



# FCC RF Test Report

## **Product Name: WCDMA Mobile Phone**

Model Number: SKY 4.5D

Report No: 1407FR27

FCC ID: 2ABOSGC140601

### <u>A Test Lab Techno Corp.</u>

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Accreditation (A2LA). The accreditation number is 3464.01.

2. The laboratory has been accredited by the US Federal Communications Commission.

3. The laboratory has been listed by Industry Canada to perform electromagnetic emission

measurements. The recognition numbers of test site are 7381A.

4. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.

5. The test report is invalid if there is any evidence of erasure and/or falsification.

6. The test report is only valid for the test samples.

7. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.



Report Number : 1407FR27

Applicant:Sky Phone LLCAddress:1348 Washington Av., Miami Beach

Date of Receipt Sample:	2014-06-20
Start Date of Test:	2014-06-23
End Date of Test:	2014-07-23
Issue Date:	2014-08-01

Test Result:

Pass

Approved By

: dryf Son

Reviewed By

Fly Lu

:

(Manager)

(Murphy Wang)

(Testing Engineer)

(Fly Lv)



### **Revision History**

Rev.	Issue Date	Revisions	Revised By
00	31July, 2014	Initial Issue	



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### 1 <u>General Information</u>

1.1 Applied Standard	
Applied Rules:	47 CFR FCC Part 02:2013
	47 CFR FCC Part 22: 2013
	47 CFR FCC Part 24: 2013
	47 CFR FCC Part 27: 2013
Test Method:	FCC KDB 971168 D01 Power Meas License Digital Systems
1.2 Test Location	
Test Location 1:	A Test Lab Techno Corp.
Address:	No. 140-1, Changan Street, Bade City, Taoyuan County 334, Taiwan
	R.O.C.
1.3 Test Environment Condi	tion
Ambient Temperature:	19.5 to 25 °C
Ambient Relative Humidity:	40 to 55 %
Atmospheric Pressure:	Not applicable



### 2 <u>Test Summary</u>

### 2.1 Cellular Band (824-849 MHz paired with 869-894 MHz)

Test Item	FCC Rule No.	Requirements	Test Result	Verdict	
Effective (Isotropic) Radiated Power Output Data	§2.1046, §22.913	FCC: ERP ≤ 7 W.	Appendix A	Pass	
Modulation Characteristics	§2.1047	Digital modulation	Appendix C	Pass	
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Appendix D	Pass	
Band Edges Compliance	Band Edges Compliance §2.1051, §22.917 ≤ -13 dBm/1%*EBW, in 1 MHz band immediately outside and adjacent t the frequency block.		Appendix E	Pass	
SpuriousEmissionat §2.1051, §22.917FCC: ≤ -13 dBm/100 kHz, from 9 kH to 10 <sup>th</sup> harmonicsbut outsic authorizedAntenna Terminals§2.1051, §22.917authorizedoperatingfrequence ranges.		FCC: $\leq$ -13 dBm/100 kHz, from 9 kHz to 10 <sup>th</sup> harmonics but outside authorized operating frequency ranges.	Appendix F	Pass	
Field Strength of Spurious Radiation	§2.1053, §22.917	FCC: ≤ -13 dBm/100 kHz.	Appendix G	Pass	
Frequency Stability	§2.1055, §22.355	≤ ±2.5ppm.	Appendix H	Pass	
NOTE 1: For the verdict, the "N/A" denotes "not applicable", the "N/T" denotes "not tested".					

### 2.2 PCS Band (1850-1915 MHz paired with 1930-1995 MHz)

Test Item	FCC Rule No.	Requirements	Test Result	Verdict (NOTE 1)
Effective (Isotropic) Radiated Power Output Data	§2.1046, §24.232	EIRP ≤ 2 W	Appendix A	Pass
Peak-Average Ratio	§2.1046, §24.232	FCC: Limit≤13 dB	Appendix B	Pass
Modulation Characteristics	§2.1047	Digital modulation	Appendix C	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Appendix D	Pass
Band Edges Compliance	§2.1051, §24.238	<ul> <li>≤ -13 dBm/1%*EBW, in 1 MHz bands</li> <li>immediately outside and adjacent to</li> <li>the frequency block.</li> </ul>	Appendix E	Pass
Spurious Emission at Antenna Terminals	§2.1051, §24.238	<ul> <li>≤ -13 dBm/1 MHz, from 9 kHz to 10<sup>th</sup> harmonics but outside authorized operating frequency ranges.</li> </ul>	Appendix F	Pass
Field Strength of Spurious Radiation	§2.1053, §24.238	≤ -13 dBm/1 MHz.	Appendix G	Pass
Frequency Stability	§2.1055, §24.235	FCC: within authorized frequency block.	Appendix H	Pass
NOTE 1: For the verdict, the "N/A" denotes "not applicable", the "N/T" denotes "not tested".				

### 2.3 AWS Band (1710-1755 MHz paired with 2110-2155 MHz)

Test Item	FCC	Requirements	Test Result	Verdict
	Rule No.			
Effective (Isotropic) Radiated	§2.1046,	EIRP ≤ 1 W;	Appendix A	Pass
Power Output Data	§27.50(d)			
Poak Average Patio	§2.1046,	Limit<12 dB	Appendix B	Pass
reak-Average Rallo	§27.50(d)			
Modulation Characteristics	§2.1047	Digital modulation	Appendix C	Pass
Bandwidth	§2.1049	OBW: No limit.	Appendix D	Pass
		EBW: No limit.		
Band Edges Compliance	§2.1051,	$\leq$ -13 dBm/1%*EBW, in 1 MHz bands	Appendix E	Pass
	§27.53(h)	immediately outside and adjacent to		
		the frequency block.		
Spurious Emission at Antenna	§2.1051,	$\leq$ -13 dBm/1 MHz, from 9 kHz to 10 <sup>th</sup>	Appendix F	Pass
Terminals	§27.53(h)	harmonics but outside authorized		
		operating frequency ranges.		
Frequency Stability	§2.1055,	Within authorized bands of	Appendix G	Pass
	§27.54	operation/frequency block.		
Radiated spurious emission	§2.1053,	≤ -13 dBm/1 MHz.	Appendix H	Pass
	§27.53(h)			

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### 3 Description of the Equipment under Test (EUT)

### 3.1 General Description

SKY 4.5D is subscriber equipment in the WCDMA/GSM system. The HSPA/UMTS frequency band is Band II, Band IV, and Band V, The GSM/GPRS/EDGE(EDGE downlink only) frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900, but only Band IV and Band II and Band V and GSM850 and PCS1900 bands test data included in this report. The Mobile Phone implements such functions as RF signal receiving/transmitting, HSPA/UMTS and GSM/GPRS/EDGE protocol processing, voice, video MMS service, GPS, AGPS and WIFI etc. Externally it provides micro SD card interface, earphone port(to provide voice service) and SIM card interface. It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet with a PC, or to exchange data with other Bluetooth devices.

### 3.2 EUT Identity

IMEI No.		
SIM 1	868817019960135	
SIM 2	868817019960093	

NOTE: Unless otherwise noted in the report, the functional boards installed in the units shall be selected from the below list, but not means all the functional boards listed below shall be installed in one unit.

### 3.3 Technical Specification

Characteristics	Description		
Radio System Type	🖾 GSM		
	UMTS		
Supported Frequency Range		Transmission (TX):	824 to 849 MHz
	GSINIOSU/ WCDINIAOSU	Receiving (RX):	869 to 894 MHz
	CSM1000/WCDM01000	Transmission (TX):	1850 to 1910 MHz
	GSINT900/ WCDINAT900	Receiving (RX):	1930 to 1990 MHz
		Transmission (TX):	1710 to 1755 MHz
		Receiving (RX):	2110 to 2155 MHz
TX and RX Antenna Ports	TX & RX port:	1	
	TX-only port:	0	
	RX-only port:	1	
Target TX Output Power	GSM850: 32.40dBm		
	UMTS 850: 22.71dBm		
	GSM1900: 29.40dBm		
	UMTS 1900: 22.22dBm		
	UMTS1700: 22.25dBm		
Supported Channel Bandwidth	GSM system:	200 kHz	
	UMTS system:	5 MHz	
Designation of Emissions	GSM850:	250KGXW	
(Note: the necessary bandwidth of	GSM1900:	247KGXW	
which is the worst value from the	UMTS 850:	4M18F9W	
measured occupied bandwidths for	UMTS 1900:	4M20F9W	
each type of channel bandwidth	UMTS1700:	4M18F9W	
configuration.)			

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### 4 General Test Conditions / Configurations

### 4.1 Test Modes

NOTE: The test mode(s) are selected according to relevant radio technology specifications.

Test Mode	Test Modes Description
GSM/TM1	GSM system, GSM/GPRS, GMSK modulation
UMTS/TM1	WCDMA system, QPSK modulation
UMTS/TM2	HSDPA system, QPSK modulation
UMTS/TM3	HSUPA system, QPSK modulation

Note: This EUT owns two SIM cards, after we perform the pretest for these two SIM cards, we found the SIM 1 is the worst case, so its result is recorded in this report.

### 4.2 Test Environment

Environment Parameter	Selected Values During Tests		
Relative Humidity	Ambient		
Temperature	TN Ambient		
Voltage	VL	3.5V	
	VN	3.7V	
	VH	4.2V	

NOTE: VL= lower extreme test voltage VN= nominal voltage

VH= upper extreme test voltage

TN= normal temperature

### 4.3 Test Frequency

Toot Modo	TX / RX	RF Channel		
Test Mode		Low (L)	Middle (M)	High (H)
	TV	Channel 128	Channel 190	Channel 251
C SM850		824.2MHz	836.6MHz	848.8MHz
G2101820	DV	Channel 128	Channel 190	Channel 251
	KΛ	869.2MHz	881.6MHz	893.8MHz
Tost Modo	TV/DV		RF Channel	
Test Mode		Low (L)	Middle (M)	High (H)
	ту	Channel 512	Channel 661	Channel 810
CSM1000		1850.2MHz	1880.0MHz	1909.8MHz
03111900	RX	Channel 512	Channel 661	Channel 810
		1930.2 MHz	1960.0 MHz	1989.8 MHz
Tost Modo	TX / RX	RF Channel		
Test Mode		Low (L)	Middle (M)	High (H)
	тх	Channel 4132	Channel 4182	Channel 4233
		826.4MHz	836.4MHz	846.6MHz
WCDWA030	RX	Channel 4357	Channel 4407	Channel 4458
		871.4MHz	881.4MHz	891.6MHz
Tost Modo	TY/PY		RF Channel	
Test Mode		Low (L)	Middle (M)	High (H)
	τv	Channel 9262	Channel9400	Channel9538
		1852.4MHz	1880.0MHz	1907.6MHz
		Channel 9662	Channel 9800	Channel 9938



	RX	1932.4 MHz	1960.0 MHz	1987.6 MHz
	TV / DV	RF Channel		
Test Mode	IX/KX	Low (L)	Middle (M)	High (H)
WCDMA1700	TX RX	Channel1312	Channel1413	Channel1513
		1712.4MHz	1732.6MHz	1752.6MHz
		Channel 1537	Channel 1638	Channel 1738
		2112.4 MHz	2132.6 MHz	2152.6 MHz

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### 4.4 DESCRIPTION OF TESTS

### 4.4.1 Radiated Power and Radiated Spurious Emissions

Radiated spurious emissions are investigated indoors in a semi-anechoic chamber to determine the frequencies producing the worst case emissions. Final measurements for radiated power and radiated spurious emissions are performed on the 3 meter OATS per the guidelines of ANSI/TIA-603-C-2004. 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 spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. 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. Emissions are also investigated with the receive antenna horizontally and vertically polarized.

A portable or small unlicensed wireless device shall be placed on a non-metallic test fixture or other non-metallic support during testing. The supporting fixture shall permit orientation of the EUT in each of three orthogonal (x, y, z) axis positions such that emissions from the EUT are maximized. Measure the EUT maximum RF power and record the result.

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:

### $P_{d [dBm]} = P_{g [dBm]} - cable loss [dB] + antenna gain [dBd/dBi]$

Where,  $P_d$  is the dipole equivalent power,  $P_g$  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  $43 + 10\log_{10}(Power [Watts])$ .

Note: Reference test setup 3

### 4.4.2 Occupied Bandwidth

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 span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth. Note: Reference test setup 1.

### 4.4.3 Spurious and Harmonic Emissions at Antenna Terminal

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 10<sup>th</sup> 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 1 MHz or greater. 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 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.

Note: Reference test setup 1.

### 4.4.4 Peak-Average Ratio

A peak to average ratio measurement is performed at the conducted port of the EUT. For WCDMA signals, 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 GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth. The traces are generated with the spectrum analyzer set to zero span mode.

Note: Reference test setup 1.

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### 4.4.5 Frequency Stability / Temperature Variation

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 – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5$  ppm ) of the center frequency.

### **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.

Note: Reference test setup 2.



### 4.5 Test Setups

### 4.5.1 Test Setup 1



### 4.5.2 Test Setup 2





### 4.5.3 Test Setup 3

NOTE: Effective radiated power (ERP) refers to the radiation power output of the EUT, assuming all emissions are radiated from half-wave dipole antennas.

