

FCC ID: UZI-R505

Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 1 of 204

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H, PART 24 SUBPART E and PART 27 SUBPART C & SUBPART L

0F

	01 ⁻
Product Name:	LTE/HSPA+ VoIP Router
Brand Name:	BandLuxe
Model Name:	R505
Marketing Name:	LTE/HSPA+ VoIP Router
Model Difference:	N/A
FCC ID:	UZI-R505
Report No.:	EH/2011/50010
Issue Date:	Jun. 08, 2011
Prepared for:	BandRich Inc. 7F., No.188, Baoqiao Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)
Prepared by:	SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei County, Taiwan.

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FCC ID: UZI-R505

Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 2 of 204

VERIFICATION OF COMPLIANCE

	BandRich Inc.
Applicant:	7F., No.188, Baoqiao Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)
Product Name:	LTE/HSPA+ VoIP Router
FCC ID:	UZI-R505
Brand Name:	BandLuxe
Model Name:	R505
Marketing Name:	LTE/HSPA+ VoIP Router
Model Difference:	N/A
File Number:	UZI-R505 BandLuxe R505 ne: LTE/HSPA+ VoIP Router
Date of test:	May. 10, 2011 ~ Jun. 08, 2011
Date of EUT Received:	May. 10, 2011

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-C-2004 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rule FCC PART 22 subpart H, PART 24 subpart E and PART 27.

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

Test By:	Lion Wang	Date:	Jun. 08, 2011
Prepared By:	Lion Wang / Engineer Cherry Cherr	Date:	Jun. 08, 2011
Approved By:	Cherry Chen / Clerk	Date:	Jun. 08, 2011
	Jim Chang / Supervisor		

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Version

Version No.	Date	Description	
00	Jun. 08, 2011	Initial creation of document	

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 4 of 204

Table of Contents

1.	GEN	NERAL PRODUCT INFORMATION	6
	1.1.	Related Submittal(s) / Grant (s)	
	1.2.	Test Methodology	
	1.3.	Test Facility	
	1.4.	Special Accessories	
	1.5.	Equipment Modifications	
2.	SYS	TEM TEST CONFIGURATION	9
	2.1.	EUT Configuration	9
	2.2.	EUT Exercise	9
	2.3.	Test Procedure	9
	2.4.	Measurement Equipment Used:	
	2.5.	Configuration of Tested System	
3.	SUM	IMARY OF TEST RESULTS	
4.	DES	SCRIPTION OF TEST MODES	
5.	RF I	POWER OUTPUT MEASUREMENT	
	5.1.	Standard Applicable:	
	5.2.	Test Set-up:	
	5.3.	Measurement Procedure:	
	5.4.	Measurement Equipment Used:	
	5.5.	Measurement Result:	
6.	PEA	AK TO AVERAGE RATIO	
	6.1.	Standard Applicable:	
	6.2.	Test SET-UP (Block Diagram of Configuration):	
	6.3.	Measurement Procedure:	
	6.4.	Measurement Result:	
7.	ERP	P, EIRP MEASUREMENT	
	7.1.	Standard Applicable:	
	7.2.	Test SET-UP (Block Diagram of Configuration):	
	7.3.	Measurement Procedure:	
	7.4.	Measurement Equipment Used:	
	7.5.	Measurement Result:	
8.	99%	OCCUPIED BANDWIDTH MEASUREMENT	60
	8.1.	Standard Applicable:	
	8.2.	Test Set-up:	

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	8.3.	Measurement Procedure:	60
	8.4.	Measurement Equipment Used:	60
9.	OUT	OF BAND EMISSION AT ANTENNA TERMINALS	
	9.1.	Standard Applicable:	
	9.2.	Test SET-UP:	
	9.3.	Measurement Procedure:	
	9.4.	Measurement Equipment Used:	
	9.5.	Measurement Result:	
10.	FIEL	D STRENGTH OF SPURIOUS RADIATION MEASUREMENT	161
	10.1.	Standard Applicable:	
	10.2.	EUT Setup (Block Diagram of Configuration):	
	10.3.	Measurement Procedure:	
	10.4.	Measurement Equipment Used:	
	10.5.	Measurement Result:	
11.	FRE	QUENCY STABILITY V.S. TEMPERATURE MEASUREMENT	193
	11.1.	Standard Applicable:	
	11.2.	Test Set-up:	
	11.3.	Measurement Procedure:	
	11.4.	Measurement Equipment Used:	193
	11.5.	Measurement Result:	
12.	FRE	QUENCY STABILITY V.S. VOLTAGE MEASUREMENT	200
	12.1.	Standard Applicable:	
	12.2.	Test Set-up:	
	12.3.	Measurement Procedure:	
	12.4.	Measurement Equipment Used:	
	12.5.	Measurement Result:	

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 6 of 204

1. GENERAL PRODUCT INFORMATION

General:

Product Name:	LTE/HSPA+ VoIP Router			
Brand Name:	BandLuxe			
Model Name:	R505	R505		
Marketing Name:	LTE/HSPA-	LTE/HSPA+ VoIP Router		
Model Difference:	N/A			
Data Cable:	Model: N/A	Model: N/A, Supplier: N/A		
Dowor Supply	12 Vdc by AC/DC Power Supply			
Power Supply	Adaptor:	laptor: Model: SAG024F4, Supplier: CWT		

GSM, WCDMA and LTE:

	Operating Frequency	Rated Power		
	WCDMA/HSUPA/HSDPA /HSPA Band II 1852.4MHz – 1907.6MHz		23 dBm	
	WCDMA/HSUPA/HSDPA /HSPA Band IV	1712.4MHz - 1752.6MHz	23 dBm	
Cellular Phone Standards Frequency Range and	WCDMA/HSUPA/HSDPA /HSPA Band V	826.4MHz - 846.6MHz	23 dBm	
Power:	5MHz BW LTE-Band 4	1712.5MHz – 1752.5MHz	22.5 dBm	
	10MHz BW LTE-Band 4	1715MHz – 1750MHz	22.5 dBm	
	5MHz BW LTE-Band 17	706.5MHz - 713.5MHz	22.5 dBm	
	10MHz BW LTE-Band 17	709MHz – 711MHz	22.5 dBm	
Hardware Version:	V04			
Software Version:	N/A			
IMEI:	357817040000461			

This test report applies for WCDMA / HSDPA / HSUPA/HSPA Band II/V and LTE Band 4/17.

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 7 of 204

Test mode	DC voltage (V)	DC current (mA)
WCDMA B2	12 Vdc	450
WCDMA B4	12 Vdc	430
WCDMA B5	12 Vdc	460
HSUPA B2	12 Vdc	400
HSUPA B4	12 Vdc	480
HUSPA B5	12 Vdc	430
HSDPA B2	12 Vdc	390
HSDPA B4	12 Vdc	510
HUDPA B5	12 Vdc	450
LTE B17 10M QPSK	12 Vdc	470
LTE B17 10M 16QAM	12 Vdc	460
LTE B17 5M QPSK	12 Vdc	470
LTE B17 5M 16QAM	12 Vdc	460
LTE B4 10M QPSK	12 Vdc	490
LTE B4 10M 16QAM	12 Vdc	480
LTE B4 5M QPSK	12 Vdc	490
LTE B4 5M 16QAM	12Vdc	480

Final Amplifier Voltage and Current Information:

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1.1. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: UZI-R505 filing to comply with Section Part 22 subpart H, Part 24 subpart E and Part27 subpart C & subpart L of the FCC CFR 47 Rules.

1.2. Test Methodology

Both conducted and radiated testing were performed according to the procedures document of TIA/EIA 603C and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

The Output power Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, WCDMA / HSPA / LTE) was used for EUT and Base station setting.

1.3. Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003. FCC Registration Number are: 990257 and 236194, Canada Registration Number: 4620A-4

The 10 m Open Area Test Sites located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 29, Pau-Tou-Tsuo Valley Chia-Pau Tsuen, Linkou Hsiang, Taipei county, which is constructed and calibrated to meet the CISPR 22/EN 55022 requirements. SGS Site No. 1(3 &10 meters) and FCC Registration Number: 94644.

All equipment is calibrated externally and traceable to SI (International System of Unit).

1.4. Special Accessories

Not available for this EUT intended for grant.

1.5. Equipment Modifications

Not available for this EUT intended for grant.

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 9 of 204

2. SYSTEM TEST CONFIGURATION

2.1. EUT Configuration

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

2.2. EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency which was for the purpose of the measurements.

2.3. Test Procedure

2.3.1 AC Power Line Conducted Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4: 2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

2.3.2 Conducted Measurement at Antenna Port:

According to measurement procured TIA/EIA 603C, the EUT is placed on a turn table which is 0.8 m above ground plane. A low loss of RF cable was used to connect the antenna port of EUT to measurement equipment.

2.3.3 Radiated Emissions (ERP/EIRP):

The EUT is a placed on as turn table which is 80 cm above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both Horizontal and Vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna according to the requirements in Section 2 of TIA/EIA 603C.

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2.4. Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2010	04/18/2012
Spectrum Analyzer	Agilent	E4440A	US41160416	01/23/2010	01/22/2012
Radio Communication Analyzer	R&S	CMU200	102189	05/13/2010	05/13/2012
800 – 1000MHz Filter	Micro-Tronics	BRM13462	001	01/05/2011	01/04/2012
1800 – 2000MHz Filter	Micro-Tronics	BRM13463	001	01/05/2011	01/04/2012
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2010	04/13/2012
Temperature Chamber	GIANT FORCE	GTH-150-40- CP-AR	MAA0512-018	02/05/2010	02/04/2012
DC Block	Agilent	BLK-18	155452	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S20W5	N/A	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2010	07/04/2011
Splitter	Agilent	11636B	N/A	07/05/2010	07/04/2011
DC Power Supply	HP	6038A	2929A-07548	06/27/2010	06/26/2011
DC Power Supply	Topward	3303D	981327	10/26/2010	10/25/2011
Power Meter	Anritsu	ML2495A	1005007	02/17/2010	02/16/2012
Power Sensor	Anritsu	MA2411B	917032	01/21/2010	01/20/2012

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FCC ID: UZI-R505

Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 11 of 204

ERP, EIRP MEASUREMENT EQUIPMENT List 966 Chamber					
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
ТҮРЕ		NUMBER	NUMBER	CAL.	
Spectrum Analyzer	R&S	FSP 40	100034	02/12/2010	02/11/2012
Bilog Antenna	SCHWAZBECK	VULB9160	9160-3136	11/15/2010	11/14/2011
Dipole Antenna	SCHWAZBECK	VHAP	908/909	07/10/2010	07/09/2012
Dipole Antenna	SCHWAZBECK	UHAP	891/892	07/10/2010	07/09/2012
Horn antenna	SCHWAZBECK	BBHA 9120D	309/320	01/22/2010	01/21/2012
Horn antenna	SCHWAZBECK	BBHA 9120D	9120D-673	05/09/2010	05/08/2012
Signal Generator	R&S	SMR40	100210	01/22/2010	01/21/2012
Signal Generator	Agilent	E4438C	MY45093613	06/11/2011	06/10/2012
Pre-Amplifier	Agilent	8447D	1937A02834	11/30/2010	11/29/2011
Pre-Amplifier	Agilent	8449B	3008A01973	01/05/2011	01/04/2012
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2010	07/04/2011
Radio Communication Analyzer	R&S	CMU200	102189	05/13/2010	05/12/2012
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	01/05/2011	01/04/2012
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2011	01/04/2012
Filter 800-1000	Micro-Tronics	BRM13462	1	01/05/2011	01/04/2012
Filter 1800-2000	Micro-Tronics	BRM13463	1	01/05/2011	01/04/2012
3m Site	SGS	966 chamber	N/A	11/08/2010	11/09/2011

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2.5. Configuration of Tested System

Fig. 2-1 Configuration of Tested System (Fixed Channel)

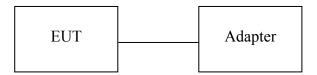


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	N/A	CWT	SAG024F4	N/A	Un-shielded	Un-shielded

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3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
\$2.1046(a) \$22.913(a)(2) \$24.232(c) \$27.50(c)(10) \$27.50(d)(4)	RF Power Output	Compliant
\$2.1046(a) \$22.913(a)(2) \$24.232(c) \$27.50(c)(10) \$27.50(d)(4)	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% Occupied Bandwidth	Compliant
\$2.1051 \$22.917(a) \$24.238(a) \$27.53(g)	Out of Band Emissions at Antenna Terminals and Band Edge	Compliant
\$2.1053 \$22.917(a) \$24.238(a) \$27.53(c)(2) \$27.53(g) \$27.53(h)	Field Strength of Spurious Radiation	Compliant
§27.50(i)	Peak to Average Ratio	Compliant
§27.53f	Spurious emission in 1559 -1610MHz Band	N/A
\$2.1055(a)(1) \$22.355 \$24.235 \$27.54	Frequency Stability vs. Temperature	Compliant
\$2.1055(d)(2) \$22.355 \$24.235 \$27.54	Frequency Stability vs. Voltage	Compliant

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FCC ID: UZI-R505

Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 14 of 204

	dBm		W
WCDMA Band II	18.24	EIRP	0.067
WCDMA Band IV	19.57	EIRP	0.091
WCDMA Band V	19.29	ERP	0.085
HSDPA Band II	21.94	EIRP	0.156
HSDPA Band IV	23.87	EIRP	0.244
HSDPA Band V	21.02	ERP	0.126
HSUPA Band II	21.79	EIRP	0.151
HSUPA Band IV	20.52	EIRP	0.113
HSUPA Band V	20.38	ERP	0.109
LTE Band 4/5MHz /QPSK RB 1 Offset 24	23.30	EIRP	0.214
LTE Band 4/5MMz /16QAM RB 1 Offset 24	23.34	EIRP	0.216
LTE Band 4/5MHz /QPSK RB 1 Offset 0	23.24	EIRP	0.211
LTE Band 4/5MHz /16QAM RB 1 Offset 0	23.17	EIRP	0.207
LTE Band 4/5MHz /QPSK RB 12 Offset 6	22.25	EIRP	0.168
LTE Band 4/5MHz /16QAM RB 12 Offset 6	23.03	EIRP	0.201
LTE Band 4/5MHz /QPSK RB 25 Offset 0	20.93	EIRP	0.124
LTE Band 4/5MHz /16QAM RB 25 Offset 0	21.41	EIRP	0.138
LTE Band 4/10MHz /QPSK RB 1 Offset 49	21.92	EIRP	0.156
LTE Band 4/10MHz /16QAM RB 1 Offset 49	23.22	EIRP	0.210
LTE Band 4/10MHz /QPSK RB 1 Offset 0	22.41	EIRP	0.174
LTE Band 4/10MHz /16QAM RB 1 Offset 0	23.73	EIRP	0.236
LTE Band 4/10MHz /QPSK RB 25 Offset 12	20.63	EIRP	0.116
LTE Band 4/10MHz /16QAM RB 25 Offset	21.67	EIRP	0.147
LTE Band 4/10MHz /QPSK RB 50 Offset 0	19.75	EIRP	0.094
LTE Band 4/10MHz /16QAM RB 50 Offset 0	20.33	EIRP	0.108

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 15 of 204

LTE Band 17/5MHz /16QAM RB 1 Offset	20.52	ERP	0.113
LTE Band 17/5MHz /QPSK RB 1 Offset 0	17.26	ERP	0.053
LTE Band 17/5MHz /16QAM RB 1 Offset 0	19.04	ERP	0.080
LTE Band 17/5MHz /QPSK RB 12 Offset 6	17.69	ERP	0.059
LTE Band 17/5MHz /16QAM RB 12 Offset	19.10	ERP	0.081
LTE Band 17/5MHz /QPSK RB 25 Offset 0	14.81	ERP	0.030
LTE Band 17/5MHz /16QAM RB 25 Offset	13.93	ERP	0.025
LTE Band 17/10MHz /QPSK RB 1 Offset 49	14.93	ERP	0.031
LTE Band 17/10MHz /16QAM RB 1 Offset	16.60	ERP	0.046
LTE Band 17/10MHz /QPSK RB 1 Offset 0	14.93	ERP	0.031
LTE Band 17/10MHz /16QAM RB 1 Offset	16.99	ERP	0.050
LTE Band 17/10MHz /QPSK RB 25 Offset	15.40	ERP	0.035
LTE Band 17/10MHz /16QAM RB 25 Offset	16.55	ERP	0.045
LTE Band 17/10MHz /QPSK RB 50 Offset 0	11.01	ERP	0.013
LTE Band 17/10MHz /16QAM RB 50 Offset	12.95	ERP	0.020

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 16 of 204

4. DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

EUT staying in continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing.

The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for GPRS/EDGE, WCDMD/HSDPA/HSUPA Band II/V and LTE Band 4/17 with power adaptor. The worst-case of E2 position for all testing mode were reported.

In comparison among the RSE data of the all modulations (GPRS/EDGE/WCDMA/HSPA) we found that while the radiation is in GPRS mode, the spurious emission is found to be the worst, and therefore documenting the data of radiated spurious emission on GPRS 850/1900 mode would be representative sufficiently.

The RSE Data for all combinations have been measured, and only the results being measured close to the required limit are shown on the report by correlation.

In comparison among all CSE data of the variety of combination on LTE band 4 & 17, respectively, It's found to generate the highest emission at 5MHz, 10 MHz and 20 MHz Transmission Bandwidth while RB size = 1 with 0 offset. Be aware of that only CSE data that yields the worst measurement with supported modulation scheme (QPSK, 16QAM) are shown on the corresponding section.

For Peak to Average Ratio test, all combination (RB arrangement with different modulation scheme) has been evaluated, the data with the following setting: RB number = 25; Offset = 0 for 5MHz with 16QAM, RB number = 50; Offset = 0 for 10MHz with 16QAM and RB number = 100; Offset = 0 for 20MHz are shown as representative plot on the report.

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For Band edge, all combinations has been assessed and measured, only data output the emission close to limit are presented on the corresponding section of this report. The following lists the combinational setting of measurement representation as documents on the report.

Band 4					
QPSK					
	Low Channel High Channel				
5MHz	RB Size = 1; Offset = 0	RB Size = 1; Offset = 24			
10MHz	RB Size = 1; Offset = 0	RB Size = 1; Offset = 49			

Band 4					
16QAM					
	Low Channel High Channel				
5MHz	RB Size = 1; Offset = 0	RB Size = 1; Offset = 24			
10MHz	RB Size = 1; Offset = 0	RB Size = 1; Offset = 49			

Band 17					
QPSK					
	Low Channel High Channel				
5MHz	RB Size = 1; Offset = 0	RB Size = 1; Offset = 24			
10MHz	RB Size = 1 ; Offset = 0	RB Size = 1; Offset = 49			

Band 17					
16QAM					
	Low Channel High Channel				
5MHz	RB Size = 1; Offset = 0	RB Size = 1; Offset = 24			
10MHz	RB Size = 1 ; Offset = 0	RB Size = 1 ; Offset = 49			

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 18 of 204

5. RF POWER OUTPUT MEASUREMENT

5.1. Standard Applicable:

According to FCC §2.1046.

FCC 22.913(a) Mobile station are limited to 7W.

FCC 24.232(c) Peak Power Measurement limited to 2W

Part 27, 50(c)(10) Portable stations are limited to 3W

Part 27, 50(d)(4) Portable stations are limited to 1W

3GPP Power limitation for HSDPA and HSUPA

Maximum Output Powers for HSDPA

Sub-test in ta-	Power Class 3		Power Class 4	
ble C.10.1.4	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)
1	+24	+1.7/-3.7	+21	+2.7/-2.7
2	+24	+1.7/-3.7	+21	+2.7/-2.7
3	+23.5	+2.2/-3.7	+20.5	+3.2/-2.7
4	+23.5	+2.2/-3.7	+20.5	+3.2/-2.7

Maximum Output Powers for HSUPA

Sub-test in table	Power (Power Class 3		Class 4
C.11.1.3	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)
1	+24	+1.7/-6.7	+21	+2.7/-5.7
2	+22	+3.7/-5.2	+19	+4.7/-4.2
3	+23	+2.7/-5.2	+20	+3.7/-4.2
4	+22	+3.7/-5.2	+19	+4.7/-4.2
5	+24	+1.7/-6.7	+21	+2.7/-5.7

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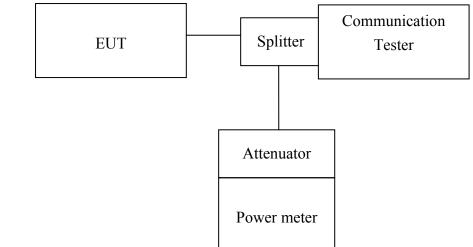
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5.2. Test Set-up:



Note: Measurement setup for testing on Antenna connector

5.3. Measurement Procedure:

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading. The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, WCDMA/HSPA/LTE) was used for EUT and Base station setting. RMC 12.2kps is used for this testing

5.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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5.5. Measurement Result: 5.5.1. RF Conducted Output Power 5.5.1.1.: GPRS mode **Results: N/A**

5.5.1.2.: WCDMA mode

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 V8.4.0 specification. The EUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7). RMC 12.2kps is used for this testing.

Results:

EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Avg Power (dBm)
	1852.4	9262	26.01	22.55
WCDMA Band II	1880.0	9400	26.69	23.07
Duriu II	1907.6	9538	26.06	22.64

EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Avg Power (dBm)
	1712.4	1312	27.12	23.46
WCDMA Band IV	1732.6	1413	27.02	23.25
	1752.6	1513	27.48	23.78

EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Avg Power (dBm)
WCDMA Band V	826.40	4132	26.06	22.60
	836.60	4183	26.26	22.75
	846.60	4233	25.77	23.02

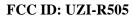
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EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Avg Power (dBm)
HSDPA Band II	1852.40	9262	26.04	22.31
	1880.00	9400	26.18	22.71
Duild II	1907.60	9538	26.05	22.22

EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Avg Power (dBm)
HSDPA Band IV	1712.4	1312	26.95	23.36
	1732.6	1413	26.75	23.10
	1752.6	1513	27.17	23.66

EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Avg Power (dBm)
HSDPA Band V	826.40	4132	26.11	22.44
	836.60	4183	26.19	22.50
	846.60	4233	25.85	22.14

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EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Avg Power (dBm)
HSUPA Band II	1852.40	9262	26.14	22.41
	1880.00	9400	26.38	22.75
Duila II	1907.60	9538	26.15	22.32

EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Avg Power (dBm)
HSUPA Band IV	1712.4	1312	26.99	23.40
	1732.6	1413	26.85	23.20
Duild I V	1752.6	1513	27.28	23.76

EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Avg Power (dBm)
HSUPA Band V	826.40	4132	26.15	22.52
	836.60	4183	26.28	22.55
	846.60	4233	25.99	22.20

B2&B4 offset : 1.2 dB B5 offset: 0.8dB

Note: The results above reflect max power with all up bits.

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 23 of 204

5.5.1.3.: MPR Table

LTE Band 4 _5 MHz

BW			Frequency	RB Size	RB	Conducted	Target	MPR Tar-
(MHz)	Modulation	Channel	(MHz)	KB Size	Offset	power(dBm)	Power(dBm)	get(dB)
				1	24	22.59	22.5	0
		10075	1710.5	1	0	22.46	22.5	0
		19975	1712.5	12	6	21.66	22.5	0.5
				25	0	21.78	22.5	0.5
				1	24	22.62	22.5	0
-	ODOV	20175	1722.5	1	0	22.41	22.5	0
5	QPSK	20175	1732.5	12	6	21.62	22.5	0.5
				25	0	21.67	22.5	0.5
		20375	1752.5	1	24	23.02	22.5	0
				1	0	22.31	22.5	0
				12	6	21.7	22.5	0.5
				25	0	21.71	22.5	0.5
		19975	1712.5	1	24	22.62	22.5	0
				1	0	22.39	22.5	0
				12	6	20.75	22.5	0.5
				25	0	21.47	22.5	0.5
				1	24	22.71	22.5	0
5	160414	20175	1722.5	1	0	22.5	22.5	0
5	16 QAM	20175	1732.5	12	6	20.74	22.5	0.5
				25	0	21.36	22.5	0.5
				1	24	23.15	22.5	0
		20275	1750 E	1	0	22.41	22.5	0
		20375	1752.5	12	6	20.74	22.5	0.5
				25	0	21.45	22.5	0.5

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 24 of 204

LTE Band 4 _10 MHz

BW		<u>Classical</u>	Frequency	RB Size	RB	Conducted	Target	MPR
(MHz)	Modulation	Channel	(MHz)	KB Size	Offset	power(dBm)	Power(dBm)	Target(dB)
				1	49	23.24	22.5	0
		2000	1715	1	0	22.76	22.5	0
		2000	1715	25	12	21.66	22.5	0.5
				50	0	21.39	22.5	0.5
				1	49	23.14	22.5	0
10	ODOV	20175	1722 5	1	0	22.78	22.5	0
10	QPSK	20175	1732.5	25	12	21.81	22.5	0.5
				50	0	21.75	22.5	0.5
		20350	1750	1	49	22.83	22.5	0
				1	0	22.86	22.5	0
				25	12	21.75	22.5	0.5
				50	0	21.73	22.5	0.5
		2000	1015	1	49	22.43	22.5	0.5
				1	0	22.87	22.5	0.5
		2000	1715	25	12	21.03	22.5	1
				50	0	20.61	22.5	1
				1	49	22.34	22.5	0.5
10	16.04M	20175	1722.5	1	0	22.88	22.5	0.5
10	16 QAM	20175	1732.5	25	12	21.31	22.5	1
				50	0	20.95	22.5	1
				1	49	22.62	22.5	0.5
		20250	1750	1	0	22.59	22.5	0.5
		20350	1750	25	12	21.46	22.5	1
				50	0	20.79	22.5	1

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 25 of 204

LTE Band 17 _5 MHz

BW	Modulation	Channal	Frequency	RB Size	RB	Conducted	Target	MPR
(MHz)	wooulation	Channel	(MHz)	KD SIZE	Offset	power(dBm)	Power(dBm)	Target(dB)
				1	24	22.25	22.5	0
		00755		1	0	21.83	22.5	0
		23755	706.5	12	6	21.61	22.5	0.5
				25	0	22.06	22.5	0.5
				1	24	21.58	22.5	0
-	ODGV	22700	710	1	0	21.99	22.5	0
5	QPSK	23790	710	12	6	22.51	22.5	0.5
				25	0	22.06	22.5	0.5
		23825	713.5	1	24	21.44	22.5	0
				1	0	22.06	22.5	0
				12	6	20.31	22.5	0.5
				25	0	20.24	22.5	0.5
		23755	706.5	1	24	22.76	22.5	0.5
				1	0	22.56	22.5	0.5
				12	6	21.8	22.5	1
				25	0	22.19	22.5	1
				1	24	22.31	22.5	0.5
5	160414	22700	710	1	0	22.15	22.5	0.5
5	16 QAM	23790	710	12	6	21.89	22.5	1
				25	0	22.11	22.5	1
				1	24	21.91	22.5	0.5
		23825	712.5	1	0	22.25	22.5	0.5
			713.5	12	6	20.28	22.5	1
				25	0	20.46	22.5	1

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 26 of 204

LTE Band 17 10 MHz

BW		<u>C</u> 1 1	Frequency		RB	Conducted	Target	MPR
(MHz)	Modulation	Channel	(MHz)	RB Size	Offset	power(dBm)	Power(dBm)	Target(dB)
				1	49	21.45	22.5	0
		22700	700	1	0	21.85	22.5	0
		23780	709	25	12	22.08	22.5	0.5
				50	0	21.57	22.5	0.5
				1	49	21.47	22.5	0
10	ODCK	22700	710	1	0	21.76	22.5	0
10	QPSK	23790	710	25	12	21.96	22.5	0.5
				50	0	20.93	22.5	0.5
		23800	711	1	49	21.45	22.5	0
				1	0	21.6	22.5	0
				25	12	21.47	22.5	0.5
				50	0	21.58	22.5	0.5
		23780	709	1	49	21.67	22.5	0.5
				1	0	22.33	22.5	0.5
				25	12	22.22	22.5	1
				50	0	21.72	22.5	1
				1	49	21.74	22.5	0.5
10	160414	22700	710	1	0	22.24	22.5	0.5
10	16 QAM	23790	710	25	12	22.14	22.5	1
				50	0	21.25	22.5	1
				1	49	21.72	22.5	0.5
			711	1	0	22.08	22.5	0.5
		23800	711	25	12	21.77	22.5	1
				50	0	21.35	22.5	1

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5.5.1.4.:HSDPA Release 6 mode

The following 4 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX RMS power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C10.1.4 & C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing

HSDPA SUB-TEST Setting

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH(FOR HSDPA)

Sub-test	βc	β_d	β _d (SF)	β_c/β_d	β _{HS} (Note1, Note 2)	CM (dB) (<i>Note 3</i>)	MPR (dB) (Note 3)	RMC (Kbps)
1	2/15	15/15	64	2/15	4/15	0.0	0.0	12.2
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0	12.2
3	15/15	8/15	64	15/8	30/15	1.5	0.5	12.2
4	15/15	4/15	64	15/4	30/15	1.5	0.5	12.2

Note: The recommended HSDPA MPRs are implemented as per following sub-tests.

