC Rule Part(s): Part2, Part22 Subpart H, Part24 Subpart E
- Test Procedure(s): ANSI/TIA-603-C-2004, KDB 971168 D01v02r02
- **Test Date:** Mar. 26 ~ Apr. 03, 2015

: Robin Wu) Reviewed By : Marlinchen Approved By (Marlin Chen) TESTING LABORATORY CERTIFICATE #3628.01

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.



Revision History

Report No.	Version	Description	Issue Date
1503RSU01804	Rev. 01	Initial report	09-18-2015
1503RSU01804	Rev. 02	Revised the KDB 971168 version	09-22-2015



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§2.1033 General Information

Applicant:	ELITEGROUP COMPUTER SYSTEMS CO., LTD			
Applicant Address:	No.239, Sec. 2, Tiding Blvd., Neihu Dist, Taipei City 14, Taiwan			
	(R.O.C)			
Manufacturer:	ELITEGROUP COMPUTER SYSTEMS CO., LTD			
Manufacturer Address:	No.239, Sec. 2, Tiding Blvd., Neihu Dist, Taipei City 14, Taiwan			
	(R.O.C)			
Test Site:	MRT Technology (Suzhou) Co., Ltd			
Test Site Address:	D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong			
	Economic Development Zone, Suzhou, China			
MRT Registration No.:	809388			
FCC Rule Part(s):	Part22 Subpart H, Part24 Subpart E			
Model No.:	Tablet PC			
FCC ID:	WL6-TE69SA3			
Test Device Serial No.:	N/A Production Pre-Production Engineering			
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)			

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC registered (MRT Reg. No. 809388) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-4179, G-814, C-4664, T-2206) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.

	American Association for Laboratory Accreditation
	Accredited Laboratory
MRT T	ECHNOLOGY (SUZHOU) CO., LTD.
	Suzhou, China for technical competence in the field of
	Electrical Testing
the competence of testing an	al in accordance with the recognized International Standard ISO/IEC 17025-2005 General responsements for of colliforation inhorotoxies. This accordination demonstrates technical competence for a defined scope and H actory quality management system (refer to just ISO/ILEC-AUF Communique idated & January 2009).
	Presented this 17 th day of Jane 2014.
G	Peter Marga- Provided & CED Concent Confidence Number 1028(31) Vidad to August 31, 2016
For the total to	**** • which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.



1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on September 30, 2013.





2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name	Tablet PC			
Model No.	TE69SA3			
Antenna Type	Internal			
Wi-Fi Specification	802.11b/g/n-HT20			
Bluetooth Version	v3.0 + HS / v4.0 LE			
GPS Frequency	1575.42MHz			
GSM Operation Band (s)	GSM850 / PCS1900			
UMTS Operation Band (s)	WCDMA Band II / WCDMA Band V			
Release Version	Rel-7			
Component				
Adapter #1	Model No.: W12-010N3A			
	Output Power: 5VDC/2A			
	Input Power: 100 - 240V ~ 50/60Hz, 0.3A			
Adapter #2 Model No.: WB-10G05FU				
	Output Power: 5VDC/2A			
	Input Power: 100 - 240V ~ 50/60Hz, 0.4A			



GSM/WCDMA Specification					
Uplink Frequency Range	GSM 850: 824 ~ 849MHz				
	PCS 1900: 1850 ~ 1910MHz				
	WCDMA Band II: 1852.4 ~ 1907.6MHz				
	WCDMA Band V: 824 ~ 849MHz				
Downlink Frequency Range	GSM 850: 869 ~ 894MHz				
	PCS 1900: 1930 ~ 1990MHz				
	WCDMA Band II: 1932.4 ~ 1987.6MHz				
	WCDMA Band V: 869 ~ 894MHz				
Antenna Type / Gain	GSM 850: 1.07dBi				
	PCS 1900: 2.12dBi				
	WCDMA Band II: 2.12dBi				
	WCDMA Band V: 1.07dBi				
Type of Modulation	GSM / GPRS: GMSK				
	WCDMA/HSDPA/HSUPA: QPSK (Uplink)				

2.2. Product Specification Subjective to this Report

Note: The test data contained in this report only to the emissions due to the EUT's 2G/3G licensed transmitters. The test report has showed the worst test mode.

2.3. Device Capabilities

This device contains the following capabilities: 850/1900 GSM/GPRS/EDGE, 850/1900 WCDMA/HSDPA/HSUPA/HSPA+, 802.11b/g/n WLAN (DTS), Bluetooth (v3.0+HS, v4.0)

2.4. Test Configuration

The **Tablet PC FCC ID: WL6-TE69SA3** was tested per the guidance of ANSI/TIA-603-C-2004 and KDB 971168 D01v02r02. See section 3.0 of this report for a description of the radiated and antenna port conducted emissions tests.

2.5. EMI Suppression Device(s)/Modifications

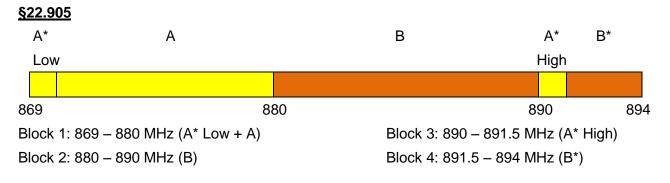
No EMI suppression device(s) were added and no modifications were made during testing.



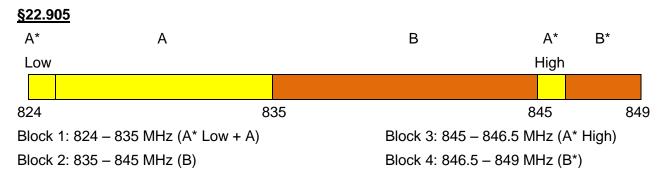
3. DESCRIPTION OF TEST

3.1. Evaluation Procedure

3.2. Cellular – Base Frequency Blocks



3.3. Cellular – Mobile Frequency Blocks



3.4. PCS – Base Frequency Blocks

<u>§24.229</u>

Α	D	В	Е	F	С	
1930	195	0	19	70		1990
Block 1: 1930 – 1945 MHz (A)			Blo	ck 4: 19	965 – 1970 MHz (E)	
Block 2: 1945 – 1950 MHz (D)			Blo	ck 5: 19	970 – 1975 MHz (F)	
Block 3: 1950 – 1965 MHz (B)			Blo	ck 6: 19	975 – 1990 MHz (C)	



3.5. PCS – Mobile Frequency Blocks

<u>§24.229</u>

Α	D	В		Е	F	С	
1850	18	370		18	890		1910
Block 1: 1850 – 1865 MHz (A)				Blo	ock 4: 1	885 – 1890 MHz (E)	
Block 2: 1865 – 1870 MHz (D)				Blo	ock 5: 1	890 – 1895 MHz (F)	
Block 3: 1870 – 1885 MHz (B)			Blo	ock 6: 1	895 – 1910 MHz (C)		

3.6. Occupied Bandwidth

<u>§2.1049</u>

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The spectrum analyzers' "occupied bandwidth" measurement function was used to record the occupied bandwidth in accordance with KDB 971168.

3.7. Spurious and Harmonic Emissions at Antenna Terminal

§2.1051 §22.917(a) §24.238(a)

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for Part 22 and 1 MHz or greater for Part 24. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.



3.8. Radiated Power and Radiated Spurious Emissions

§2.1053 §22.913(a.2) §22.917(a) §24.232(c) §24.238(a)

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurement and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. A MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. A 80cm high PVC support structure is placed on top of the turntable.

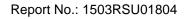
The equipment under test was transmitting while connected to its integral antenna and is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer. Radiated power levels are also investigated with the receive antenna horizontally and vertically polarized. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions' occupied bandwidth, a RMS detector, RBW = 100kHz, VBW = 300kHz, and a 1 second sweep time over a minimum of 10 sweeps, per the guidelines of KDB 971168.

Per the guidance of ANSI/TIA-603-C-2004, a half-wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

Pd [dBm] = Pg [dBm] - cable loss [dB] + antenna gain [dBd/dBi]

Where, Pd is the dipole equivalent power, Pg is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to Pg [dBm] – cable loss [dB].

The calculated Pd levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of 43 + 10*log10(Power [Watts]) specified in 22.917(a) and 24.238(a).





3.9. Peak-Average Ratio

<u>§24.232(d)</u>

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

For pulsed signals, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power. For continuous signals, the trigger is set to "free run" in the CCDF measurement mode.

3.10. Frequency Stability / Temperature Variation

<u>§2.1055 §22.355 §22.863 §22.905 §24.229 §24.235</u>

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-C-2004. The frequency stability of the transmitter is measured by:

a.) Temperature: The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification – For Part 22, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).

2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.

3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.