### 4.5.3.1 Step 1: Pre-test



4.5.3.2 Step 2: Substitution method to verify the maximum ERP



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### 4.6 Test Conditions

Test Case		Test Condition	S
Transmit	Average Power,	Test Env.	Ambient Climate & Rated Voltage
Output	Total	Test Setup	Test Seup 1
Power Data		RF Channels	L, M, H
		(TX)	(L= low channel, M= middle channel, H= high channel )
		Test Mode	GSM/TM1,UMTS/TM1
	Average Power,	Test Env.	Ambient Climate & Rated Voltage
	Spectral Density	Test Setup	Test Seup 1
	(if required)	RF Channels	L, M, H
		(TX)	(L= low channel, M= middle channel, H= high channel )
		Test Mode	GSM/TM1,UMTS/TM1
Peak-to-Avera	age Ratio	Test Env.	Ambient Climate & Rated Voltage
(if required)		Test Setup	Test Seup 1
		RF Channels	L, M, H
		(TX)	(L= low channel, M= middle channel, H= high channel )
		Test Mode	GSM/TM1,UMTS/TM1
Modulation Cl	naracteristics	Test Env.	Ambient Climate & Rated Voltage
		Test Setup	Test Seup 1
		RF Channels	Μ
		(TX)	(L= low channel, M= middle channel, H= high channel )
		Test Mode	GSM/TM1,UMTS/TM1
Bandwidth	Occupied	Test Env.	Ambient Climate & Rated Voltage
	Bandwidth	Test Setup	Test Seup 1
		RF Channels	L, M, H
		(TX)	(L= low channel, M= middle channel, H= high channel )
		Test Mode	GSM/TM1,UMTS/TM1
	Emission	Test Env.	Ambient Climate & Rated Voltage
	Bandwidth	Test Setup	Test Seup 1
	(if required)	RF Channels	L, M, H
		(TX)	(L= low channel, M= middle channel, H= high channel )
		Test Mode	GSM/TM1,UMTS/TM1
Band Edges (	Compliance	Test Env.	Ambient Climate & Rated Voltage
		Test Setup	Test Seup 1
		RF Channels	L, H
		(TX)	(L= low channel, M= middle channel, H= high channel )
		Test Mode	GSM/TM1,UMTS/TM1
Spurious Emis	ssion at Antenna	Test Env.	Ambient Climate & Rated Voltage
		Test Setup	Test Seup 1



Terrecipale		
Ierminais	RF Channels	L, M, H
	(TX)	(L= low channel, M= middle channel, H= high channel )
Test Case	Test Condition	S
	Test Mode	GSM/TM1,UMTS/TM1
Field Strength of Spurious	Test Env.	Ambient Climate & Rated Voltage
Radiation	Test Setup	Test Seup 3
	Test Mode	GSM/TM1,UMTS/TM1/TM2/TM3
	RF Channels	L, M, H
	(TX)	(L= low channel, M= middle channel, H= high channel )
Frequency Stability	Test Env.	(1) -30 °C to +50 °C with step 10 °C at Rated Voltage;
		(2) VL, VN and VH of Rated Voltage at Ambient Climate.
	Test Setup	Test Seup 2
	RF Channels	L, M, H
	(TX)	(L= low channel, M= middle channel, H= high channel )
	Test Mode	GSM/TM1,UMTS/TM1



#### Main Test Instruments 5

Equipment Name	Manufacturer	Model	Serial Number	Cal Date	Cal Period
Universal Radio Communication Tester	R & S	CMU200	109369	08/07/2013	1 year
Wideband Radio Communication Test	R & S	CMW500	103168	11/05/2013	1 year
Single Channel PK Power Sensor	Agilent	N1911A	MY45101619	12/21/2013	1 year
Wideband Power Meter	Agilent	N1921A	MY45241957	12/21/2013	1 year
MXA Signal Analyzer	Agilent	N9020A	MY53420615	05/12/2014	1 year
RF Pre-selector	Agilent	N9039A	MY46520256	01/10/2014	1 year
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/10/2014	1 year
Pre Amplifier	Agilent	8449B	3008A02237	02/21/2014	1 year
Pre Amplifier	Agilent	8447D	2944A10961	02/21/2014	1 year
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	07/16/2014	1 year
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/10/2014	1 year
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/13/2014	1 year
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/16/2014	1 year
Amplifier	Mini-Circuits	ZKL-1R5+	N/A	05/29/2014	1 year
Amplifier	Mini-Circuits	ZVA-213-S+	N/A	05/29/2014	1 year
RF Pre-selector	Agilent	N9039A	MY46520255	05/10/2014	1 year
Trilog-Broadband Antenna	SCHWARZBECK MESS-ELEKTRONIK	SB AC VULB	9168-419	05/16/2014	1 year
Double-Ridged Waveguide Horn	ETS-Lindgren	3117	00128055	08/09/2014	1 year
Signal Generator	Rohde & Schwarz	SML03	126085	05/11/2014	1 year

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### 6 <u>Measurement Uncertainty</u>

For a 95% confidence level (k = 2), the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:

Test Item		Extended Uncertainty
Transmit Output Power Data	Power [dBm]	U = 1.2 dB
Bandwidth	Magnitude [%]	U = 0.2%
Band Edge Compliance	Disturbance Power [dBm]	U = 1.2 dB
Spurious Emissions, Conducted	Disturbance Power [dBm]	U = 1.2 dB
Field Strength of Spurious Radiation	ERP [dBm]	For 3 m Chamber:
		U = 4.6 dB (30 MHz to 1GHz)
		U = 3.0 dB (above 1 GHz)
		For 10 m Chamber:
		U = 4.6 dB (30 MHz to 1GHz)
		U = 3.0 dB (above 1 GHz)
Frequency Stability	Frequency Accuracy [ppm]	U = 0.21 ppm

END

## **Appendix A: RF Power Output**

## **Test Results**

### **Conducted Power**

Test Band	Test Mode	Test Channel	Measured(dBm)	Limit	Verdict
				(dBm)	
		LCH	32.30	38.5	PASS
GSM850	GSM/TM1	МСН	32.30	38.5	PASS
		НСН	32.40	38.5	PASS

Test Band	Test Mode	Test Channel	Measured(dBm)	Limit	Verdict
				(dBm)	
		LCH	29.40	33	PASS
GSM1900	GSM/TM1	MCH	29.30	33	PASS
		НСН	29.20	33	PASS

Test Band	Test Mode	Test Channel	Measured(dBm)	Limit	Verdict
				(dBm)	
		LCH	21.78	38.5	PASS
WCDMA850	UMTS/TM1	МСН	22.71	38.5	PASS
		НСН	21.67	38.5	PASS

Test Band	Test Mode	Test Channel	Measured(dBm)	Limit	Verdict
				(dBm)	
		LCH	21.55	33	PASS
WCDMA1700	UMTS/TM1	МСН	22.25	33	PASS
		НСН	21.45	33	PASS

Test Band	Test Mode	Test Channel	Measured(dBm)	Limit	Verdict
				(dBm)	
		LCH	21.75	33	PASS
WCDMA1900	UMTS/TM1	МСН	22.07	33	PASS
		НСН	22.22	33	PASS

### Radiated Power(ERP/EIRP)

Test Band	Test Mode	Test Channel	Antenna	Measured(dBm)	Limit	Verdict
			Pol.		(dBm)	
GSM850 G		LCH	Н	27.92	38.5	PASS
			V	29.46	38.5	PASS
	GSM/TM1/MCH	МСН	н	27.88	38.5	PASS
			V	29.48	38.5	PASS
		НСН	н	27.95	38.5	PASS
			V	29.56	38.5	PASS

Test Band	Test Mode	Test Channel	Antenna	Measured(dBm)	Limit	Verdict
			Pol.		(dBm)	
GSM1900	GSM/TM1/LCH	LCH	Н	26.88	33	PASS
			V	28.57	33	PASS
		МСН	Н	26.86	33	PASS
			V	28.49	33	PASS
		НСН	Н	26.89	33	PASS
			V	28.52	33	PASS

Test Band	Test Mode	Test Channel	Antenna	Measured(dBm)	Limit	Verdict
			Pol.		(dBm)	
		LCH	Н	15.81	38.5	PASS
			V	18.44	38.5	PASS
	UMTS/TM1/MCH	МСН	Н	15.75	38.5	PASS
WCDIVIA850			V	18.68	38.5	PASS
		НСН	Н	16.12	38.5	PASS
			Н	18.54	38.5	PASS

Test Band	Test Mode	Test Channel	Antenna	Measured(dBm)	Limit	Verdict
			Pol.		(dBm)	
		LCH	н	17.34	33	PASS
			V	19.26	33	PASS
	UMTS/TM1/MCH	МСН	н	17.39	33	PASS
WCDIVIA1700			V	19.51	33	PASS
		НСН	н	17.66	33	PASS
			Н	19.87	33	PASS

Test Band	Test Mode	Test Channel	Antenna	Measured(dBm)	Limit	Verdict
			Pol.		(dBm)	
		LCH	Н	18.85	33	PASS
			V	20.32	33	PASS
	UMTS/TM1/HCH	МСН	Н	18.77	33	PASS
WCDIVIA1900			V	20.68	33	PASS
		НСН	н	18.62	33	PASS
			Н	20.64	33	PASS

## Appendix B:Peak-to-Average Ratio

## **Test Results**

Test Band	Test Mode	Test Channel Measured		Limit	Verdict
			(dBm)	(dBm)	
		LCH	0.13	13	PASS
GSM1900	GSM/TM1	МСН	0.13	13	PASS
		НСН	0.12	13	PASS

Test Band	Test Mode	Test Channel	Measured	Limit	Verdict
			(dBm)	(dBm)	
	UMTS/TM1	LCH	2.88	13	PASS
WCDMA1700		МСН	3.33	13	PASS
		НСН	3.13	13	PASS

Test Band	Test Mode	Test Channel Measured		Limit	Verdict
			(dBm)	(dBm)	
	UMTS/TM1	LCH	3.08	13	PASS
WCDMA1900		МСН	3.07	13	PASS
		НСН	2.34	13	PASS

## **Appendix C:Modulation Characteristics**

### **Test Results**

### For GSM

### Test Band=GSM850

Test Mode=GSM/TM1



### Test Band=GSM1900

### Test Mode=GSM/TM1

🛞 🚱	SM 19	00 Modul	ation		Circuit 《 g 》 Virtual Switched E Th Single Slot	Connect Control
° Max. Lev +20 ₿:	el: Auto /	Low Noise Off D:	PCL: 0/30 / 0	.0 dBm Channel ff 🐉 –	: 661 Meas Slot : 3 / Off Current	<mark>H</mark> Ext.Phase T Err.GMSK
+10						Appli- cation
+4~~~~~/ -5 -10	Vannan	~~~~				Analyzer Level <sub>Trg.</sub>
-15 -20 0 20		40 60	80	100	Sym. 120 140	MS Signal
GSI	MO TSC	(correlation o.k.) Current	Average	Max / Min	- 0.25 Sym. Timing Advance Error	BS Signal
Phase Error —		-8.3 ° 0.7 °	9.1 ° 0.8 °	- 10.2 ° 0.9 °	29.0 dBm Avg. Burst Power (Cur.)	Network
I/Q Imbalance Frequency Error	•	- 60.3 dB 19 нz	- 58.9 dB 19 нz	– 51.1 dB 30 нz	Statistic Count	Marker
Overview	Power	Modulation	Spectrum		Bursts out of Tolerance Receiver Quality Audio	Menus

### For WCDMA

### Test Band=WCDMA850

### Test Mode=UMTS/TM1



### Test Band=WCDMA1700

### Test Mode=UMTS/TM1



### Test Band=WCDMA1900

### Test Mode=UMTS/TM1



## Appendix D:BandWidth

## **Test Results**

Test Band	Test	Test	Occupied Bandwidth	Emission Bandwidth	Verdict
	Mode	Channel	(KHZ)	(KHZ)	
		LCH	245.00	315.6	PASS
GSM850	GSM/TM1	МСН	249.56	314.8	PASS
		НСН	245.93	317.0	PASS

Test Band	Test	Test	Occupied Bandwidth	Emission Bandwidth	Verdict
	Mode	Channel	(KHZ)	(KHZ)	
		LCH	245.90	315.4	PASS
GSM1900	GSM/TM1	MCH	246.87	316.6	PASS
		НСН	245.57	314.8	PASS

Test Band	Test	Test	Occupied Bandwidth	Emission Bandwidth	Verdict
	Mode	Channel	(KHZ)	(KHZ)	
		LCH	4174.7	4701	PASS
WCDMA85	UMTS/TM1	MCH	4176.6	4690	PASS
Ĵ		НСН	4172.1	4683	PASS

Test Band	Test	Test	Occupied Bandwidth	Emission Bandwidth	Verdict
	Mode	Channel	(KHZ)	(KHZ)	
		LCH	4178.2	4721	PASS
WCDMA17 00	UMTS/TM1	MCH	4171.5	4696	PASS
		НСН	4171.6	4697	PASS

Test Band	Test	Test	Occupied Bandwidth	Emission Bandwidth	Verdict
	Mode	Channel	(KHZ)	(KHZ)	
		LCH	4174.4	4714	PASS
WCDMA19 00	UMTS/TM1	MCH	4173.0	4705	PASS
		НСН	4196.2	4740	PASS

### For **GSM**

### Test Band=GSM850

Test Mode=GSM/TM1

22 RL RF 50 Ω AC SENSE:INT ALIGN AUTO 06:30:45 AM Jun 24, 2014	
Center Freq 824.200000 MHz Center Freq 824.20000 MHz Radio Std: None Trig: Free Run Avg Hold: 10/10 #IFGain:Low #Atten: 40 dB Radio Device: BTS	Frequency
Ref Offset 3.5 dB 10 dB/div Ref 30.00 dBm	
	Center Freq 824.200000 MHz
10.0 -10.0 -20.0	
-30.0 wrlly Nyh myddard wrl wrl wrl wrd yn han yn h	
Center 824.2 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz #Sweep 50 ms	CF Step 100.000 kHz
Occupied Bandwidth Total Power 35.5 dBm	<u>Auto</u> Man
245.00 KHZ	Freq Offset
Transmit Freq Error -86 Hz OBW Power 99.00 %	0 Hz
x dB Bandwidth 315.6 kHz x dB -26.00 dB	
Msg 1 Data out of range; The value 30 was clipped to the maximum value of 20.	