Results:

Mode	Sub-test	RMS	Power (d Channel	Bm)	Power Class 3 Limita-	Comments	
		9262	9400	9538	tion (dBm)		
	1	23.17	23.35	23.62	20.3dBm – 25.7dBm	Pass	
HSDPA	2	23.34	23.11	23.63	20.3dBm - 25.7dBm	Pass	
B2	3	22.69	22.90	23.09	19.8dBm – 25.7dBm	Pass	
	4	22.76	22.91	23.21	19.8dBm – 25.7dBm	Pass	

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 28 of 204

Mode	Sub-test	RMS	Power (d Channel	Bm)	Power Class 3 Limita- tion (dBm)	Comments	
		1312	1413	1513			
	1	23.17	23.35	23.62	20.3dBm – 25.7dBm	Pass	
HSDPA	2	23.34	23.11	23.63	20.3dBm – 25.7dBm	Pass	
B4	3	22.69	22.90	23.09	19.8dBm – 25.7dBm	Pass	
	4	22.76	22.91	23.21	19.8dBm – 25.7dBm	Pass	

Mode	Sub-test	RMS	Power (d Channel	Bm)	Power Class 3 Limita- tion (dBm)	Comments	
		4132	4172	4233			
	1	22.39	22.61	22.44	20.3dBm – 25.7dBm	Pass	
HSDPA	2	22.53	22.64	22.19	20.3dBm – 25.7dBm	Pass	
B5	3	21.93	22.13	21.95	19.8dBm – 25.7dBm	Pass	
	4	21.98	22.17	22.01	19.8dBm – 25.7dBm	Pass	

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 29 of 204

5.5.1.5.: HSPA (HSDPA & HSUPA) Release 6 mode

The following 5 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX RMS power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing

HSPA SUB-TEST Setting

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH(FOR HSUPA)

Sub- test	β _c	β _d	β _d (SF)	β_c/β_d	$\beta_{\rm HS}$	β _{ec}	β_{ed}	β _{ed} (SF)	$\begin{array}{c} \beta_{ed} \\ (Codes) \end{array}$	CM (dB)	MPR (dB)	AG Index	E-TFCI	RMC (Kbps)
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75	12.2
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67	12.2
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed} 1: 47/15 β_{ed} 2: 47/15	4 4	2	2.0	1.0	15	92	12.2
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71	12.2
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81	12.2

Note: The recommended HSUPA MPRs are implemented as per following sub-tests.

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14

Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 30 of 204

Results:	1				a		
Mode	Sub-test	RMS	S Power (d Channel	Bm)	Power Class 3 Limita-	Comments	
		9262	9400	9538	tion (dBm)		
	1	22.47	23.05	22.58	17.3dBm – 25.7dBm	Pass	
	2	20.52	21.12	20.62	16.8dBm – 25.7dBm	Pass	
HSUPA	3	21.53	22.07	21.66	17.8dBm – 25.7dBm	Pass	
B2	4	20.65	21.17	20.66	16.8dBm – 25.7dBm	Pass	
	5	22.36	22.91	22.49	17.3dBm – 25.7dBm	Pass	

Mode	Sub-test	RMS	Power (d Channel	Bm)	Power Class 3 Limita- tion (dBm)	Comments
		1312	1413	1513	uon (adm)	
	1	22.47	23.05	22.58	17.3dBm – 25.7dBm	Pass
	2	20.52	21.12	20.62	16.8dBm – 25.7dBm	Pass
HSUPA	3	21.53	22.07	21.66	17.8dBm – 25.7dBm	Pass
B4	4	20.65	21.17	20.66	16.8dBm – 25.7dBm	Pass
	5	22.36	22.91	22.49	17.3dBm – 25.7dBm	Pass

Mode	Sub-test	RMS Power (dBm) Channel 4132 4172 4233		Power Class 3 Limita- tion (dBm)	Comments	
	1	23.38	23.23	23.72	17.3dBm – 25.7dBm	Pass
	2	21.43	21.30	21.76	16.8dBm – 25.7dBm	Pass
HSUPA	3	22.44	22.25	22.80	17.8dBm – 25.7dBm	Pass
B5	4	21.56	21.35	21.80	16.8dBm – 25.7dBm	Pass
	5	23.27	23.09	23.63	17.3dBm – 25.7dBm	Pass

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 31 of 204

6. PEAK TO AVERAGE RATIO

6.1. Standard Applicable:

FCC 27.50(i)

Peak transmit power shall be measured over any interval of continuous transmission using instrumentation calibrated in terms of rms-equivalent voltage.

The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

To measure transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission shall not exceed 13 dB

6.2. Test SET-UP (Block Diagram of Configuration):

Refer to section 2.4 in this report

6.3. Measurement Procedure:

Set resolution/measurement bandwidth \geq signal's occupied bandwidth; Set the number of counts to a value that stabilizes the measured CCDF curve;

6.4. Measurement Result:

Refer to next page for plot.

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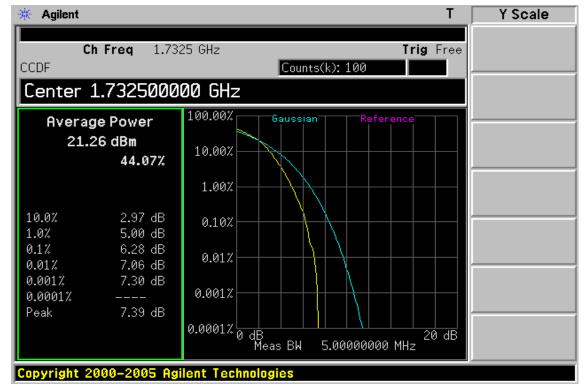


Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 32 of 204





Figure 6-2: 5MHz BW LTE-Band 4(16QAM Number: 25 Offset: 0) Channel Mid



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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 33 of 204



🔆 Agilent			Т	Freq/Channel
Ch CCDF Center 1.	-	Counts(k): 100	rig Free	Center Freq 1.75250000 GHz Start Freq
Average 21.17	Power	100.00% Gaussian Reference 10.00%	;e	1.75250000 GHz Stop Freq 1.75250000 GHz
10.0% 1.0%	2.98 dB 4.91 dB	1.00% 0.10%		CF Step 5.00000000 MHz <u>Auto</u> Man Freq Offset
0.1% 0.01% 0.001% 0.0001% Peak	6.05 dB 6.72 dB 6.90 dB 7.31 dB	0.01%		0.00000000 Hz Signal Track On <u>Off</u>
		0.0001% 0 dB Meas BW 5.00000000 MH lent Technologies	20 dB Iz	

Figure 6-4: 10MHz BW LTE-Band 4(16QAM Number: 50 Offset: 0) Channel Low



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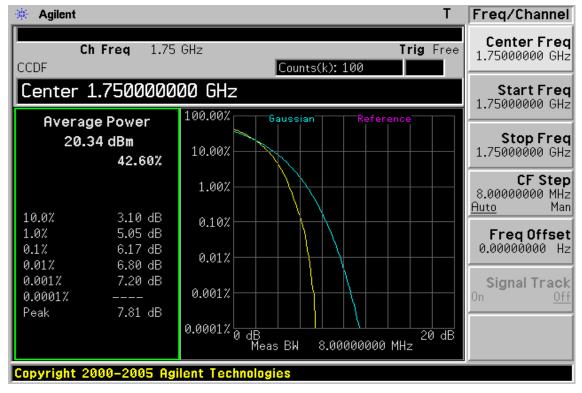


Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 34 of 204





Figure 6-6: 10MHz BW LTE-Band 4(16QAM Number: 50 Offset: 0) Channel High



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Figure 6-7: 5MHz BW LTE-Band 17(16QAM Number: 25 Offset: 0) Channel Low



Figure 6-8: 5MHz BW LTE-Band 17(16QAM Number: 25 Offset: 0) Channel Mid



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🔆 Agilent	Т	Measure
Ch Freq 713. CCDF	5 MHz Trig Fre Counts(k): 100	Meas Off
	400.00%	Channel Power
Average Power 20.71 dBm 43.37%	100.00% Gaussian Reference 10.00%	Occupied BW
	1.00%	ACP
10.0% 2.99 dB 1.0% 5.25 dB	0.102	Multi Carrier
0.1% 6.64 dB 0.01% 7.70 dB 0.001% 8.20 dB	0.01%	Power Power Stat
0.0001% Peak 8.81 dB	0.001%	CCDF
	0.0001% dB 20 dl Meas BW 5.00000000 MHz	B More 1 of 2
Copyright 2000-2005 Ag	ilent Technologies	

Figure 6-10: 10MHz BW LTE-Band 17(16QAM Number: 50 Offset: 0) Channel Low



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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 37 of 204



Figure 6-11: 10MHz BW LTE-Band 17(16QAM Number: 50 Offset: 0) Channel Mid

Figure 6-12: 10MHz BW LTE-Band 17(16QAM Number: 50 Offset: 0) Channel High



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7. ERP, EIRP MEASUREMENT

7.1. Standard Applicable:

According to FCC §2.1046

FCC 22.913(a) Mobile station are limited to 7W ERP.

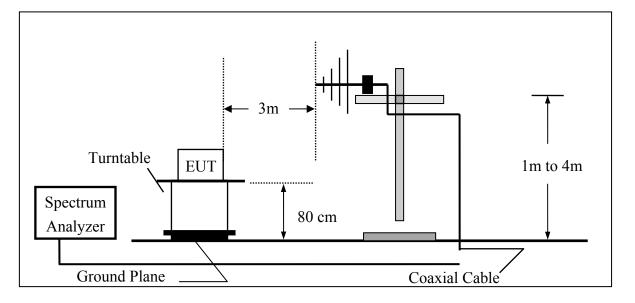
FCC 24.232(b) Mobile station are limited to 2W EIRP.

FCC 27.50(d)(2) Fixed, mobile, and portable (hand-held) stations are limited to 1W EIRP.

FCC 27.50(c)(10) Portable station are limited to 3W ERP.

7.2. Test SET-UP (Block Diagram of Configuration):

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



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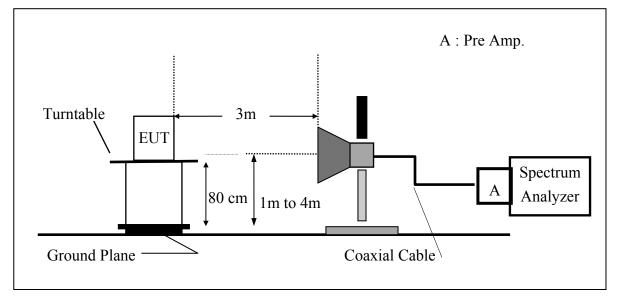
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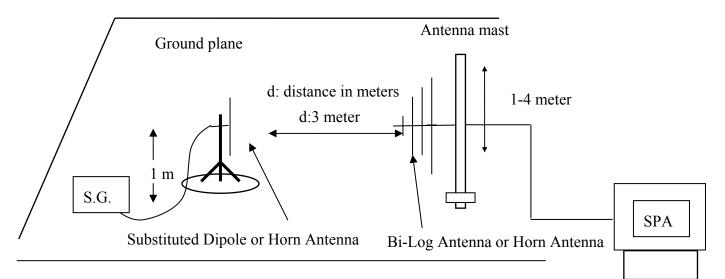


Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 39 of 204



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz

(C) Substituted Method Test Set-UP



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7.3. Measurement Procedure:

The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 704 - 716MHz, 824.2 - 848.80MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follows:

EIRP in frequency band 1710-1755MHz and 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by a horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:

ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable Loss (dB)

EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable Loss (dB)

7.4. Measurement Equipment Used:

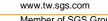
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 41 of 204

7.5. Measurement Result:

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1852.40	9262	E2	V	109.94	5.56	9.90	5.56	9.89	33.00
	1852.40	9202	E2	Н	117.25	13.07	9.90	5.84	17.13	33.00
WCDMA II	1880.00	9400	E2	V	111.40	7.04	9.99	5.61	11.42	33.00
WCDMA II	1880.00	9400	E2	Н	118.01	13.87	9.99	5.61	18.24	33.00
	1907.60	9538	E2	V	111.94	7.61	10.07	5.66	12.02	33.00
	1907.00	7538	EZ	Н	117.92	13.81	10.07	5.66	18.22	33.00

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1712.40	1312	E2	V	110.79	3.77	9.48	5.17	8.09	33.00
	1/12.40	1312	Ľ2	Н	121.92	14.95	9.90	5.84	19.01	33.00
WCDMA	1732.60	1413	E2	V	112.41	5.40	9.54	5.20	9.74	33.00
IV	1752.00	1413	E2	Н	120.67	13.71	9.54	5.20	18.05	33.00
	1752.60	1513	E2	V	113.88	6.88	9.60	5.24	11.25	33.00
	1752.00	1313	12	Н	122.15	15.20	9.60	5.24	19.57	33.00

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
	826.40	4132	E2	V	113.14	26.78	-10.02	3.63	13.13	38.45
	820.40	4152	E2	Н	119.19	32.93	-10.02	3.63	19.29	38.45
WCDMA V	836.60	4183	E2	V	112.60	26.34	-10.02	3.65	12.67	38.45
WCDMA V	850.00	4105	E2	Н	118.86	32.63	-10.02	3.65	18.96	38.45
	846.60 4233	1733	E2	V	111.94	25.79	-10.02	3.67	12.10	38.45
	040.00	4233		Н	118.12	31.92	-10.02	3.67	18.23	38.45

Remark :

(1) The RBW, VBW of SPA for frequency

RBW= 5MHz, VBW= 8MHz

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EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1852.40	9262	E2	V	114.23	9.85	9.90	5.56	14.18	33.00
	1652.40	9202	Ľ2	Н	121.74	17.56	9.90	5.84	21.62	33.00
HSDPA II	1880.00	9400	E2	V	115.31	10.95	9.99	5.61	15.33	33.00
115DFA II	1880.00	9400	E2	Н	121.71	17.57	9.99	5.61	21.94	33.00
	1907.60	9538	E2	V	115.20	10.87	10.07	5.66	15.28	33.00
	1907.00	9558		Н	120.70	16.59	10.07	5.66	21.00	33.00

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1712.40	1312	E2	V	117.27	10.25	9.48	5.17	14.57	33.00
	1/12.40	1312	L2	Н	126.78	19.81	9.90	5.84	23.87	33.00
HSDPA IV	1732.60	1413	E2	V	117.52	10.51	9.54	5.20	14.85	33.00
IISDFATV	1752.00	1413	E2	Н	125.55	18.59	9.54	5.20	22.93	33.00
	1752.60	1513	E2	V	118.01	11.01	9.60	5.24	15.38	33.00
	1/32.00	1515		Н	125.01	18.06	9.60	5.24	22.43	33.00

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
	826.40	4132	E2	V	115.37	29.01	-10.02	3.63	15.36	38.45
	820.40	4132	Ľ2	Н	120.92	34.66	-10.02	3.63	21.02	38.45
HSDPA V	836.60	4183	E2	V	114.30	28.04	-10.02	3.65	14.37	38.45
IISDFA V	830.00	4105	Ľ2	Н	120.54	34.31	-10.02	3.65	20.64	38.45
	846.60	4233	E2	V	114.21	28.06	-10.02	3.67	14.37	38.45
	840.00	4233	Ľ2	Н	120.20	34.00	-10.02	3.67	20.31	38.45

Remark :

(1)The RBW, VBW of SPA for frequency

RBW = 5MHz, VBW = 8MHz

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 43 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1852.40	9262	E2	V	115.44	11.06	9.90	5.56	15.39	33.00
	1852.40	9202	E2	Н	121.39	17.21	9.90	5.84	21.27	33.00
HSUPA II	1880.00	9400	E2	V	116.04	11.68	9.99	5.61	16.06	33.00
IISUFAII	1880.00	9400	E2	Н	121.30	17.16	9.99	5.61	21.53	33.00
	1907.60	9538	E2	V	117.02	12.69	10.07	5.66	17.10	33.00
	1907.00	9558		Н	121.49	17.38	10.07	5.66	21.79	33.00

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1712.40	1312	E2	V	115.66	8.64	9.48	5.17	12.96	33.00
	1/12.40	1312	L2	Н	123.43	16.46	9.90	5.84	20.52	33.00
HSUPA IV	1732.60	1413	E2	V	114.97	7.96	9.54	5.20	12.30	33.00
IISUFAIV	1752.00	1413	E2	Н	122.86	15.90	9.54	5.20	20.24	33.00
	1752.60	1513	E2	V	115.33	8.33	9.60	5.24	12.70	33.00
	1732.00	1515		Н	122.67	15.72	9.60	5.24	20.09	33.00

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
	826.40	4132	E2	V	114.01	27.65	-10.02	3.63	14.00	38.45
	820.40	4132	Ľ2	Н	120.28	34.02	-10.02	3.63	20.38	38.45
HSUPA V	836.60	4183	E2	V	113.57	27.31	-10.02	3.65	13.64	38.45
IISUFA V	830.00	4105	Ľ2	Н	119.96	33.73	-10.02	3.65	20.06	38.45
	846.60 4233	E2	V	113.25	27.10	-10.02	3.67	13.41	38.45	
	040.00	4233		Н	119.44	33.24	-10.02	3.67	19.55	38.45

Remark :

(1)The RBW, VBW of SPA for frequency

RBW= 5MHz, VBW= 8MHz

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 44 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1710 5	10075	E2	V	113.82	9.30	9.48	5.33	13.45	30.00
5MHz BW	1712.5	19975	ĽZ	Н	123.99	19.66	9.48	5.84	23.30	30.00
LTE-Band 4			E2	V	113.78	9.28	9.54	5.37	13.45	30.00
(QPSK RB	1732.5	20175	ΕZ	Н	122.69	18.38	9.54	5.37	22.56	30.00
1 Offset 24)	,		E2	V	113.91	9.43	9.60	5.40	13.63	30.00
	1752.5 2	20375	EZ	Н	121.23	16.94	9.60	5.40	21.15	30.00

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1510 5	10075	E2	V	114.59	10.07	9.48	5.33	14.22	30.00
5MHz BW	1712.5	19975	E2	Н	124.03	19.70	9.48	5.84	23.34	30.00
LTE-Band 4			E2	V	113.85	9.35	9.54	5.37	13.52	30.00
(16QAM RB 1 Offset	1732.5	20175	E2	Н	122.80	18.49	9.54	5.37	22.67	30.00
24))		E2	V	114.61	10.13	9.60	5.40	14.33	30.00	
	1752.5	20375	E2	Н	122.16	17.87	9.60	5.40	22.08	30.00

Remark :

(1)The RBW, VBW of SPA for frequency

RBW=5MHz, VBW=8MHz

Detector = Peak

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 45 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1510 5	10075	E2	V	113.77	9.25	9.48	5.33	13.40	30.00
5MHz BW	1712.5	19975	ĽŹ	Н	123.93	19.60	9.48	5.84	23.24	30.00
LTE-Band 4			БЭ	V	113.99	9.49	9.54	5.37	13.66	30.00
(QPSK RB	1732.5	20175	E2	Н	122.82	18.51	9.54	5.37	22.69	30.00
1 Offset 0)	1 7 7 0 7		БЭ	V	113.85	9.37	9.60	5.40	13.57	30.00
)	1752.5	20375	E2	Н	121.78	17.49	9.60	5.40	21.70	30.00

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
5MHz BW	1510 5	10075	E2	V	114.59	10.07	9.48	5.33	14.22	30.00
LTE-Band 4	1712.5	19975	ĽΖ	Н	123.86	19.53	9.48	5.84	23.17	30.00
(16QAM			E2	V	114.39	9.89	9.54	5.37	14.06	30.00
RB 1 Offset	1732.5	20175	ΕZ	Н	123.06	18.75	9.54	5.37	22.93	30.00
0)			БО	V	114.69	10.21	9.60	5.40	14.41	30.00
-)	1752.5	20375	E2	Н	122.69	18.40	9.60	5.40	22.61	30.00

Remark :

(1) The RBW, VBW of SPA for frequency

RBW= 5MHz , VBW= 8MHz

Detector = Peak

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 46 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1710 5	10075	E2	V	112.94	8.42	9.48	5.33	12.57	30.00
5MHz BW	1712.5	19975	ĽŹ	Н	122.94	18.61	9.48	5.84	22.25	30.00
LTE-Band 4	1500 5	20175	E2	V	112.11	7.61	9.54	5.37	11.78	30.00
(QPSK RB	1732.5	20175	ĽΖ	Н	121.64	17.33	9.54	5.37	21.51	30.00
12 Offset 6)	,	20275	E2	V	113.36	8.88	9.60	5.40	13.08	30.00
	1752.5	20375	ĽŹ	Н	121.15	16.86	9.60	5.40	21.07	30.00

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1510.5	10075	E2	V	114.39	9.87	9.48	5.33	14.02	30.00
5MHz BW	1712.5	19975	E2	Н	123.72	19.39	9.48	5.84	23.03	30.00
LTE-Band 4			E2	V	113.56	9.06	9.54	5.37	13.23	30.00
(16QAM RB 12	1732.5	20175	E2	Н	122.52	18.21	9.54	5.37	22.39	30.00
Offset 6)	ffset 6)		E 2	V	113.97	9.49	9.60	5.40	13.69	30.00
	1752.5	20375	E2	Н	121.20	16.91	9.60	5.40	21.12	30.00

Remark :

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 47 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1710 5	10075	E2	V	111.52	7.00	9.48	5.33	11.15	30.00
5MHz BW	1712.5	19975	ĽŹ	Н	121.62	17.29	9.48	5.84	20.93	30.00
LTE-Band 4	1500 5	00155	E2	V	110.56	6.06	9.54	5.37	10.23	30.00
(QPSK RB	1732.5	20175	ĽΖ	Н	119.54	15.23	9.54	5.37	19.41	30.00
25 Offset 0)	,		E2	V	111.50	7.02	9.60	5.40	11.22	30.00
	1752.5	20375	ĽZ	Н	119.33	15.04	9.60	5.40	19.25	30.00

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1510.5	10075	E2	V	110.91	6.39	9.48	5.33	10.54	30.00
5MHz BW	1712.5	19975	EZ	Н	121.42	17.09	9.48	5.84	20.73	30.00
LTE-Band 4			E2	V	112.56	8.06	9.54	5.37	12.23	30.00
(16QAM	1732.5	20175	EZ	Н	121.54	17.23	9.54	5.37	21.41	30.00
RB 25 Off-			БЭ	V	112.81	8.33	9.60	5.40	12.53	30.00
set 0)	1752.5	20375	E2	Н	120.41	16.12	9.60	5.40	20.33	30.00

Remark :

(1)The RBW, VBW of SPA for frequency

RBW= 5MHz, VBW= 8MHz

Detector = Peak

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 48 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1 1 1 1	20000	E2	V	111.97	7.45	9.49	5.34	11.60	30.00
10MHz BW	1715	20000	ĽΖ	Н	120.39	16.06	9.49	5.84	19.71	30.00
LTE-Band 4			E2	V	113.14	8.64	9.54	5.37	12.81	30.00
(QPSK RB	1732.5	20175	ΕZ	Н	120.66	16.35	9.54	5.37	20.53	30.00
1 Offset 49)			E2	V	114.39	9.91	9.60	5.40	14.11	30.00
	1750	20350	EZ	Н	122.01	17.72	9.60	5.40	21.92	30.00

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
10MHz BW	1715	20000	E2	V	113.02	8.50	9.49	5.34	12.65	30.00
LTE-Band 4	1715	20000	E2	Н	121.25	16.92	9.49	5.84	20.57	30.00
(16QAM			E2	V	113.19	8.69	9.54	5.37	12.86	30.00
RB 1 Offset	1732.5	20175	E2	Н	121.17	16.86	9.54	5.37	21.04	30.00
49)			F 2	V	115.88	11.40	9.60	5.40	15.60	30.00
	1750	20350	E2	Н	123.31	19.02	9.60	5.40	23.22	30.00

Remark :

(1)The RBW, VBW of SPA for frequency

RBW=10MHz, VBW=10MHz

Detector = Peak

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 49 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1.51.5	20000	E2	V	112.26	7.74	9.49	5.34	11.89	30.00
10MHz BW	1715	20000	ĽŹ	Н	120.79	16.46	9.49	5.84	20.11	30.00
LTE-Band 4			E2	V	113.34	8.84	9.54	5.37	13.01	30.00
(QPSK RB	1732.5	20175	ΕZ	Н	121.61	17.30	9.54	5.37	21.48	30.00
1 Offset 0)	1.5.5		Г2	V	114.71	10.23	9.60	5.40	14.43	30.00
	1750	20350	E2	Н	122.50	18.21	9.60	5.40	22.41	30.00

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
10MHz BW	1715	20000	E2	V	113.23	8.71	9.49	5.34	12.86	30.00
LTE-Band 4	1715	20000	E2	Н	121.55	17.22	9.49	5.84	20.87	30.00
(16QAM			E2	V	114.11	9.61	9.54	5.37	13.78	30.00
RB 1 Offset	1732.5	20175	E2	Н	121.59	17.28	9.54	5.37	21.46	30.00
0)			F 2	V	115.58	11.10	9.60	5.40	15.30	30.00
	1750	20350	E2	Н	123.82	19.53	9.60	5.40	23.73	30.00

Remark :

(1)The RBW, VBW of SPA for frequency

RBW=10MHz, VBW=10MHz

Detector = Peak

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 50 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1515	20000	E2	V	109.42	4.90	9.49	5.34	9.05	30.00
10MHz BW	1715	20000	ĽΖ	Н	118.06	13.73	9.49	5.84	17.38	30.00
LTE-Band 4			E2	V	111.01	6.51	9.54	5.37	10.68	30.00
(QPSK RB	1732.5	20175	ΕZ	Н	118.87	14.56	9.54	5.37	18.74	30.00
25 Offset			БЭ	V	112.79	8.31	9.60	5.40	12.51	30.00
12)	1750	20350	E2	Н	120.72	16.43	9.60	5.40	20.63	30.00