4. TEST EQUIPMENT CALIBRATION DATA

Radiated Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	E4447A	MRTSUE06028	1 year	2015/10/09
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2015/11/07
Radio Communication Tester	R&S	CMU 200	MRTSUE06009	1 year	2015/12/14
Preamplifier	Agilent	83017A	MRTSUE06020	1 year	2015/12/13
Preamplifier	Schwarzbeck	BBV9721	MRTSUE06121	1 year	2016/04/15
Loop Antenna	Schwarzbeck	FMZB1519	MRTSUE06025	1 year	2015/11/08
TRILOG Antenna	Schwarzbeck	VULB9162	MRTSUE06022	1 year	2015/11/08
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06023	1 year	2015/11/08
Broadband Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06024	1 year	2016/01/05
Temperature/Humidity Meter	Ouleinuo	N/A	MRTSUE06115	1 year	2015/11/20

Conducted Test Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2016/04/23
Radio Communication Tester	R&S	CMU 200	MRTSUE06009	1 year	2015/12/14
DC Power Supply	GWINSTEK	GPS-3030D	MRTSUE06063	1 year	2015/11/13
Programmable Temperature & Humidity Chamber	BAOYT	BYH-1500L	MRTSUE06051	1 year	2015/12/10
USB Wideband Power Sensor	Boonton	55006	MRTSUE06109	1 year	2015/10/15
Temperature/Humidity Meter	Ouleinuo	N/A	MRTSUE06112	1 year	2015/11/20

Software	Version	Function
e3	V8.3.5	EMI Test Software



5. SAMPLE CALCULATIONS

GSM Emission Designator

Emission Designator = 250KGXW GSM BW = 250 kHz G = Phase Modulation X = Cases not otherwise covered W = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 250KG7W GSM BW = 250 kHz G = Phase Modulation 7 = Quantized/Digital Info W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M16F9W WCDMA BW = 4.16 MHz F = Frequency Modulation 9 = Composite Digital Info W = Combination (Audio/Data) (Measured at the 99.75% power bandwidth)

Spurious Radiated Emission

Example: Spurious emission at 3700.40 MHz

The receive spectrum analyzer reading at 3 meters with the EUT on the turntable was -81.0dBm. The gain of the substituted antenna is 8.1dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3700.40MHz. So 6.1 dB is added to the signal generator reading of -30.9dBm yielding -24.80dBm. The fundamental EIRP was 25.50dBm so this harmonic was 25.50dBm - (-24.80) = 50.3dBc.



6. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Radiated Emission Measurement

Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz ~ 1GHz: 4.18dB 1GHz ~ 40GHz: 4.76dB



7. TEST RESULT

7.1. Summary

Company Name:	ELITEGROUP COMPUTER SYSTEMS CO., LTD
FCC ID:	WL6-TE69SA3
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
Mode(s):	<u>GSM / WCDMA</u>

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
Transmitter	<u>Mode(TX)</u>				
2.1049	Occupied bandwidth	N/A		Pass	Section 7.2
2.1051	Band Edge /	> 43 + log10 (P[Watts]) at			
22.917(a)	Conducted Spurious	Band Edge and for all		Pass	Section 7.3
24.238(a)	Emissions	out-of-band emissions	Conducted		
24.232(d)	Peak-Average Ratio	< 13 dB		Pass	Section 7.5
2.1046	Transmitter Conducted Output Power	N/A		Pass	RF Exposure Report
22.913(a.2)	Effective Radiated Power	< 7 Watts max. ERP		Pass	Section 7.4
24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP		Pass	Section 7.4
2.1053		> 43 + log10 (P[Watts]) for all	Radiated		
22.917(a)	Undesirable Emissions	out-of-band emissions	Radiated	Pass	Section 7.4
24.238(a)					
2.1055		< 2.5 ppm (Part 22)			
22.355	Frequency Stability	Emission must remain in		Pass	Section 7.6
24.235		band (Part 24)			

Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots shown in Section 4.0 were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.



7.2. Occupied Bandwidth

7.2.1. Test Limit

N/A

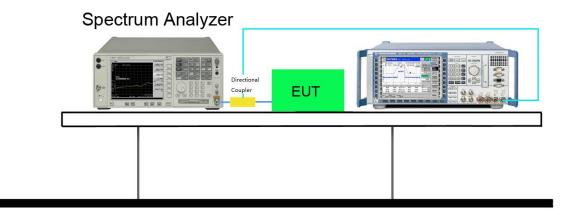
7.2.2. Test Procedure used

KDB 971168 D01v02r02 - Section 4.1 & ANSI/TIA-603-C-2004

7.2.3. Test Setting

- The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW. RBW = approximately 1% of the emission bandwidth.
- 2. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
- 3. Set the detection mode to peak, and the trace mode to max hold.
- 4. Use the 99 % power bandwidth function of the spectrum analyzer (if available) and report the measured bandwidth.

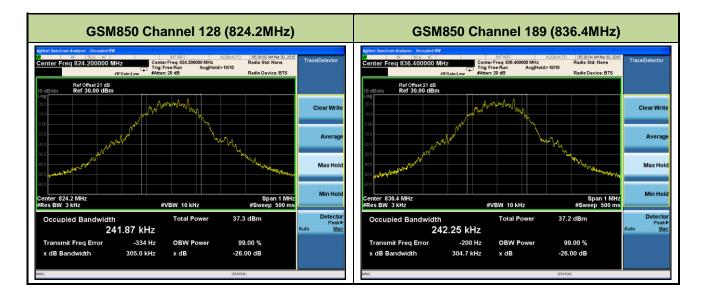
7.2.4. Test Setup



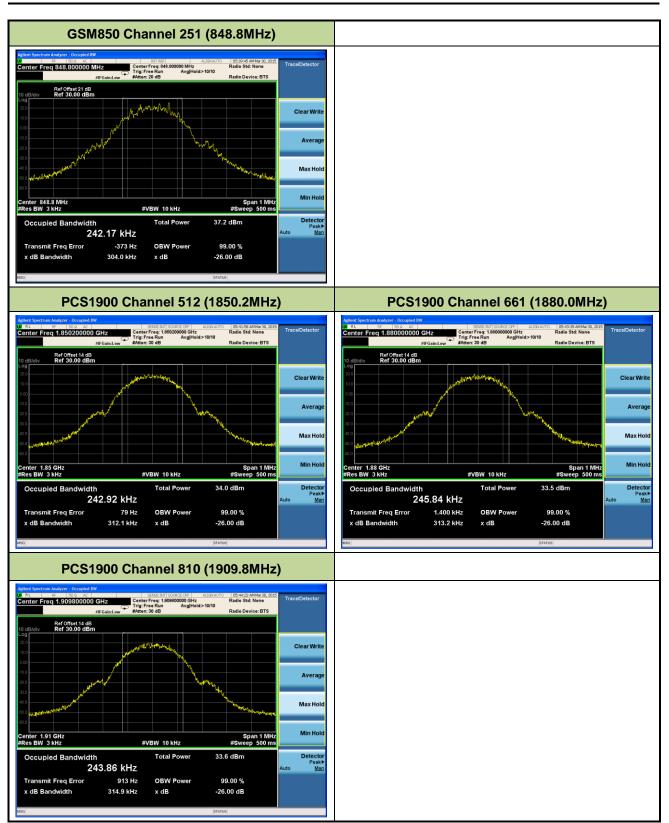


7.2.5. Test Result

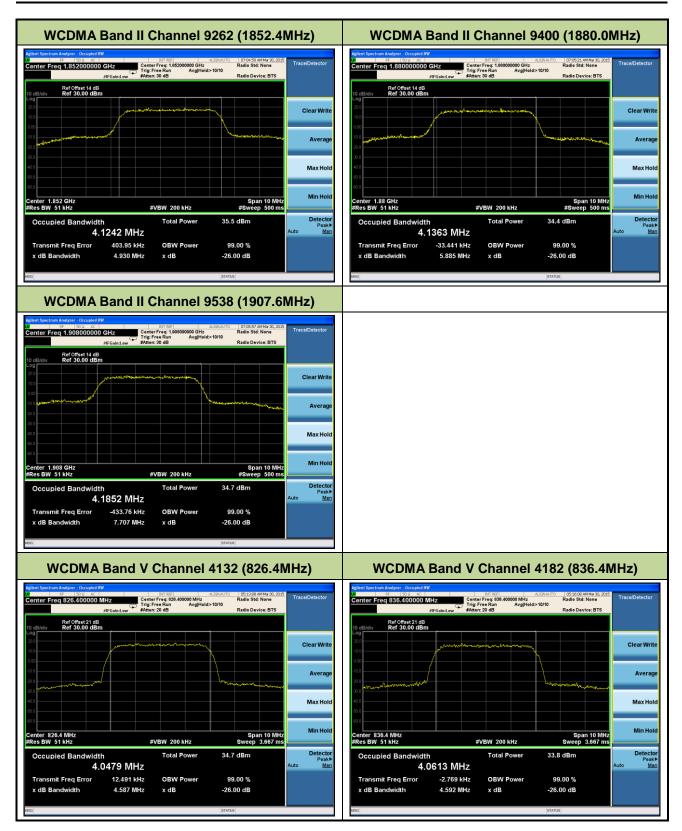
Test Mode	Channel No.	Frequency (MHz)	99% Occupied Bandwidth (kHz)	-26dB Occupied Bandwidth (kHz)	Result
	128	824.2	241.87	305.0	Pass
GSM850	189	836.4	242.25	304.7	Pass
	251	848.8	242.17	304.0	Pass
	512	1850.2	242.92	312.1	Pass
PCS1900	661	1880.0	245.84	313.2	Pass
	810	1909.8	243.86	314.9	Pass
	9262	1852.4	4124.2	4930.0	Pass
WCDMA Band II	9400	1880.0	4136.3	5885.0	Pass
	9538	1907.6	4185.2	7707.0	Pass
	4132	826.4	4047.9	4587.0	Pass
WCDMA Band V	4182	836.4	4061.3	4593.0	Pass
	4233	846.6	4056.8	4597.0	Pass