# Test Band=GSM1900

## Test Mode=GSM/TM1







## For WCDMA

# Test Band=WCDMA850

Test Mode=UMTS/TM1

🎉 Agilent Spectrum A	Analyzer - Occupied BW							
(XI RL RI	F 50 Ω AC	al 1—	SENSE:INT	00000 MH-	ALIGN AUTO	04:46:08 A	M Jun 24, 2014	Frequency
Center Freq	826.600000 N	/IFIZ ↔→	Trig: Free Run	Avg Hold	: 10/10	Raulo Stu	None	
		#IFGain:Low	#Atten: 30 dB			Radio Dev	ice: BTS	
	Ref Offset 3.5 dB							
10 dB/div	Ref 33.50 dBm							
Log								
23.5								Center Freq
13.5			Went-0.17086-1-108-140-011-02-178-44-	and the state of the				826.600000 MHz
3.50					he and the second se			
-6.50		/			1			
-16.5	f				<u> </u>			
-26.5	mannenand				- Lawrence	-		
-36.5							- She down of the law of	
-46.5								
-56 5								
00.0								
Center 826.6	MHz					Spa	n 10 MHz	CE Sten
#Res BW 100	0 kHz		#VBW 300	kHz		#Swee	o 100 ms	1.000000 MHz
		_	Total	Power	24.6	dBm		<u>Auto</u> Man
Occupied	a Bandwidt	n 	TOLAI	rower	24.0	авш		
	4.1	1747 MH	Z					Freg Offset
Tranomit		44 070 4		Dowor		00.0/		0 Hz
Transmit	Fleq Enfor	-14.870 K	HZ OBW	rower	99	.00 %		
x dB Band	dwidth	4.701 M	Hz xdB		-26.	00 dB		
MSG					STATUS	5		
					0			



🎉 Agilent Spect	rum Analyzer - Occupied BW	/						
LXI RL	RF 50 Ω AC		SENSE:INT		LIGN AUTO	04:46:40 Al	4 Jun 24, 2014	Frequency
Center Fr	eq 846.400000	MHZ	Trig: Free Run	Avg Hold:	10/10	Radio Stu.	None	
		#IFGain:Low	#Atten: 30 dB			Radio Dev	ice: BTS	
	Def Offeet 3.5 df	,						
10 dB/div	Ref 33.50 dBi	'n						
Log								
23.5								Center Freq
13.5		Mar Marine Marin	whole and an all the second	And the second second				846.400000 MHz
3.50					<b></b>			
-6.50		-{   -			\			
-16.5		/						
-26.5		J						
36.5 Manual	mer and the street way					and a start of the	www.rhely-grouppedg	
40.5								
-40.0								
-56.5								
Center 84	6.4 MHz					Spa	n 10 MHz	
#Res BW	100 kHz		#VBW 3001	(Hz		#Sweep	0 100 ms	CF Step
								Auto Man
Occup	oied Bandwid	th	Total P	ower	24.5	dBm		
	4	1721 MH	7					
			4					FreqOffset
Transn	nit Freq Error	-15.962 kŀ	IZ OBW P	ower	99	.00 %		0 Hz
v dB B	andwidth	4 683 MH	z v dB		-26	00 dB		
		4.000 mil			-20.			
MSG					STATUS	3		

## Test Band=WCDMA1700

## Test Mode=UMTS/TM1





Dialent Spectrum Analyzer - Occupied BW						- 6 -
$[X]$ RL RF 50 $\Omega$ AC	Cente	SENSE:INT	ALIGN AUTO	04:40:23 AM	Jun 24, 2014	Frequency
Center Freq 1.752400000 Gi	Trig: F	Free Run Avg Ho	ld: 10/10	Ruulo Stu. I	None	
#IF	Gain:Low #Atter	n: 30 dB		Radio Devid	ce: BTS	
Ref Offset 3.7 dB						
23.7						Center Freq
13.7						1.752400000 GHz
3.70	and the second s	and a superior of the second se	~			
-6.30						
-16.3			\			
-26.3						
-36.3			here		Here and and a start of	
-46.3						
-56.3						
Center 1.752 GHz				Span	10 MHz	CE Sten
#Res BW 100 kHz	#	VBW 300 kHz		#Sweep	100 ms	1.000000 MHz
Occupied Bandwidth		Total Power	23.7	/ dBm		<u>Auto</u> Man
	716 MHz					
4.17						Freq Offset
Transmit Freq Error	-4.759 kHz	OBW Power	99	0.00 %		0 Hz
x dB Bandwidth	4.697 MHz	x dB	-26.	00 dB		
MSG			STATUS	6		

## Test Band=WCDMA1900

## Test Mode=UMTS/TM1



J Agilent Spectrum Analyzer - Occupied BW							
	Cel	SENSE:INT	AL	IGN AUTO	04:33:16 A	1 Jun 24, 2014	Frequency
Center Freq 1.880000000		g: Free Run	Avg Hold: 1	0/10			
	#IFGain:Low #At	tten: 30 dB			Radio Dev	ice: BTS	
Ref Offset 3.7 dB 10 dB/div Ref 33.70 dBm	_						
23.7							Contor From
13.7							
2.70	abort and a second second		man				1.88000000 GH2
6.20	/		Ň	<b>۱</b>			
40.0				$\mathbf{i}$			
-16.3							
-26.3				Constraint, South Street, S	haden the second	mannan	
-36.3							
-46.3							
-56.3							
Center 1.88 GHz			1		Spa	n 10 MHz	CE Sten
#Res BW 100 kHz		#VBW 300 k	Hz		#Sweep	o 100 ms	1.000000 MHz
Occupied Bandwidth		Total Po	ower	24.1	dBm		<u>Auto</u> Man
4.1	730 MHz						Freq Offset
Transmit Freq Error	-5.566 kHz	OBW Po	ower	99.	.00 %		- 0 Hz
x dB Bandwidth	4.705 MHz	x dB		-26.0	)0 dB		
MSG				STATUS			

🎉 Agilent Spectrum Analyzer - Occup	oied BW					
		SENSE:INT	ALIGN AUT	0 04:33:33 Al	4 Jun 24, 2014	Frequency
Center Fred 1.907400		Trig: Free Run	Avg Hold: 10/10	Raulo Stu.	None	
	#IFGain:Low	#Atten: 30 dB		Radio Dev	ice: BTS	
Ref Offset 3	8.7 dB					
10 dB/div Ref 33.70	aBm					
23.7						Center Freq
13.7						1 907400000 GHz
2.70	and the second second second	and and the state of the state	and the second of the second o			1.507400000 0112
5.70	/		The second se			
-6.30						
-16.3						
-26.3 produced and a second se				My an and the second second	and all and and and and	
-36.3						
-46.3						
-56.3						
Center 1.907 GHz				Spai	n 10 MHz	CF Step
#Res BW 100 kHz		#VBW 300 k	Hz	#Sweep	o 100 ms	1.000000 MHz
Occupied Bandy	width	Total P	ower 2:	3.7 dBm		<u>Auto</u> Man
		i otar i	2			
	4.1962 MH	Z				Freq Offset
Transmit Freq Erro	or -12.279 kH	dz OBW P	ower	99.00 %		0 Hz
x dB Bandwidth	4.740 MH	z xdB	-2	6.00 dB		
MSG			STA	TUS		

# **Appendix E:Band Edges Compliance**

# **Test Results**

For GSM

# Test Band=GSM850

Test Mode=GSM/TM1





# Test Band=GSM1900

## Test Mode=GSM/TM1





## For WCDMA

# Test Band=WCDMA850

Test Mode=UMTS/TM1





## Test Band=WCDMA1700

## Test Mode=UMTS/TM1





## Test Band=WCDMA1900

## Test Mode=UMTSTM1





# Appendix F: Spurious Emission at Antenna Terminal

**Test Results** 

## Test Band=GSM850

Test Mode=GSM/TM1



🊺 Agi	lent Spe	ctrum /	Analyzer -	Swept	SA									_	
LXI RL Cent	ter F	R	F 5	50 Ω <mark>/</mark>		,		SEI	NSE:INT		ALIGN AUTO	06:32:39 AM TRAC	1 Jun 24, 2014	F	requency
CON		Toq	10.01	001	l I	PNO: Fa FGain:L	ast ⊂ ow	Trig: Free #Atten: 1	e Run 0 dB	Avg Hold	: 55/100	TYF DE			
10 dE	3/div	Re Re	f Offset f 3.50	3.5 dB	dB m							Mkr1 ′ -50.9	150 kHz 50 dBm		Auto Tune
-6.50														1	Center Freq 15.075000 MHz
-16.5 -26.5													-23.00 dBm		Start Freq 150.000 kHz
-36.5 -46.5	1—													3	Stop Freq 30.000000 MHz
-56.5	جــــــــــــــــــــــــــــــــــــ													<u>Auto</u>	<b>CF Step</b> 2.985000 MHz Man
-76.5		1.					n. 1			ilu 1	₩		المعربة		Freq Offset 0 Hz
-86.5	Ti <sub>ll</sub> r	n/hh	4/M/I/Y	444	<b>viter a</b> tom	n fan he	<b>n<sup>an</sup>t (</b> ip)	villen (militife)	11/	,,Allententen A	ANN N	un manager and a second se			
Starf	150	kHz	/ <b>L</b> l-7			+	AV (D) A	20 24-2*			Swoon 1	Stop 3	0.00 MHz		
	Data	out	of range	;The	value 3	) was d	clipped	to the max	kimum value	e of 3.5.	STATU	s 🚹 DC Cou	pled		

🊺 Ag	ilent Sp	ectrum	Analyzer	- Swept	t SA											-			
<mark>LXI</mark> R Cen	L ter F	Fred	Բ 515	50 Ω 000		MHz				SEN	ISE:INT		Avg Typ	ALIGN AUT e: RMS	0	06:32:49 A TRAC	M Jun 24, 2014 DE 1 2 3 4 5 (		Frequency
				000	0001	PN0 IFG	D: Clos ain:Lov	e 🖵 w	Trig #Att	: Free ten: 40	eRun 0 dB		Avg Hold	:>100/100	D	TYI Di			
10 di	3/div	Re Re	f Offs ef 30.	et 3.7 00 d	dB Bm										Mkı	1 824 24.9	.43 MHz 62 dBm		Auto Tune
20.0																1			Center Freq 515.000000 MHz
10.0 0.00																			Start Freq 30.000000 MHz
-10.0 -20.0																	-13.00 dBm		<b>Stop Freq</b> 1.000000000 GHz
-30.0																		A	CF Step 97.000000 MHz .uto Man
-50.0	Land and	d-ray laboration	- manata	antheni	لروايد	manada	مريمين	nijens <del>k</del> i	erent le	L-yrilles.he	hilston julity	white	مەربەر بارمىدى ارمىرى	-lower of the loss	wasa da	Handrich	ephilion and an allow		<b>Freq Offset</b> 0 Hz
-60.0 Star	t 30.	0 MH	IZ					(D)44	200					Cureo n		Stop 1.	0000 GHz		
MSG	5.9%	7 100	TANZ				#\	/BW	-300	КПŹ				sweep st/		or ins (	noo i pisj		

🊺 Agi	ilent Spect	trum Ana	lyzer - Swe	pt SA				_				
	tor Ei	RF	50 Ω	AC		SEN	ISE:INT		ALIGN AUTO	06:33:00 AI	1 Jun 24, 2014	Frequency
Cen		equ	.8750	00000	PNO: Close G IFGain:Low	Trig: Free #Atten: 4	Run 0 dB	Avg Hold:	10/100	TYP		
10 dE	3/div	Ref C <b>Ref</b>	)ffset 3. 30.00 (	7 dB dBm						Mkr1 2.6 -54.6	92 GHz 46 dBm	Auto Tune
20.0	2											Center Freq 6.875000000 GHz
10.0 0.00												Start Freq 1.000000000 GHz
-10.0 -20.0											-13.00 dBm	<b>Stop Freq</b> 12.750000000 GHz
-30.0												CF Step 1.175000000 GHz <u>Auto</u> Man
-40.0			•1-									<b>Freq Offset</b> 0 Hz
-60.0		wenner							And your	نمیں <del>اور ارمانہ کی مع</del> لم کر اور اور اور اور اور اور اور اور اور او		
Star	t 1.00	0 GHz	2		-#1/D14	1200 64-3	ŧ		Burean	Stop 12	.750 GHz	
#Res	SBW	100 K	ΠZ		#VBV	300 KHZ			sweep	557.7 ms (	1001 pts)	
MSG									STAT	US		