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1916	20000	E2	V	110.87	6.35	9.49	5.34	10.50	30.00
10MHz BW	1715	20000	ΕZ	Н	119.33	15.00	9.49	5.84	18.65	30.00
LTE-Band 4			БЭ	V	111.97	7.47	9.54	5.37	11.64	30.00
(16QAM	1732.5	20175	E2	Н	119.68	15.37	9.54	5.37	19.55	30.00
RB 25 Off-			БЭ	V	113.87	9.39	9.60	5.40	13.59	30.00
set 12)	1750	20350	E2	Н	121.76	17.47	9.60	5.40	21.67	30.00

Remark :

(1)The RBW, VBW of SPA for frequency

RBW=10MHz, VBW=10MHz

Detector = Peak

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 51 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1715	20000	E2	V	108.35	3.83	9.49	5.34	7.98	30.00
10MHz BW	1715	20000	ĽŹ	Н	116.55	12.22	9.49	5.84	15.87	30.00
LTE-Band 4			ED	V	109.92	5.42	9.54	5.37	9.59	30.00
(QPSK RB	1732.5	20175	E2	Н	116.98	12.67	9.54	5.37	16.85	30.00
50 Offset 0)	1		БЭ	V	111.65	7.17	9.60	5.40	11.37	30.00
	1750	20350	E2	Н	119.84	15.55	9.60	5.40	19.75	30.00

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
	1916	•	E2	V	109.34	4.82	9.49	5.34	8.97	30.00
10MHz BW	1715	20000	EZ	Н	117.79	13.46	9.49	5.84	17.11	30.00
LTE-Band 4			E2	V	109.92	5.42	9.54	5.37	9.59	30.00
(16QAM	1732.5	20175	EZ	Н	117.83	13.52	9.54	5.37	17.70	30.00
RB 50 Off-			БЭ	V	112.46	7.97	9.60	5.40	12.18	30.00
set 0)	1750	20350	E2	Н	120.42	16.13	9.60	5.40	20.33	30.00

Remark :

(1)The RBW, VBW of SPA for frequency

RBW=10MHz, VBW=10MHz

Detector = Peak

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 52 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
	7065	22755	E2	V	114.03	24.89	-7.86	3.31	13.72	34.77
5MHz BW	706.5	23755	ΕZ	Н	120.59	31.74	-7.86	5.84	18.04	34.77
LTE-Band	- 1 0		E2	V	110.67	21.70	-7.86	3.33	10.51	34.77
17	710	23790	ΕZ	Н	117.30	27.80	-7.86	3.33	16.61	34.77
(QPSK RB			E2	V	112.21	23.40	-7.86	3.34	12.20	34.77
1 Offset 24)	713.5	23825	ЕZ	Н	118.90	28.75	-7.86	3.34	17.54	34.77

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
5MHz BW	706 5	00755	E2	V	114.80	25.66	-7.86	3.31	14.49	34.77
LTE-Band	706.5	23755	ĽΖ	Н	121.60	32.75	-7.86	5.84	19.05	34.77
17	- 1 0		E2	V	112.59	23.62	-7.86	3.33	12.43	34.77
(16 QAM	710	23790	ΕZ	Н	120.56	31.06	-7.86	3.33	19.87	34.77
RB 1 Offset			E2	V	113.61	24.80	-7.86	3.34	13.60	34.77
24)	713.5	23825	ΕZ	Н	121.88	31.73	-7.86	3.34	20.52	34.77

Remark :

(1)The RBW, VBW of SPA for frequency

RBW=5MHz, VBW=8MHz

Detector = Peak

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 53 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
5MHz BW	706.5	00755	E2	V	111.00	21.86	-7.86	3.31	10.69	34.77
LTE-Band	706.5	23755	ĽŹ	Н	117.08	28.23	-7.86	5.84	14.53	34.77
17	-10		E2	V	110.96	21.99	-7.86	3.33	10.80	34.77
(QPSK RB	710	23790	ĽΖ	Н	117.95	28.45	-7.86	3.33	17.26	34.77
1 Offset 0)			E2	V	110.84	22.03	-7.86	3.34	10.83	34.77
	713.5	23825	ΕZ	Н	117.42	27.27	-7.86	3.34	16.06	34.77

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
5MHz BW	706 5	00755	E2	V	112.15	23.01	-7.86	3.31	11.84	34.77
LTE-Band	706.5	23755	ĽΖ	Н	118.71	29.86	-7.86	5.84	16.16	34.77
17	-10		E2	V	112.94	23.97	-7.86	3.33	12.78	34.77
(16 QAM	710	23790	ĽΖ	Н	119.73	30.23	-7.86	3.33	19.04	34.77
RB 1 Offset			E2	V	112.08	23.27	-7.86	3.34	12.07	34.77
0)	713.5	23825	ΕZ	Н	118.98	28.83	-7.86	3.34	17.62	34.77

Remark :

(1)The RBW, VBW of SPA for frequency

RBW=5MHz, VBW=8MHz

Detector = Peak

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 54 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
5MHz BW	706.5	00755	E2	V	109.07	19.93	-7.86	3.31	8.76	34.77
LTE-Band	706.5	23755	ĽŹ	Н	116.39	27.54	-7.86	5.84	13.84	34.77
17	-10		E2	V	111.65	22.68	-7.86	3.33	11.49	34.77
(QPSK RB	710	23790	ĽΖ	Н	118.38	28.88	-7.86	3.33	17.69	34.77
12 Offset 6)			E2	V	107.86	19.05	-7.86	3.34	7.85	34.77
	713.5	23825	ΕZ	Н	114.22	24.07	-7.86	3.34	12.86	34.77

EUT Mode	Frequency (MHz)	СН	EUT Pol.		SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
5MHz BW	706 5	22755	E2	V	110.71	21.57	-7.86	3.31	10.40	34.77
LTE-Band	706.5	23755	E2	Н	117.52	28.67	-7.86	5.84	14.97	34.77
17	- 1 0		E2	V	113.10	24.13	-7.86	3.33	12.94	34.77
(16 QAM	710	23790	E2	Н	119.79	30.29	-7.86	3.33	19.10	34.77
RB 12 Off-				V	109.06	20.25	-7.86	3.34	9.05	34.77
set 6)	713.5	23825	E2	Н	115.31	25.16	-7.86	3.34	13.95	34.77

Remark :

(1)The RBW, VBW of SPA for frequency

RBW= 5MHz, VBW= 8MHz

Detector = Peak

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 55 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
	706 5	22755	E2	V	107.47	18.33	-7.86	3.31	7.16	34.77
5MHz BW	706.5	23755	ĽŹ	Н	114.43	25.58	-7.86	5.84	11.88	34.77
LTE-Band	-10		E2	V	108.70	19.73	-7.86	3.33	8.54	34.77
17	710	23790	ΕZ	Н	115.50	26.00	-7.86	3.33	14.81	34.77
(QPSK RB			E2	V	106.50	17.69	-7.86	3.34	6.49	34.77
25 Offset 0)	713.5	23825	EZ	Н	112.95	22.80	-7.86	3.34	11.59	34.77

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
5MHz BW	706 5	22755	E2	V	109.25	20.11	-7.86	3.31	8.94	34.77
LTE-Band	706.5	23755	E2	Н	116.11	27.26	-7.86	5.84	13.56	34.77
17	-10		E2	V	110.53	21.56	-7.86	3.33	10.37	34.77
(16 QAM	710	23790	E2	Н	116.97	27.47	-7.86	3.33	16.28	34.77
RB 25 Off-			БЭ	V	108.85	20.04	-7.86	3.34	8.84	34.77
set 0)	713.5	23825	E2	Н	115.29	25.14	-7.86	3.34	13.93	34.77

Remark :

(1)The RBW, VBW of SPA for frequency

RBW= 5MHz, VBW= 8MHz

Detector = Peak

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 56 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
	700	22700	E2	V	107.26	18.24	-7.86	3.32	7.06	34.77
10MHz BW	709	23780	ĽŹ	Н	113.03	23.72	-7.86	5.84	10.02	34.77
LTE-Band	-10		E2	V	107.86	18.89	-7.86	3.33	7.70	34.77
17	710	23790	ΕZ	Н	114.15	24.65	-7.86	3.33	13.46	34.77
(QPSK RB			E2	V	109.76	20.83	-7.86	3.33	9.64	34.77
1 Offset 49)	711	23800		Н	115.81	26.12	-7.86	3.33	14.93	34.77

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
10MHz BW	700	22500	E2	V	108.79	19.77	-7.86	3.32	8.59	34.77
LTE-Band	709	23780	ĽΖ	Н	115.86	26.55	-7.86	5.84	12.85	34.77
17			E2	V	109.79	20.82	-7.86	3.33	9.63	34.77
(16 QAM	710	23790	ΕZ	Н	115.92	26.42	-7.86	3.33	15.23	34.77
RB 1 Offset			БО	V	111.33	22.40	-7.86	3.33	11.21	34.77
49)	711	23800	E2	Н	117.48	27.79	-7.86	3.33	16.60	34.77

Remark :

(1)The RBW, VBW of SPA for frequency

RBW=10MHz, VBW=10MHz

Detector = Peak

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 57 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
	700	22500	E2	V	110.82	21.80	-7.86	3.32	10.62	34.77
10MHz BW	709	23780	ĽZ	Н	116.42	27.11	-7.86	5.84	13.41	34.77
LTE-Band	-10		E2	V	108.23	19.26	-7.86	3.33	8.07	34.77
17	710	23790	ΕZ	Н	114.89	25.39	-7.86	3.33	14.20	34.77
(QPSK RB		•••••	E2	V	109.76	20.83	-7.86	3.33	9.64	34.77
1 Offset 0)	711	23800	ΕZ	Н	115.81	26.12	-7.86	3.33	14.93	34.77

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
10MHz BW	700	22700	E2	V	111.96	22.94	-7.86	3.32	11.76	34.77
LTE-Band	709	23780	EZ	Н	118.55	29.24	-7.86	5.84	15.54	34.77
17	-10		E2	V	110.86	21.89	-7.86	3.33	10.70	34.77
(16 QAM	710	23790	E2	Н	117.59	28.09	-7.86	3.33	16.90	34.77
RB 1 Offset				V	110.90	21.97	-7.86	3.33	10.78	34.77
0)	711	23800	E2	Н	117.87	28.18	-7.86	3.33	16.99	34.77

Remark :

(1)The RBW, VBW of SPA for frequency

RBW=10MHz, VBW=10MHz

Detector = Peak

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 58 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
10MHz BW	700	22700	E2	V	109.44	20.42	-7.86	3.32	9.24	34.77
LTE-Band	709	23780	E2	Н	115.46	26.15	-7.86	5.84	12.45	34.77
17	-10		БЭ	V	109.44	20.47	-7.86	3.33	9.28	34.77
(QPSK RB	710	23790	E2	Н	116.09	26.59	-7.86	3.33	15.40	34.77
25 Offset		711 23800	E2	V	108.01	19.08	-7.86	3.33	7.89	34.77
12)	711		EZ	Н	114.64	24.95	-7.86	3.33	13.76	34.77

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
10MHz BW	700	22700	E2	V	110.41	21.39	-7.86	3.32	10.21	34.77
LTE-Band	709	23780	E2	Н	116.82	27.51	-7.86	5.84	13.81	34.77
17	-10		E2	V	110.76	21.79	-7.86	3.33	10.60	34.77
(16 QAM	710	23790	E2	Н	117.24	27.74	-7.86	3.33	16.55	34.77
RB 25 Off-			БЭ	V	110.34	21.41	-7.86	3.33	10.22	34.77
set 12)	711	23800	E2	Н	116.76	27.07	-7.86	3.33	15.88	34.77

Remark :

(1)The RBW, VBW of SPA for frequency

RBW=10MHz, VBW=10MHz

Detector = Peak

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 59 of 204

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
	700	22700	E2	V	105.02	16.00	-7.86	3.32	4.82	34.77
10MHz BW	709	23780	E2	Н	111.77	22.46	-7.86	5.84	8.76	34.77
LTE-Band	-10	E E	E2	V	105.08	16.11	-7.86	3.33	4.92	34.77
17	710	23790	ΕZ	Н	111.70	22.20	-7.86	3.33	11.01	34.77
(QPSK RB		E2	V	105.39	16.46	-7.86	3.33	5.27	34.77	
50 Offset 0)	711	23800		Н	111.89	22.20	-7.86	3.33	11.01	34.77

EUT Mode	Frequency (MHz)	СН	EUT Pol.		SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
10MHz BW	700	22700	E2	V	107.68	18.66	-7.86	3.32	7.48	34.77
LTE-Band	709	23780	EZ	Н	114.14	24.83	-7.86	5.84	11.13	34.77
17	- 1 0		E2	V	107.17	18.20	-7.86	3.33	7.01	34.77
(16 QAM	710	23790	E2	Н	113.64	24.14	-7.86	3.33	12.95	34.77
RB 50 Off-				V	107.13	18.20	-7.86	3.33	7.01	34.77
set 0)	711	23800	E2	Н	113.70	24.01	-7.86	3.33	12.82	34.77

Remark :

(1)The RBW, VBW of SPA for frequency

RBW=10MHz, VBW=10MHz

Detector = Peak

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 60 of 204

8. 99% OCCUPIED BANDWIDTH MEASUREMENT

8.1. Standard Applicable:

According to §FCC 2.1049.

8.2. Test Set-up:

Refer to section 5.2 in this report

8.3. Measurement Procedure:

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW (10/30KHz) was set to about 1% of emission BW, VBW= 3 times RBW(30/100KHz), -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

8.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 61 of 204

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
	1852.40	9262	4.1300
WCDMA II	1880.00	9400	4.1251
	1907.60	9538	4.1191

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
	1852.40	1312	4.1441
WCDMA IV	1880.00	1413	4.1333
	1907.60	1513	4.1432

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
WCDMA V	826.40	4132	4.1203
	836.00	4180	4.1410
	846.60	4233	4.1181

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
	1852.4	9262	4.1267
HSDPA II	1880.0	9400	4.1653
	1907.6	9538	4.1599

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
HSDPA IV	1852.4	9262	4.1633
	1880.0	9400	4.1520
	1907.6	9538	4.1435

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 62 of 204

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
	826.40	4132	4.1534
HSDPA V	836.60	4183	4.1299
	846.60	4233	4.1317

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
	1852.4	9262	4.1754
HSUPA II	1880.0	9400	4.1464
	1907.6	9538	4.1503

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
HSUPA IV	1852.4	1312	4.1203
	1880.0	1413	4.1441
	1907.6	1513	4.1480

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
HSUPA V	826.40	4132	4.1493
	836.60	4183	4.1280
	846.60	4233	4.1110

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EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
5MHz BW	1712.5	19975	4.5116
LTE-Band 4 (QPSK	1732.5	20175	4.5128
RB Number: 25 Offset: 0)	1752.5	20375	4.5041

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
5MHz BW	1712.5	19975	4.4967
LTE-Band 4 (16QAM	1732.5	20175	4.5064
RB Number: 25 Offset: 0)	1752.5	20375	4.5124

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
10MHz BW	1715	20000	8.9860
LTE-Band 4 (QPSK	1732.5	20175	8.9668
RB Number: 50 Offset: 0)	1750	20350	8.9702

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
10MHz BW	1715	20000	8.9690
LTE-Band 4 (16QAM	1732.5	20175	8.9524
RB Number: 50 Offset: 0)	1750	20350	8.9630

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 64 of 204

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
5MHz BW	706.5	23755	4.5183
LTE-Band 17 (QPSK	710	23790	4.4783
RB Number: 25 Offset: 0)	713.5	23835	4.5115

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
5MHz BW	706.5	23755	4.4961
LTE-Band 17 (16QAM	710	23790	4.4862
RB Number: 25 Offset: 0)	713.5	23835	4.4938

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
10MHz BW	709	23780	8.9416
LTE-Band 17 (QPSK	710	23790	8.9399
RB Number: 50 Offset: 0)	711	23800	8.9029

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
10MHz BW	709	23780	8.9102
LTE-Band 17 (16QAM	710	23790	8.9131
RB Number: 50 Offset: 0)	711	23800	8.8951

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 65 of 204

Figure 8-1: WCDMA II Channel Low



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4.1251 MHz

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987.937 Hz

4.628 MHz

#VBW 150 kHz

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Offst

17.4 dB

Center 1.880 000 GHz

Transmit Freq Error x dB Bandwidth

Occupied Bandwidth

#Res BW 47 kHz

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Auto

0n

Span 6 MHz

99.00 %

-26.00 dB

Sweep 2.6 ms (601 pts)

x dB

Occ BW % Pwr

Man

Off

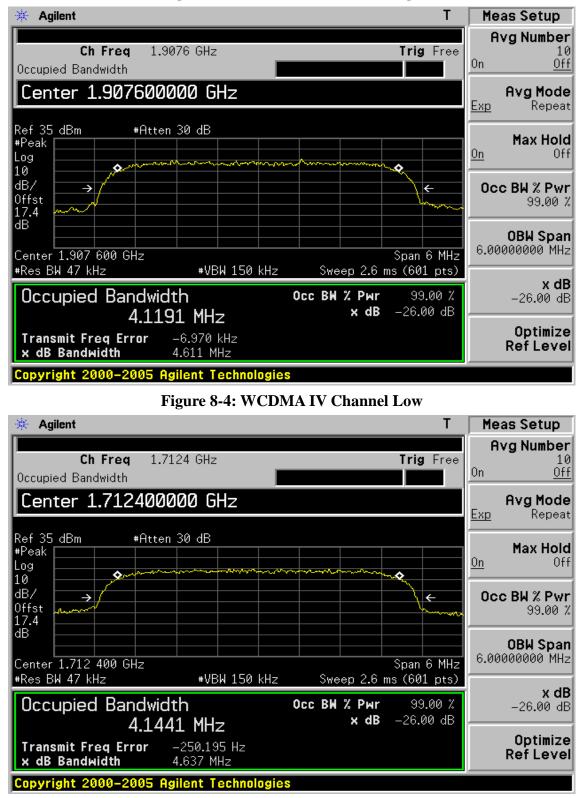
Freq Offset 0.00000000 Hz

Signal Track



Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 66 of 204

Figure 8-3: WCDMA II Channel High



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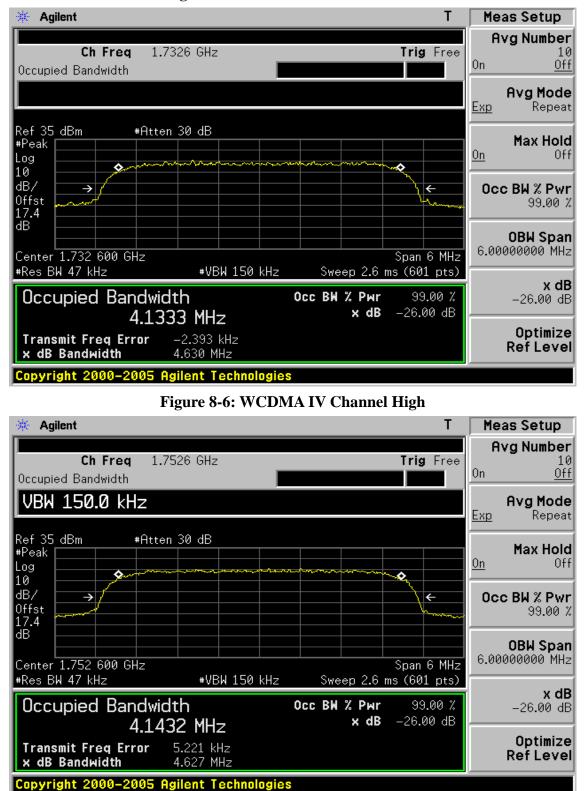
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 67 of 204

Figure 8-5 WCDMA IV Channel Mid



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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 68 of 204

Figure 8-7: WCDMA V Channel Low

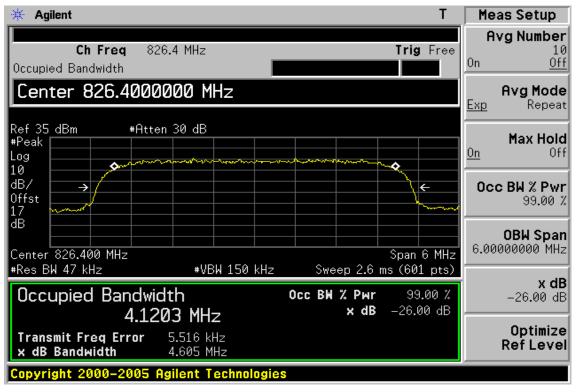
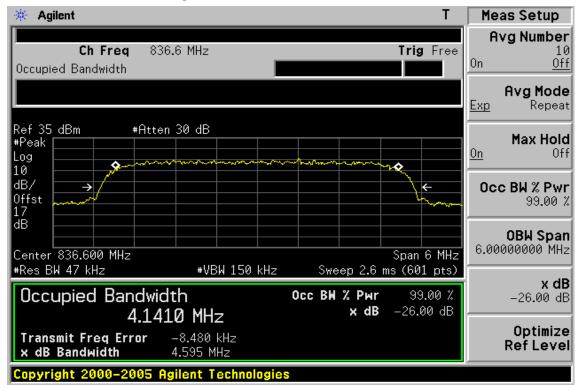


Figure 8-8 WCDMA V Channel Mid



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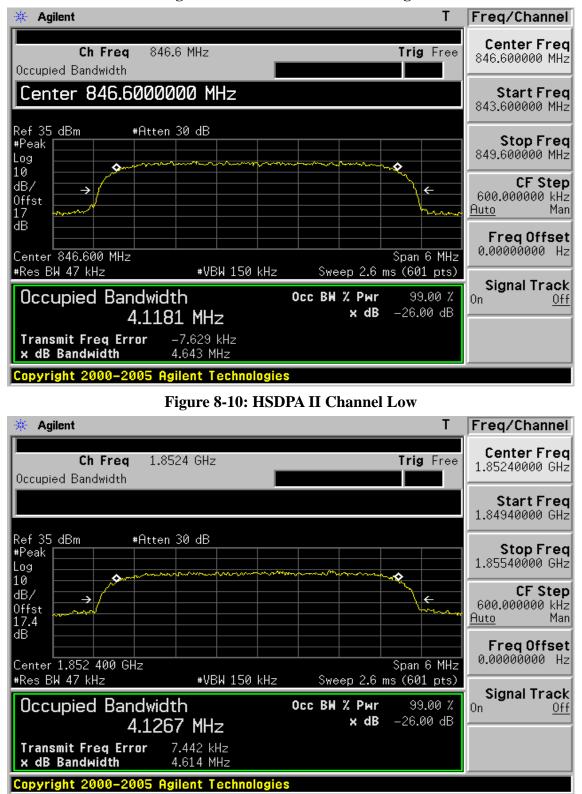
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 69 of 204

Figure 8-9: WCDMA V Channel High



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Figure 8-11 HSDPA II Channel Mid



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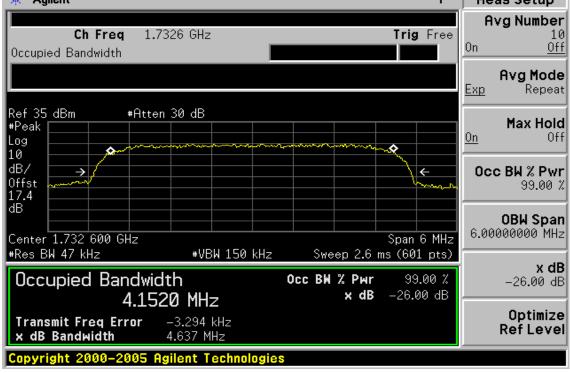
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 71 of 204







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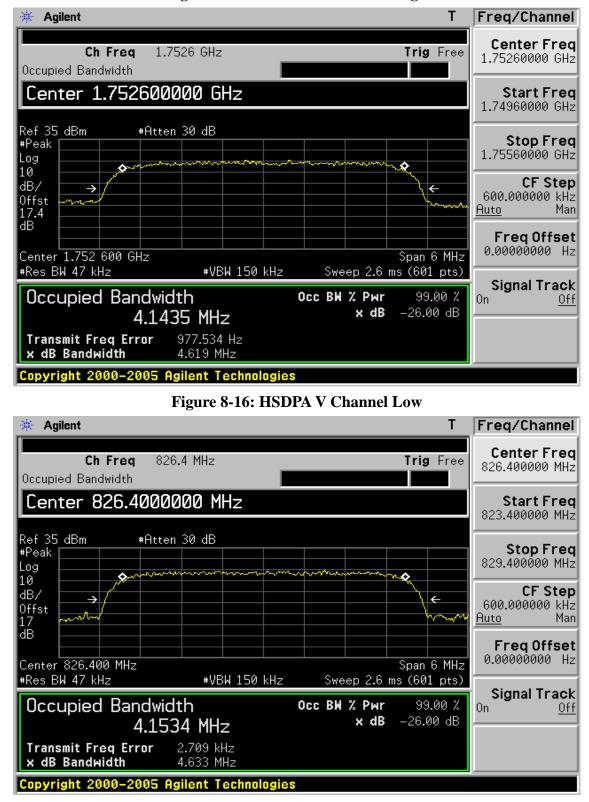
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Figure 8-15: HSDPA IV Channel High



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Figure 8-17 HSDPA V Channel Mid



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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 74 of 204

Figure 8-19: HSUPA II Channel Low



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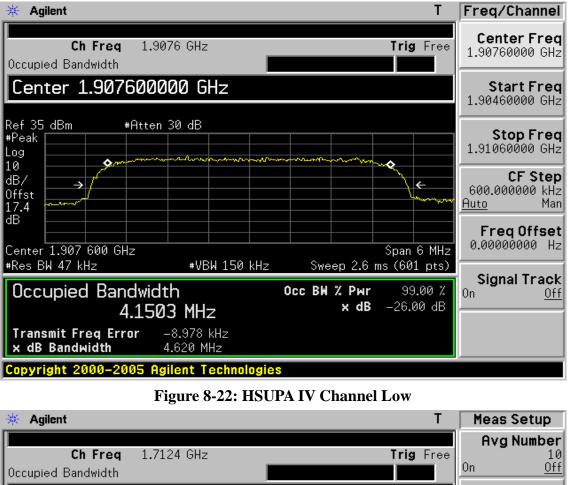
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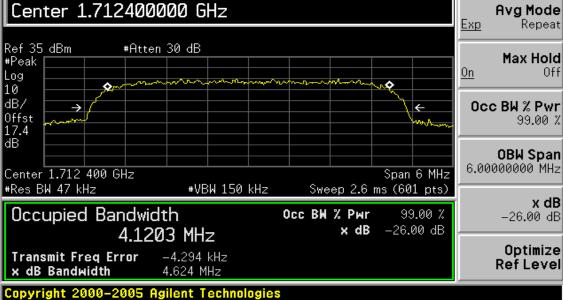
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 75 of 204

Figure 8-21: HSUPA II Channel High





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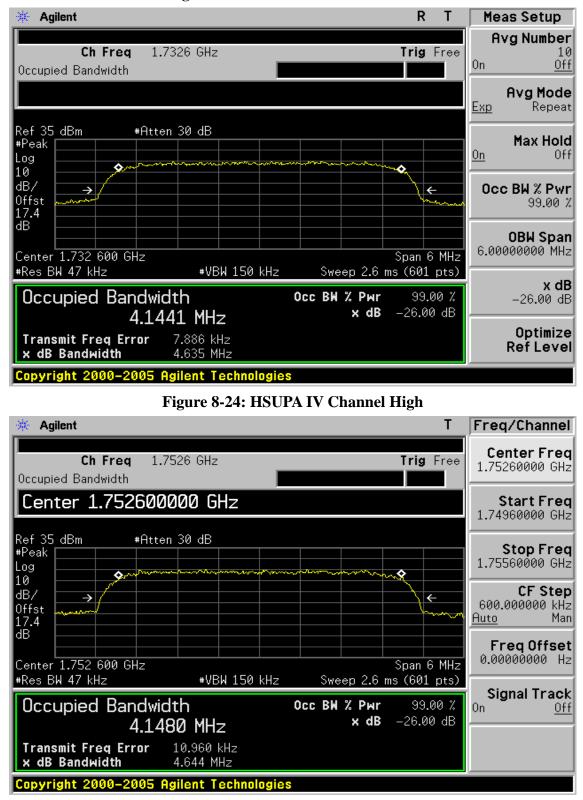
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 76 of 204