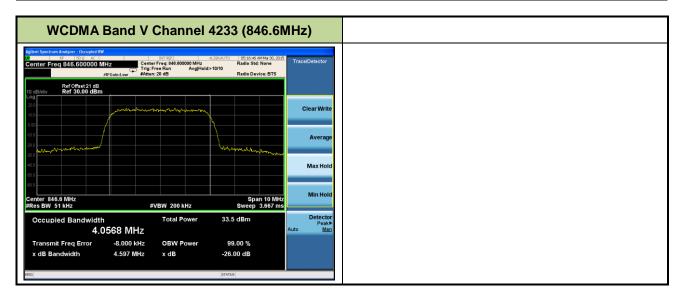














7.3. Spurious and Harmonic Emissions at Antenna Terminal

7.3.1. Test Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10log(P) dB.

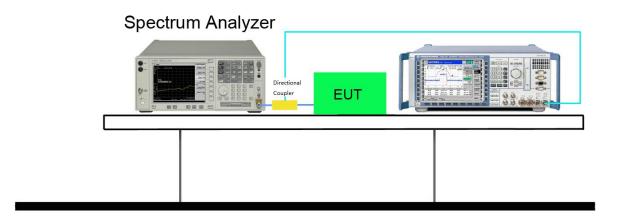
7.3.2. Test Procedure Used

KDB 971168 D01v02r02 - Section 6.0 & ANSI/TIA-603-C-2004

7.3.3. Test Setting

In the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.

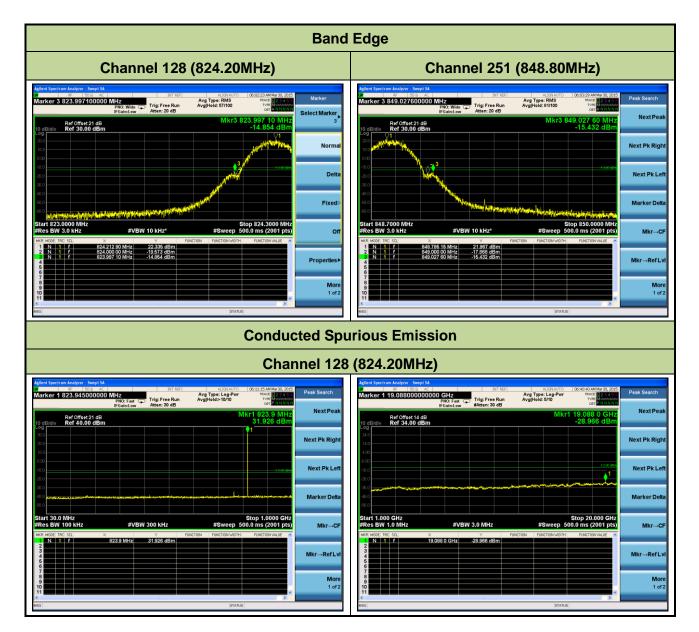
7.3.4. Test Setup





7.3.5. Test Result

Mode	Channel No.	Frequency (MHz)	Modulation	Test Result
GSM850	128	824.20	GMSK	Pass
GSM850	189	836.40	GMSK	Pass
GSM850	251	848.80	GMSK	Pass