🊺 Ag	ilent Spect	rum Analyzer - Sv	vept SA									
<mark>LXI</mark> RI Cen	ter Er	RF 50			SEN	ISE:INT	Avg Type	ALIGN AUTO	06:33:17 A	M Jun 24, 2014	F	requency
Cer		eq 73.300	7 KH2	PNO: Close 🖵 IFGain:Low	Trig: Free #Atten: 1	e Run 0 dB	Avg Hold:	>100/100	TYI Di			
10 de	3/div	Ref Offset 3 Ref 3.50 (	8.5 dB d <b>B</b> m						Mkr1 9. -38.9	987 kHz 27 dBm		Auto Tune
-6.50												<b>Center Freq</b> 79.500 kHz
-16.5												Start Freq
-26.5	<u> </u>									-33.00 dBm		9.000 kHz
-36.5	M	Λ <i>Λ</i> ,										<b>Stop Freq</b> 150.000 kHz
-56.5		- Mun	······	www.	MAAAA	<b>D</b> 4 .						CF Step
-66.5						WWWWW	www.	MMM	MMM	www	<u>Auto</u>	Man
-76.5												Freq Offset 0 Hz
-86.5												
Star #Re	t 9.00 s BW	kHz 1.0 kHz		#VBW	10 kHz*			Sweep (	Stop 1: 32.87 ms (	50.00 kHz (1001 pts)		
MSG 🧕	Data	out of range;	The value 3	30 was clipped	to the max	timum value	e of 3.5.	STATU	s 🚺 DC Coi	upled		

🊺 Ag	ilent Spectrur	m Ana	lyzer - Swe	pt SA										
LXI RI	tor Ero	RF	50 Ω				S	ENSE:INT			06:33:27 A	1 Jun 24, 2014	F	requency
Cer		qı	5.0750	JUU MI	PNO: F IFGain:	ast 🖵 Low	Trig: Fre #Atten:	ee Run 10 dB	Avg Hold	: 55/100	TYF			
10 dE	F 3/div	Ref C Ref	)ffset 3.6 <b>3.50 dl</b>	5 dB Bm							Mkr1 ′ -50.9	150 kHz 10 dBm		Auto Tune
-6.50													1	Center Freq 5.075000 MHz
-16.5 -26.5												-23.00 dBm		Start Freq 150.000 kHz
-36.5 -46.5	1												3	Stop Freq 0.000000 MHz
-56.5 -66.5													<u>Auto</u>	<b>CF Step</b> 2.985000 MHz Man
-76.5	1													Freq Offset
-86.5	Wideholy	Р <mark>р</mark> и	Hy Mitt	, Alfr-Andre Alfr-Andr	<b>Varihi</b> hi		Novin William	Verlet All All All All All All All All All Al	Weinstein John Marine	n water and	had phantin	expressed filtery		UHZ
Star #Res	t 150 kH s BW 10	lz ) kH	z			#VBW	30 kHz*	;		Sweep 1	Stop 3 19.5 ms (	0.00 MHz 1001 pts)		
MSG 🧕	Data ou	ıt of ı	range;Th	ne value	30 was	clipped	I to the ma	iximum valu	e of 3.5.	STATUS	DC Cou	pled		

🊺 Agi	ilent Spe	ctrum A	Analyzer	- Swept	SA										1				
Cen	ter F	R rea	515	50 Ω 0000		MHz				SENS	E:INT	Avg Ty	ALIGN A De:RMS	UTO	06:33:3 TI	7 am Race	Jun 24, 2014		Frequency
			0101			PNC IFG	D: Clos ain:Lov	e 🖵 N	) Trig: I #Atter	Free F n: 40	Run dB	Avg Hol	d:>100/1	00		TYPI DE			A
10 dE	3/div	Rei Re	f Offse f 30.(	et 3.7 00 dl	dB Bm									Mkı	1 83 22	7. .84	04 MHz 44 dBm		Auto Tune
20.0															1				Center Freq 515.000000 MHz
10.0 0.00																			Start Freq 30.000000 MHz
-10.0 -20.0																	-13.00 dBm		<b>Stop Freq</b> 1.000000000 GHz
-30.0																		A	<b>CF Step</b> 97.000000 MHz <u>uto</u> Man
-40.0																			<b>Freq Offset</b> 0 Hz
-60.0	LEPE-Colfee	rediction	MKhiniak	oral ca	ny du	haddenaan s	/ protocol and	(k <sub>a</sub> ng)r	unayahih.	an gan ta an	Wyr-nigwellyn	la <sup>lal</sup> sinosian fash	and an and a second	Y <b>TS</b> ™S, Alberta	թ՝ կյների				
Star #Res	t 30.0 s BW	0 MH 100	z kHz				#V	/BW	300 k	Hz*			Swee	p 46	Stop 07 m	1.0 s (1	000 GHz 1001 pts)		
MSG													S	STATUS					

🎉 Agilent Spectrum Analyzer - Swe	ept SA				
IXI RL RF 50Ω		SENSE:INT	ALIGN AUTO	06:33:47 AM Jun 24, 2014	Frequency
	PNO: Close IFGain:Low	Trig: Free Run #Atten: 40 dB	Avg Hold: 10/100		8. d. 7
Ref Offset 3. 10 dB/div Ref 30.00	7 dB dBm		ľ	Vkr1 4.184 GHz -54.461 dBm	Auto I une
20.0					Center Freq 6.875000000 GHz
0.00					Start Freq 1.000000000 GHz
-10.0				-13.00 dBm	<b>Stop Freq</b> 12.750000000 GHz
-30.0					<b>CF Step</b> 1.175000000 GHz <u>Auto</u> Man
-50.0		-		and a stand of the	<b>Freq Offset</b> 0 Hz
-60.0 Start 1.000 GHz				Stop 12.750 GHz	
#Res BW 100 kHz	#VBN	/ 300 kHz*	Sweep 5	57.7 ms (1001 pts)	
MSG			STATUS	3	

🊺 Ag	ilent Spo	ectrum /	Analyzer - Sw	ept SA								_	
	tor F	R	F 50 9			SEI	NSE:INT		ALIGN AUTO	06:34:03 A	M Jun 24, 2014	F	requency
Gen	ler	Teq	75.500	RHZ P	NO: Close Gain:Low	Trig: Free #Atten: 1	e Run 0 dB	Avg Hold:	>100/100	TYP			
10 dE	3/div	Re Re	f Offset 3. ef 3.50 d	5 dB Bm						Mkr1 9. -39.0	987 kHz 03 dBm		Auto Tune
-6.50													<b>Center Freq</b> 79.500 kHz
-16.5													Start Freq 9.000 kHz
-26.5	1										-33.00 dBm		Stop Freq
-46.5 -56.5	· •\4	ww	ww	www	MAAAAAA								CF Step
-66.5						~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	MMM	www	MMM	www.	www	<u>Auto</u>	14.100 kHz Man
-76.5													Freq Offset 0 Hz
-86.5 Star	t 0.0	0 24								Stop 14	50.00 kHz		
#Res	s BW	окн <i>і</i> і 1.0	د kHz		#VBW	10 kHz*			Sweep 3	31.00 13 32.87 ms (	1001 pts)		
MSG 🧕	Data	a out d	of range;T	he value 30	) was clipped	to the max	kimum value	e of 3.5.	STATU:	s 🚹 DC Cou	upled		



🊺 Ag	ilent Spe	ctrum /	Analyzer	- Swept	: SA													
LXI RI	tor E	R	E	50 Ω	AC					SEN	ISE:INT		ALIGN AUT	0 0	6:34:24 A	M Jun 24, 201	4	Frequency
Gen		req	515.	000	000 1	PN0 IFG	D: Clos ain:Lo	se 🖵 w	Trig #Att	: Free	e Run 0 dB	Avg Hold	:>100/100	)	דץ ם		Â	
10 dE	3/div	Re Re	f Offse f 30.	et 3.7 00 d	dB Bm									Mkr1	848 24.2	.68 MH 93 dBr	z n	Auto I une
20.0															↑1			Center Fred 515.000000 MH
10.0 0.00																		Start Free 30.000000 MH
-10.0 -20.0																-13.00 dB	<del>)</del> m	<b>Stop Fred</b> 1.000000000 GH
-30.0 -40.0																		CF Step 97.000000 MH: <u>Auto</u> Mar
-50.0									du	makes a			l attance offering		-	Jerthelinured	IMA	Freq Offse 0 Ha
-60.0	*******	Talens	Vet Made	<b>6</b> 00594949	, * , <b>/ II., g</b> , <b>4</b> 4*	<b>Y</b> FYA4VA						 						
Star #Re	t 30.0 s BW	MH 100	z kHz				#\	/BW	300	kHz'	;		Sween	S 46_0	top 1. 7 ms	0000 GH (1001 pt	z sì	
MSG								- 11					STA	TUS		( p.	7	

🊺 Agilen	t Spectrum Ar	nalyzer - Swep	t SA						-		
Cente	r Fred f	50 Ω 5 87500		Hz	SEN	ISE:INT		ALIGN AUTO RMS	06:34:35 Al TRAC	4 Jun 24, 2014 E 1 2 3 4 5 6	Frequency
Conto		5.01000	P IF	NO: Close 🖵 Gain:Low	Trig: Free #Atten: 4	e Run 0 dB	Avg Hold:	: 10/100	TYF DE		Auto Tuno
10 dB/d	Ref liv <b>Ref</b>	Offset 3.7 3 <b>0.00 d</b>	dB I <b>Bm</b>						4.2 Mkr1 4.2	43 GHz 68 dBm	Auto Tune
20.0											Center Freq 6.875000000 GHz
10.0											Start Freq
-10.0										-13.00 dBm	Stop Freq
-20.0											12.75000000 GHz
-30.0											1.175000000 GHz <u>Auto</u> Man
-50.0 —		بعالمهم بالمع	ANT 4	1		the art to be a second		N. e. bu		مسادا مرجع والمساركة	<b>Freq Offset</b> 0 Hz
-60.0	an and a second second										
Start 1 #Res E	1.000 GH BW 100 I	z kHz		#VBW	300 kHz	*		Sweep 5	Stop 12 57.7 ms (	.750 GHz 1001 pts)	
MSG								STATU	5		

# Test Band=GSM1900

Test Mode=GSM/TM1



🊺 Agi	lent Spe	ctrum /	Analyzer -	- Swept S	A									
Cen	ter F	R red	⊧ 15.0`	50 Ω <u>/</u> ] 7500	DC   0 MHz		SE	NSE:INT	Avg Type	ALIGN AUTO RMS	06:25:37 A	MJun 24, 2014 E 1 2 3 4 5 6	F	requency
					F	NO:Fast G Gain:Low	Trig: Fre #Atten: 4	e Run 10 dB	Avg Hold:	: 55/100	TYF			
10 dE	3/div	Re Re	f Offse ef 30.0	t 3.5 d 00 dB	B m						Mkr1 -52.4	150 kHz 90 dBm		Auto Tune
20.0													1	<b>Center Freq</b> 5.075000 MHz
10.0 0.00														<b>Start Freq</b> 150.000 kHz
-10.0 -20.0													31	<b>Stop Freq</b> 0.000000 MHz
-30.0												-33.00 dBm	Auto	<b>CF Step</b> 2.985000 MHz Man
-40.0	1													Freq Offset 0 Hz
-60.0 Star	1. 1.50	<mark>∖γ4</mark> ₩4	Almor M	lh dhann	Hay Hand	Martha Andrew M	http://www.dayariday	mhinnda	un ann ann ann ann ann ann ann ann ann a	Mangunan	M/WWWMm			
#Res	s BW	10	kHz			#VBV	V 30 kHz*			Sweep 1	19.5 ms (	1001 pts)		
MSG										STATUS	DC Cou	pled		

🃁 Agilent Spect	trum Analyzer - Swept SA								
Center Fr	RF 50 Ω AC	0 GHz	SEN	ISE:INT	Avg Type	ALIGN AUTO RMS	06:25:48 AM	1 Jun 24, 2014 E 1 2 3 4 5 6	Frequency
		PNO: Close IFGain:Low	Trig: Free #Atten: 4	eRun 0 dB	Avg Hold:	38/100	TYP DE		
10 dB/div	Ref Offset 3.7 dB Ref 30.00 dBm						Mkr1 1.8 15.8	47 GHz 77 dBm	Auto Tune
20.0	1								Center Freq 10.015000000 GHz
10.0									Start Freq 30.000000 MHz
-10.0								-13.00 dBm	<b>Stop Freq</b> 20.000000000 GHz
-30.0									<b>CF Step</b> 1.997000000 GHz <u>Auto</u> Man
-50.0	and and the second	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	montro	alman and a second	anan Janaga (Propins) and	and and and	an a the and the second s	And a case of the second s	Freq Offset 0 Hz
-60.0							Stop 20	000 GHz	
#Res BW	1.0 MHz	#VBW	3.0 MHz*	5		Sweep 4	9.93 ms (	1001 pts)	
MSG						STATU	S		