Figure 8-23 HSUPA IV Channel Mid



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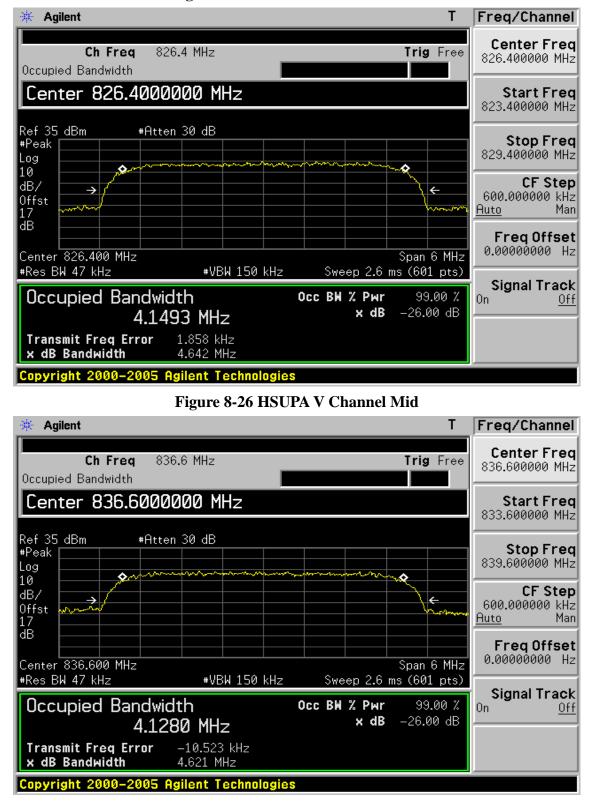
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 77 of 204

Figure 8-25: HSUPA V Channel Low



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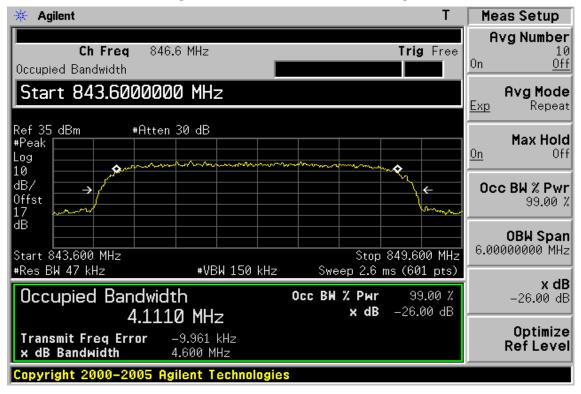
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 79 of 204

Figure 8-28: 5MHz BW LTE-Band 4(QPSK RB Number: 25 Offset: 0) Channel Low

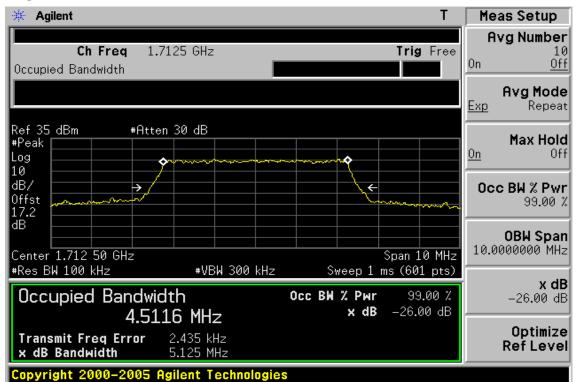


Figure 8-29: 5MHz BW LTE-Band 4(QPSK RB Number: 25 Offset: 0) Channel Mid



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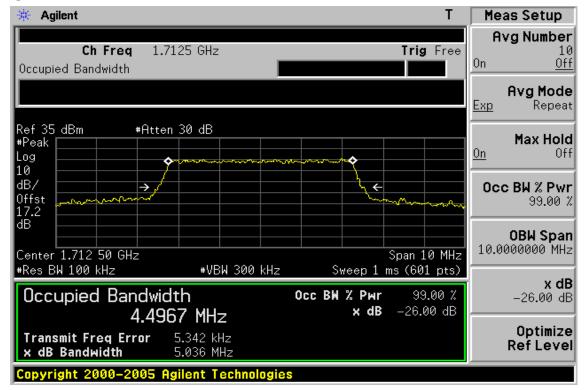


Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 80 of 204





Figure 8-31: 5MHz BW LTE-Band 4(16QAM RB Number: 25 Offset: 0) Channel Low



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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 81 of 204



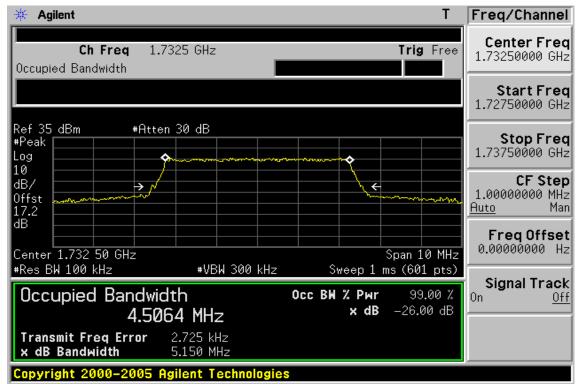
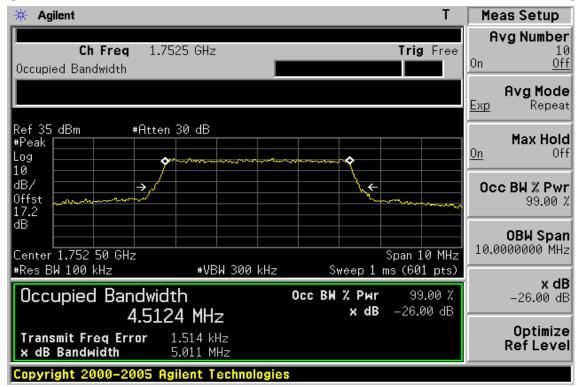


Figure 8-33: 5MHz BW LTE-Band 4(16QAM RB Number: 25 Offset: 0) Channel High



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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 82 of 204



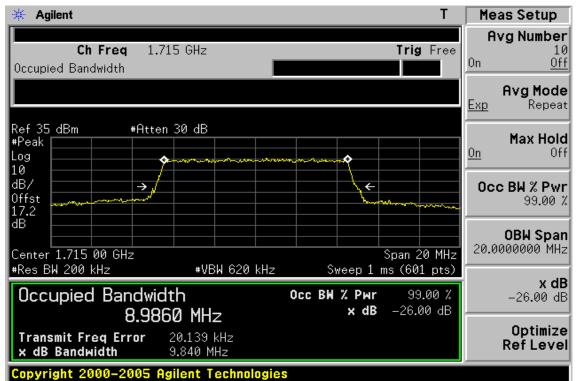
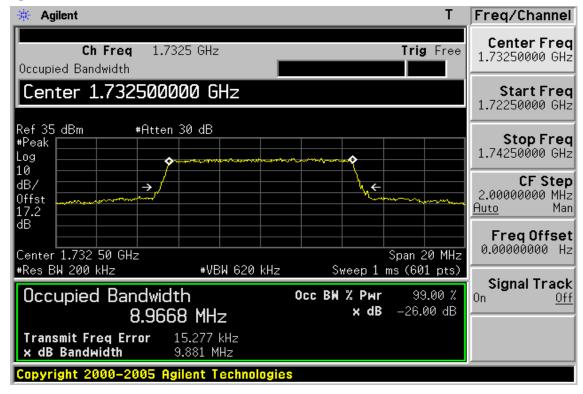


Figure 8-35: 10MHz BW LTE-Band 4(QPSK RB Number: 50 Offset: 0) Channel Mid



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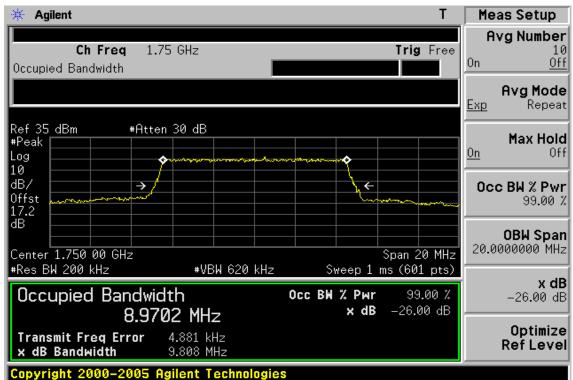
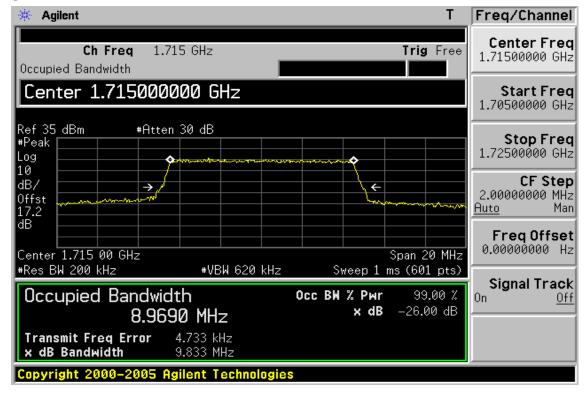


Figure 8-37: 10MHz BW LTE-Band 4(16QAM RB Number: 50 Offset: 0) Channel Low



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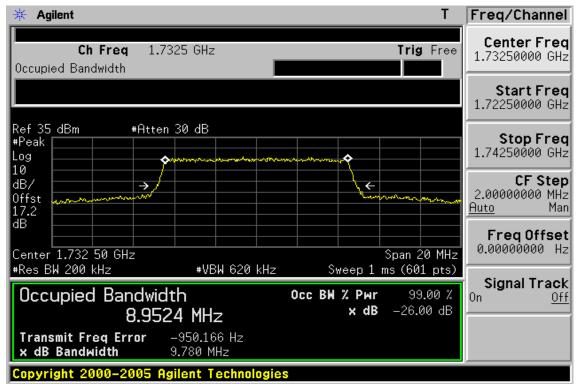
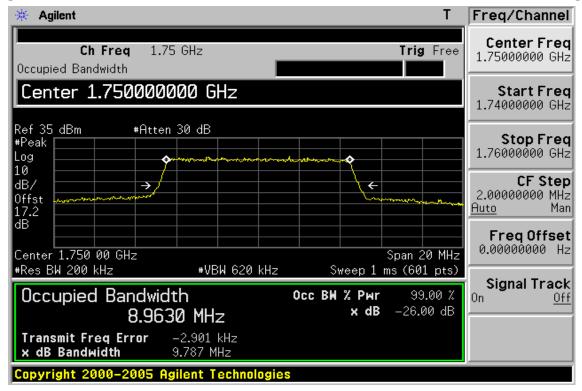


Figure 8-39: 10MHz BW LTE-Band 4(16QAM RB Number: 50 Offset: 0) Channel High



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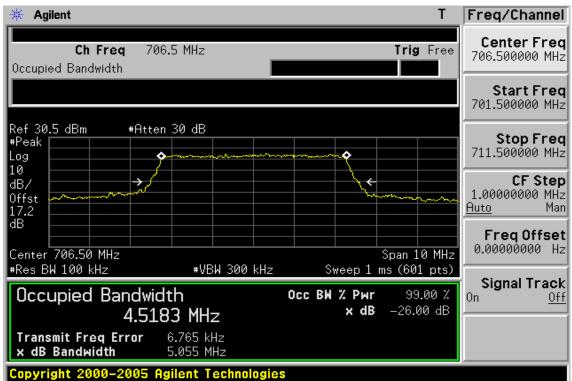
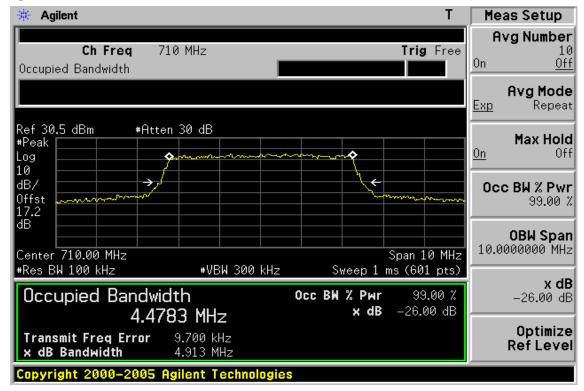


Figure 8-41: 5MHz BW LTE-Band 17(QPSK RB Number: 25 Offset: 0) Channel Mid



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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 86 of 204



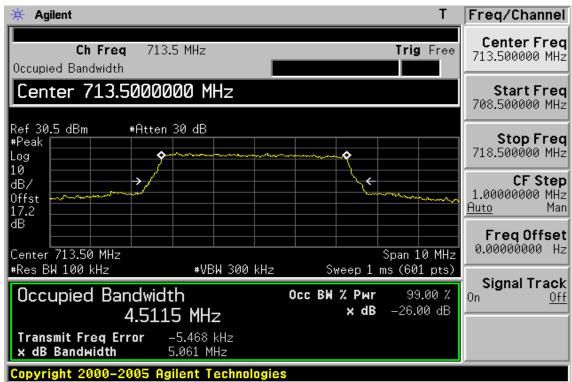
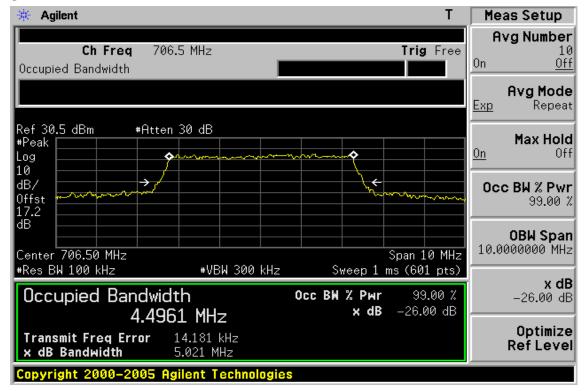


Figure 8-43: 5MHz BW LTE-Band 17(16QAM RB Number: 25 Offset: 0) Channel Low



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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 87 of 204

Figure 8-44: 5MHz BW LTE-Band 17(16QAM RB Number: 25 Offset: 0) Channel Mid

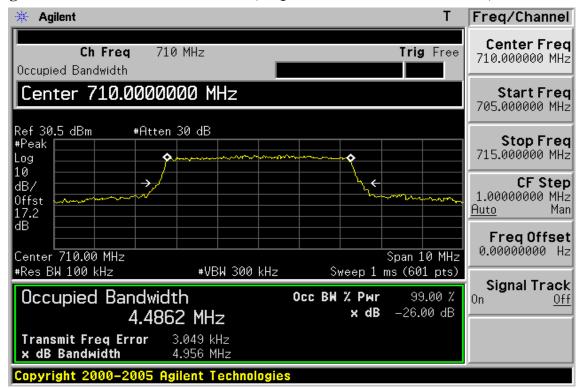
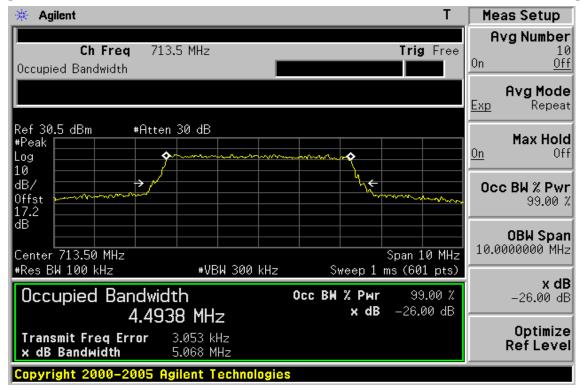


Figure 8-45: 5MHz BW LTE-Band 17(16QAM RB Number: 25 Offset: 0) Channel High



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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 88 of 204



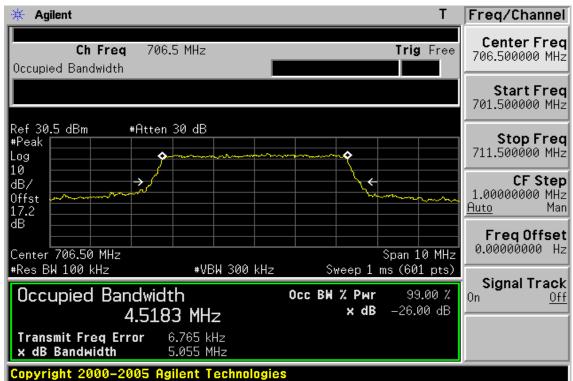
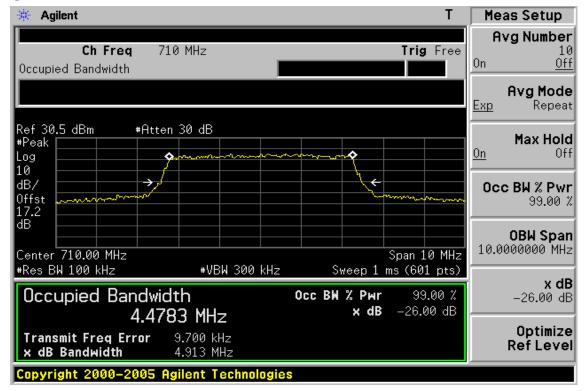


Figure 8-47: 10MHz BW LTE-Band 17(QPSK RB Number: 50 Offset: 0) Channel Mid



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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 89 of 204



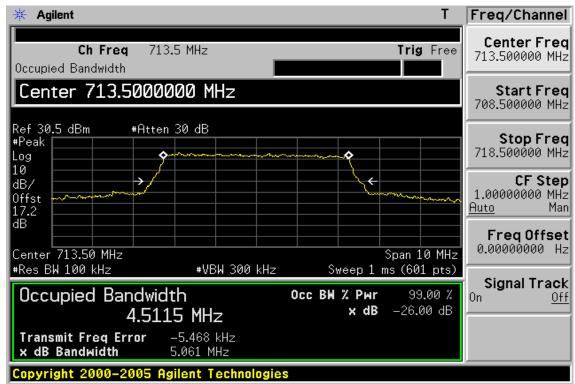
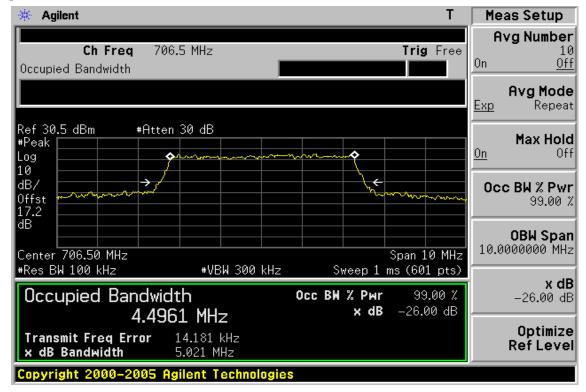


Figure 8-49: 10MHz BW LTE-Band 17(16QAM RB Number: 50 Offset: 0) Channel Low



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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 90 of 204

Figure 8-50: 10MHz BW LTE-Band 17(16QAM RB Number: 50 Offset: 0) Channel Mid

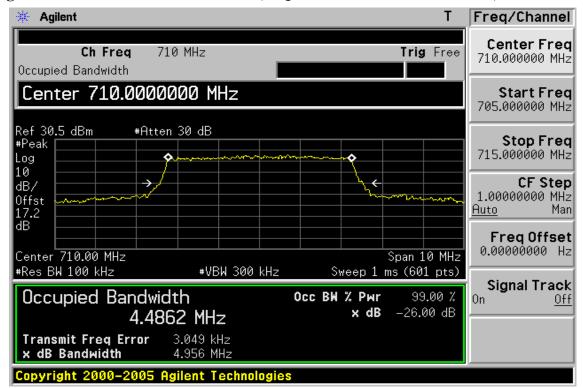
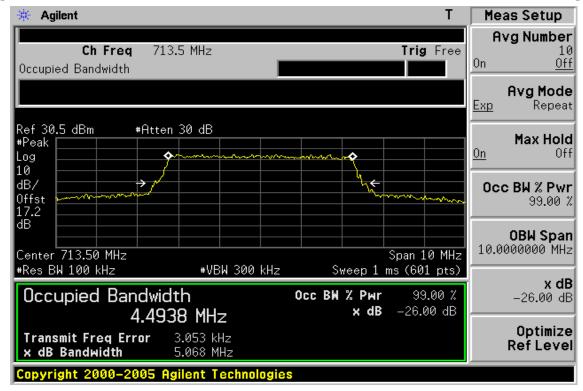


Figure 8-51: 10MHz BW LTE-Band 17(16QAM RB Number: 50 Offset: 0) Channel High



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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 91 of 204

9. OUT OF BAND EMISSION AT ANTENNA TERMINALS

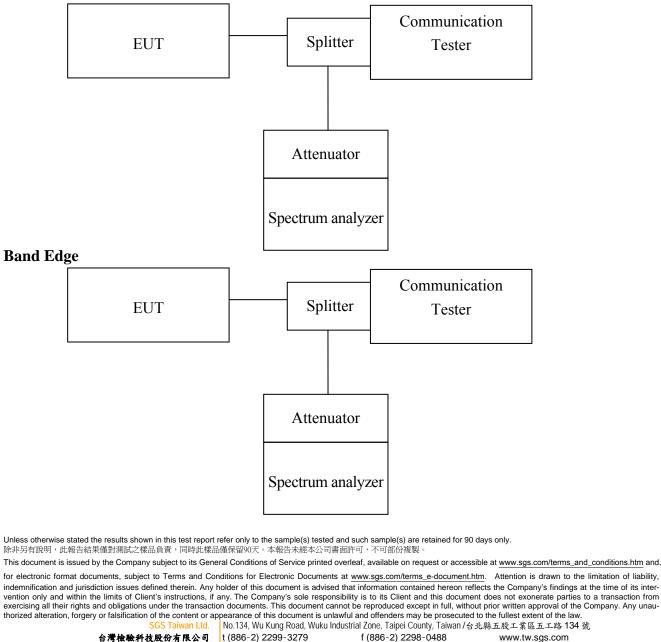
9.1. Standard Applicable:

According to FCC §2.1051.

FCC §22.917(a),§24.238(a), §27.53(g) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than $43 + 10 \log$ (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm)

9.2. Test SET-UP:

Out of band emission



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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 92 of 204

9.3. Measurement Procedure:

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10 th harmonic. Limit = -13dBm

Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

For operations in the 698–746 MHz band, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed. Limit, -13dBm.

Conducted Emission:

- 1 To connect Antenna Port of EUT to Spectrum.
- $2 \cdot \text{Set RBW} = 1 \text{MHz} \& \text{VBW} = 1 \text{MHz} \text{ on Spectrum.}$
- Sweep the frequency to determine spurious emission as seen on spectrum from span of 30 to 1G, 1G to 2.5G, 2.5G to 7.5G, 7.5G to 10G, 10G to 15G and 15G to 20GHz
- 4 Via Software, combine 6 spans of frequency range into one plot

9.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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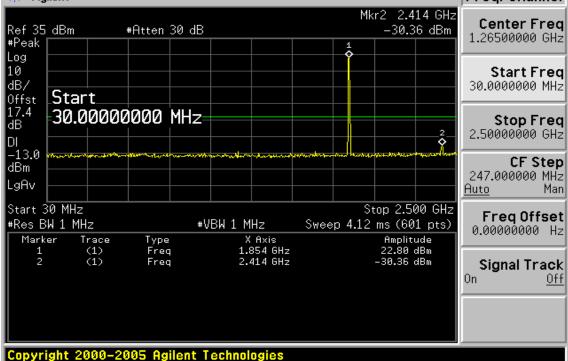
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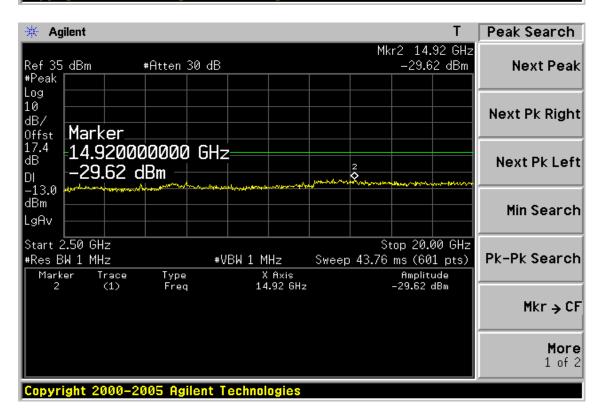


Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 93 of 204

9.5. Measurement Result:







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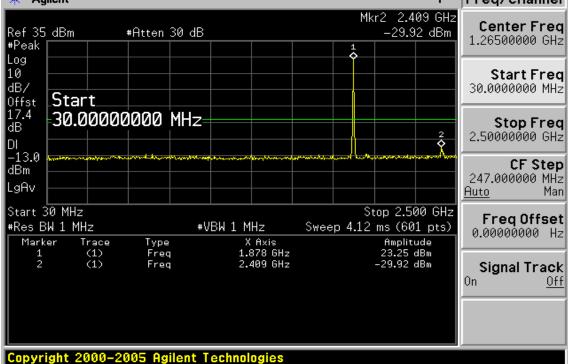
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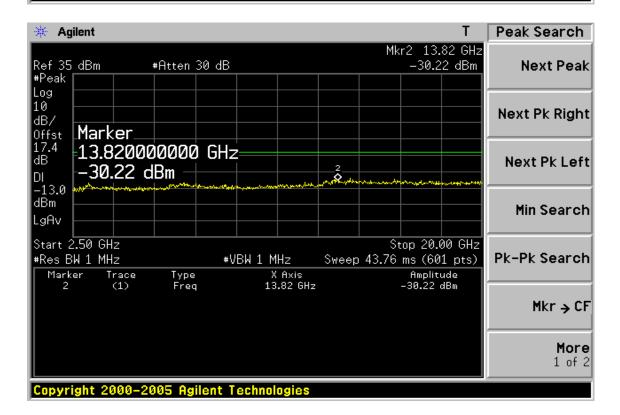
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 94 of 204







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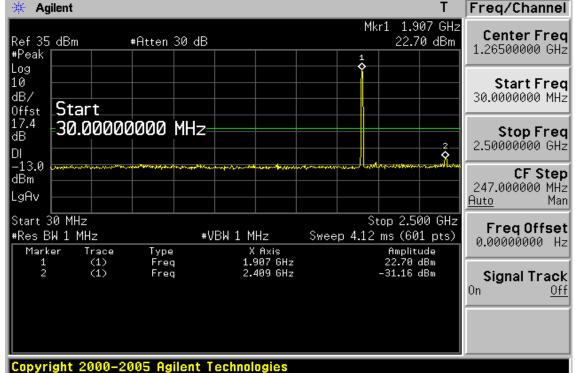
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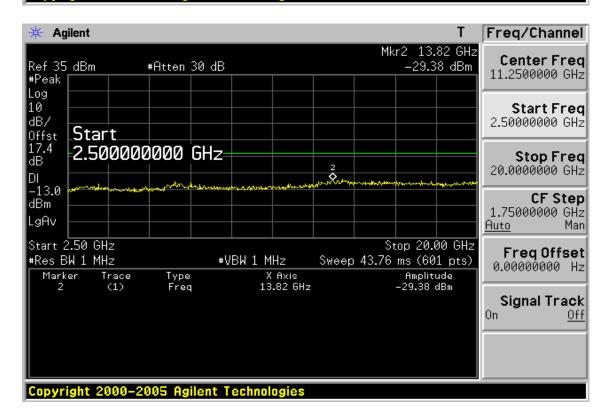
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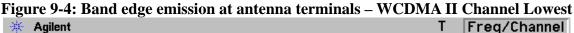