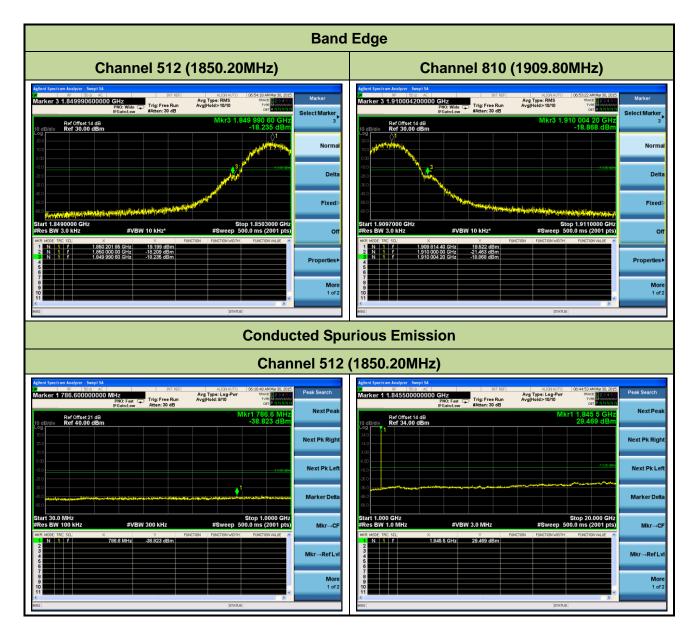




lent Spectrum Analyzer - Swept SA	Channe	189 (836.40MHz) kglant Spectrum Analyser - Sweep SA	_
AF 50 Q AC DIT REF arker 1 836.5555000000 MHz PN0: Fast Trig: Free Run IFGaint.tow Attent: 30 dB	ALSINAUTO 06:11:38 AM Mir 30, 2015 Avg Type: Log-Pwr TRACE 12 3 4 5 0 Avg[Hold>10/10 Drive Def P NUMUN	Search Marker 1 19,5345000000 CHz Trig Free Run AvgHold>100:050400 0000 00000 00000 00000 00000 000000	Peak Search
Ref Offset 21 dB dB/div Ref 40.00 dBm		extPeak Ref Offset 14 dB Mkr1 19.534 5 GHz 10 dB/div Ref 34.00 dBm -27.621 dBm	NextPe
	€1 Nex	240	Next Pk Rig
		400	_
0	10.00 stm	19k Left 160	Next Pk L
0 0 0		ker Delta 460	Marker D
art 30.0 MHz	Stop 1.0000 GHz	Start 1.000 CHz Stop 20.000 CHz	
es BW 100 kHz #VBW 300 kHz MODEL TRC SQL × Y N 1 f 835.6 MHz 31.888 dBm	#Sweep 500.0 ms (2001 pts) FUNCTION FUNCTION WIDTH FUNCTION VALUE	Mixr—CF #Res BW 1.0 MHz #VBW 3.0 MHz #Sweep 50.0 ms (2001 pts) MR MODE TFC SCL X Y Planction Planction Planction value A MI 1.1 1 195345 GHz 27 7621 dBm Planction value A	Mkr⊸
	Mk	→RefLvl 4 5	Mkr→Ref
		6 7 7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	м
	× 5		1
	STATUS	MSG STATUS	
ent Spectrum Analyzer - Swept SA		251 (848.80MHz)	
RF 50.0 AC INT REF rker 1 848.680000000 MHz PNO: Fast Trig: Free Run		Search Algebra Spectrum Analyzer - Swegi SA Workker 1 19.13555000000000 GHz Markker 119.13555000000000 GHz Trig: Free Run Aug/Pipel Log-Puper Trig: Fre	Peak Search
rker 1 848.680000000 MHz PH0: Fast C IFGaind.cw	4139140/TO 06:11:56 AMMar 30, 2015 Avg Type: Log-Pwr TRACE 12 a c ar Avg/Hold>10/10 tvm cer P interest	Attraction Attract	
NF ISO 0 AC PATTREF rker 1 848.6580000000 MHz PRIO: Fast Trig: Free Run IFGaint.ow Trig: Free Run Atten: 30 dB Ref Offset 21 dB Ref Offset 21 dB Ref Offset 21 dB Ref Offset 21 dB	ALS/LN/TO D6:11:50 AMM/3 00, 2015 Peak Avg Type: Log-Per TAAC 12:20 EXR Peak AvgHeld>10/10 Time 22:00 EXR Peak Mkr1 848,7 MHz 31:934 dBm 94	Adjust Spectrum Analyzer - Swept M. NT HEF All Status (00 + E10 AMMs 00, 2015) Bearch BF BEO BOO BF BEO BOO BEO BOO <td>NextPe</td>	NextPe
rker 1 848,680000000 MHz PNO: Fast C IFGain:Low Rter: 30 dB	415/14/170 06:1150 AMMg 20, 2015 Peal Avg Type: Log-Pur TMAC 10:00 KKK Peal AvgHeids-10/10 Tmac 10:00 KKK Peal Mkr1 848.7 MHz 334 dBm 41 1 1 Nex	Reserve Argenet Spectrums Analyzer, Swegt SA (School Spectrum	Next Pe
rker 1 848.680000000 MHz PH0: Fast C IFGaind.cw	415/14/170 06:1150 AMMg 20, 2015 Peal Avg Type: Log-Pur TMAC 10:00 KKK Peal AvgHeids-10/10 Tmac 10:00 KKK Peal Mkr1 848.7 MHz 334 dBm 41 1 1 Nex	Search Algent Spectrum Analyzer, Swept Marker 1 19:33555000000000000000000000000000000000	Next Pe Next Pk Rig
IFGain:Low Atten: 30 dB	4131A070 06:1159 AMM9 20.2015 Avg Type: Log-Per Avg Type: Log-Per Mkr1 848.7 MHZ 31.934 dBm 1	Beach Address Sections Andrew Sections Andrew Sections Confect on Address Addr	Pesk Search Next Pe Next Pk Rig Next Pk L Marker Di
rker 1 848.68000000 MHz Pfic: Fat Difference Ref Offset 21 dB Ref 0.00 dBm Construction Ref 0.00 dBm Ref 0.0	41314070 D6:1150 AMMer 30.2015 Peak Avg Type: Log-Per Avg1Heids-10/10 Image 12.3 K mer Trace 2.3 K mer Trace 2.3 K mer Trace Peak MK1 848.7 MHZ 31.3934 dBm 3.4 dBm Nex 1 1 1 Nex	Search Pk Right ker Deta Ker Deta Ker Joek Ker Joek	Next Pk Rig Next Pk Rig Next Pk L
IP SOB_AC L DRT (ED) FR4 1848.6500000000 MPL Trigs Free Run PRO: Fast Ref Offset 21 dB Trigs Free Run Atten: 30 dB Bildiv Ref Offset 21 dB B Trigs Free Run Atten: 30 dB Bildiv Ref Offset 21 dB B Trigs Free Run Atten: 30 dB B Trigs Free Run Atten: 30 dB Trigs Free Run Atten: 30 dB Trigs Free Run Atten: 30 dB Trigs Free Run Atten: 30 dB B Trigs Free Run Atten: 30 dB Trigs Free Run Atten: 30 dB Trigs Free Run Atten: 30 dB B Trigs Free Run Atten: 30 dB Trigs Free Run Atten: 30 dB Trigs Free Run Atten: 30 dB Trigs Free Run Atten: 30 dB Trigs Free Run Atten: 30 dB Trigs Free Run Atten: 30 dB E E W100 kHz #VBW 300 kHz	AUS/AUTO Doi:100 AUM or 20, 2015 Peak Avg Type: Log-Per AvgiteId>10/10 The B20 EXT Type: Log-Per AvgiteId>31, 304 dBm Peak Mkr1 348,7 MHz 31, 304 dBm Nex Nex Image: August automatic a	Algent Spectrum Analyzer Swegit M Search Algent Spectrum Analyzer Swegit M Marker 1 19.13550000000 GHz Yrg: Leg Free Run Avg Type: Leg Free Run Marker 1 19.13550000000 GHz Yrg: Leg Free Run Avg Type: Leg Free Run Yrg: Grade T 19.13550000000 GHz Yrg: Leg Free Run Avg Type: Leg Free Run Yrg: Grade T 19.13550000000 GHz Yrg: Leg Free Run Avg Type: Leg Free Run Yrg: Grade T 19.1355000000 GHz Yrg: Leg Free Run Avg Type: Leg Free Run Yrg: Grade T 19.1355000000 GHz Yrg: Leg Free Run Avg Type: Leg Free Run Yrg: Grade T 19.1355000000 GHz Yrg: Leg Free Run Avg Type: Leg Free Run Yrg: Grade T 19.1355000000 GHz Yrg: Leg Free Run Avg Type: Leg Free Run Yrg: Grade T 19.1355000000 GHz Yrg: Leg Free Run Avg Type: Leg Free Run Yrg: Grade T 19.1355000000 GHz Yrg: Leg Free Run Avg Type: Leg Free Run Yrg: Grade T 19.1355000000 GHz Yrg: Leg Free Run Avg Type: Leg Free Run Yrg: Grade T 19.1355000000 GHz Yrg: Leg Free Run Avg Type: Leg Free Run Yrg: Grade T 19.1350000000 GHz Yrg: Leg Free Run Avg Type: Leg Free Run	Next Pe Next Pk Rig Next Pk L
MP SOB_AC Image: Comparison of the second s	ALXIANTO D0:11:50 AMM/s 30, 2015 Peak Avg Type: Log Per Avg/Holds: 10/10 IMAG 20 353 Peak Mkr1 248.27 MHz 31.354 dBm Nex 1 1 1 Nex Nex 1 1 1 Nex Nex 5 5500 10:000 GHz Stop 1.0000 GHz Nex #Sweep 500.0 ms (2001 pts) Nex Nex Nex	Search Rer Deta Mir-CF Mir-CF	Next Pk Rig Next Pk Rig Next Pk L
MP SOB_AC Image: Comparison of the second s	ALXIANTO D0:11:50 AMM/s 30, 2015 Peak Avg Type: Log Per Avg/Holds: 10/10 IMAG 20 353 Peak Mkr1 248.27 MHz 31.354 dBm Nex 1 1 1 Nex Nex 1 1 1 Nex Nex 5 5500 10:000 GHz Stop 1.0000 GHz Nex #Sweep 500.0 ms (2001 pts) Nex Nex Nex	Ref Left Ref Construction	Next Pk Next Pk Ri Next Pk I Marker D Mkr-



Mode	Channel No.	Frequency (MHz)	Modulation	Test Result
PCS1900	512	1850.20	GMSK	Pass
PCS1900	661	1880.00	GMSK	Pass
PCS1900	810	1909.80	GMSK	Pass