🊺 Ag	ilent Spec	trum Ar	nalyzer - Swe	pt SA									
<mark>LXI</mark> R Cen	ter Er	RF	50 Ω 79 500	ADC		SEN	NSE:INT		ALIGN AUTO	06:26:04 AI	4 Jun 24, 2014	F	requency
		oq i	0.000	F F	NO: Close 🖵 FGain:Low	Trig: Free #Atten: 1	eRun 0 dB	Avg Hold:	:>100/100	TYF De			A
10 dE	3/div	Ref Ref	Offset 3.0 3 <b>.50 d</b>	idB Bm						Mkr1 9.9 -45.3	987 kHz 57 dBm		Auto Tune
-6.50													<b>Center Freq</b> 79.500 kHz
-16.5 -26.5													Start Freq 9.000 kHz
-36.5 -46.5	1										-43.00 dBm		Stop Freq 150.000 kHz
-56.5	ww	M	MMMM	www	WWWW	6.0.c						<u>Auto</u>	<b>CF Step</b> 14.100 kHz Man
-66.5 -76.5							~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	www	www	MMM	MMM		Freq Offset 0 Hz
-86.5													
Star #Re	t 9.00 s BW	kHz 1.0 <u>k</u>	Hz		#VBW	10 kHz*			Sweep 3	Stop 15 2.87 m <u>s (</u>	i0.00 kHz 1001 pt <u>s)</u>		
MSG 🧕	Data	out of	range;Tl	ne value 30	) was clipped	I to the max	timum value	e of 3.5.	STATU	S 🔔 DC Cou	pled		

🊺 Ag	ilent Sp	ectrum	Analyzer	- Swept S	A								_	
Cen	L ter F	rea	⊮ 15.0	<sup>50</sup> Ω <u>Λ</u> 7500	DC   0 MHz		SE	NSE:INT	Avg Type	ALIGN AUTO	06:26:14 A	M Jun 24, 2014 E <b>1 2 3 4 5 6</b>	F	Frequency
					P	NO:Fast 🕞 Gain:Low	Trig: Fre #Atten: 4	e Run 0 dB	Avg Hold	55/100	TYP			
10 dE	3/div	Re Re	ef Offse ef 30.0	et3.5 d 00 dB	B m						Mkr1 -52.4	150 kHz 89 dBm		Auto Tune
20.0													1	Center Freq 15.075000 MHz
10.0														Start Freq
0.00														Stop Fred
-20.0													3	30.000000 MHz
-30.0												-33.00 dBm	<u>Auto</u>	CF Step 2.985000 MHz Man
-50.0	1													Freq Offset 0 Hz
-60.0	WWWW	ψ <sup>η</sup> ψην	Utuel I <sub>be</sub> la	mharmaly	urrely you	Nrst Martine polis	rthoral boundary	alvelleytettyl	hulling h <sub>ite</sub> ngalaka	het much the set	talle and	alanan tana ang sa		
Star #Re	t 150 s BW	) kHz / 10	z kHz			#VBV	V 30 kHz*			Sweep 1	Stop 3 19.5 ms (	0.00 MHz 1001 pts)		
MSG										STATUS	DC Cou	upled		

🊺 Agil	lent Spec	trum Ar	nalyzer - Sv	/ept SA								
Cení	er F	RF regi	50 10.015	Ω AC	0 GHz	SEI	ISE:INT	Avg Type	ALIGN AUTO	06:26:24 AI	M Jun 24, 2014	Frequency
		σq			PNO: Close	Trig: Free #Atten: 4	e Run 0 dB	Avg Hold	: 38/100	TYF		
					Il Galli.Low					Mkr1 1 8	87 GHz	Auto Tune
10 dB	//div	Ref Ref	Offset 3 30.00	.7 dB dBm						15.8	25 dBm	
Log												
20.0		 1										Center Freq
20.0		<b>_</b>										10.015000000 GHz
10.0												
												Start Freq
0.00												30.000000 MHz
-10.0											-13.00 dBm	Stop Freq
												20.00000000 GHz
-20.0												
30 O												CF Step
-30.0												1.997000000 GHz
-40.0											and the second	Auto Mari
			and the second	\. ~~	montalena	h.	and the second	for all and the second	monoradoria	month the man		Ener Offert
-50.0	فمصلحهم المحاد			VV-V		T Shading tay in S						
												0112
-60.0												
Start	: 30 N	1Hz								Stop 20	.000 GHz	
#Res	8W	1.0 N	/Hz		#VBV	/ 3.0 MHz	*		Sweep	49.93 ms (	1001 pts)	
MSG									STATU	JS		

🊺 Ag	ilent Spect	rum An	alyzer - Swe	pt SA								_	
(XI RI	tor Er	RF	50 Ω			SEN	ISE:INT		ALIGN AUTO	06:26:41 A	M Jun 24, 2014	F	requency
Cer		eq /	3.500	RT 12	NO: Close 🖵	Trig: Free	Run	Avg Hold:	>100/100	TY			
				1	-Gain:Low	#Atten. I	Jub			Miler 1 0			Auto Tune
10 de	Idiu	Ref Dof	Offset 3.5	dB ∎m						-45.1	78 dBm		
Log	Sulv	Kei	J.JV U										
													Center Freq
-6.50													79.500 kHz
-16.5													Start Freq
ne e													9.000 kHz
-20.0													
-36.5													Oton From
	1										-43.00 dBm		Stop Freq
-46.5													150.000 KH2
	WW	۱۸۸.											
-56.5		- 41/	MM	A									CF Step 14 100 kHz
				www	MMMARA.	1.0 -						<u>Auto</u>	Man
-66.5					• • • • • • •	VVIAAAAA	MAAMA	1.0.0.					
								$\gamma \gamma $	mm	MALAA.			Freq Offset
-76.5										******	MANN		0 Hz
00 F													
-00.5													
Star	t 9.00	kHz			-43/1514/	40 1-11-*			<b>0</b>	Stop 1:	50.00 kHz		
#Res	STEWN '	I.U K	n2 		#VBW	TU KHZ*		( ) F	sweep 3	2.87 ms (	Tour prs)		
	Data o	out of	range;Th	ne value 30	) was clipped	to the max	imum value	e of 3.5.	STATUS	DC Cou	upled		

🊺 Ag	ilent Specti	rum Ar	nalyzer - Sw	ept SA									_	
Cen	Ler Fr	RF ea '	50 s 15.075	Ω <u>Λ</u> DC	Hz		SE	NSE:INT	Avg Type	ALIGN AUTO	06:26:51 A	M Jun 24, 2014	F	requency
					PNO: Fa IFGain:L	ist 😱 ow	Trig: Fre #Atten: 4	eRun 0dB	Avg Hold	: 55/100	TYI Di			
10 dE	3/div	Ref Ref	Offset 3 3 <b>0.00</b>	.5 dB dBm							Mkr1 -52.5	150 kHz 03 dBm		Auto Tune
20.0													1	Center Freq 5.075000 MHz
10.0 0.00														<b>Start Freq</b> 150.000 kHz
-10.0 -20.0													3	Stop Freq 0.000000 MHz
-30.0												-33.00 dBm	<u>Auto</u>	<b>CF Step</b> 2.985000 MHz Man
-40.0	1													Freq Offset 0 Hz
-60.0 Star	44 150 k	1 <b>44</b> 44	apal a hand you have have have have have have have have	mlument	halfellwaharde	₁ <b>৻<sub>৸</sub>ঀ৻₽৾৻৻</b>	hand the state of	ettrapet the	Mastrandaphant	nderheinderder	۱ Ston 3			
#Re	s BW 1	0 k	Hz		#	VBW	30 kHz*			Sweep 1	19.5 ms (	(1001 pts)		
MSG										STATU	S 🚹 DC Cou	upled		

🎉 Agilent Spe	ectrum Analyzer - Swept	SA								
Center B	RF 50 Ω			SEN	ISE:INT		ALIGN AUTO	06:27:02 AI	M Jun 24, 2014	Frequency
Centerr	-Teq 10.0150	PN IF	IO: Close Gain:Low	Trig: Free #Atten: 40	Run dB	Avg Hold	38/100	TYF De		
10 dB/div	Ref Offset 3.7 <b>Ref 30.00 d</b> l	<sup>dB</sup> Bm						Mkr1 1.9 15.4	07 GHz 57 dBm	Auto Tune
20.0	1									Center Freq 10.015000000 GHz
10.0 0.00										Start Freq 30.000000 MHz
-10.0									-13.00 dBm	<b>Stop Freq</b> 20.000000000 GHz
-30.0										<b>CF Step</b> 1.997000000 GHz <u>Auto</u> Man
-50.0	and the work of the second	y and the second se	w. Ayner war	مرمرماهم	autor and the second	alan an a	and the second second	and the discourse of the second se	and a second	Freq Offset 0 Hz
-60.0										
Start 30			#\/D\/	2 0 MH-7	*		Sween	Stop 20	.000 GHz	
#Res DW			#VDV	- <b>5.0 WINZ</b>			sweep 4	ายายม IIIS ( เช	ioo i pis)	
MSG							STATU	13		

# Test Band=WCDMA850

## Test Mode=UMTS/TM1


🊺 Ag	ilent Spe	ectrum A	nalyzer -	Swept SA											
COD	tor F	RF	15 07	0Ω 🚹 DC	MU-7			SEN	ISE:INT		ALIGN AUTO	05:25:05 A	M Jun 24, 2014	F	Frequency
GGI		Teq	15.07	5000	PN IFG	O: Fast ( ain:Low	⊋ <u>⊺</u> #⁄	rig: Free Atten: 10	e Run 0 dB	Avg Hol	d: 47/100	TY D			
10 dE	3/div	Ref <b>R</b> ef	Offset f 3.50	3.5 dB <b>dBm</b>							I	Mkr1 3.8 -58.4	851 MHz 88 dBm		Auto Tune
-6.50															Center Freq 15.075000 MHz
-16.5 -26.5															<b>Start Freq</b> 150.000 kHz
-36.5 -46.5													-33.00 dBm	3	Stop Freq 30.000000 MHz
-56.5	م مىر	he the star	↓1 4											<u>Auto</u>	<b>CF Step</b> 2.985000 MHz Man
-66.5	/		T Lulu	Jar Will Probability											Freq Offset 0 Hz
-86.5					<sup>℩ୄୄୄ</sup> <sup>ୣ</sup> ୖ୳ୣୢୗୄୄ୷୲୶	JAN MICHAN	lung the fu	hinta Jarta da	dh <del>a</del> afaddaa	and เมื่อน เป็น เป็น เป็น เป็น เป็น เป็น เป็น เป็	⊷n∔halphlan⊷ad	htmk-massides-hol-w	g yn gerllet y Neo		
Star #Re	t 150 s BW	kHz 10 k	Hz			#VB	W 30	kHz*			Sweep ′	Stop 3 119.5 ms	0.00 MHz (1001 pts)		
MSG 🧕	Data	a out o	f range	;The val	ue 30 v	vas clipp	ped to t	he max	imum val	ue of 3.5.	STATU	I <mark>s 🦺</mark> DC Co	upled		

🊺 Agi	lent Specti	rum An	alyzer - Sw	/ept SA											
LXI RI Cent	ter Er	RF	50 15 00	Ω <u>AC</u>	MHz		SEN	NSE:INT		ALIGN AUTO RMS	05	:25:14 Al TRAC	M Jun 24, 2014		Frequency
CCIII		oq o		0000	PNO	: Close 🖵	Trig: Free #Atten: 4	eRun 0dB	Avg Hold	:>100/100		TYP			
					IFGa	m.cow				N	/kr1	826	37 MHz		Auto Tune
10 dE	3/div	Ref Ref	Offset 3 33.00	.7 dB dBm								21.6	83 dBm		
Log															0
23.0														5	Center Freq
20.0														5	15.000000 WHZ
13.0		_													
															Start Freq
3.00															30.000000 MHz
-7.00		$\rightarrow$													Stop Freq
-											───		-13.00 dBm	1.0	00000000 GHz
-17.0															
.97 N															CF Step
-27.0														Auto	97.000000 MHz
-37.0														Auto	IVIAII
		ابد برا،	balan dara d	بعدا المد	hanna d and	a na mba anti	the lifetime the life	atalina anton ba	ti	and when the	Art.a	hunn	when the when		
-47.0	er fan Maa	****	unden die Gefüh	Uhter an an	ululu wisaw		and the second s	184 1 P 19	and a set of the set						Freq Offset
															0 H2
-57.0															
Star	t 30.0	MHz									St	op 1.(	0000 GHz		
#Res	5 BW 1	.0 N	IHz			#VBW	3.0 MHz	*		Sweep	1.200	) ms (	1001 pts)		
MSG										STAT	US				