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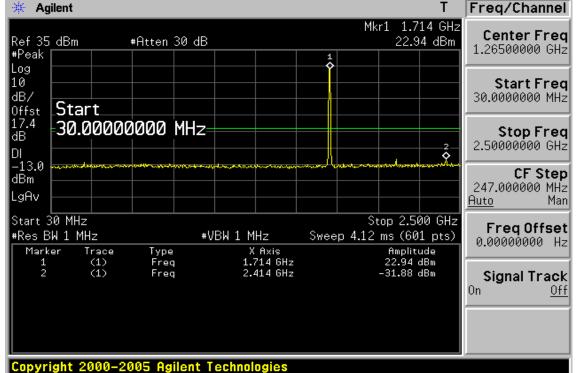
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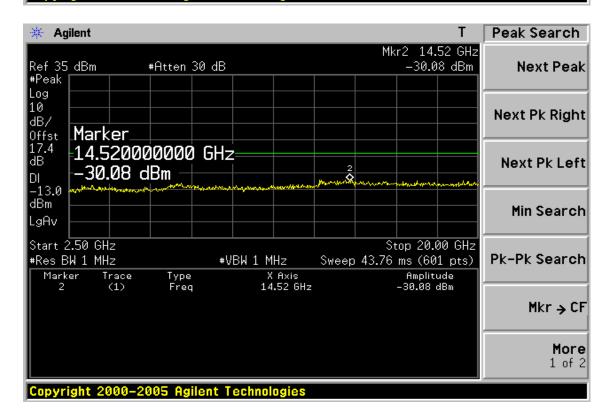
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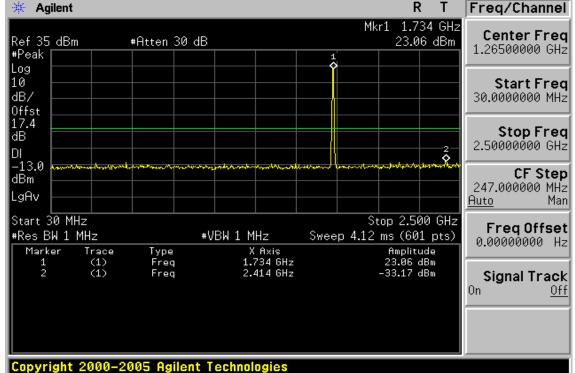
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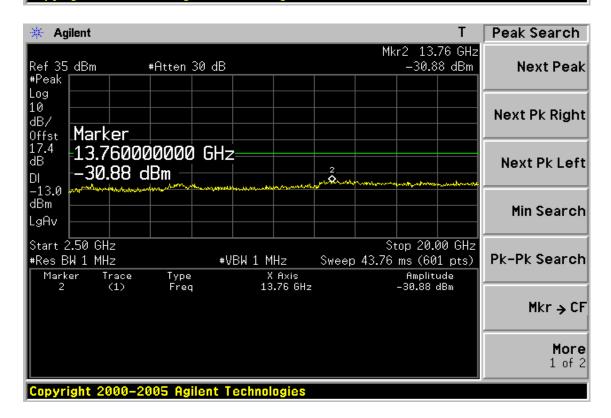
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 98 of 204

Figure 9-7: Out of Band emission at antenna terminals – WG				
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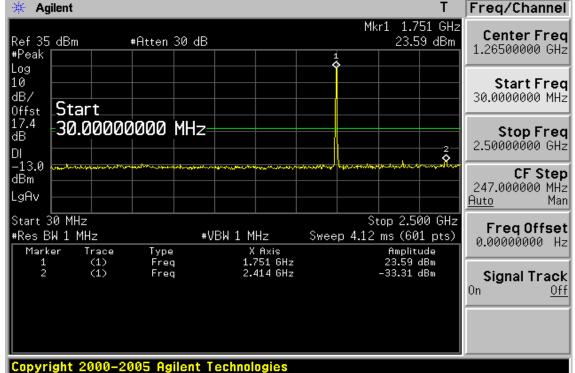
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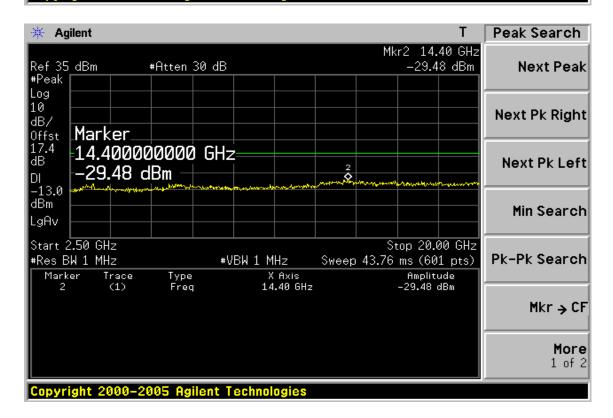
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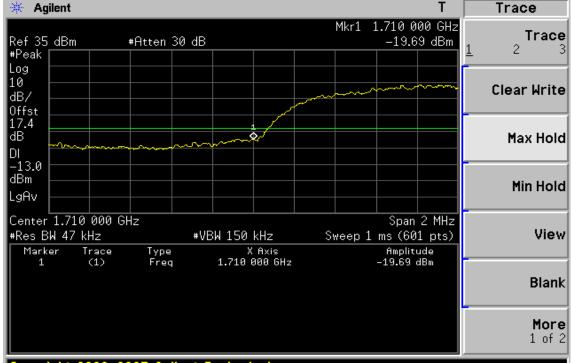
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Figure 9-10: Band edge emission at antenna terminals – WCDMA IV Channel Highest



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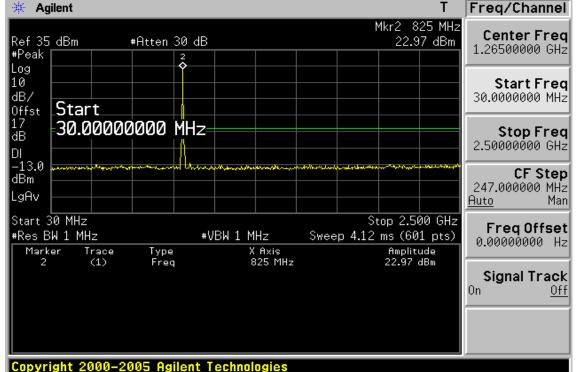
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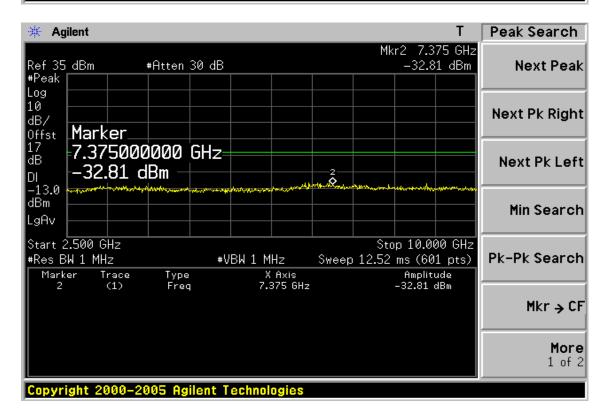
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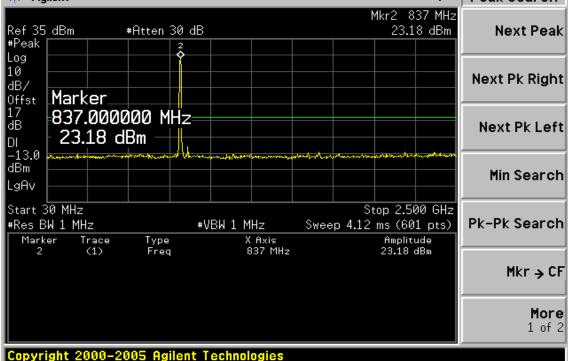
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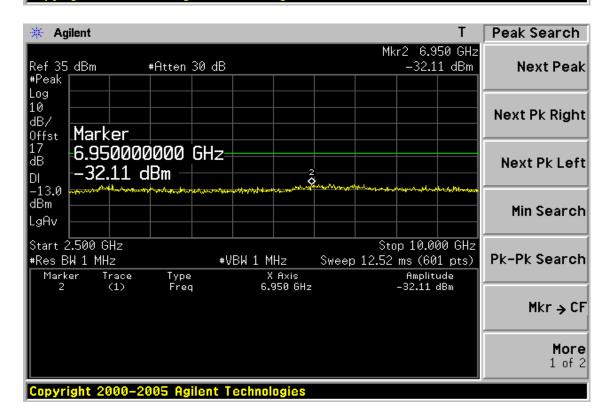
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 102 of 204







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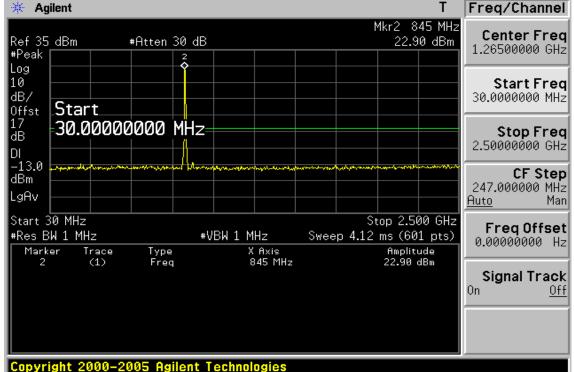
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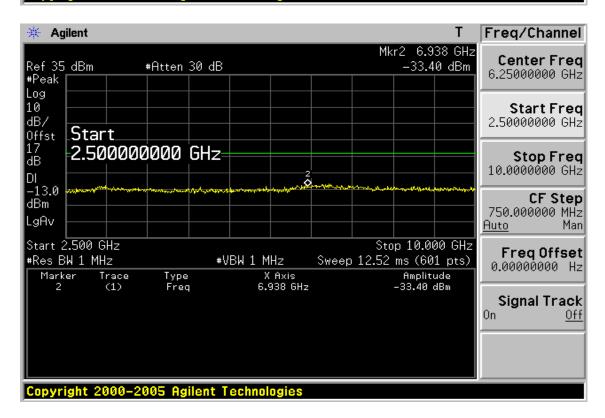
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 103 of 204







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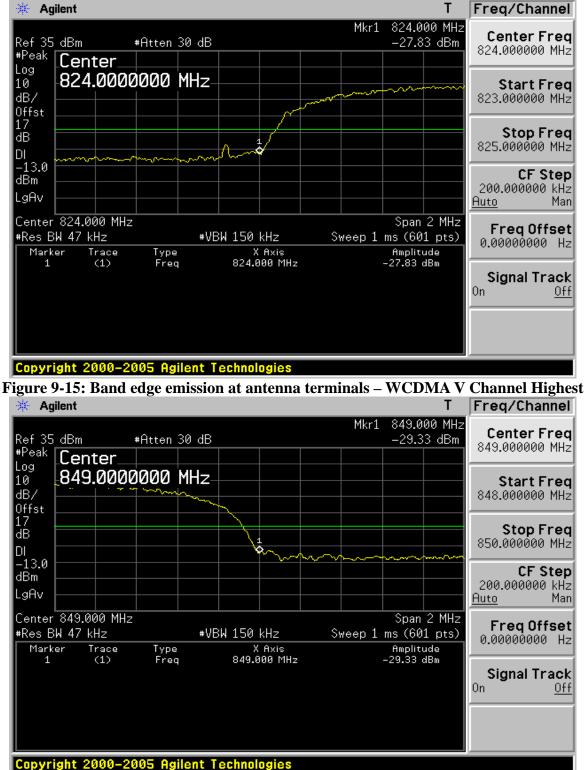
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 104 of 204





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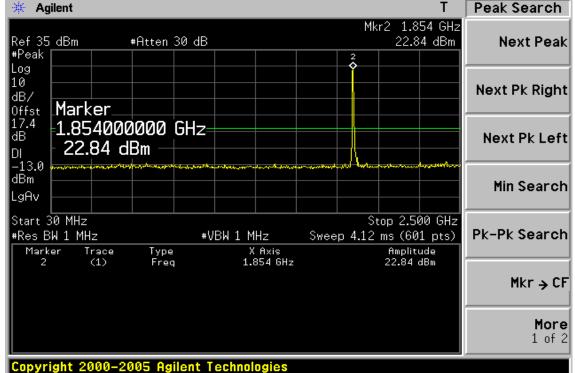
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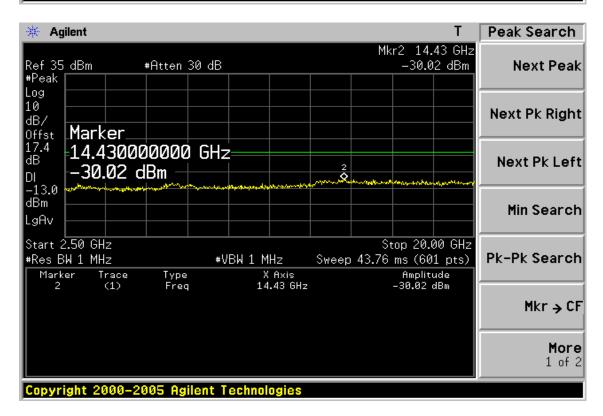
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 106 of 204

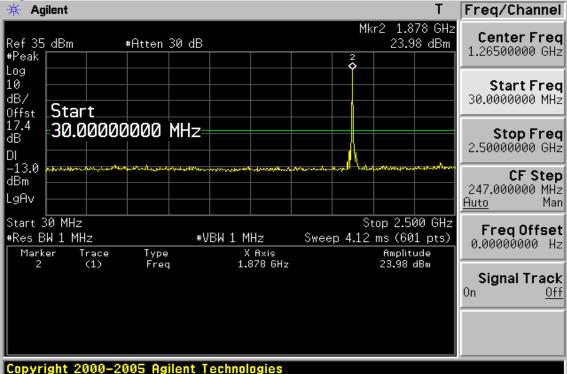
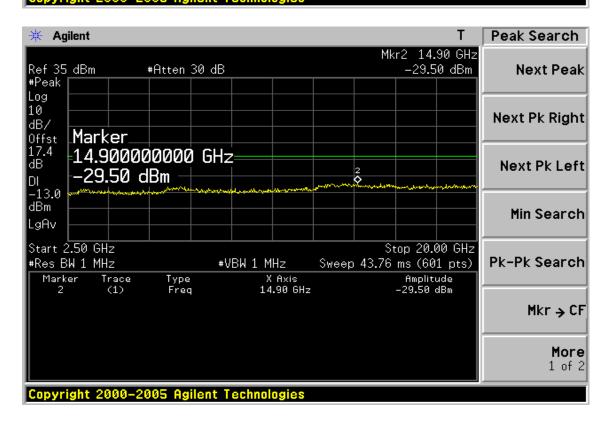


Figure 9-17: Out of Band emission at antenna terminals – HSDPA II Channel Mid



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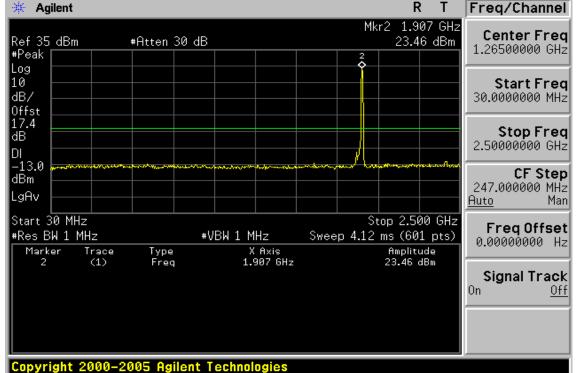
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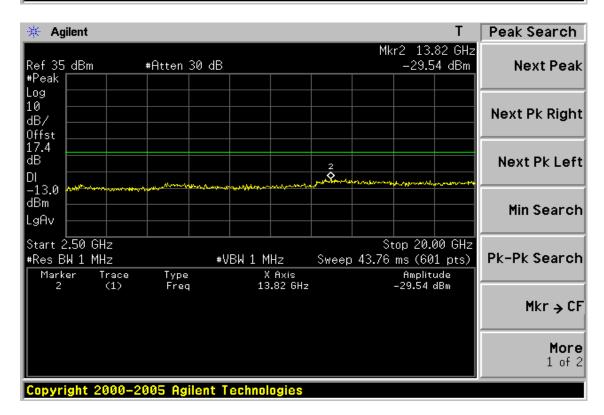
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 107 of 204







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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 108 of 204

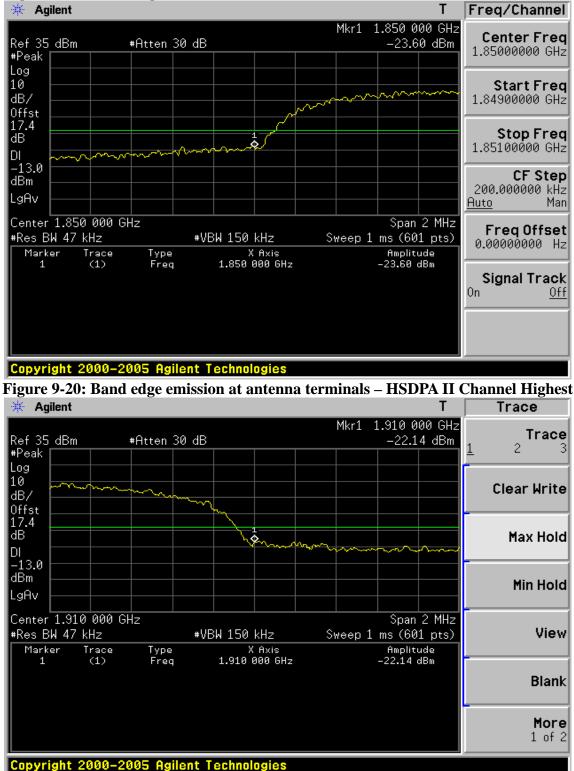


Figure 9-19: Band edge emission at antenna terminals – HSDPA II Channel Lowest

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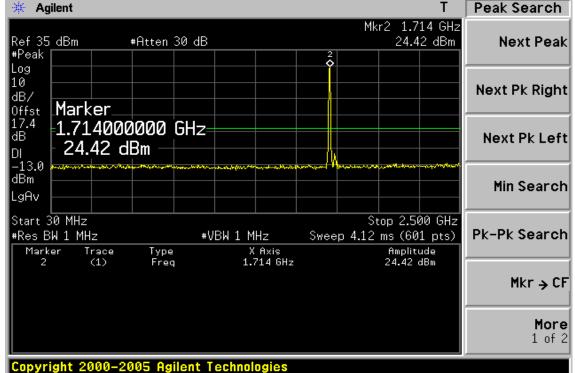
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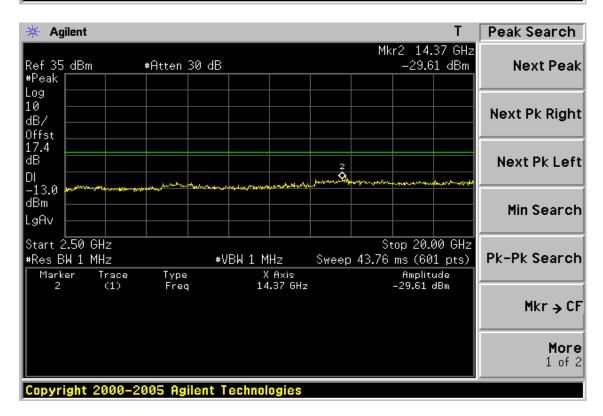
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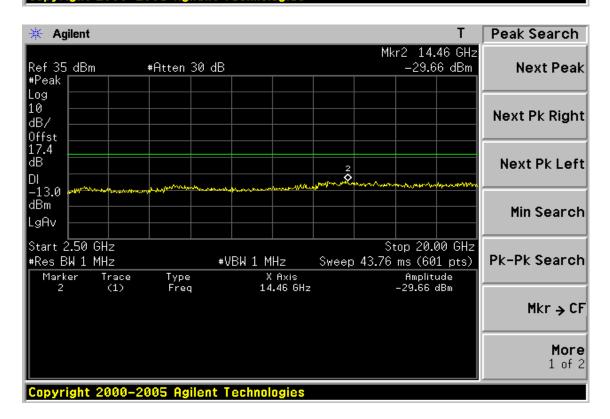
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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 110 of 204

* Agilent T	Peak Search
Mkr2 1.734 GHz Ref 35 dBm #Atten 30 dB 24.12 dBm #Peak	Next Peak
Log 10 dB/ Offst Marker	Next Pk Right
17.4 dB DI -13.0	Next Pk Left
dBm LgAv	Min Search
Start 30 MHz Stop 2.500 GHz #Res BW 1 MHz #VBW 1 MHz Sweep 4.12 ms (601 pts) Marker Trace Type X Axis Amplitude	Pk-Pk Search
2 (1) Freq 1.734 GHz 24.12 dBm	Mkr→CF
	More 1 of 2
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Figure 9-22: Out of Band emission at antenna terminals – HSDPA IV Channel Mid



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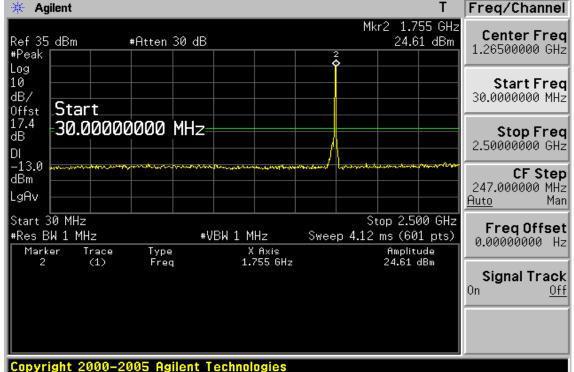
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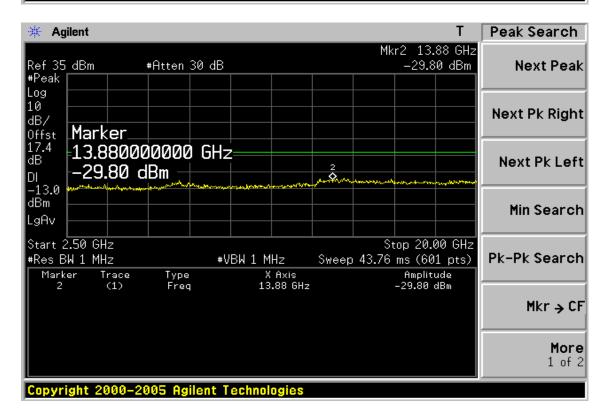
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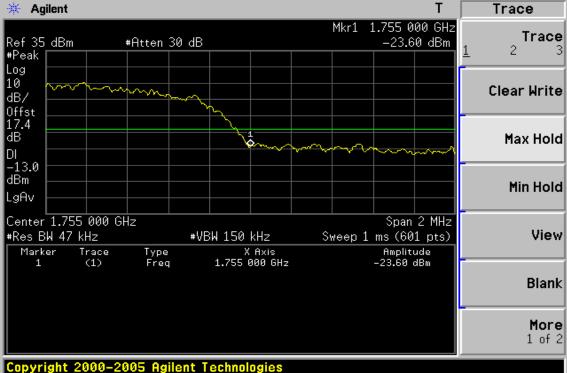
Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 112 of 204



Mkr1 1.710 000 GHz Trace Ref 35 dBm #Atten 30 dB -21.04 dBm 2 #Peak∣ Center Log 1.710000000 GHz 10 **Clear Write** dB/ Offst 17.4 dB Max Hold DI -13.0 dBm Min Hold LgAv Center 1.710 000 GHz Span 2 MHz #Res BW 47 kHz #VBW 150 kHz Sweep 1 ms (601 pts) View X Axis 1.710 000 GHz Amplitude -21.04 dBm Marker Trace Type (1)Freq 1 Blank More 1 of 2

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Figure 9-25: Band edge emission at antenna terminals – HSDPA IV Channel Highest



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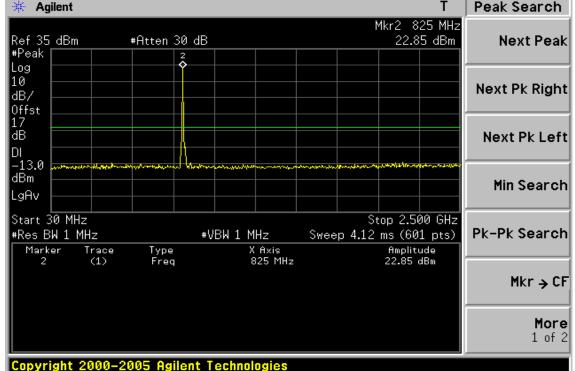
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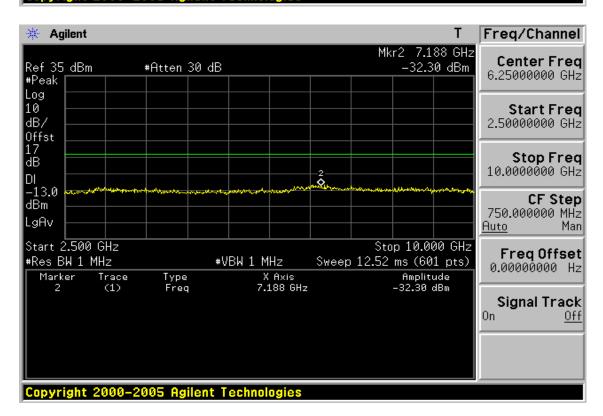
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Figure 9-26: Out of Band	emission at antenna terminals -	- HSDPA V	Channel Lowest