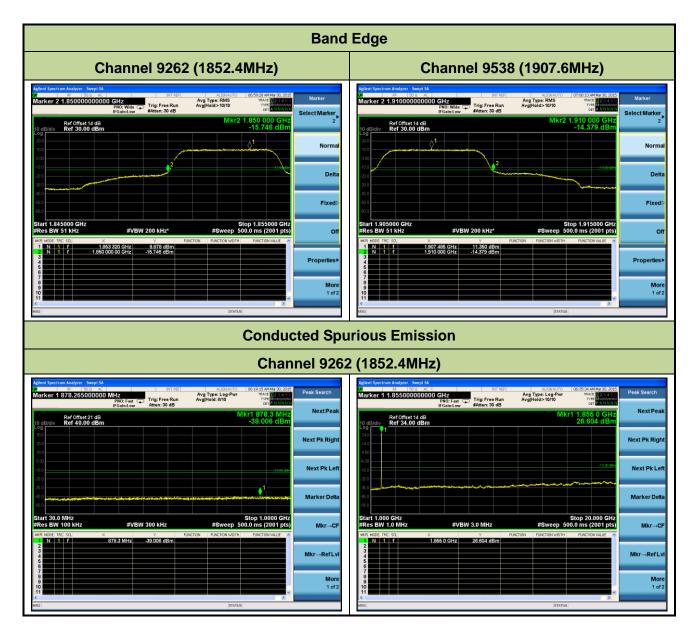




	(1880.00MHz)
Bit M Spectrum Analyzer - Swept SA	Agitent Spectrum Analyzer - Swept SA Bit Titler Autoriation Diversion Diversion <thdiversion< th=""> Diversion</thdiversion<>
If GainLow Atten: 30 dB Corport Next Peak Ref Offset:21 dB Mkr1 878.3 MHz Next Peak 0 dB(xiv - 58.845 dBm	Ref Offset 14 dB Mkr1 1.933 5 G Hz NextPe 10 dB/div Ref 34.00 dBm 29.677 dBm NextPe
Next Pk Right	140 V1
00 00 00 Next Pk Left	(0) (0) (50) (50) (1)(0) (1)(0) (1)(0) (1)(0) (1)(0) (1)(0) (1)(0) (1)(0) (1)(0) (1)(0) (1)(0) (1)(0) (1)(0)(0) (1)(0)(0) (1)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)
0 9 9 9	(30) (30) (31) (32) (33) (3)) (
art 30.0 MHz es BW 100 kHz #VBW 300 kHz #Sweep 500.0 ms (2001 pts) Mkr⊸CF	Start 1.000 GHz Res BW 1.0 MHz #VBW 3.0 MHz #Sweep 500.0 ms (2001 pts) Mkr⊶
N HORE THE SEL X Y P. PURCHON WOTH PURCHON VALUE N 1 7 8793 MH7 53846 dBm Purchon Value MkrRefLvi	Implementer Fill Y Function Fun
More	6
Channel 810	(1909.80MHz)
Birt Systemu Analyzer - Swept SA Bit REF ALEN AUTO D0:17-11 AMM/2 0, 2015 Durin Description	Agitant Spectrum Analyzer - Swept SA Β/Γ KEF RL92/AU/TO IOI+IS-K0 AMMar 30, 2015 Β/Γ KEF 0 KF SO Q Δ2 B/Γ KEF RL92/AU/TO IOI+IS-K0 AMMar 30, 2015 B/Γ KEF
Trig: Free Run AvgjNot2 vog v run voe Run AvgjNot2 vog v run voe Run Next Peak	PROFESS TRANSFORMED TIG: Free Run Avg field>10/10 Transformed Tran
Ref Offset 21 dB MKF1 // 1.5 MI12 dBddy Ref 40.00 dBm 38.629 dBm 90	Ref Offset 14 dB MICH 1.912 U GHZ 10 dBldiv 29.452 dBm 210 1 110 Next Pk Rig
	100
10 Next Pk Left	
Marker Delta	Start 1.000 GHz Stop 20.000 GHz
Marker Delta	Start 1.000 GHz Stop 20.000 GHz
00 00 00 00 00 00 00 00 00 00	Storp 100 CHz Storp 20.000 CHz Storp 20.000 CHz Storp 20.000 CHz Storp 20.000 CHz Mkr=4 #Res EW 1.0 MHz #VEW 3.0 MHz #Sweep 500.0 ms (2001 pts) Mkr=4 #Res MOSE The Status X Y Placton Placton water Placton water Mkr=4 1 1 1.912.0 GHz 28.452 dBm Placton Placton water Placton
DD DD <thd< th=""> DD DD DD<td>#Res BW 1.0 MHz #VBW 3.0 MHz #Sweep 500.0 ms (2001 pts) MRR MODE TRC SQL X Y Function worth F</td></thd<>	#Res BW 1.0 MHz #VBW 3.0 MHz #Sweep 500.0 ms (2001 pts) MRR MODE TRC SQL X Y Function worth F



Mode	Channel No.	Frequency (MHz)	Modulation	Test Result
WCDMA Band II	9262	1852.40	QPSK	Pass
WCDMA Band II	9400	1880.00	QPSK	Pass
WCDMA Band II	9538	1907.60	QPSK	Pass

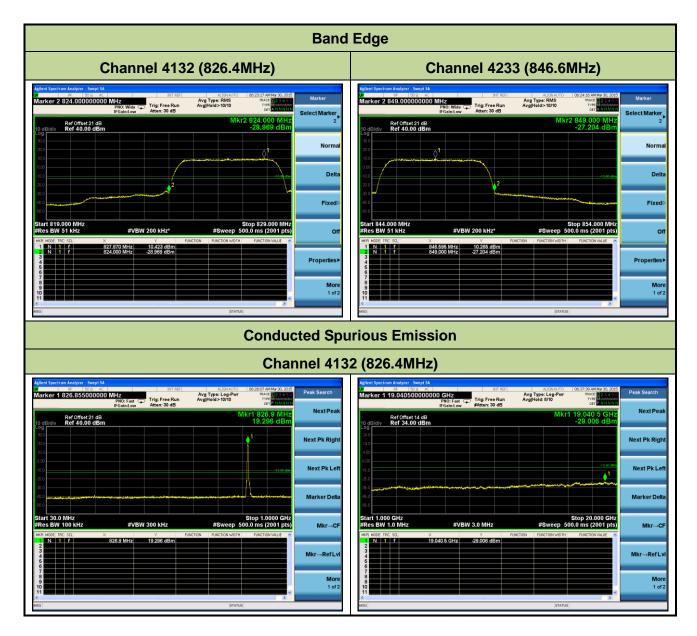




arker 1 205.570000000 MHz	INT REF ALIGN AUTO AVG Type: Log-Pw	0 06:19:51 AM Mar 30, 2015 rr TRACE 02:04:51 AP Peak Search	Agilent Spectrum Analyzer - Swept SA Unt RF 50 Q AC BIT RE Marker 1 1.874000000000 GHz	EF ALIGN AUTO 06:36:08 AM Mar 30, 2015 Avg Type: Log-Pwr TRACE 12:34:5 C	ak Search
PNO: Fast IFGain:Low	Trig: Free Run Avg Hold>10/10 Atten: 30 dB	Mkr1 205.6 MHz	PN0: Fast Trig: Frée Rur IFGain:Low #Atten: 30 dB	n Avg Hold>10/10 TYPE MAAAAAAAA	NextPe
Ref Offset 21 dB IB/div Ref 40.00 dBm		-37.747 dBm	Ref Offset 14 dB 10 dB/div Ref 34.00 dBm 240	25.917 dBm	_
		Next Pk Right	t 14.0	Ne	xt Pk Rig
		Next Pk Left	-16.0	-13 00 dBm	lext Pk L
1			-26.0 -36.0		-
) 	฿๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛	Marker Delta	-46.0 -96.0		larker Do
irt 30.0 MHz es BW 100 kHz #VE	W 300 kHz #Sweep	Stop 1.0000 GHz 500.0 ms (2001 pts)	Start 1.000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz	Stop 20.000 GHz #Sweep 500.0 ms (2001 pts)	Mkr→
MODE TRC: SCL X N 1 f 205.6 MHz	Y FUNCTION FUNCTION WIDT		MKR MODE TRC SCL X Y 1 N 1 f 1.874 0 GHz 25.917 dBm 2 3	FUNCTION FUNCTION WIDTH FUNCTION VALUE	
		Mkr→RefLvi	4 6 6 7		kr→Ref
		More 1 of 2	10		M
	STAT	TUS X		STATUS	
nt Spectrum Analyzer - Swept SA RF SO & AC rker 1 797.755000000 MHz PN0: Fast	BVT REF ALIGNAUTO Avg Type: Log-Pw Trig: Free Run Avg[Hold>10/10	06:20:10 AM Mar 30, 2015 rr TRACE 2 3 4 5 0 VPE	Agilent Spectrum Analyzer - Swept SA Drf RE Value RF 50.0 AC Drf RE Marker 1 1.902500000000 GHz Blf0: Set (cm) Trig: Free Run	Avg Type: Log-Pwr TRACE 2345 6 Per	ak Search
Ref Offset 21 dB IB/div Ref 40.00 dBm	Atten: 30 dB	Mkr1 797.8 MHz	IFGain:Low #Atten: 30 dB	Mkr1 1.902 5 GHz	NextP
IB/div Ref 40.00 dBm		-38.967 dBm	Ref Offset 14 dB Ref 34.00 dBm Log 24.0 24.0	25.922 dBm	
		Next Pk Right	400		xt Pk Ri
		Next Pk Left	6.00 -16.0 -76.0		lext Pk L
		Next Pk Left Marker Delta			lext Pk L larker De
		Marker Delta		M	-
MODE TRC SOL X	Y FUNCTION FUNCTION WIDT	1 Marker Deta Stop 1.0000 GHz 500.0 ms (2001 pts) MkrCF	300 40.0 400 5tart 1.000 GHz #Kes BW 1.0 MHz #VBW 3.0 MHz		-
s BW 100 kHz #VE		1 Marker Deta Stop 1.0000 GHz 500.0 ms (2001 pts) MkrCF	300 400 400 5tart 1.000 GHz #Res BW 1.0 MHz ≢VBW 3.0 MHz MM H00C TRS 10. × N 1 1 1.802 5 GHz 2 550 500 500 500 500 500 500 500 500 500	Stop 20.000 CHz #Sweep 500.0 ms (2001 pts) PARCTON PARCTON VALUE	larker D



Mode	Channel No.	Frequency (MHz)	Modulation	Test Result
WCDMA Band V	4132	826.40	QPSK	Pass
WCDMA Band V	4182	836.40	QPSK	Pass
WCDMA Band V	4233	846.60	QPSK	Pass