🎉 Agilent Spectrum Analyzer - Swept SA							
Center Freq 6.875000000	GHz	SENSE:INT	Avg Type	ALIGN AUTO	05:25:25 AM	1Jun 24, 2014 E 1 2 3 4 5 6	Frequency
	PNO: Close Trig: F IFGain:Low #Atten	ree Run : 40 dB	Avg Hold:	8/100	TYP DE		
Ref Offset 3.7 dB				Ν	/kr1 2.7	16 GHz	Auto Tune
10 dB/div Ref 33.00 dBm					-54.8	59 dBm	
2							Center Freq
23.0							6.875000000 GHz
42.0							
13.0							Start Freq
3.00							1.000000000 GHz
-7.00						12.00 dBm	Stop Freq
-17.0						-13.00 dbm	12.750000000 GHz
-27.0							CF Step 1.175000000 GHz
37.0							<u>Auto</u> Man
-37.0							
-47.0							Freq Offset
							0112
-57.0	and a state of the		Marrison Contra	and the second	and the production of the second s	allow and the second second	
Start 1.000 GHz #Res BW 100 kHz	#VBW 300 kl	lz*		Sweep_5	Stop 12 57.7 ms (	.750 GHz 1001 pts)	
MSG				STATUS		noo Ppto/	

Test Channel=MCH



🊺 Ag	ilent Spe	ctrum A	nalyzer -	Swept SA											
(XI R Cen	ter F	RF	15 07	0 Ω <u>Λ</u> DC	MHz			SE	NSE:INT	Avg Typ	ALIGN AUTO e: RMS	05:25:46 A	M Jun 24, 2014	F	requency
COL		IUq	10.01	5000	PI IF(	NO: Fast Gain:Lov	t⊊ w	Trig: Fre #Atten: 1	e Run 0 dB	Avg Hold	l: 47/100	TYF Di			
10 dE	3/div	Ref Ref	Offset f 3.50	3.5 dB dBm							I	4 Mkr1 3.8 -57.7	51 MHz 48 dBm		Auto Tune
-6.50														1	Center Freq 5.075000 MHz
-16.5 -26.5															<b>Start Freq</b> 150.000 kHz
-36.5 -46.5													-33.00 dBm	3	Stop Freq 30.000000 MHz
-56.5	ملو <sup>1</sup> الم	halfred to a	●1											Auto	<b>CF Step</b> 2.985000 MHz Man
-66.5 -76.5	/				<b>M</b> .										Freq Offset 0 Hz
-86.5					" <mark>V</mark> v <sub>P</sub> dy	and with the second	M <sup>1</sup> lawy	t <mark>i</mark> leywselfilliwy	ut dut way to	der vol Altholy of all	heyenned hayn	<b>U</b> norchaldenij	himilan (manihil		
Star #Re	t 150 s BW	kHz 10 k	Hz			#\	/BW	30 kHz*			Sweep 1	Stop 3 19.5 ms (	0.00 MHz 1001 pts)		
MSG 🧕	L Data	out o	f range	;The va	alue 30	was cli	ipped	to the ma	ximum va	lue of 3.5.	STATU	s 🚺 DC Cou	upled		

🊺 Agi	ilent Spectr	um Analyz	er - Swept S	A								
LXI RI Cent	ter Er	RF 90 514	50 Ω		7	SEN	NSE:INT		ALIGN AUTO	05:25:55 TR/	AM Jun 24, 2014	Frequency
CCI		5 <b>4</b> 51		PI IF	- NO: Close ⊊ Gain:Low	Trig: Free #Atten: 4	e Run 0 dB	Avg Hold	>100/100	T		
10 dE	3/div	Ref Off: Ref 33	set 3.7 d 1.00 dB	B m					N	/kr1 838 21.1	8.01 MHz 744 dBm	Auto Tune
23.0										1		Center Freq 515.000000 MHz
13.0 3.00												Start Freq 30.000000 MHz
-7.00 -17.0											-13.00 dBm	<b>Stop Freq</b> 1.000000000 GHz
-27.0 -37.0												CF Step 97.000000 MHz <u>Auto</u> Man
-47.0	hypetholadh	mhontoliga	Hyln Maran	and the fil	hys <sup>y</sup> yentleytelyeen <del>t</del>	u dau ylepoenessydy	und dynasta (*	persection of the second s	dragere it days	web <sup>y h</sup> ered	bylylynersheinendy, he	<b>Freq Offset</b> 0 Hz
-57.0												
Star #Res	t 30.0 I s BW 1	MHz .0 MH:	z		#VBW	3.0 MHz*	*		Sweep	Stop 1 1.200 ms	.0000 GHz (1001 pts)	
MSG									STAT	US		

🃁 Agilent Spe	ectrum Analyzer - Swept SA						_		
Contor E	RF 50 Ω AC		SEN	ISE:INT		ALIGN AUTO	05:26:05 AM	Jun 24, 2014	Frequency
Center		PNO: Close IFGain:Low	Trig: Free #Atten: 40	Run dB	Avg Hold:	8/100	TYP DE		
10 dB/div	Ref Offset 3.7 dB Ref 33.00 dBm					Ν	/lkr1 2.7 -54.8	04 GHz 23 dBm	Auto Tune
2 23.0									Center Freq 6.875000000 GHz
3.00									Start Freq 1.000000000 GHz
-7.00								-13.00 dBm	<b>Stop Freq</b> 12.75000000 GHz
-27.0									<b>CF Step</b> 1.175000000 GHz <u>Auto</u> Man
-37.0									Freq Offset
-57.0	man and and and a	a contraction of the second	~~~~~	nd the name	and and a start of the start of	Anna	ىيى <del>يە</del> لىرىيە	tur far an	UTIL
Start 1.00 #Res BW	00 GHz 100 kHz	#VBW	300 kHz*	¢		Sweep 5	Stop 12. 57.7 ms (	750 GHz 1001 pts)	
MSG						STATUS			

#### Test Channel=HCH





🊺 Ag	ilent Spe	ectrum A	Analyzer	- Swept	SA															_	
Cen	ter F	R rea	515	50 Ω 0000	AC	MHz				SENS	SE:INT		Avg Type	ALIGN AUT : RMS	0	05:2	6:36 AM TRAC	1 Jun 24, 2 E 1 2 3	2014 4 5 6		Frequency
						PNC IFG	D: Clo ain:Lo	se 🖵 ow	Trig: #Atte	Free en: 40	Run dB		Avg Hold	:>100/100	)		TYP		A A A		Auto Tuna
10 dE	3/div	Rei Re	f Offse f 33.0	et 3.7 d 00 dE	dB 3m										Mkı	r1 8 2	345. 2.1	77 M 74 di	Hz 3m		Auto Tune
23.0																•	1				Center Freq 515.000000 MHz
13.0 3.00																					Start Freq 30.000000 MHz
-7.00 -17.0																		-13.0	) dBm		<b>Stop Freq</b> 1.000000000 GHz
-27.0 -37.0																				A	CF Step 97.000000 MHz uto Mar
-47.0	etwiltung	unul da	harvat	physical		with	Manub	nfilmen	hilwhan	ul/lalay	wheely 1	ln ur gli	, the start of the	لله في بين الم	h <b>~1</b> 04by	an a	hallow	ulahili milun	~1/40		Freq Offsel
-57.0																					0112
-37.0																					
Star #Po	t 30.0	0 MH					-#1	V (D) (A)	200	<b>11.</b>				Cwoon	1 2	Sto	p 1.0	000 0	Hz		
MSG	5 6 1	-1.0	WINZ				#	VEVV	3.0 W	111Z"				Sweep	TUS	00	ms (	1001	JIS)		



#### Test Band=WCDMA1700

Test Mode=UMTS/TM1

Test Channel=LCH



🊺 Ag	ilent Spec	trum Analy:	zer - Swep	ot SA										
LXI R	L I	RF	50 Ω		-		SE	INSE:INT		ALIGN AUTO	05:21:24 A	M Jun 24, 2014	Fre	equency
Gen		leq 15	.07.50		PNO: F IFGain:I	ast ⊆_ _ow	Trig: Fre #Atten:	e Run 10 dB	Avg Hold	: 47/100	TYI Di			
10 di	3/div	Ref Off Ref 3	iset 3.5 .50 dE	dB 3m						I	Mkr1 3.8 -61.6	51 MHz 10 dBm		Auto Tune
-6.50													C 15	enter Freq .075000 MHz
-16.5 -26.5														<b>Start Freq</b> 150.000 kHz
-36.5												-33.00 dBm	30	Stop Freq .000000 MHz
-56.5			1 ——										2 <u>Auto</u>	<b>CF Step</b> .985000 MHz Man
-66.5 -76.5	Y WWW		J	THULL HANG	1 <sup>4411</sup> 671  4								F	F <b>req Offset</b> 0 Hz
-86.5			V			Y-untr	Mananah	hand <b>an t</b> he first the state of the state o	hillinghallang	en <sup>ll</sup> landerstrut	when the form	enter and the second		
Star #Re	t 150 s BW	kHz 10 kHz			3	#VBW	30 kHz*			Sweep 1	Stop 3 119.5 ms (	0.00 MHz 1001 pts)		
MSG /	L Data	out of ra	nge;Th	e value 3	0 was	clipped	I to the ma	ximum val	ue of 3.5.	STATU	<mark>s 🦺</mark> DC Coເ	upled		



🊺 Agi	lent Spec	trum A	Analyzer - S	wept SA	_									
LXI RL	tor E	R	E 50	) Ω 🚹 DC			SEN	NSE:INT			05:21:46 AM	1 Jun 24, 2014	F	requency
Gem	len	eq	79.50		PN IFG	D: Close 🖵 ain:Low	Trig: Free #Atten: 1	e Run 0 dB	Avg Hold:	>100/100	TYP DE			
10 dE	3/div	Ref Re	f Offset f 3.50	3.5 dB dBm						M	kr1 71.0 -83.7	604 kHz 56 dBm		Auto Tune
-6.50														Center Freq 79.500 kHz
-16.5 -26.5														Start Freq 9.000 kHz
-36.5 -46.5												-43.00 dBm		Stop Freq 150.000 kHz
-56.5 -66.5													<u>Auto</u>	<b>CF Step</b> 14.100 kHz Man
-76.5 -							1							Freq Offset 0 Hz
-86.5 -	w	$\sim$	M	Any	-My	MM	man	www	Anna and	harry	᠋ᢩ᠕᠕᠆ᡎᠬᢦᠬᡇ	-		
Start #Res	t 9.00 s BW	kHz 1.0	z kHz			#VBW	10 kHz*			Sweep 3	Stop 15 2.87 ms (	0.00 kHz 1001 pts)		
MSG 🥂	Data	out o	of range	;The valu	.e 30 v	vas clipped	to the may	kimum value	e of 3.5.	STATUS	上 DC Cou	pled		



🎉 Agilent Spec	trum Analyzer - Swep	t SA								
	RF 50 Ω		247	SEN	ISE:INT		ALIGN AUTO	05:22:05 AM	1 Jun 24, 2014	Frequency
Center P	eq 10.0150	PI IF	NO: Close 🖵 Gain:Low	Trig: Free #Atten: 40	Run dB	Avg Hold	: 33/100	TYP DE		
10 dB/div	Ref Offset 3.7 Ref 33.00 d	dB Bm						Mkr1 1.7 10.5	27 GHz 34 dBm	Auto Tune
23.0										Center Freq 10.015000000 GHz
13.0 3.00										Start Freq 30.000000 MHz
-7.00									-13.00 dBm	<b>Stop Freq</b> 20.00000000 GHz
-27.0										<b>CF Step</b> 1.997000000 GHz <u>Auto</u> Man
-47.0	- Internation	waterwar	······································	have have	مېرلىرىلو 16 <sub>0</sub> قەر	and all all all all all all all all all al	and the second second	+ Martin Carrier	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Freq Offset 0 Hz
-57.0										
Start 30 N #Res BM	1HZ 1 0 MHz		#\/R\A	3.0 MHz*			Sween /	Stop 20. 19 93 ms (	.000 GHz	
MSG	The IVITI2		# <b>4</b> D V V	570 WITZ			STATU	is line (	noor proj	

#### Test Channel=HCH

🊺 Ag	ilent Spec	trum A	nalyzer - Swe	ept SA									
LXI RI		RF	50 S	2 🛕 DC		SEN	NSE:INT		ALIGN AUTO	05:22:17 AM	1 Jun 24, 2014	F	requency
Cen		req	79.500		PNO: Close 🕞 FGain:Low	Trig: Free #Atten: 1	e Run 0 dB	Avg Hold	>100/100	TYP DE			A
10 dE Log	3/div	Ref Ref	Offset 3. f 3.50 d	5 dB Bm					I	Mkr1 35.9 -83.7	931 kHz 49 dBm		Auto Tune
-6.50													<b>Center Freq</b> 79.500 kHz
-16.5													Start Freq
-26.5													9.000 kHz
-36.5											-43.00 dBm		Stop Freq 150.000 kHz
-56.5												Auto	<b>CF Step</b> 14.100 kHz Man
-66.5													
-76.5				1 1									Freq Offset 0 Hz
-86.5	m_m	m	www.	lmm	Vh~~~~~	MAMM	Martin	www.hur	Augur -	$\mathcal{W}$	www.		
Star #Re	t 9.00 s BW	kHz 1.0 I	kHz		#VBW	10 kHz*			Sweep	Stop 15 32.87 ms (	0.00 kHz 1001 pts)		
MSG 🧕	Data	out o	f range;T	he value 30	) was clipped	to the max	kimum value	e of 3.5.	STAT	us 🦺 DC Cou	pled		