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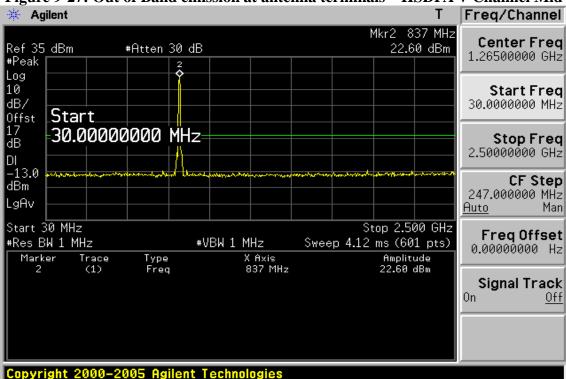
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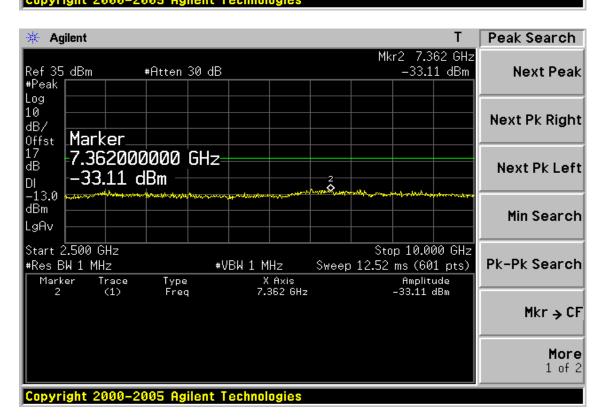
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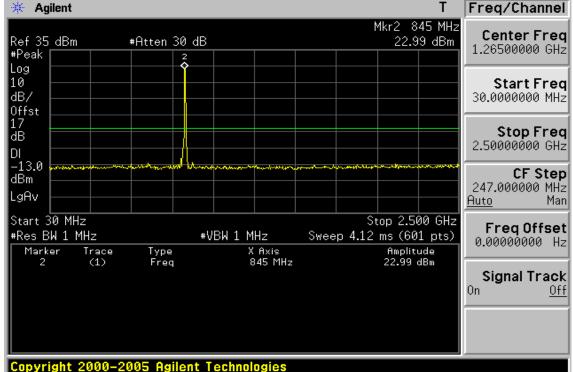
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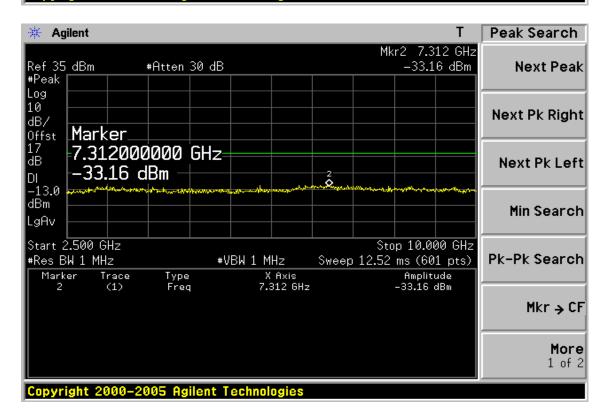
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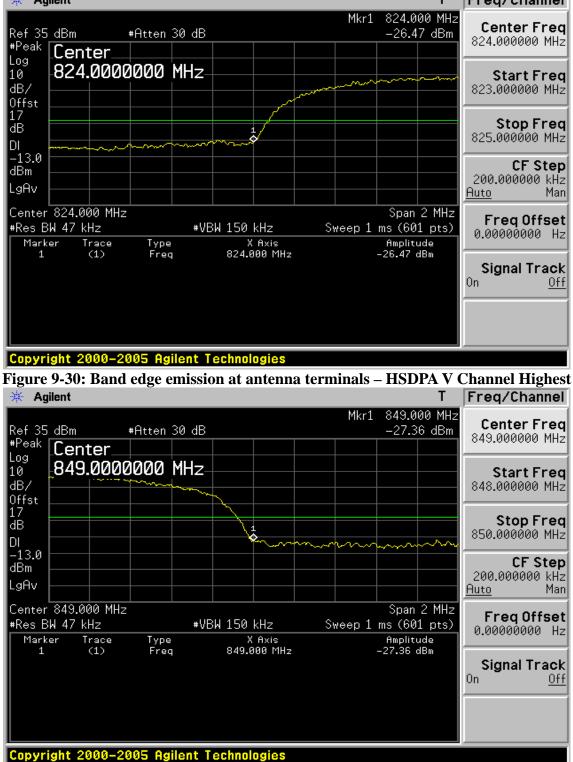
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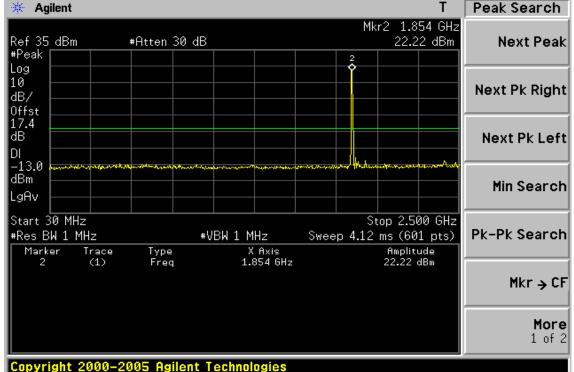
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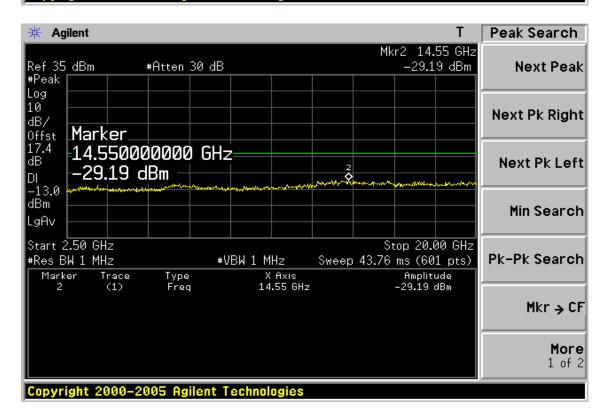
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 117 of 204







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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 118 of 204

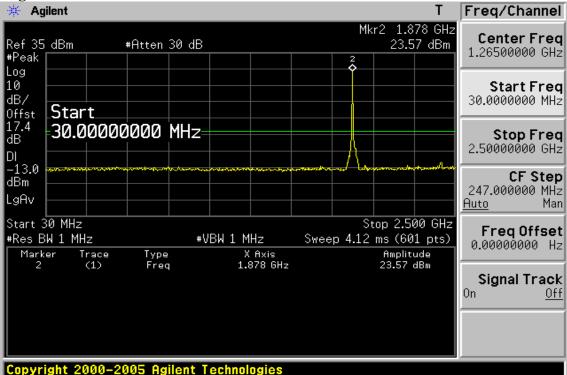
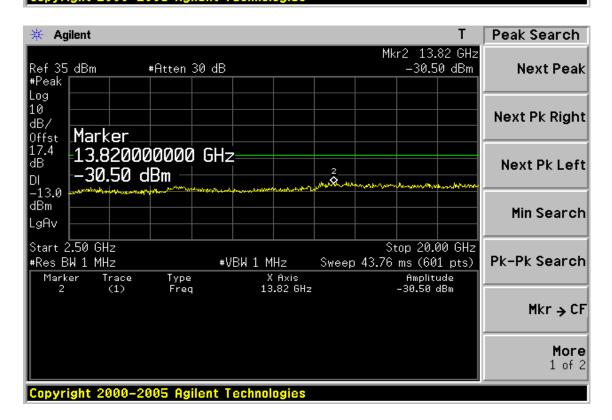


Figure 9-32: Out of Band emission at antenna terminals – HSUPA II Channel Mid



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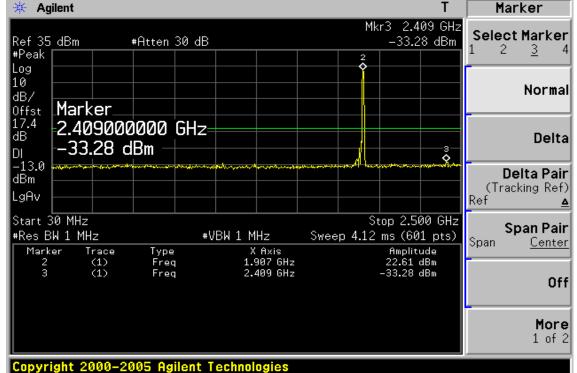
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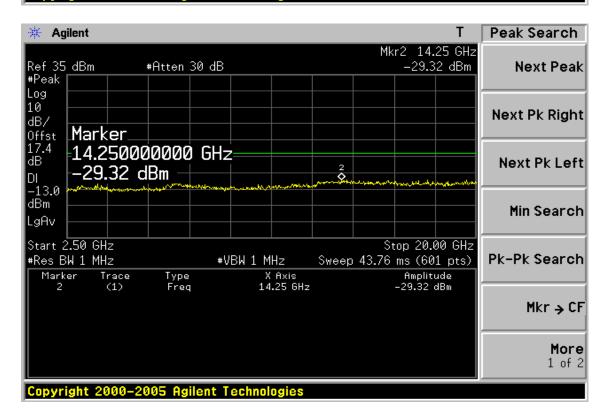
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 119 of 204







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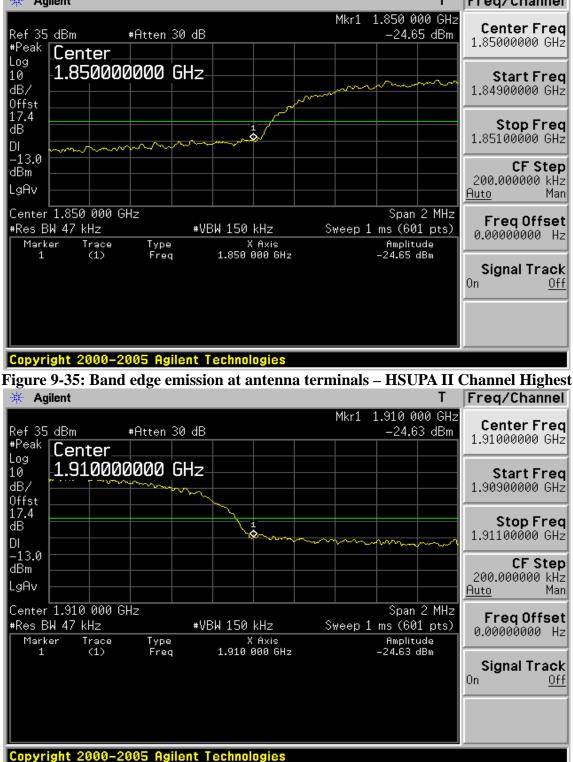
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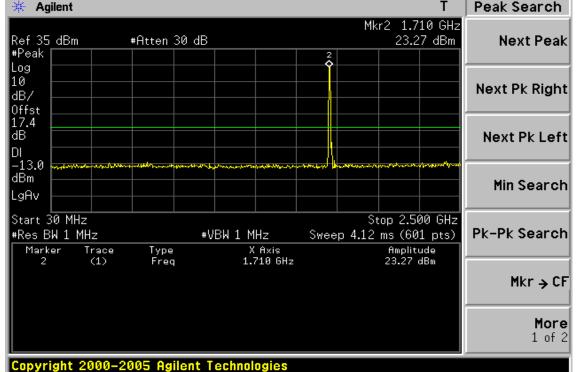
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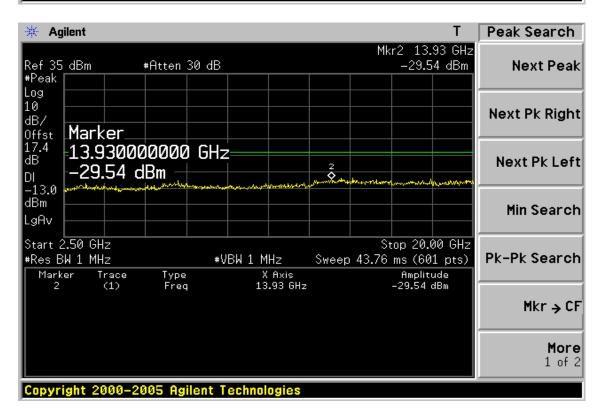
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 121 of 204

Figure	9-36: Out	of Band	emission at	t antenna	terminals -	HSUPA	IV	Channel Lo	owest





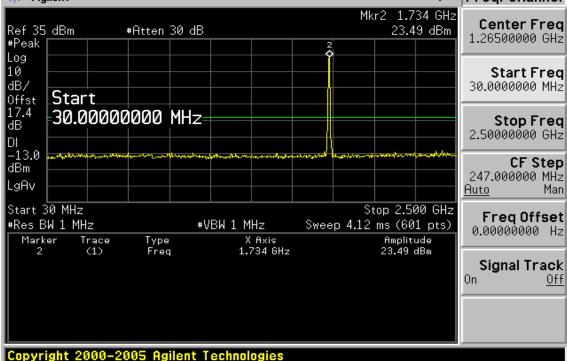
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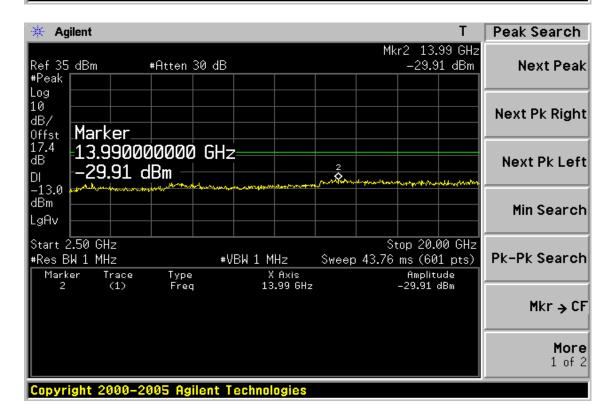
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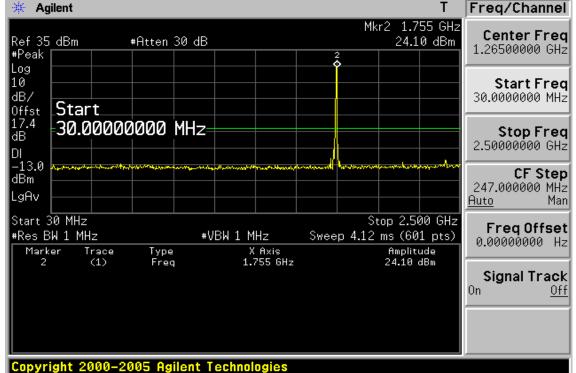
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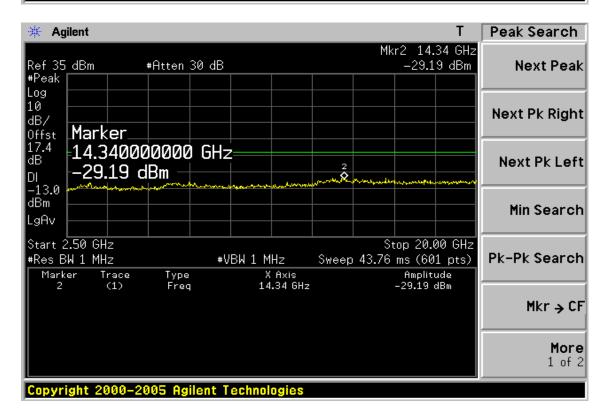
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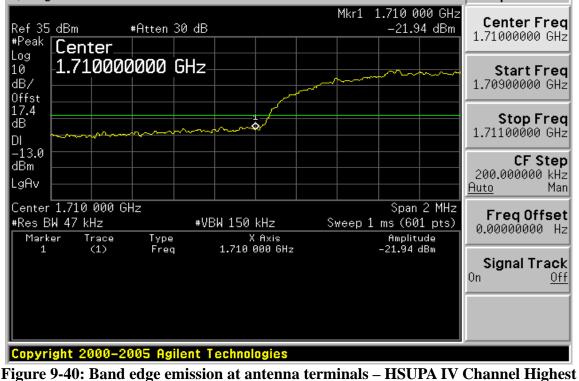
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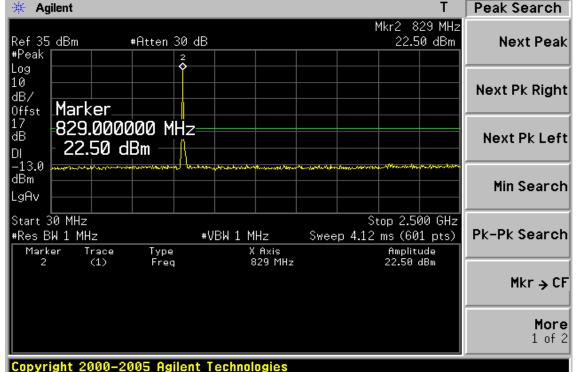
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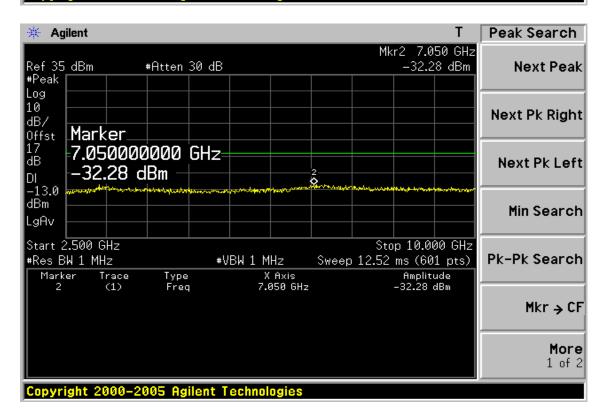
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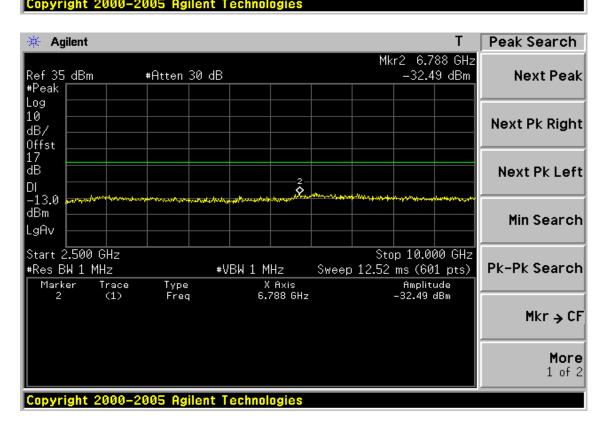
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Log 10 dB/ Offst Start	Start Freq 30.0000000 MHz
¹⁷ dB 30.0000000 MHz	Stop Freq 2.50000000 GHz
-13.0 dBm LgAv	CF Step 247.000000 MHz <u>Auto</u> Man
Start 30 MHz Stop 2.500 GHz #Res BW 1 MHz #VBW 1 MHz Sweep 4.12 ms (601 pts) Marker Trace Type X Axis 2 (1) Freg 837 MHz 23.85 dBm	FreqOffset 0.00000000 Hz
2 (1) Freq 837 MHz 23.05 dBm	Signal Track On <u>Off</u>

Figure 9-42: Out of Band emission at antenna terminals – HSUPA V Channel Mid



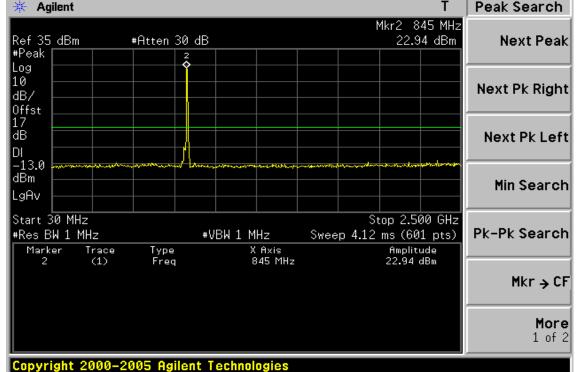
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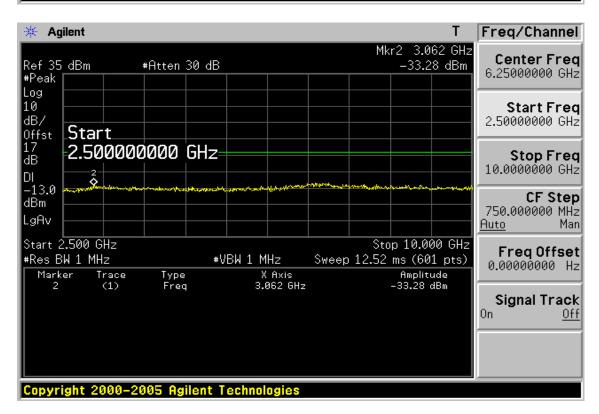
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Figure 9-43: Out o	f Band emission at antenna	terminals - HSUPA	V Channel Highest





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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 128 of 204

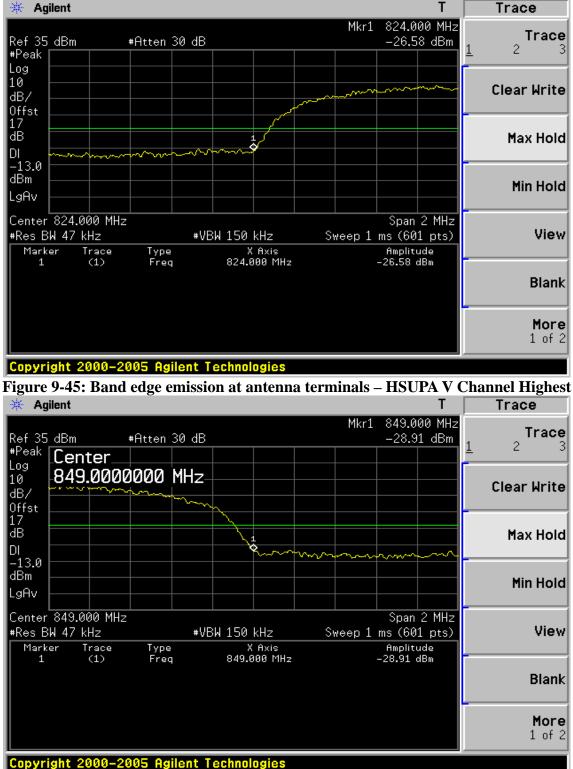


Figure 9-44: Band edge emission at antenna terminals – HSUPA V Channel Lowest

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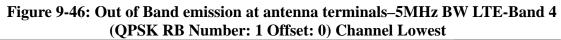
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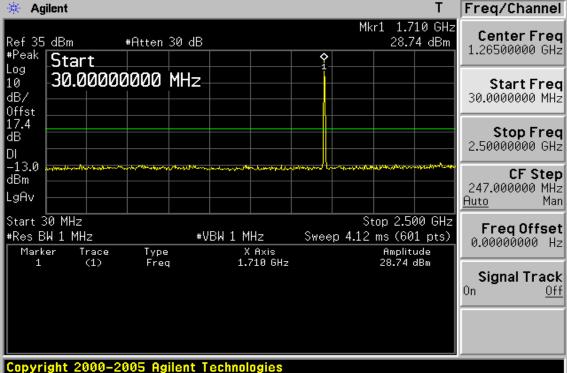
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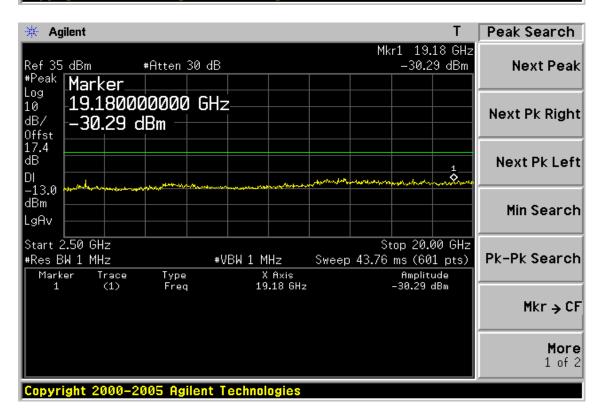
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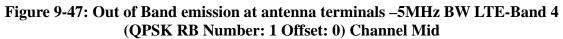
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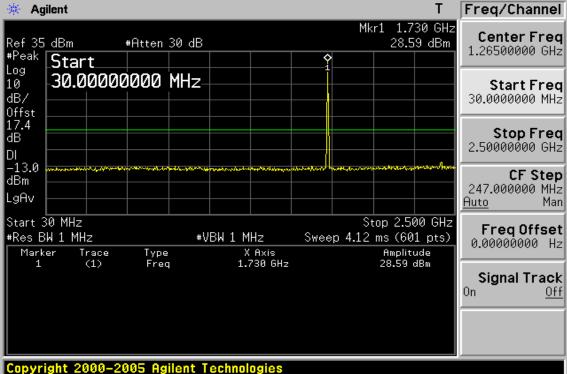
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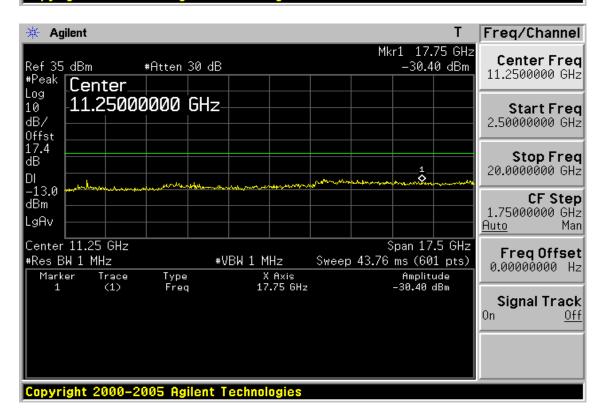
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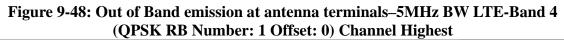
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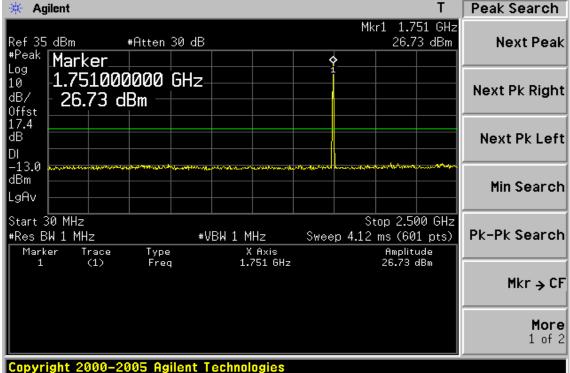
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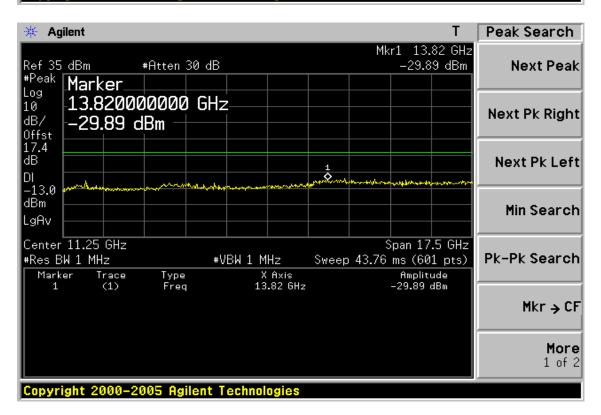
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 131 of 204







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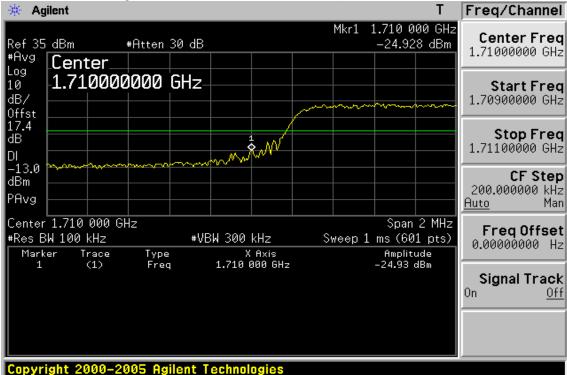
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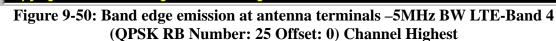
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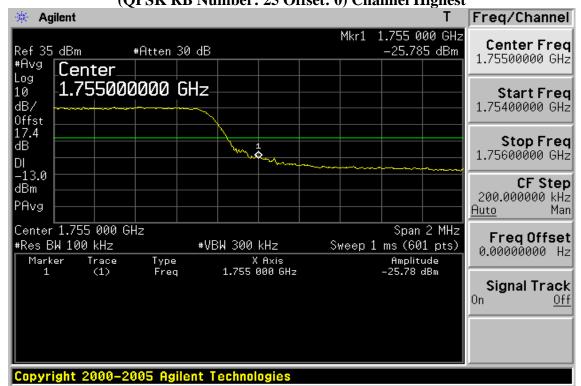


Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 132 of 204









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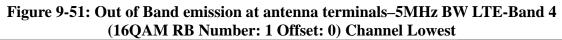
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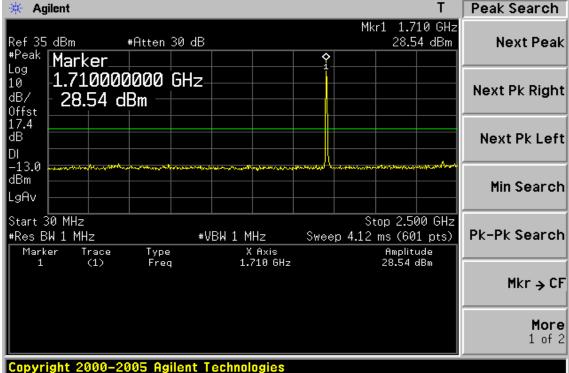
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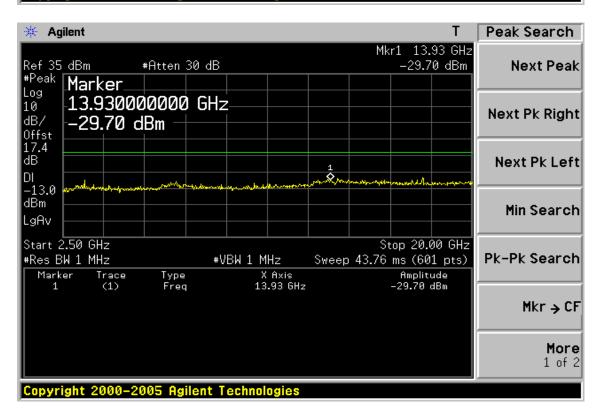
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 133 of 204