Chan				
ALIGN AUTO 06:26:52 AM Mar 30, 2015	UN RF	50.0 AC INT REF	ALIGNAUTO 06:38:04 AM Mar 30, 2015 Avg Type: Log Pwr TRACE AFRE	Peak Search
Avg Hold>10/10 TVPE Monormal Control of the second	NextPeak	PNO: Fast Trig: Free Run IFGain:Low #Atten: 30 dB	Mkr1 16.836 5 GHz	NextPea
	Next Pk Right	.00 dBm		Next Pk Rig
	Next Pk Left -16.0		-13 00 dbr	Next Pk Le
	-36.0 Marker Delta -46.0 -66.0	ستادىلەيمۇدىلەرىيەكىرىلەر بىلىرىدىرىدۇرىيىن سىلىرىلەر بىلىرىكى بەلار بىلىرىدىر		Marker De
Stop 1.0000 GHz #Sweep 500.0 ms (2001 pts)	MKR MODE TRC SCL	X Y FU	Stop 20.000 GHz #Sweep 500.0 ms (2001 pts)	Mkr→C
	Mkr→RefLvl	16.8365 GHz -28.468 dBm		Mkr→RefL
	More 9 1 of 2 10		_	Mo 1 of
STATUS	MSG		STATUS	
ALIGNAUTO 06/25/42 AM Mar 30, 2015 Avg Type: Log-Parr TRACT 2018 E Avg[Hold>10/10 DV	Agilent Spectrum Analyze Deak Search Marker 1 16.684	7 - Swept SA 50 Q AC BNT REF	ALIONAUTO 06:38:24 AM Mar 30, 2015 Avg Type: Log-Parr TRACE 12 2 3 4 5 5 Avg[Hold>10/10 rvie cet 201111	Peak Search Next Pe
19.609 dBm	Next Pk Right	set 14 dB .00 dBm	-29.615 dBm	Next Pk Rig
	Next Pk Left			Next Pk Lo
	Marker Delta 46.0			Marker De
Stop 1.0000 GHz #Sweep 500.0 ms (2001 pts)	Mkr-CF #Res BW 1.0 MH2	X Y FU	Stop 20.000 GHz #Sweep 500.0 ms (2001 pts)	Mkr→C
	1 N 1 F 2 - - - - 3 - - - - 4 - - - - 5 - - - - 6 - - - - 7 - - - -	16.684 5 GHz -29.615 dBm		Mkr→RefL
	More 9 1 of 2 10			Mo 1 o
	ADJUNUTO Arg Type: Log Por Arg Type: Log Por Brand Bran	Avg Type: Log-Por Avg Type: Log-Por Avg Type: Log-Por Avg Type: Log-Por Stop 1,0000 CH2 JSTATUE DECEMP PACTOR WORTH August 2000 Type JSTATUE DECEMP PACTOR WORTH Avg Type: Log-Por Stop 1,0000 CH2 JSTATUE DECEMP PACTOR WORTH Avg Type: Log-Por Next Pactor Mkr - Ref Log JSTATUE DECEMP PACTOR WORTH DECEMP PACT	Arginede to 10 Arginede to 10 Merri 835.5 MHz 19.331 CEm Next Pk Right Next	Arg Fields - Soft With States Park States Arg Fields - Soft With States Park States Marker 1 16 8 355000000000 GHz States 1 - Soft With States Arg Fields - Soft With States Marker 1 16 8 355000000000 GHz States 1 - Soft With States Mixt 1 16 8 355 0 GHz States 1 - Soft With States Mixt 1 2000 GHz States Next Pk Right Mixt 2 0 GER States Mixt - Ref Lift States 1 - Soft With States Mixt - Ref Lift States 1 - Soft With States Mixt - Ref Lift States 1 - Soft With States Mixt - Ref Lift States 1 - Soft With States Mixt - Ref Lift States 1 - Soft With States Mixt - Ref Lift Mixt - Ref Lift Mixt - Ref Lift Mixt - Ref



7.4. Conducted & Radiated Power and Radiated Spurious Emissions

7.4.1. Test Limit

Radiated Power

For FCC Part 22.913(a)(2):

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

For FCC Part 24.232(b):

The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 2 Watts.

Radiated Spurious Emissions

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10log(P) dB.

7.4.2. Test Procedure Used

KDB 971168 D01v02r02 - Section 7.0 & ANSI/TIA-603-C-2004

7.4.3. Test Setting

- 1. The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
- 2. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
- 3. The output of the test antenna shall be connected to the measuring receiver.
- 4. The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- 5. The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
- The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- 7. The test antenna shall be raised and lowered again through the specified range of height

until a maximum signal level is detected by the measuring receiver.

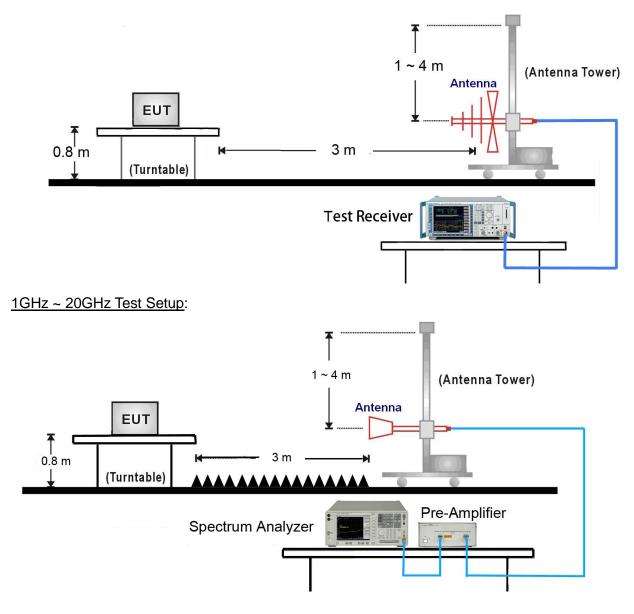


- 8. The maximum signal level detected by the measuring receiver shall be noted.
- 9. The transmitter shall be replaced by a substitution antenna.
- 10. The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
- 11. The substitution antenna shall be connected to a calibrated signal generator.
- 12. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- 13. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
- 14. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
- 15. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
- 16. The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
- 17. Test site anechoic chamber refer to ANSI C63.4: 2009.



7.4.4. Test Setup

<u>30MHz ~ 1GHz Test Setup</u>:





7.4.5. Test Result

Conducted Power

Mode	Frequency (MHz)	-	Duty Cycle Factor	
		(dBm)	(dB)	(dBm)
	824.2	32.20	-9.19	23.01
GSM850	836.4	32.32	-9.19	23.13
	848.8	32.47	-9.19	23.28
	824.2	32.18	-9.19	22.99
GPRS850(1 Slot)	836.4	32.29	-9.19	23.10
	848.8	32.45	-9.19	23.26
	824.2	29.28	-6.16	23.12
GPRS850(2 Slot)	836.4	29.33	-6.16	23.17
	848.8	29.48	-6.16	23.32
	824.2	27.58	-4.42	23.16
GPRS850(3 Slot)	836.4	27.80	-4.42	23.38
	848.8	27.87	-4.42	23.45
	824.2	26.28	-3.18	23.10
GPRS850(4 Slot)	836.4	26.42	-3.18	23.24
	848.8	26.50	-3.18	23.32
	1850.2	30.86	-9.19	21.67
PCS1900	1880.0	30.60	-9.19	21.41
	1909.8	30.71	-9.19	21.52
	1850.2	30.83	-9.19	21.64
GPRS1900(1 Slot)	1880.0	30.57	-9.19	21.38
	1909.8	30.68	-9.19	21.49
	1850.2	27.76	-6.16	21.60
GPRS1900(2 Slot)	1880.0	27.51	-6.16	21.35
	1909.8	27.73	-6.16	21.57
	1850.2	26.10	-4.42	21.68
GPRS1900(3 Slot)	1880.0	25.87	-4.42	21.45



	1909.8	26.13	-4.42	21.71
GPRS1900(4 Slot)	1850.2	24.69	-3.18	21.51
	1880.0	24.45	-3.18	21.27
	1909.8	24.66	-3.18	21.48

Note: Frame Power (dBm) = Avg. Burst Power (dBm) + Duty Cycle Factor (dB)

	2000	Conducted Power (dBm)						
Mode	3GPP Subtest	Band II Channel			Band V Channel			MPR
		9262	9400	9538	4132	4182	4233	
WCDMA R99	1	23.23	22.64	22.97	22.25	22.14	22.15	N/A
Rel5 HSDPA	1	22.94	22.47	22.61	21.98	21.49	21.63	0
	2	22.89	22.44	22.58	21.94	21.46	21.59	0
	3	22.41	21.93	22.04	21.45	20.92	21.13	0.5
	4	22.38	21.91	22.01	21.47	20.89	21.11	0.5
Rel6 HSUPA	1	22.96	22.47	22.54	22.03	21.52	21.60	0.0
	2	20.91	20.42	20.49	20.01	19.48	19.53	2.0
	3	21.98	21.50	21.51	21.05	20.54	20.62	1.0
	4	20.95	20.44	20.46	19.99	19.41	19.49	2.0
	5	22.94	22.42	22.51	22.00	21.49	21.55	0.0

Radiated Power

GSM850

Frequency	Ant. Pol.	SG Reading	Cable Loss	Substitute	ERP	Limit	Margin		
(MHz)	(H/V)	(dBm)	(dB)	Antenna	(dBm)	(dBm)	(dB)		
				Gain (dBd)					
Low Channel 12	Low Channel 128 (824.20MHz)								
824.2	H	20.36	1.78	6.52	25.10	38.5	-13.40		
824.2	V	23.42	1.78	6.38	28.02	38.5	-10.48		
Middle Channe	Middle Channel 189 (836.40MHz)								
836.4	Н	18.94	1.80	6.63	23.77	38.5	-14.73		
836.4	V	21.95	1.80	6.15	26.30	38.5	-12.20		
High Channel 251 (848.80MHz)									
848.8	Н	14.58	1.82	6.80	19.56	38.5	-18.94		
848.8	V	21.10	1.82	6.54	25.82	38.5	-12.68		