🊺 Agi	ilent Spectru	m Analy	/zer - Swe	pt SA										
LXI RI	tor Fro	RF ci 15	50 Ω				SE	NSE:INT		ALIGN AUTO	05:22:26 A	M Jun 24, 2014	F	requency
Cen		q 13	.0750	JUU W	PNO IFGa	:Fast 🖵 in:Low	Trig: Free #Atten: 1	e Run 0 dB	Avg Hold	: 47/100	TYI DI			
10 dE	3/div	Ref Of Ref 3	fset 3.6 .50 di	5 dB <b>Bm</b>						I	Mkr1 3.8 -62.6	94 dBm		Auto Tune
-6.50													1	<b>Center Freq</b> 5.075000 MHz
-16.5 -26.5														Start Freq 150.000 kHz
-36.5												-33.00 dBm	3	<b>Stop Freq</b> 0.000000 MHz
-56.5			1										<u>Auto</u>	<b>CF Step</b> 2.985000 MHz Man
-66.5 -76.5	/ <sup>h/H/hh</sup> w	M N												Freq Offset 0 Hz
-86.5			hampetant	1	yh-muliya	uet working (4)wol	hrmanaly.	shihi/fildina	detraction and and and and and and and and and an	harperparatelis	Nelvopenvalena	unlahannahan		
Star #Res	t 150 kH s BW 10	lz ) kHz	z			#VBW	/ 30 kHz*			Sweep 1	Stop 3 119.5 ms (	0.00 MHz (1001 pts)		
MSG 🧕	Data ou	it of ra	ange;Th	ne valu	e 30 wa	as clipped	d to the max	kimum valu	ue of 3.5.	STATU	s 🚹 DC Coi	upled		

🎉 Agilent Spe	ctrum Analyzer - Swept SA								
Center F	RF 50 Ω AC		SENS	E:INT		ALIGN AUTO	05:22:36 AM TRAC	1 Jun 24, 2014	Frequency
Center	Teq 10.01500000	PNO: Close IFGain:Low	Trig: Free #Atten: 40	Run dB	Avg Hold:	33/100	TYP DE		
10 dB/div	Ref Offset 3.7 dB Ref 33.00 dBm						Mkr1 1.7 10.3	47 GHz 88 dBm	Auto Tune
23.0									Center Freq 10.015000000 GHz
13.0 3.00									Start Freq 30.000000 MHz
-7.00								-13.00 dBm	<b>Stop Freq</b> 20.000000000 GHz
-27.0									<b>CF Step</b> 1.997000000 GHz <u>Auto</u> Man
-47.0	manna	-	war what a	and and a second	. Martin Baseline and	and the second		Loo Martin	Freq Offset 0 Hz
-57.0									
Start 30 I #Res BW	MHZ 1.0 MHz	#VBW	3.0 MHz*			Sween 4	Stop 20. 19.93 ms (	.000 GHz 1001 pts)	
MSG						STATU	IS		

#### Test Band=WCDMA1900

#### Test Mode=UMTS/TM1

Test Channel=LCH



🊺 Ag	ilent Spe	ctrum A	nalyzer -	Swept SA										
Cen	ter F	RF	15.07	50 Ω <u>A</u> DC	MHz		SE	NSE:INT	Avg Type	ALIGN AUTO	05:18:36 AM	M Jun 24, 2014	F	requency
					PN IFG	IO: Fast 🔾	Trig: Fre #Atten: 1	eRun 0dB	Avg Hold	: 47/100	TYF DE			Auto Turre
10 dE	3/div	Ref <b>R</b> ef	Offset f 3.50	3.5 dB dBm						ľ	4 dkr1 3.8 -58.5	51 MHz 90 dBm		Auto Tune
-6.50													1	Center Freq 5.075000 MHz
-16.5 -26.5														<b>Start Freq</b> 150.000 kHz
-36.5 -46.5												-33.00 dBm	3	Stop Freq 0.000000 MHz
-56.5	Junh	ter the state of the	<b>∮</b> <sup>1</sup>										<u>Auto</u>	<b>CF Step</b> 2.985000 MHz Man
-66.5 -76.5	[													Freq Offset 0 Hz
-86.5			, WP	¥kq×ljk\H <sub>llv√</sub> i	ntulation	allen and the	han an a	whoti <sup>w</sup> hole	Lurgen (1) Julian pr	uninumutud,	1910 vhittelyingh	aliterenterinteren		
Star #Re	t 150 s BW	kHz 10 k	Hz			#VBW	/ 30 kHz*			Sweep 1	Stop 3 19.5 ms (	0.00 MHz 1001 pts)		
MSG 🧕	L Data	outo	f range	;The va	lue 30 v	vas clippe	to the max	imum valu	ue of 3.5.	STATUS	s 🔔 DC Col	pled		



Test Channel=MCH

🊺 Ag	ilent Spe	ectrum /	Analyzer	- Swept	SA										_	
Cen	ter F	R	F 795	50Ω <u>/</u>					SEN	NSE:INT		ALIGN AUTO e: RMS	05:18:57 A	M Jun 24, 2014	F	requency
CCI		rcq	10.0		112	PNO: IFGair	Close G n:Low	⊃ Trig #At	g: Free tten: 1	e Run 0 dB	Avg Hold	l:>100/100	TYI Di			A
10 dE	3/div	Re Re	f Offs f 3.5	et 3.5 0 dB	dB m							Ν	/kr1 14. -83.3	781 kHz 46 dBm		Auto Tune
-6.50																<b>Center Freq</b> 79.500 kHz
-16.5 -26.5																Start Freq 9.000 kHz
-36.5 -46.5														-43.00 dBm		<b>Stop Freq</b> 150.000 kHz
-56.5															<u>Auto</u>	<b>CF Step</b> 14.100 kHz Man
-76.5																Freq Offset
-86.5	n yy	т \//\	<sub>ለ</sub> ሃው <sub>ጭ</sub> ሶ	wala	hvvhv	~~~~~~f	ᡃᠰᠰ	wy wy	ᠰᢧᠬᠴᡗ᠇	w May	ᠭᢪᠣᢦᠬᡔᠰᡳᡟ	m	Annanta	mann		0 Hz
Star	t 9.00	0 kH	2				#1/D1		/U=*			Curren (	Stop 1	50.00 kHz		
#Re	S EW	- 1.V	KHZ	no.The	u elus o	0	#VBV		AHZ"	dimensione a ser la	in of 2 F	sweep .	52.87 ms (	rour pis)		
MSG 2	Data	a out o	or rang	ge; i ne	e value 3	su wa	s clippe	ea to th	e max	umum val	le of 3.5.	STATU		lbiea		



💓 Agilent Spectrum Analyzer - Swept SA			
	SENSE:INT	ALIGN AUTO 05:19:16 A Ava Type: RMS TRAC	M Jun 24, 2014 E 1 2 3 4 5 6 Frequency
PNO: Clos IFGain:Lo	se 🕞 Trig: Free Run w #Atten: 40 dB	Avg Hold: 33/100	
Ref Offset 3.7 dB 10 dB/div Ref 33.00 dBm		Mkr1 1.8 10.4	387 GHz Auto Tune 36 dBm
23.0			Center Freq 10.015000000 GHz
3.00			Start Freq 30.000000 MHz
.7.00			-13.00 (libr) 20.000000000 GHz
-27.0			<b>CF Step</b> 1.997000000 GHz <u>Auto</u> Man
-47.0	manufacture the second structure	the manufacture of the second se	Freq Offset
-57.0			
Start 30 MHz		Stop 20	0.000 GHz
MSG #XES DW 1.0 WHZ #Y	VBW-3.0 WINZ"	sweep 49.95 ms	

#### Test Channel=HCH

🊺 Ag	ilent Spect	trum Ai	nalyzer - Swe	pt SA									
LXI RI	tor Fr	RF	50 Ω			SEN	ISE:INT	Avg Type	ALIGN AUTO	05:19:29 Al	4 Jun 24, 2014	F	requency
Gen		eq	19.000	RTZ P	NO: Close 🖵 Gain:Low	Trig: Free #Atten: 1	e Run 0 dB	Avg Hold:	>100/100	TYF DE			
10 dE	3/div	Ref Ref	Offset 3.5 5 3.50 dl	i dB 3m					Mk	r1 123.9 -81.1	915 kHz 68 dBm		Auto Tune
-6.50													Center Freq 79.500 kHz
-16.5 -26.5													Start Freq 9.000 kHz
-36.5 -46.5											-43.00 dBm		<b>Stop Freq</b> 150.000 kHz
-56.5 -66.5												<u>Auto</u>	<b>CF Step</b> 14.100 kHz Man
-76.5	Aller	Mad	a Mar	h m Ann	han ma	the active of		h	hala an	1-	DAMA.AA		Freq Offset 0 Hz
-86.5 Star	t 9.00	kHz						M Society		Stop 15	0.00 kHz		
#Res	sBW	1.0 k	Hz		#VBW	10 kHz*		10.5	Sweep 3	2.87 ms (	1001 pts)		
	Data	out of	f range;Th	ne value 30	was clipped	to the max	timum value	e of 3.5.	STATUS	L DC Coi	ipled		

🊺 Agi	ilent Spectru	m Analyz	zer - Swep	t SA										
LXI RI	tor Fro	RF	50 Ω				SE	NSE:INT		ALIGN AUTO	05:19:38 A	M Jun 24, 2014	F	requency
Cen		q 15.	.0750		PNO: F IFGain:I	ast ⊆ _ow	Trig: Free #Atten: 1	eRun 0dB	Avg Hold:	47/100	TYF DE			
10 dE	3/div	Ref Off Ref 3.	iset 3.5 .50 dE	dB Sm						Π	4kr1 3.8 -57.2	51 MHz 91 dBm		Auto Tune
-6.50													1	Center Freq 5.075000 MHz
-16.5 -26.5														<b>Start Freq</b> 150.000 kHz
-36.5 -46.5												-33.00 dBm	3	Stop Freq 0.000000 MHz
-56.5	Marulada		1										<u>Auto</u>	<b>CF Step</b> 2.985000 MHz Man
-76.5														Freq Offset 0 Hz
-86.5			an a	at the standing of the	<b>myt</b> yd Ma	ul way the second	hvielenhita	purburdy dy man	Winnlowed	hutuninpli	unydyn-lafygfilyfan	nt firmheindeine		
Star #Res	t 150 kH s BW 10	lz ) kHz				#VBW	30 kHz*			Sweep 1	Stop 3 19.5 ms (	0.00 MHz 1001 pts)		
	Data ou	it of ra	nge;Th	e value :	30 was	clipped	I to the max	kimum valu	ie of 3.5.	STATUS	DC Cou	pled		

📁 Agilent Spe	ctrum Analyzer - Swep	ot SA								
Center E	RF 50 Ω	AC 00000	247	SEN	ISE:INT		ALIGN AUTO	05:19:48 AI	M Jun 24, 2014	Frequency
Center P	req 10.0150	P IF	NO: Close Gain:Low	Trig: Free #Atten: 40	e Run 0 dB	Avg Hold:	33/100	TYF De		
10 dB/div	Ref Offset 3.7 <b>Ref 33.00 d</b>	dB IBm						Mkr1 1.9 10.5	07 GHz 04 dBm	Auto Tune
23.0										Center Freq 10.015000000 GHz
13.0 3.00										Start Freq 30.000000 MHz
-7.00									-13.00 dBm	<b>Stop Freq</b> 20.00000000 GHz
-27.0										<b>CF Step</b> 1.997000000 GHz <u>Auto</u> Man
-47.0	- And a second of the second o	wanter	man	and and a start of the start of	مىرىنى المسايد	aparter a deserved	non and the second	bound	when the second	<b>Freq Offset</b> 0 Hz
-57.0										
Start 30 M #Res BW	71HZ 1.0 MHz		#VBW	3.0 MHz	*		Sween 4	Stop 20 19.93 ms (	.000 GHz 1001 pts)	
MSG							STATU	IS		

# **Appendix G:Frequency Stability**

## **Test Results**

## Frequency Error vs. Voltage:

Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Verdict
Band	Mode	Channel	Temp.	Volt.	(Hz)	(ppm)	(ppm)	
			TN	VL	-18.14	-0.02	±2.5	PASS
		LCH	TN	VN	-18.27	-0.02	±2.5	PASS
			TN	VH	-18.83	-0.02	±2.5	PASS
			TN	VL	-19.19	-0.02	±2.5	PASS
GSM850	TM1	МСН	TN	VN	-19.37	-0.02	±2.5	PASS
			TN	VH	-18.57	-0.02	±2.5	PASS
			TN	VL	-10.33	-0.01	±2.5	PASS
		нсн	TN	VN	-16.98	-0.02	±2.5	PASS
			TN	VH	-18.41	-0.02	±2.5	PASS

Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Verdict
Band	Mode	Channel	Temp.	Volt.	(Hz)	(ppm)	(ppm)	
			TN	VL	33.65	0.02	±2.5	PASS
		LCH	TN	VN	31.19	0.02	±2.5	PASS
			TN	VH	31.71	0.02	±2.5	PASS
			TN	VL	39.15	0.02	±2.5	PASS
GSM1900	TM1	МСН	TN	VN	37.26	0.02	±2.5	PASS
			TN	VH	36.94	0.02	±2.5	PASS
			TN	VL	43.66	0.02	±2.5	PASS
		НСН	TN	VN	41.78	0.02	±2.5	PASS
			TN	VH	38.90	0.02	±2.5	PASS

Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Verdict
Band	Mode	Channel	Temp.	Volt.	(Hz)	(ppm)	(ppm)	
			TN	VL	22.89	0.03	±2.5	PASS
		LCH	TN	VN	22.76	0.03	±2.5	PASS
			TN	VH	21.77	0.03	±2.5	PASS
			TN	VL	22.89	0.03	±2.5	PASS
VVCDIVIA8	TM1	MCH	TN	VN	22.59	0.03	±2.5	PASS
50			TN	VH	24.02	0.03	±2.5	PASS
			TN	VL	22.89	0.03	±2.5	PASS
		нсн	TN	VN	20.76	0.02	±2.5	PASS
			TN	VH	22.74	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)	
			TN	VL	22.66	0.01	±2.5	PASS
		LCH	TN	VN	24.11	0.01	±2.5	PASS
			TN	VH	23.55	0.01	±2.5	PASS
			TN	VL	28.43	0.02	±2.5	PASS
	TM1	МСН	TN	VN	30.35	0.02	±2.5	PASS
70			TN	VH	27.98	0.02	±2.5	PASS
			TN	VL	24.25	0.01	±2.5	PASS
		нсн	TN	VN	23.46	0.01	±2.5	PASS
			TN	VH	22.47	0.01	±2.5	PASS

Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Verdict
Band	Mode	Channel	Temp.	Volt.	(Hz)	(ppm)	(ppm)	
			TN	VL	44.40	0.02	±2.5	PASS
		LCH	TN	VN	42.59	0.02	±2.5	PASS
			TN	VH	43.72	0.02	±2.5	PASS
			TN	VL	35.68	0.02	±2.5	PASS
	TM1	МСН	TN	VN	36.52	0.02	±2.5	PASS
900			TN	VH	37.35	0.02	±2.5	PASS
			TN	VL	46.78	0.02	±2.5	PASS
		нсн	TN	VN	44.81	0.02	±2.5	PASS
			TN	VH	41.97	0.02	±2.5	PASS

## Frequency Error vs. Temperature:

Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Verdict
Band	Mode	Channel	Volt.	Temp.	(Hz)	(ppm)	(ppm)	
			VN	-30	-18.59	-0.02	±2.5	PASS
			VN	-20	-19.90	-0.02	±2.5	PASS
			VN	-10	-20.45	-0.02	±2.5	PASS
			VN	0	-19.97	-0.02	±2.5	PASS
GSM850	TM1	LCH	VN	10	-20.64	-0.03	±2.5	PASS
			VN	20	-22.45	-0.03	±2.5	PASS
			VN	30	-22.28	-0.03	±2.5	PASS
			VN	40	-18.80	-0.02	±2.5	PASS
			VN	50	-16.05	-0.02	±2.5	PASS
		M1 MCH	VN	-30	-19.04	-0.02	±2.5	PASS
			VN	-20	-18.41	-0.02	±2.5	PASS
	TM1		VN	-10	-18.93	-0.02	±2.5	PASS
			VN	0	-20.11	-0.02	±2.5	PASS
GSM850			VN	10	-20.79	-0.02	±2.5	PASS
			VN	20	-20.36	-0.02	±2.5	PASS
			VN	30	-21.36	-0.03	±2.5	PASS
			VN	40	-18.61	-0.02	±2.5	PASS
			VN	50	-18.33	-0.02	±2.5	PASS
			VN	-30	-17.02	-0.02	$\pm$ 2.5	PASS
			VN	-20	-15.06	-0.02	±2.5	PASS
			VN	-10	-15.39	-0.02	±2.5	PASS
			VN	0	-14.60	-0.02	±2.5	PASS
GSM850	TM1	нсн	VN	10	-17.17	-0.02	±2.5	PASS
			VN	20	-17.53	-0.02	±2.5	PASS
			VN	30	-19.27	-0.02	±2.5	PASS
			VN	40	-21.65	-0.03	±2.5	PASS
			VN	50	-23.45	-0.03	±2.5	PASS

Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Verdict
Band	Mode	Channel	Volt.	Temp.	(Hz)	(ppm)	(ppm)	
		VN	-30	30.12	0.02	±2.5	PASS	
			VN	-20	28.57	0.02	±2.5	PASS
			VN	-10	30.11	0.02	±2.5	PASS
			VN	0	30.41	0.02	±2.5	PASS
GSM1900	TM1	LCH	VN	10	30.90	0.02	±2.5	PASS
			VN	20	33.25	0.02	±2.5	PASS
			VN	30	34.90	0.02	±2.5	PASS
			VN	40	36.92	0.02	±2.5	PASS
			VN	50	37.27	0.02	±2.5	PASS
			VN	-30	36.73	0.02	±2.5	PASS
			VN	-20	38.36	0.02	±2.5	PASS
			VN	-10	37.89	0.02	±2.5	PASS
			VN	0	37.56	0.02	±2.5	PASS
GSM1900	TM1	МСН	VN	10	37.46	0.02	±2.5	PASS
			VN	20	36.04	0.02	±2.5	PASS
			VN	30	36.34	0.02	±2.5	PASS
			VN	40	35.38	0.02	±2.5	PASS
			VN	50	34.03	0.02	±2.5	PASS
			VN	-30	42.33	0.02	±2.5	PASS
			VN	-20	43.12	0.02	±2.5	PASS
			VN	-10	43.78	0.02	±2.5	PASS
			VN	0	44.34	0.02	±2.5	PASS
GSM1900	TM1	НСН	VN	10	45.09	0.02	±2.5	PASS
			VN	20	44.57	0.02	±2.5	PASS
			VN	30	44.11	0.02	±2.5	PASS
			VN	40	44.96	0.02	±2.5	PASS
			VN	50	43.60	0.02	±2.5	PASS

Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Verdict
Band	Mode	Channel	Volt.	Temp.	(Hz)	(ppm)	(ppm)	
			VN	-30	22.34	0.03	±2.5	PASS
			VN	-20	22.82	0.03	±2.5	PASS
			VN	-10	22.73	0.03	±2.5	PASS
			VN	0	21.91	0.03	±2.5	PASS
WCDIVIA8	TM1	LCH	VN	10	22.48	0.03	±2.5	PASS
50			VN	20	25.11	0.03	±2.5	PASS
			VN	30	23.64	0.03	±2.5	PASS
			VN	40	21.67	0.03	±2.5	PASS
			VN	50	21.88	0.03	±2.5	PASS
			VN	-30	22.02	0.03	±2.5	PASS
	TM1	мсн	VN	-20	22.31	0.03	±2.5	PASS
			VN	-10	24.75	0.03	±2.5	PASS
			VN	0	24.26	0.03	±2.5	PASS
WCDIVIA8			VN	10	24.94	0.03	±2.5	PASS
50			VN	20	24.14	0.03	±2.5	PASS
			VN	30	23.46	0.03	±2.5	PASS
			VN	40	22.25	0.03	±2.5	PASS
			VN	50	24.12	0.03	±2.5	PASS
			VN	-30	22.25	0.03	±2.5	PASS
			VN	-20	20.31	0.02	±2.5	PASS
			VN	-10	19.40	0.02	±2.5	PASS
			VN	0	19.75	0.02	±2.5	PASS
VVCDIVIA8	TM1	НСН	VN	10	18.36	0.02	±2.5	PASS
50			VN	20	20.02	0.02	±2.5	PASS
			VN	30	18.47	0.02	±2.5	PASS
			VN	40	19.07	0.02	±2.5	PASS
			VN	50	20.78	0.02	±2.5	PASS

Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Verdict
Band	Mode	Channel	Volt.	Temp.	(Hz)	(ppm)	(ppm)	
			VN	-30	22.86	0.01	±2.5	PASS
			VN	-20	23.78	0.01	±2.5	PASS
			VN	-10	23.65	0.01	±2.5	PASS
			VN	0	21.51	0.01	±2.5	PASS
WCDIVIA1	TM1	LCH	VN	10	22.77	0.01	±2.5	PASS
700			VN	20	23.50	0.01	±2.5	PASS
			VN	30	23.27	0.01	±2.5	PASS
			VN	40	24.88	0.01	±2.5	PASS
			VN	50	25.89	0.02	±2.5	PASS
			VN	-30	27.67	0.02	±2.5	PASS
	TM1	МСН	VN	-20	26.26	0.02	±2.5	PASS
			VN	-10	24.89	0.01	±2.5	PASS
			VN	0	22.95	0.01	±2.5	PASS
WCDIVIA1			VN	10	23.30	0.01	±2.5	PASS
700			VN	20	22.47	0.01	±2.5	PASS
			VN	30	22.05	0.01	±2.5	PASS
			VN	40	23.45	0.01	±2.5	PASS
			VN	50	21.93	0.01	±2.5	PASS
			VN	-30	23.20	0.01	±2.5	PASS
			VN	-20	23.12	0.01	±2.5	PASS
			VN	-10	21.35	0.01	±2.5	PASS
			VN	0	23.79	0.01	±2.5	PASS
	TM1	нсн	VN	10	23.45	0.01	±2.5	PASS
700			VN	20	22.07	0.01	±2.5	PASS
			VN	30	22.35	0.01	±2.5	PASS
			VN	40	23.32	0.01	±2.5	PASS
			VN	50	25.70	0.01	±2.5	PASS

Test	Test	Test	Test	Test	Freq.Error	Freq.vs.rated	Limit	Verdict
Band	Mode	Channel	Volt.	Temp.	(Hz)	(ppm)	(ppm)	
			VN	-30	46.45	0.03	±2.5	PASS
			VN	-20	46.55	0.03	±2.5	PASS
			VN	-10	46.23	0.02	±2.5	PASS
			VN	0	44.64	0.02	±2.5	PASS
WCDIVIA1	TM1	LCH	VN	10	48.54	0.03	±2.5	PASS
900			VN	20	49.31	0.03	±2.5	PASS
			VN	30	51.43	0.03	±2.5	PASS
			VN	40	50.85	0.03	±2.5	PASS
			VN	50	54.67	0.03	±2.5	PASS
			VN	-30	39.07	0.02	±2.5	PASS
	TM1	МСН	VN	-20	37.98	0.02	±2.5	PASS
			VN	-10	38.85	0.02	±2.5	PASS
			VN	0	38.67	0.02	±2.5	PASS
WCDIVIA1			VN	10	40.06	0.02	±2.5	PASS
900			VN	20	41.15	0.02	±2.5	PASS
			VN	30	40.95	0.02	±2.5	PASS
			VN	40	37.91	0.02	±2.5	PASS
			VN	50	36.63	0.02	±2.5	PASS
			VN	-30	46.43	0.02	±2.5	PASS
			VN	-20	43.23	0.02	±2.5	PASS
			VN	-10	43.85	0.02	±2.5	PASS
			VN	0	41.87	0.02	±2.5	PASS
WCDMA1 900	TM1	нсн	VN	10	44.94	0.02	±2.5	PASS
			VN	20	44.90	0.02	±2.5	PASS
			VN	30	44.29	0.02	±2.5	PASS
			VN	40	48.00	0.03	±2.5	PASS
			VN	50	46.49	0.02	±2.5	PASS

# **Appendix H: Radiated spurious emission**

### **GSM 850**

Test Frequency Range: 30MHz-10GHz

MCH

Frequency	Amp. Level	Limit	Margin	polarity
(MHz)	(dBm)	(dBm)	(dB)	
1698	-54.6	-13	41.6	Н
4245	-45.5	-13	32.5	Н
7643	-32.8	-13	19.8	Н
1698	-47.2	-13	34.2	V
7643	-36.2	-13	23.2	V

### **GSM 1900**

Test Frequency Range: 30MHz-20GHz

MCH

Frequency	Amp. Level	Limit	Margin	polarity
(MHz)	(dBm)	(dBm)	(dB)	
3565	-52.3	-13	39.3	Н
8950	-35.8	-13	22.8	Н
1845	-61.6	-13	48.6	V
10560	-29.3	-13	16.3	V

### WCDMA Band II

Test Frequency Range: 30MHz-20GHz MCH

Frequency	Amp. Level	Limit	Margin	polarity
(MHz)	(dBm)	(dBm)	(dB)	
245	-71.5	-13	58.5	н
245	-66.8	-13	53.8	V
8441	-34.9	-13	21.9	Н
8927	-34.4	-13	21.4	V

### WCDMA Band IV

Test Frequency Range: 30MHz-18GHz MCH

Frequency	Amp. Level	Limit	Margin	polarity
(MHz)	(dBm)	(dBm)	(dB)	
5138	-42.9	-13	29.9	Н
3428	-46.9	-13	33.9	V
5138	-40.4	-13	27.4	V

#### WCDMA Band V

Test Frequency Range: 30MHz-10GHz

MCH

Frequency	Amp. Level	Limit	Margin	polarity
(MHz)	(dBm)	(dBm)	(dB)	
3864	-48.6	-13	35.6	Н
8441	-33.6	-13	20.6	Н
4234	-48.8	-13	35.8	V
8441	-34.7	-13	21.7	V