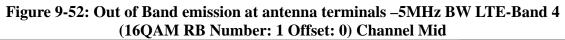
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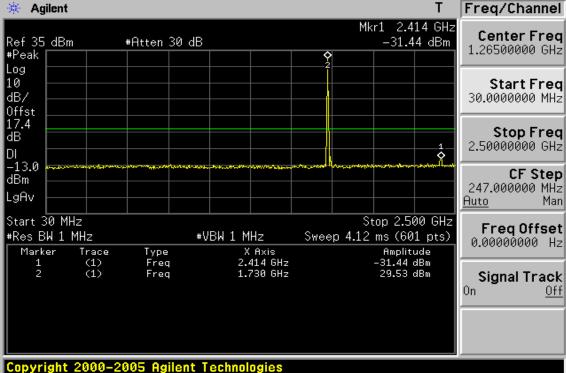
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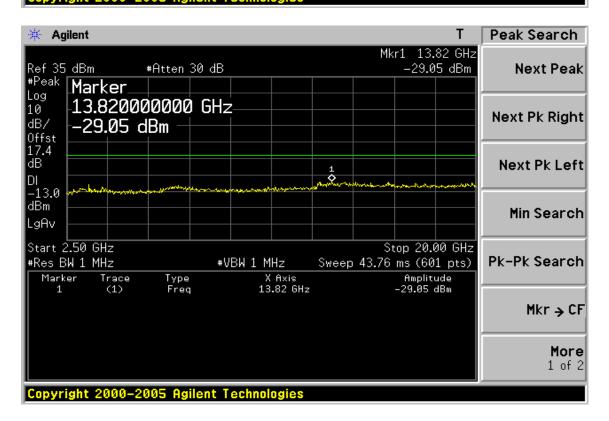
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 134 of 204







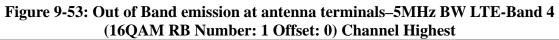
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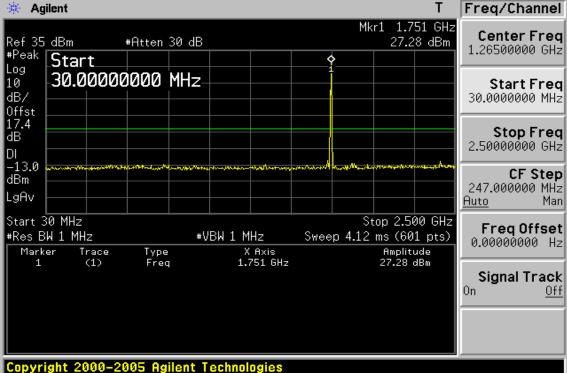
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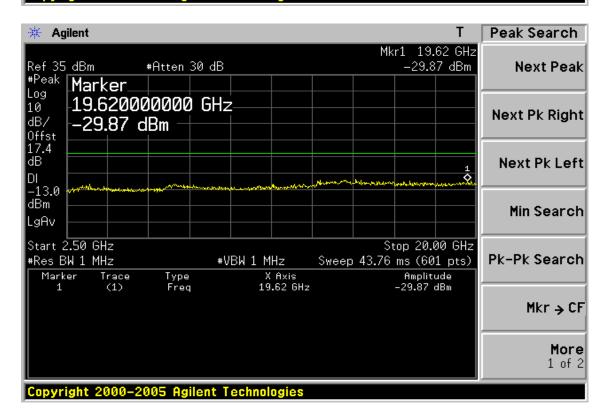
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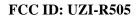




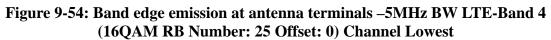
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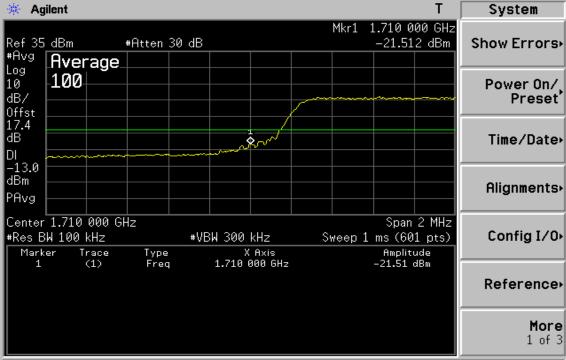
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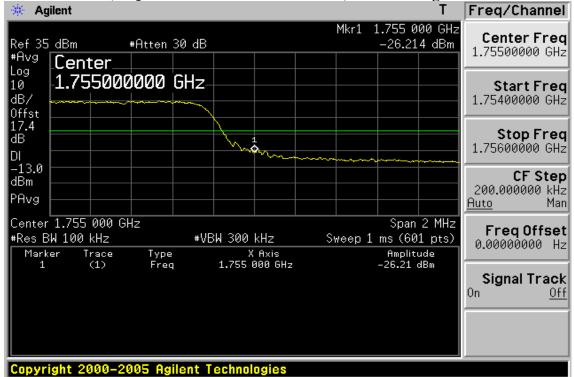






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Figure 9-55: Band edge emission at antenna terminals –5MHz BW LTE-Band 4 (16QAM RB Number: 25 Offset: 0) Channel Highest



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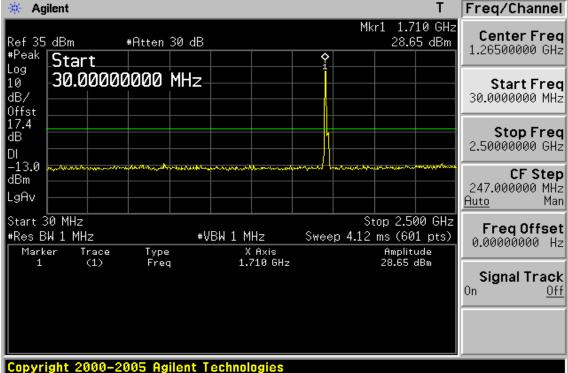
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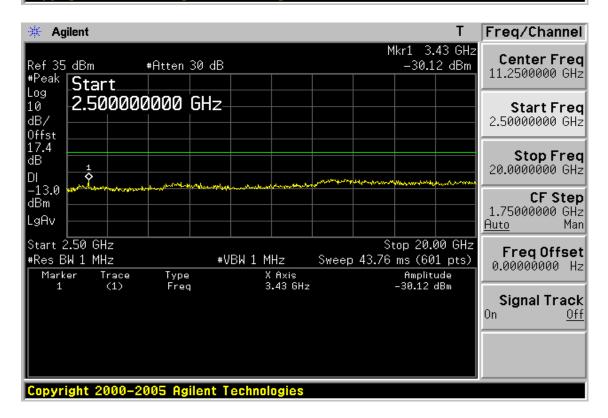
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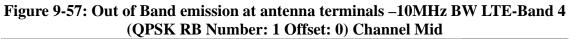
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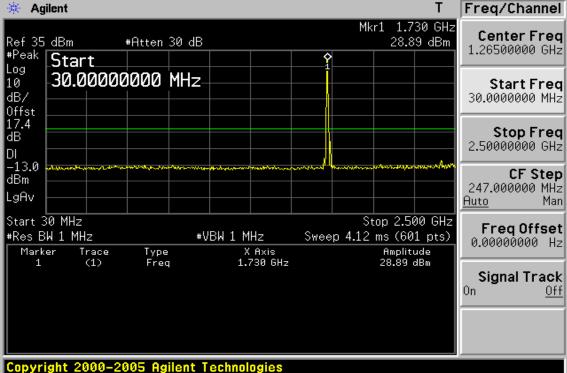
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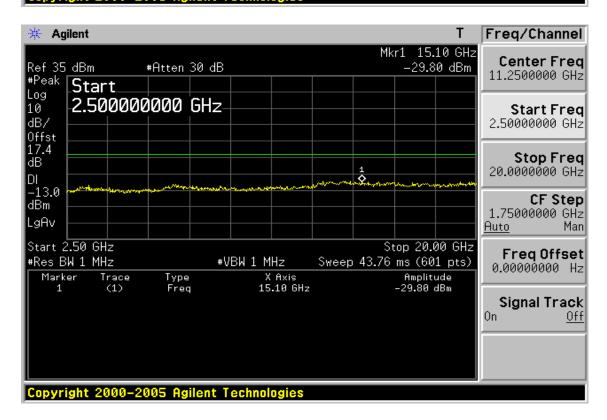
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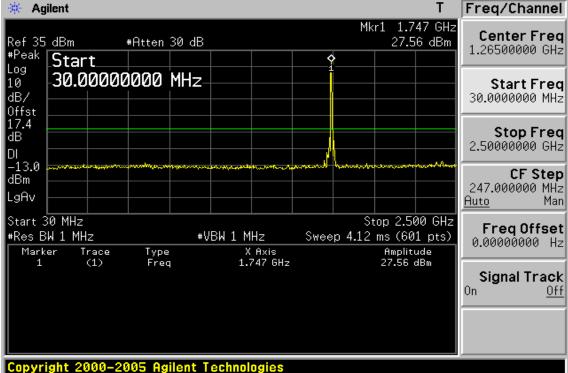
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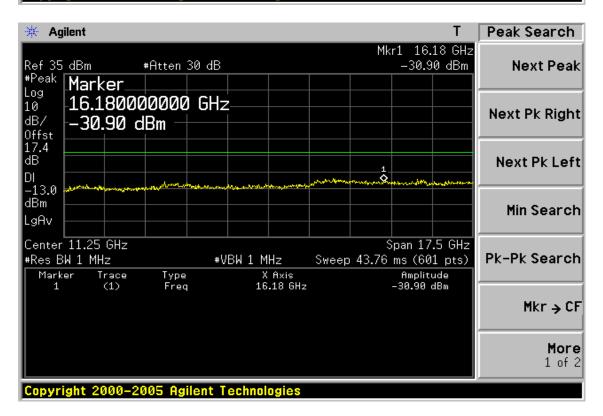
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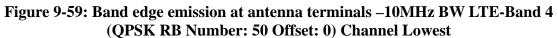
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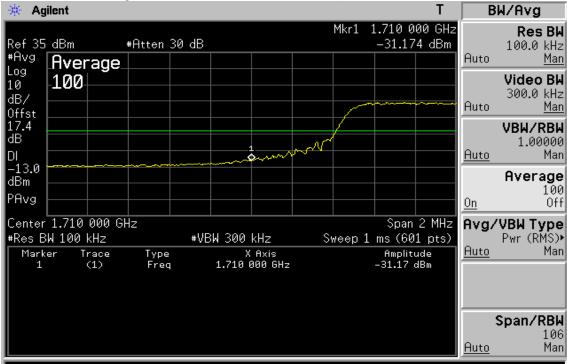
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Figure 9-60: Band edge emission at antenna terminals -10MHz BW LTE-Band 4 (QPSK RB Number: 5 0 Offset:0) Channel Highest



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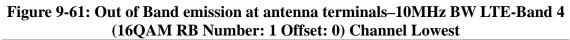
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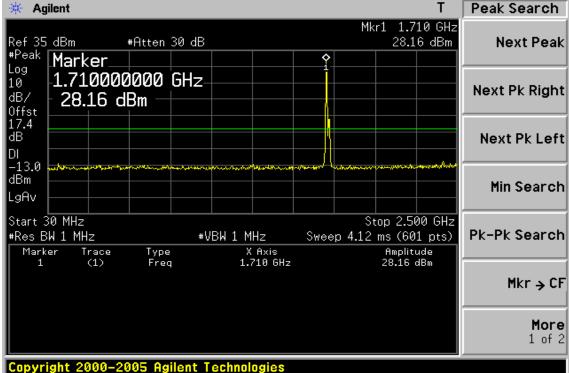
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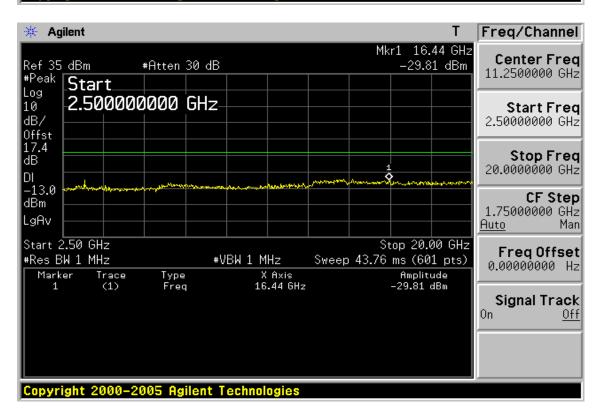
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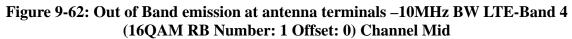
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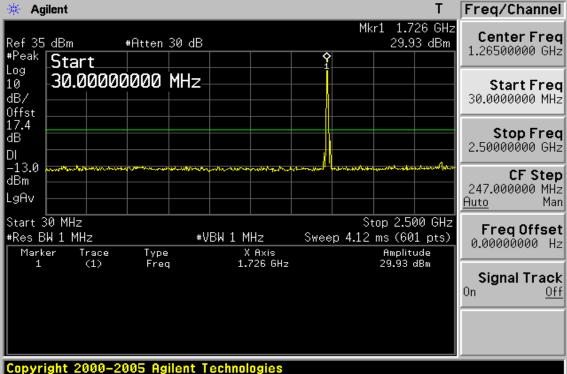
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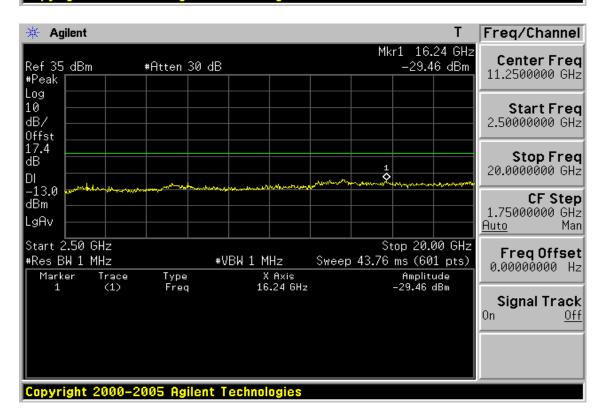
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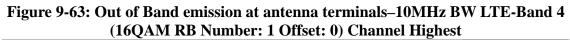
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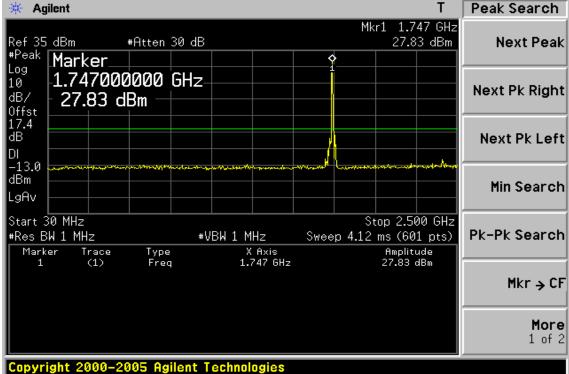
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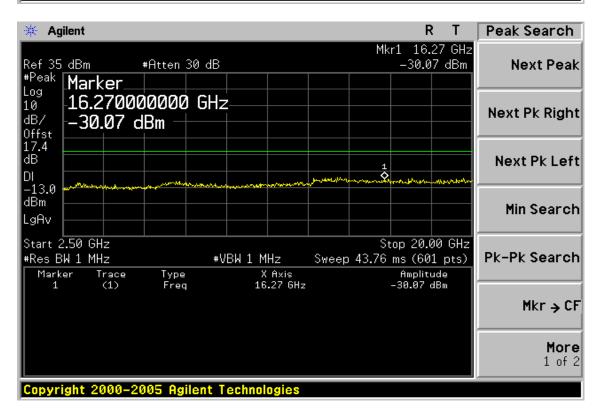
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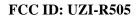
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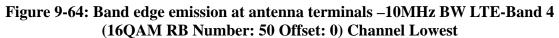
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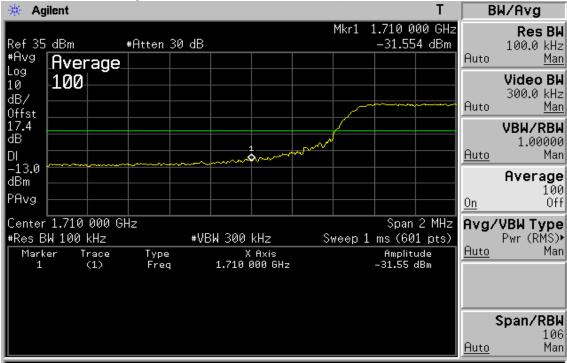
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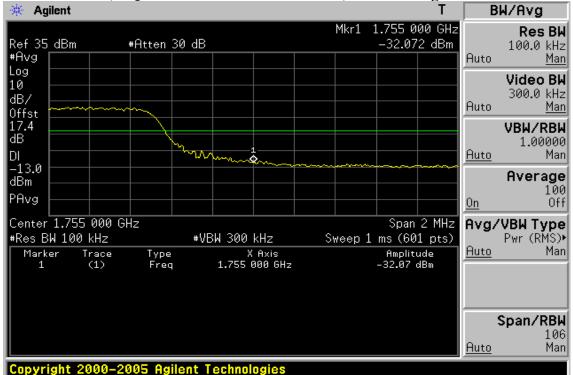






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Figure 9-65: Band edge emission at antenna terminals –10MHz BW LTE-Band 4 (16QAM RB Number: 50 Offset: 0) Channel Highest



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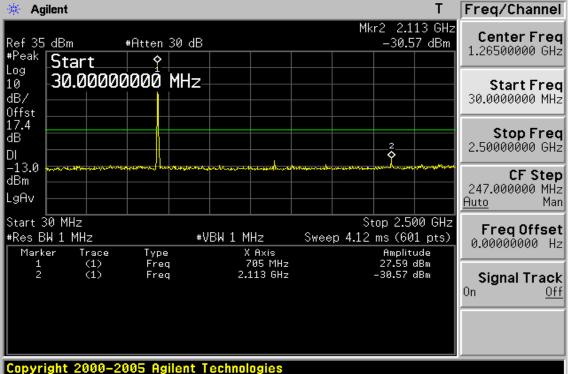
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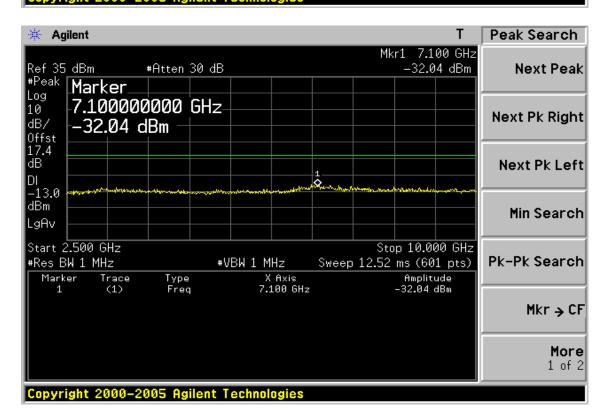
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 145 of 204







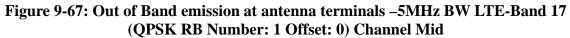
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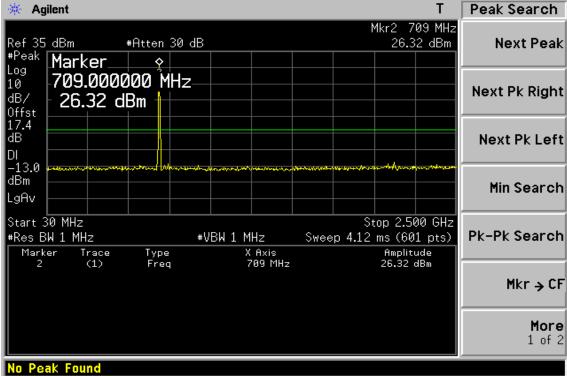
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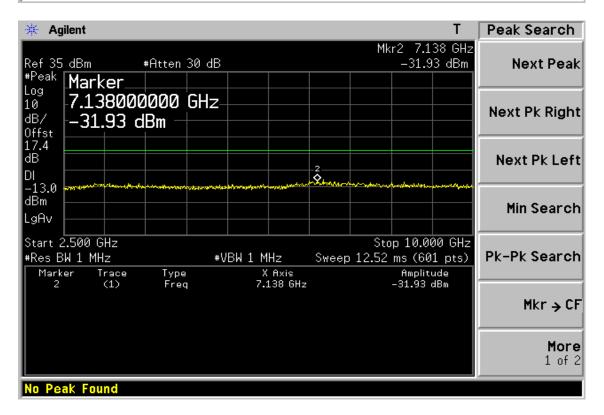
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 146 of 204







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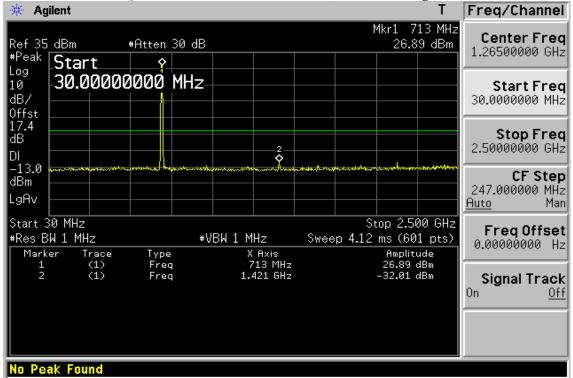
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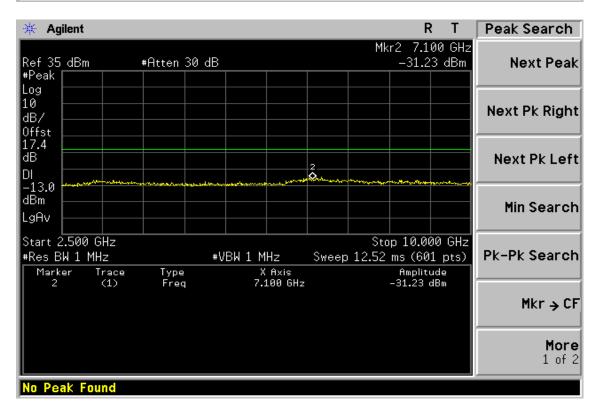
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 147 of 204

Figure 9-68: Out of Band emission at antenna terminals-5MHz BW LTE-Band 17 (QPSK RB Number: 1 Offset: 0) Channel Highest

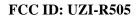




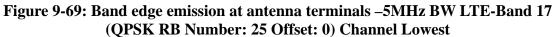
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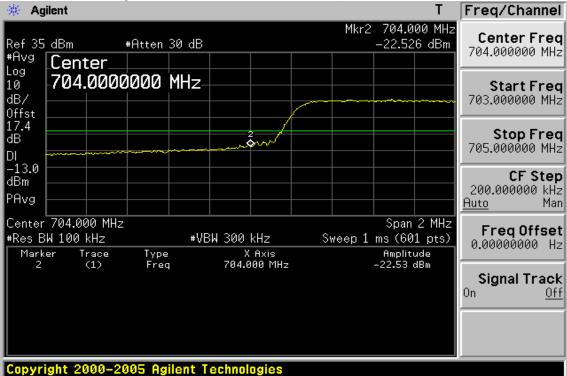
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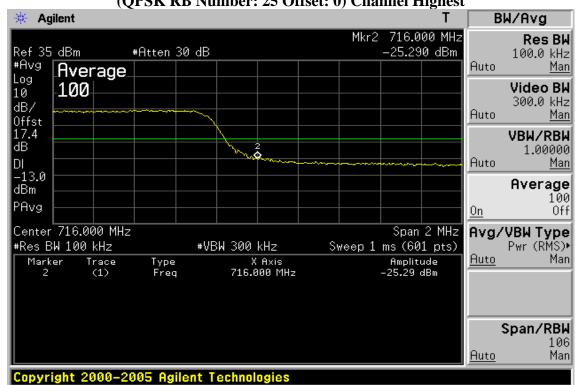












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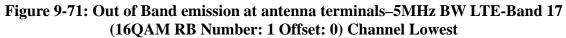
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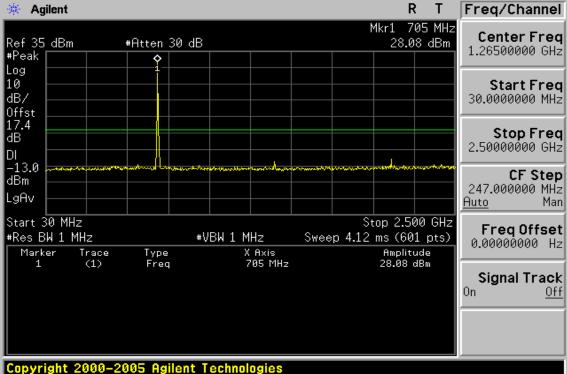
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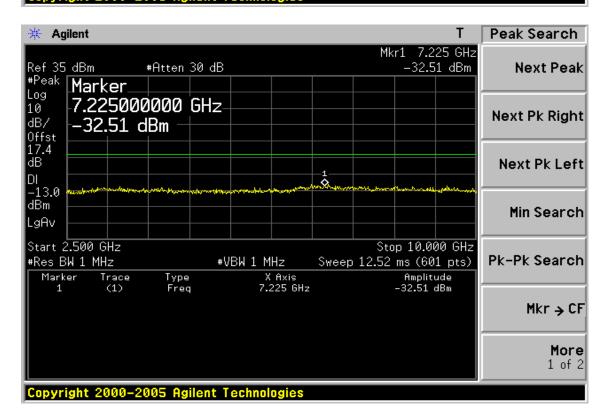
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 149 of 204