PCS1900

Frequency	Ant. Pol.	SG Reading	Cable Loss	Substitute	EIRP	Limit	Margin		
(MHz)	(H/V)	(dBm)	(dB)	Antenna	(dBm)	(dBm)	(dB)		
				Gain (dBi)					
Low Channel 5	Low Channel 512 (1850.20MHz)								
1850.2	Н	23.78	2.70	4.64	25.72	33	-7.28		
1850.2	V	20.55	2.70	4.64	22.49	33	-10.51		
Middle Channe	Middle Channel 661 (1880.00MHz)								
1880.0	Н	23.69	2.72	4.59	25.56	33	-7.44		
1880.0	V	20.38	2.72	4.59	22.25	33	-10.75		
High Channel 810 (1909.80MHz)									
1909.8	Н	22.14	2.75	4.54	23.93	33	-9.07		
1909.8	V	19.15	2.75	4.54	20.94	33	-12.06		

WCDMA Band II

Frequency	Ant. Pol.	SG Reading	Cable Loss	Substitute	EIRP	Limit	Margin		
(MHz)	(H/V)	(dBm)	(dB)	Antenna	(dBm)	(dBm)	(dB)		
				Gain (dBi)					
Low Channel 92	Low Channel 9262 (1852.40MHz)								
1852.4	Н	20.84	2.70	4.64	22.78	33	-10.22		
1852.4	V	18.36	2.70	4.64	20.30	33	-12.70		
Middle Channe	Middle Channel 9400 (1880.00MHz)								
1880	Н	20.92	2.72	4.59	22.79	33	-10.21		
1880	V	18.30	2.72	4.59	20.17	33	-12.83		
High Channel 9538 (1907.60MHz)									
1907.6	Н	19.75	2.75	4.55	21.55	33	-11.45		
1907.6	V	17.59	2.75	4.55	19.39	33	-13.61		



Frequency	Ant. Pol.	SG Reading	Cable Loss	Substitute	ERP	Limit	Margin		
(MHz)	(H/V)	(dBm)	(dB)	Antenna	(dBm)	(dBm)	(dB)		
				Gain (dBd)					
Low Channel 4132 (826.40MHz)									
826.4	Н	14.08	1.79	6.50	18.79	38.5	-19.71		
826.4	V	17.19	1.79	6.30	21.70	38.5	-16.80		
Middle Channe	Middle Channel 4182 (836.40MHz)								
836.4	Н	12.42	1.80	6.63	17.25	38.5	-21.25		
836.4	V	17.18	1.80	6.15	21.53	38.5	-16.97		
High Channel 4233 (846.60MHz)									
846.6	Н	10.97	1.82	6.80	15.95	38.5	-22.55		
846.6	V	16.35	1.82	6.51	21.04	38.5	-17.46		

WCDMA Band V

NOTES:

- ERP (dBm) / EIRP (dBm)= SG Reading (dBm) Cable Loss (dB) + Substitute Antenna Gain (dBd)
- This device was tested under all configurations and the highest power is reported in GSM mode. This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA, HSUPA and GSM/GPRS/EDGE capabilities. For WCDMA and HSPA transmission, all configurations were investigated and the worst case UMTS emissions were found in RMC WCDMA mode at 12.2kbps rate.
- 3. This unit was tested with its standard adapter.
- 4. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The "H" positioning is defined with the EUT lying flat on the test surface, the "H2" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the "V" positioning is defined with the EUT standing up on its side, and the standing up on its side.



Radiated Spurious Emission

GSM850

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Substitute Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)		
Low Channel	Low Channel 128 (824.20MHz)								
1646.0	V	-43.31	0.67	5.13	-38.85	-13	-25.85		
2470.5	V	-49.68	0.82	5.54	-44.96	-13	-31.96		
1646.0	Н	-41.79	0.67	5.10	-37.36	-13	-24.36		
1901.0	н	-42.55	0.70	4.56	-38.69	-13	-25.69		
Middle Chann	Middle Channel 189 (836.40MHz)								
1671.5	V	-44.58	0.67	5.05	-40.20	-13	-27.20		
2513.0	V	-48.22	0.84	5.64	-43.42	-13	-30.42		
1671.5	Н	-43.28	0.70	5.05	-38.93	-13	-25.93		
2513.0	н	-47.14	0.80	5.64	-42.31	-13	-29.31		
High Channel	251 (848.8	30MHz)							
1697.0	V	-51.57	0.68	4.97	-47.27	-13	-34.27		
2547.0	V	-48.73	0.84	5.73	-43.83	-13	-30.83		
1697.0	Н	-47.49	0.68	4.97	-43.20	-13	-30.20		
2547.0	Н	-52.26	0.84	5.73	-47.37	-13	-34.37		

Note:

1. Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

2. ERP (dBm) = SG Reading (dBm) - Cable Loss (dB) + Substitute Antenna Gain (dBd)



FC31900	ſ			-					
Frequency	Ant. Pol.	SG Reading	Cable Loss	Substitute	EIRP	Limit	Margin		
(MHz)	(H/V)	(dBm)	(dB)	Antenna	(dBm)	(dBm)	(dB)		
				Gain (dBi)					
Low Channel 512 (1850.20MHz)									
3703.0	V	-57.63	1.03	7.88	-50.78	-13	-37.78		
5547.5	V	-55.59	1.25	10.10	-46.74	-13	-33.74		
3703.0	н	-58.52	1.03	7.88	-51.66	-13	-38.66		
5547.5	Н	-60.54	1.25	10.10	-51.69	-13	-38.69		
Middle Chann	Middle Channel 661 (1880.00MHz)								
3762.5	V	-57.24	1.03	7.93	-50.35	-13	-37.35		
5641.0	V	-49.11	1.27	10.10	-40.28	-13	-27.28		
3762.5	н	-58.51	1.03	7.93	-51.61	-13	-38.61		
5641.0	Н	-57.50	1.27	10.10	-48.67	-13	-35.67		
High Channel	810 (1909	.80MHz)							
3822.0	V	-60.23	1.04	8.07	-53.20	-13	-40.20		
5726.0	V	-49.19	1.29	10.10	-40.38	-13	-27.38		
3822.0	н	-57.99	1.04	8.07	-50.96	-13	-37.96		
5726.0	Н	-47.77	1.29	10.10	-38.96	-13	-25.96		

PCS1900

Note:

1. Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

2. EIRP (dBm) = SG Reading (dBm) - Cable Loss (dB) + Substitute Antenna Gain (dBd)



WCDMA Band II

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Substitute Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)		
Low Channel 9262 (1852.40MHz)									
3703.0	V	-55.56	1.03	7.88	-48.70	-13	-35.70		
5564.5	V	-61.08	1.25	10.10	-52.23	-13	-39.23		
3703.0	Н	-56.63	1.03	7.88	-49.78	-13	-36.78		
5564.5	Н	-58.93	1.25	10.10	-50.08	-13	-37.08		
Middle Chann	Middle Channel 9400 (1880.00MHz)								
3762.5	V	-61.67	1.03	7.93	-54.78	-13	-41.78		
5641.0	V	-53.21	1.27	10.10	-44.38	-13	-31.38		
3762.5	Н	-58.95	1.03	7.93	-52.05	-13	-39.05		
5641.0	Н	-55.35	1.27	10.10	-46.52	-13	-33.52		
High Channel	9538 (190	7.60MHz)							
3813.5	V	-59.33	1.04	8.05	-52.32	-13	-39.32		
5717.5	V	-50.64	1.28	10.10	-41.82	-13	-28.82		
3822.0	Н	-57.12	1.04	8.07	-50.09	-13	-37.09		
5717.5	Н	-53.66	1.30	10.10	-44.86	-13	-31.86		

Note:

1. Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

2. EIRP (dBm) = SG Reading (dBm) - Cable Loss (dB) + Substitute Antenna Gain (dBd)



WCDMA Band V

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Substitute Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)		
Low Channel 4132 (826.40MHz)									
2479.0	V	-50.71	0.83	5.56	-45.98	-13	-32.98		
4961.0	V	-65.30	1.19	9.71	-56.78	-13	-43.78		
2487.5	Н	-48.96	0.83	5.58	-44.21	-13	-31.21		
3303.5	Н	-61.42	0.98	6.94	-55.46	-13	-42.46		
Middle Chann	Middle Channel 4182 (836.40MHz)								
2504.5	V	-39.50	0.83	5.61	-34.72	-13	-21.72		
5020.5	V	-65.32	1.19	9.81	-56.70	-13	-43.70		
2513.0	Н	-46.26	0.84	5.64	-41.46	-13	-28.46		
3346.0	Н	-61.52	0.97	7.12	-55.37	-13	-42.37		
High Channel	High Channel 4233 (846.60MHz)								
2547.0	V	-42.53	0.84	5.73	-37.64	-13	-24.64		
5071.5	V	-65.36	1.20	9.83	-56.73	-13	-43.73		
2547.0	Н	-37.23	0.84	5.73	-32.33	-13	-19.33		
4757.0	Н	-65.34	1.16	9.22	-57.28	-13	-44.28		

Note:

1. Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

2. ERP (dBm) = SG Reading (dBm) - Cable Loss (dB) + Substitute Antenna Gain (dBd)



7.5. Peak-Average Ratio

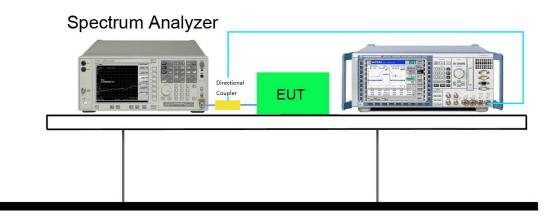
7.5.1. Test Limit

The transmitter's peak-to-average power ratio (PAPR) shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

7.5.2. Test Procedure

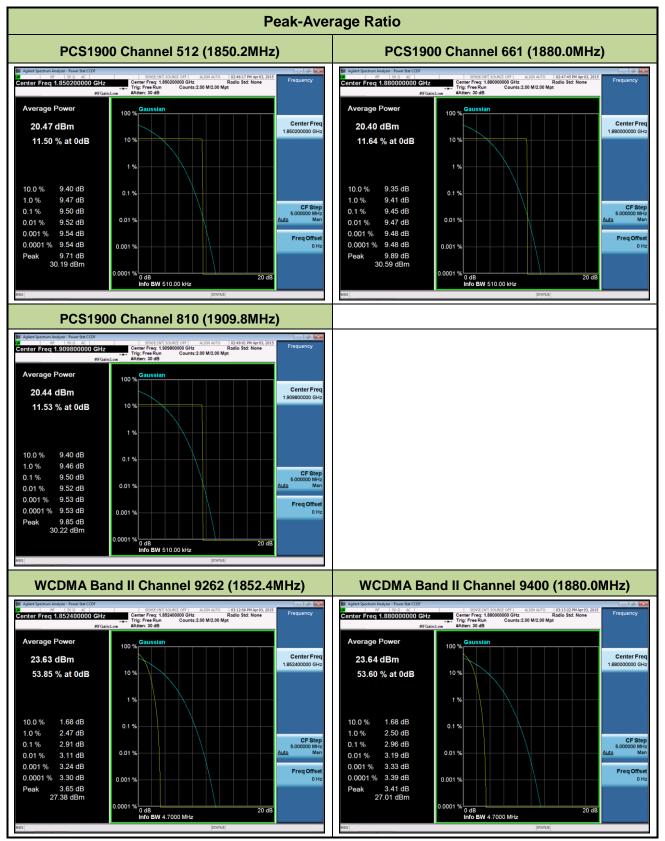
KDB 971168 D01v02r02 - Section 5.7 & ANSI/TIA-603-C-2004

7.5.3. Test Setup

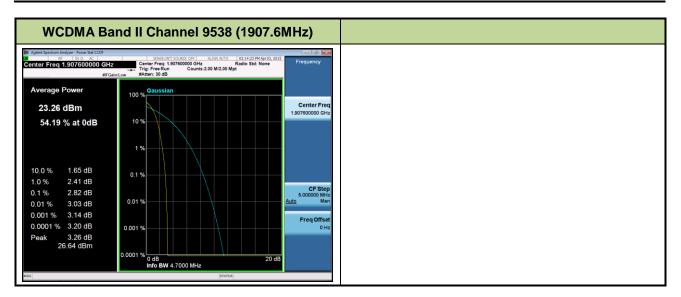




7.5.4. Test Result









7.6. Frequency Stability Under Temperature & Voltage Variations

7.6.1. Test Limit

The frequency stability shall be sufficient to ensure that the fundamental emission stays within

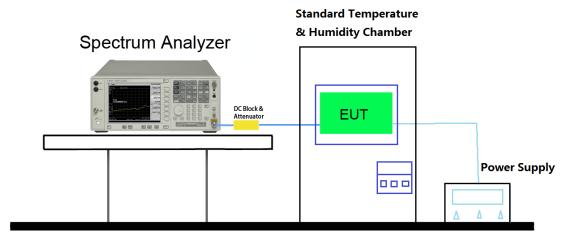
the authorized frequency block.

Limit < ± 2.5 ppm

7.6.2. Test Procedure

KDB 971168 D01v02r02 - Section 9.0 & ANSI/TIA-603-C-2004

7.6.3. Test Setup





7.6.4. Test Result

Operating Frequency	836,400,000 Hz
Channel	189
Test Mode	GSM850
Reference Voltage	3.7 VDC
Deviation Limit	±0.00025% or 2.5ppm

Voltage	Power	TEMP	Frequency	Freq. Dev.	Deviation
(%)	(VDC)	(%)	(Hz)	(Hz)	(%)
100%		+20(Ref)	836,400,000	54	0.00000646
100%		-30	836,400,000	41	0.00000490
100%	3.7	-20	836,400,000	43	0.00000514
100%		-10	836,400,000	32	0.00000383
100%		0	836,400,000	-32	-0.00000383
100%		+10	836,400,000	-68	-0.00000813
100%		+20	836,400,000	29	0.00000347
100%		+30	836,400,000	35	0.00000418
100%		+40	836,400,000	-21	-0.00000251
100%		+50	836,400,000	-32	-0.00000383
115%	4.2	+20	836,400,000	18	0.00000215
BAT.ENDPOINT	3.6	+20	836,400,000	-9	-0.00000108



Operating Frequency	1,880,000,000 Hz
Channel	661
Test Mode	PCS1900
Reference Voltage	3.7 VDC
Deviation Limit	±0.00025% or 2.5ppm

Voltage	Power	TEMP	Frequency	Freq. Dev.	Deviation
(%)	(VDC)	(%)	(Hz)	(Hz)	(%)
100%		+20(Ref)	1,880,000,000	-31	-0.00000165
100%		-30	1,880,000,000	62	0.00000330
100%		-20	1,880,000,000	36	0.00000191
100%	3.7	-10	1,880,000,000	-43	-0.00000229
100%		0	1,880,000,000	-49	-0.00000261
100%		+10	1,880,000,000	57	0.00000303
100%		+20	1,880,000,000	-42	-0.00000223
100%		+30	1,880,000,000	-26	-0.00000138
100%		+40	1,880,000,000	-29	-0.00000154
100%		+50	1,880,000,000	37	0.00000197
115%	4.2	+20	1,880,000,000	48	0.00000255
BAT.ENDPOINT	3.6	+20	1,880,000,000	61	0.00000324



Operating Frequency	1,880,000,000 Hz
Channel	9400
Test Mode	WCDMA Band II
Reference Voltage	3.7 VDC
Deviation Limit	±0.00025% or 2.5ppm

Voltage	Power	TEMP	Frequency	Freq. Dev.	Deviation
(%)	(VDC)	(%)	(Hz)	(Hz)	(%)
100%		+20(Ref)	1,880,000,000	29	0.00000154
100%		-30	1,880,000,000	-18	-0.00000096
100%		-20	1,880,000,000	64	0.00000340
100%	3.7	-10	1,880,000,000	27	0.00000144
100%		0	1,880,000,000	-31	-0.00000165
100%		+10	1,880,000,000	27	0.00000144
100%		+20	1,880,000,000	39	0.00000207
100%		+30	1,880,000,000	-28	-0.00000149
100%		+40	1,880,000,000	27	0.00000144
100%		+50	1,880,000,000	51	0.00000271
115%	4.2	+20	1,880,000,000	63	0.00000335
BAT.ENDPOINT	3.6	+20	1,880,000,000	-18	-0.00000096



Operating Frequency	836,400,000 Hz
Channel	4182
Test Mode	WCDMA Band V
Reference Voltage	3.7 VDC
Deviation Limit	±0.00025% or 2.5ppm

Voltage	Power	TEMP	Frequency	Freq. Dev.	Deviation
(%)	(VDC)	(%)	(Hz)	(Hz)	(%)
100%	3.7	+20(Ref)	836,400,000	38	0.00000454
100%		-30	836,400,000	42	0.00000502
100%		-20	836,400,000	-29	-0.00000347
100%		-10	836,400,000	39	0.00000466
100%		0	836,400,000	31	0.00000371
100%		+10	836,400,000	-28	-0.00000335
100%		+20	836,400,000	53	0.00000634
100%		+30	836,400,000	-46	-0.00000550
100%		+40	836,400,000	33	0.00000395
100%		+50	836,400,000	-28	-0.00000335
115%	4.2	+20	836,400,000	49	0.00000586
BAT.ENDPOINT	3.6	+20	836,400,000	-32	-0.00000383



8. CONCLUSION

The data collected relate only the item(s) tested and show that the **Tablet PC FCC ID**:

WL6-TE69SA3 compliance with all the requirements of Parts 2, 22, 24 of the FCC Rules.