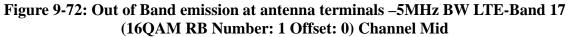
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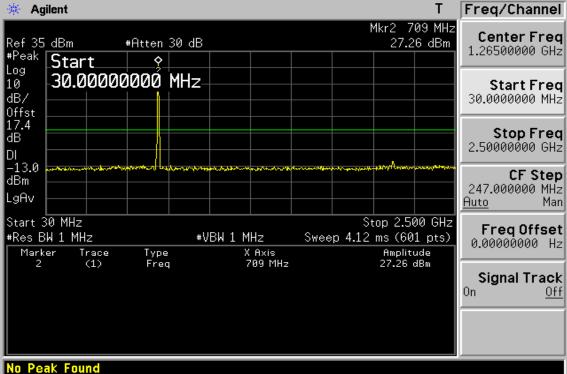
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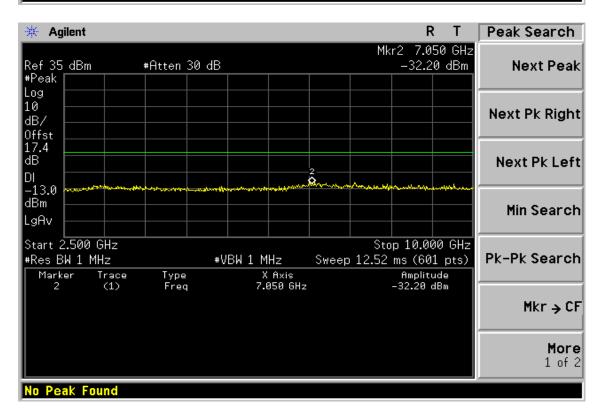
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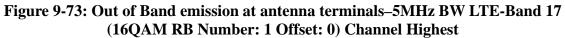
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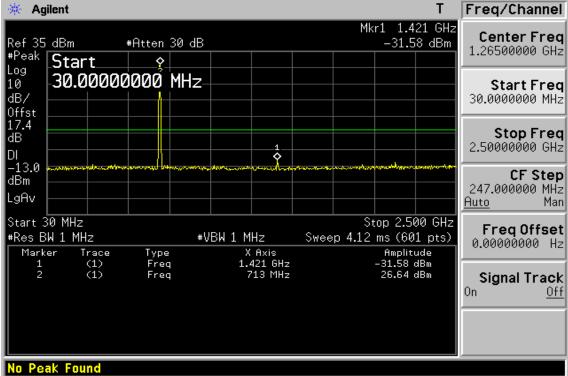
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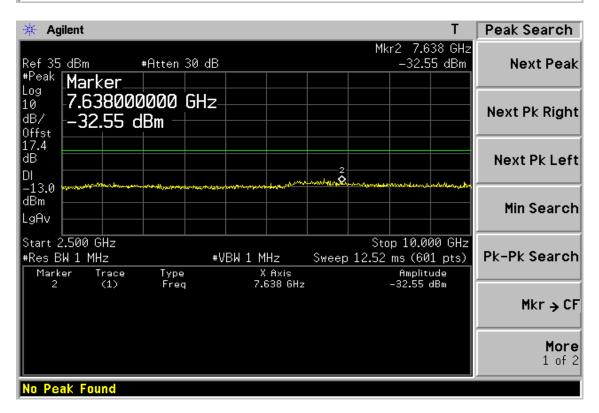
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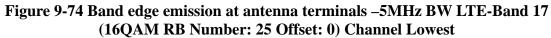
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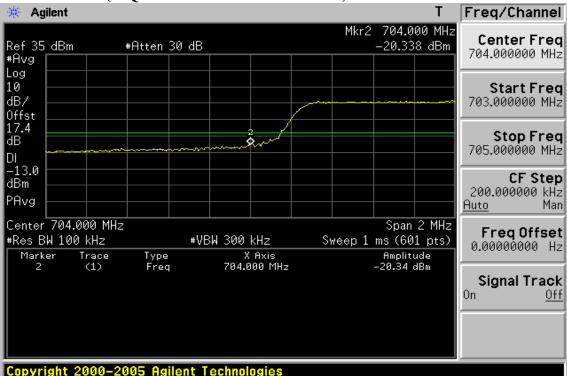
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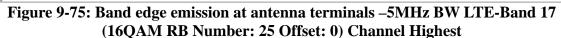
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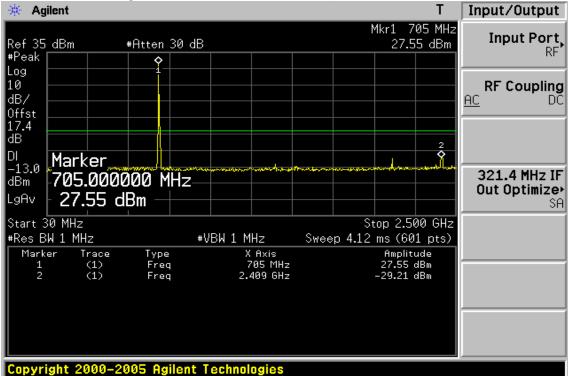
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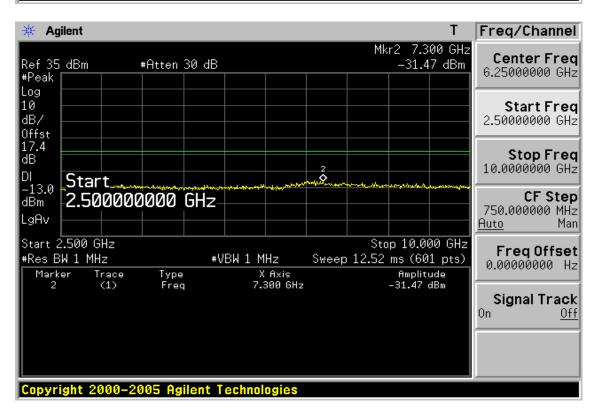
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 153 of 204







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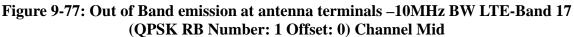
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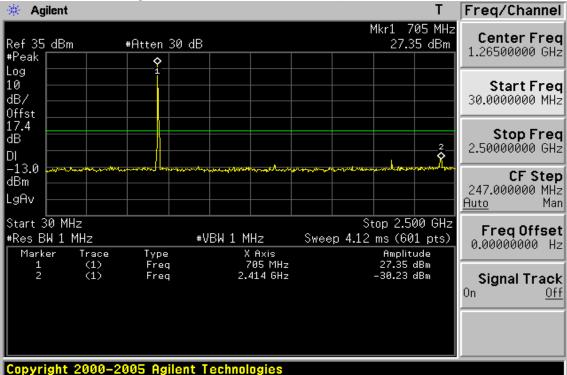
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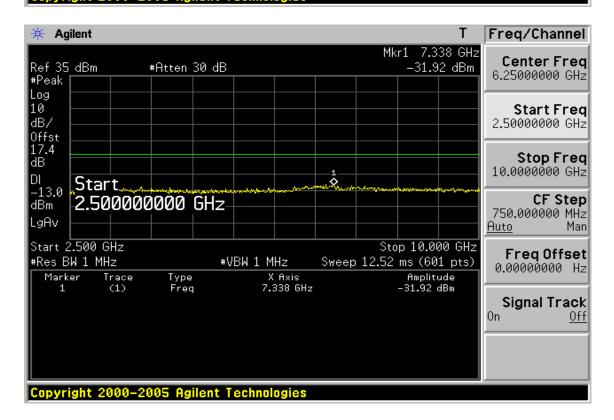
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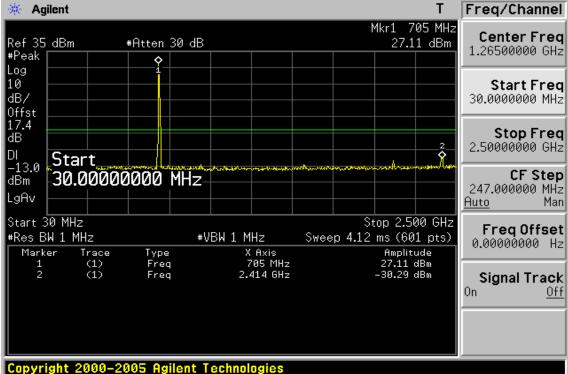
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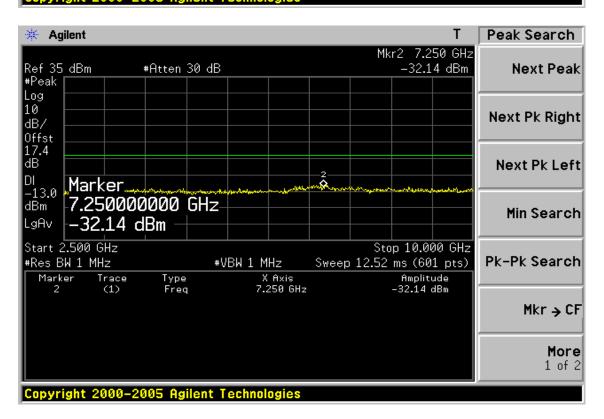
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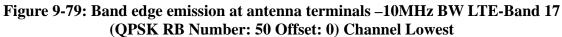
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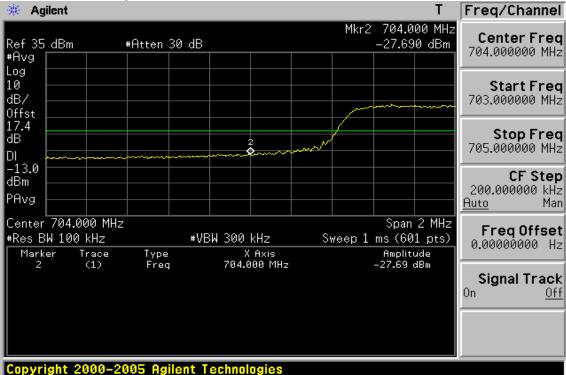


Figure 9-80: Band edge emission at antenna terminals –10MHz BW LTE-Band 17 (QPSK RB Number: 50 Offset: 0) Channel Highest



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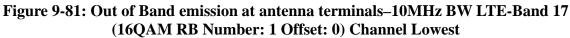
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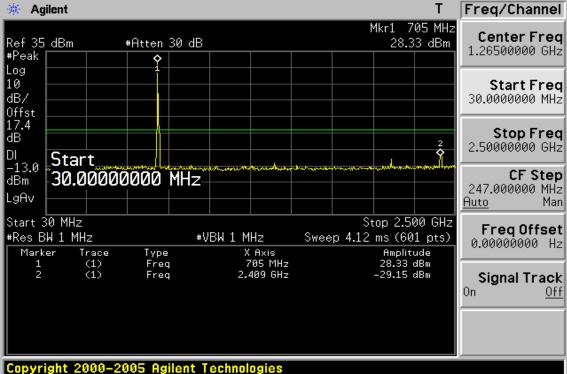
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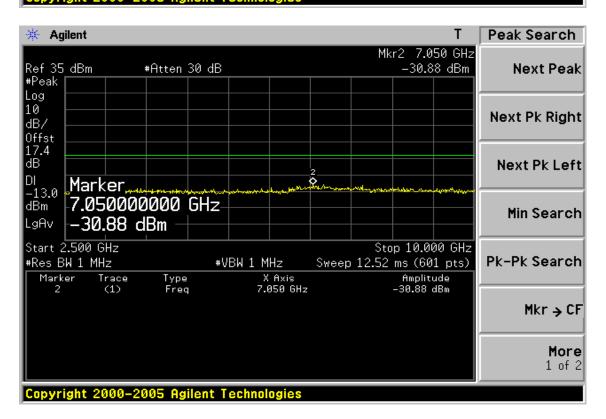
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 157 of 204







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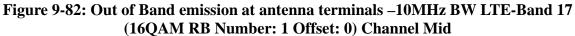
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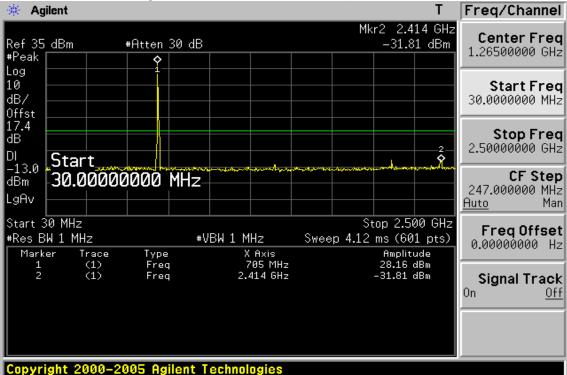
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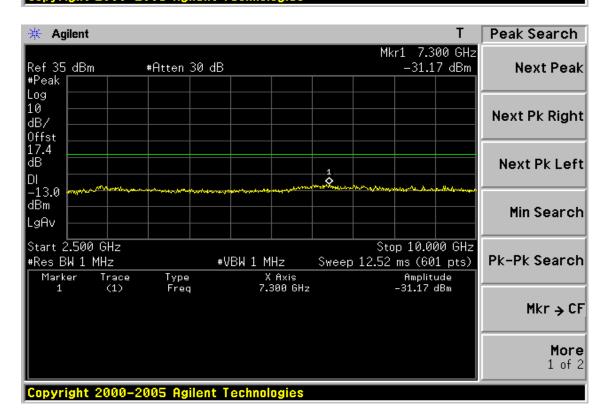
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 158 of 204







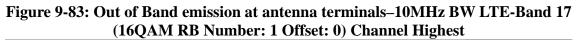
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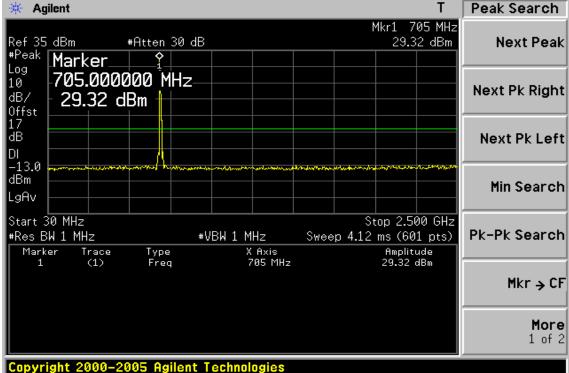
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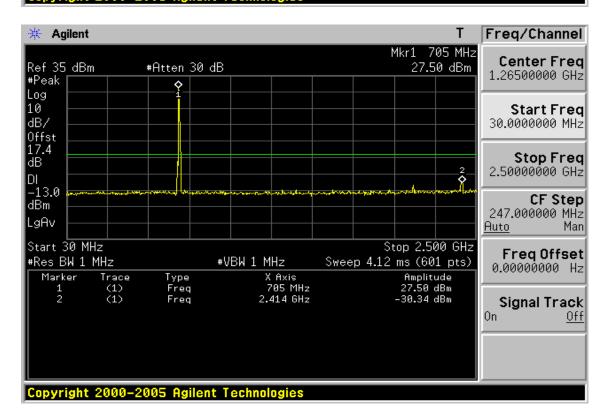
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 159 of 204







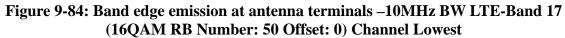
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 160 of 204



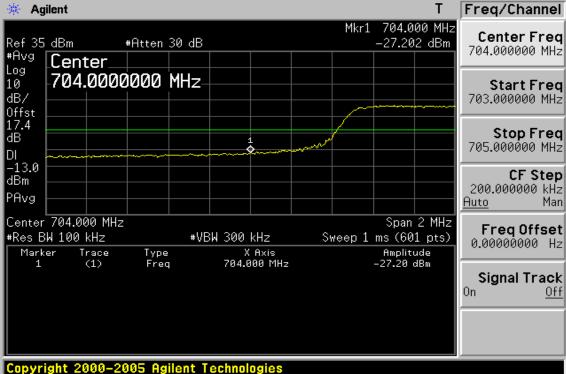


Figure 9-85: Band edge emission at antenna terminals –10MHz BW LTE-Band 17 (16QAM RB Number: 50 Offset: 0) Channel Highest



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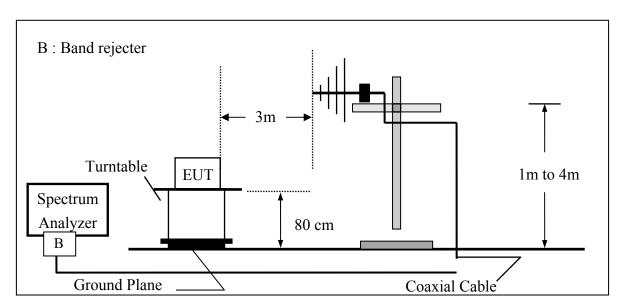
10. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

10.1. Standard Applicable:

According to FCC §2.1053,

FCC §22.917(a),§24.238(a), §27.53(g) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than $43 + 10 \log$ (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm)

10.2. EUT Setup (Block Diagram of Configuration):



Radiated Emission Test Set-Up, Frequency Below 1000MHz

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only

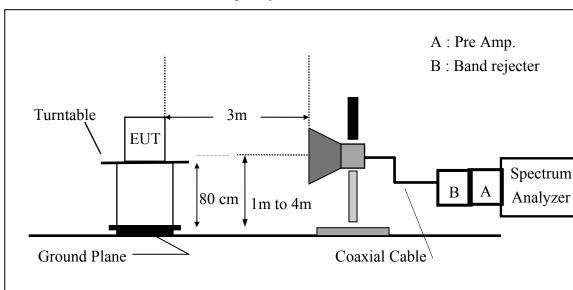
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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 162 of 204



Radiated Emission Test Set-UP Frequency Over 1 GHz

10.3. Measurement Procedure:

The EUT was placed on a non-conductive; The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

ERP= S.G. output (dBm) + Antenna Gain (dBd) – Cable Loss (dB)

EIRP = S.G. output (dBm) + Antenna Gain(dBi) – Cable Loss (dB)

10.4. Measurement Equipment Used:

Refer to section 2.4 in this report

10.5. Measurement Result:

Refer to attach tabular data sheets.

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 163 of 204

Test Result:

Radiated Spurious Emission Measurement Result: HSDPAII Mode

Operation Mode	: TX CH Low Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1852.4MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
177.44	34.73	V	-65.02	-7.82	1.66	-74.50	-13.00	-61.50
250.19	41.85	V	-58.03	-7.89	1.99	-67.91	-13.00	-54.91
335.55	32.49	V	-65.32	-7.72	2.31	-75.35	-13.00	-62.35
559.62	33.34	V	-58.59	-7.77	2.97	-69.33	-13.00	-56.33
650.80	33.52	V	-55.41	-7.81	3.16	-66.38	-13.00	-53.38
972.84	33.07	V	-51.02	-8.00	3.95	-62.97	-13.00	-49.97
3697.50	42.12	V	-55.82	12.61	8.30	-51.52	-13.00	-38.52
5557.20		V		13.24	10.33		-13.00	
7409.60		V		11.49	12.09		-13.00	
9262.00		V		11.92	13.51		-13.00	
11114.40		V		11.68	15.12		-13.00	
12966.80		V		13.62	16.61		-13.00	
14819.20		V		12.83	17.96		-13.00	
16671.60		V		15.87	19.15		-13.00	
18524.00		V		18.74	10.86		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 164 of 204

Operation Mode	: TX CH Low Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1852.4MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
149.31	33.42	Н	-64.42	-7.80	1.59	-73.81	-13.00	-60.81
250.19	41.17	Н	-58.04	-7.89	1.99	-67.92	-13.00	-54.92
322.94	32.63	Н	-64.82	-7.79	2.26	-74.87	-13.00	-61.87
555.74	33.13	Н	-58.47	-7.76	2.97	-69.20	-13.00	-56.20
655.65	33.71	Н	-55.77	-7.82	3.17	-66.76	-13.00	-53.76
970.90	32.85	Н	-51.23	-8.00	3.94	-63.17	-13.00	-50.17
3697.50	37.68	Н	-60.38	12.61	8.30	-56.07	-13.00	-43.07
5557.20		Н		13.24	10.33		-13.00	
7409.60		Н		11.49	12.09		-13.00	
9262.00		Н		11.92	13.51		-13.00	
11114.40		Н		11.68	15.12		-13.00	
12966.80		Н		13.62	16.61		-13.00	
14819.20		Н		12.83	17.96		-13.00	
16671.60		Н		15.87	19.15		-13.00	
18524.00		Н		18.74	10.86		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 165 of 204

Operation Mode	: TX CH Mid Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1880MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
150.28	33.10	V	-64.22	-7.80	1.59	-73.61	-13.00	-60.61
250.19	41.83	V	-58.05	-7.89	1.99	-67.93	-13.00	-54.93
338.46	33.19	V	-64.58	-7.70	2.32	-74.60	-13.00	-61.60
558.65	33.06	V	-58.92	-7.77	2.97	-69.66	-13.00	-56.66
665.35	33.04	V	-56.04	-7.83	3.20	-67.06	-13.00	-54.06
963.14	32.75	V	-51.57	-8.00	3.92	-63.48	-13.00	-50.48
3762.50	39.90	V	-57.75	12.60	8.39	-53.54	-13.00	-40.54
5640.00		V		13.36	10.41		-13.00	
7520.00		V		11.45	12.19		-13.00	
9400.00		V		11.93	13.61		-13.00	
11280.00		V		11.92	15.27		-13.00	
13160.00		V		13.33	16.71		-13.00	
15040.00		V		13.76	18.15		-13.00	
16920.00		V		15.27	19.32		-13.00	
18800.00		V		18.68	16.58		-13.00	

	30MHz - 80MHz: 5.04dB		
Measurement uncertainty	80MHz -1000MHz: 3.76dB		
	1GHz - 13GHz: 4.45dB		

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
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Operation Mode	: TX CH Mid Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1880MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
165.80	35.49	Н	-63.51	-7.81	1.63	-72.95	-13.00	-59.95
250.19	40.81	Н	-58.40	-7.89	1.99	-68.28	-13.00	-55.28
322.94	32.99	Н	-64.46	-7.79	2.26	-74.51	-13.00	-61.51
524.70	38.22	Н	-54.38	-7.74	2.88	-64.99	-13.00	-51.99
655.65	33.81	Н	-55.67	-7.82	3.17	-66.66	-13.00	-53.66
932.10	32.68	Н	-51.76	-7.98	3.85	-63.59	-13.00	-50.59
3762.50	38.63	Н	-59.13	12.60	8.39	-54.92	-13.00	-41.92
5640.00		Н		13.36	10.41		-13.00	
7520.00		Н		11.45	12.19		-13.00	
9400.00		Н		11.93	13.61		-13.00	
11280.00		Н		11.92	15.27		-13.00	
13160.00		Н		13.33	16.71		-13.00	
15040.00		Н		13.76	18.15		-13.00	
16920.00		Н		15.27	19.32		-13.00	
18800.00		Н		18.68	16.58		-13.00	

	30MHz - 80MHz: 5.04dB		
Measurement uncertainty	80MHz -1000MHz: 3.76dB		
	1GHz - 13GHz: 4.45dB		

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 167 of 204

Operation Mode	: TX CH High Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1907.6MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
165.80	36.74	V	-61.97	-7.81	1.63	-71.41	-13.00	-58.41
250.19	41.96	V	-57.92	-7.89	1.99	-67.80	-13.00	-54.80
321.00	33.00	V	-64.99	-7.80	2.25	-75.04	-13.00	-62.04
555.74	33.06	V	-59.09	-7.76	2.97	-69.83	-13.00	-56.83
658.56	33.57	V	-55.44	-7.82	3.18	-66.44	-13.00	-53.44
956.35	33.27	V	-51.20	-8.00	3.90	-63.10	-13.00	-50.10
3808.00	43.25	V	-54.19	12.60	8.46	-50.05	-13.00	-37.05
5722.80		V		13.48	10.49		-13.00	
7630.40		V		11.41	12.27		-13.00	
9538.00		V		11.95	13.73		-13.00	
11445.60		V		12.15	15.42		-13.00	
13353.20		V		13.00	16.81		-13.00	
15260.80		V		14.91	18.28		-13.00	
17168.40		V		14.53	19.50		-13.00	
19076.00		V		18.65	20.76		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 168 of 204

Operation Mode	: TX CH High Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1907.6MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
149.31	33.26	Н	-64.58	-7.80	1.59	-73.97	-13.00	-60.97
250.19	41.50	Н	-57.71	-7.89	1.99	-67.59	-13.00	-54.59
335.55	32.54	Н	-64.79	-7.72	2.31	-74.82	-13.00	-61.82
555.74	33.16	Н	-58.44	-7.76	2.97	-69.17	-13.00	-56.17
643.04	33.17	Н	-56.69	-7.81	3.14	-67.64	-13.00	-54.64
970.90	33.36	Н	-50.72	-8.00	3.94	-62.66	-13.00	-49.66
3808.00	36.54	Н	-61.02	12.60	8.46	-56.87	-13.00	-43.87
5722.80		Н		13.48	10.49		-13.00	
7630.40		Н		11.41	12.27		-13.00	
9538.00		Н		11.95	13.73		-13.00	
11445.60		Н		12.15	15.42		-13.00	
13353.20		Н		13.00	16.81		-13.00	
15260.80		Н		14.91	18.28		-13.00	
17168.40		Н		14.53	19.50		-13.00	
19076.00		Н		18.65	20.76		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 169 of 204

Radiated Spurious Emission Measurement Result: HSDPA IV Mode

Operation Mode	: TX CH Low Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1712.4MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
158.04	33.69	V	-64.64	-7.81	1.48	-73.93	-13.00	-60.93
250.19	41.19	V	-59.51	-7.89	1.99	-69.38	-13.00	-56.38
340.40	33.38	V	-64.87	-7.69	2.38	-74.95	-13.00	-61.95
553.80	33.43	V	-59.43	-7.76	2.76	-69.94	-13.00	-56.94
660.50	33.02	V	-57.32	-7.82	3.07	-68.21	-13.00	-55.21
966.05	33.04	V	-51.89	-8.00	3.96	-63.85	-13.00	-50.85
3886.00	49.96	V	-50.76	12.60	8.02	-46.18	-13.00	-33.18
5137.20		V		12.79	9.36		-13.00	
6849.60		V		11.80	10.94		-13.00	
8562.00		V		11.73	12.66		-13.00	
10274.40		V		11.85	13.80		-13.00	
11986.80		V		13.15	15.25		-13.00	
13699.20		V		12.32	16.55		-13.00	
15411.60		V		15.69	18.06		-13.00	
17124.00		V		14.68	19.79		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 170 of 204

Operation Mode	: TX CH Low Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1712.4MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
158.04	34.13	Н	-64.97	-7.81	1.48	-74.26	-13.00	-61.26
250.19	41.32	Н	-59.58	-7.89	1.99	-69.45	-13.00	-56.45
330.70	32.87	Н	-65.24	-7.75	2.29	-75.28	-13.00	-62.28
558.65	33.99	Н	-58.16	-7.77	2.78	-68.70	-13.00	-55.70
613.94	33.66	Н	-57.61	-7.80	2.96	-68.37	-13.00	-55.37
951.50	32.58	Н	-52.40	-8.00	3.96	-64.35	-13.00	-51.35
3827.50	49.68	Н	-51.14	12.60	7.93	-46.47	-13.00	-33.47
5137.20		Н		12.79	9.36		-13.00	
6849.60		Н		11.80	10.94		-13.00	
8562.00		Н		11.73	12.66		-13.00	
10274.40		Н		11.85	13.80		-13.00	
11986.80		Н		13.15	15.25		-13.00	
13699.20		Н		12.32	16.55		-13.00	
15411.60		Н		15.69	18.06		-13.00	
17124.00		Н		14.68	19.79		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 171 of 204

Operation Mode	: TX CH Mid Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1732.6MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
165.80	33.77	V	-65.26	-7.81	1.50	-74.57	-13.00	-61.57
250.19	41.43	V	-59.27	-7.89	1.99	-69.14	-13.00	-56.14
301.60	33.75	V	-65.78	-7.91	2.00	-75.69	-13.00	-62.69
524.70	38.68	V	-55.16	-7.74	2.73	-65.63	-13.00	-52.63
650.80	33.53	V	-56.89	-7.81	3.00	-67.71	-13.00	-54.71
963.14	33.27	V	-51.73	-8.00	3.96	-63.69	-13.00	-50.69
3795.00	50.31	V	-50.83	12.60	7.88	-46.11	-13.00	-33.11
5197.80		V		12.85	9.41		-13.00	
6930.40		V		11.72	11.05		-13.00	
8663.00		V		11.77	12.74		-13.00	
10395.60		V		11.75	13.95		-13.00	
12128.20		V		13.35	15.32		-13.00	
13860.80		V		11.98	16.77		-13.00	
15593.40		V		16.35	18.21		-13.00	
17326.00		V		14.02	19.68		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 172 of 204

Operation Mode	: TX CH Mid Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1732.6MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
165.80	36.34	Н	-63.26	-7.81	1.50	-72.57	-13.00	-59.57
250.19	41.74	Н	-59.16	-7.89	1.99	-69.03	-13.00	-56.03
322.94	33.54	Н	-64.95	-7.79	2.21	-74.95	-13.00	-61.95
558.65	33.41	Н	-58.74	-7.77	2.78	-69.28	-13.00	-56.28
648.86	32.95	Н	-57.41	-7.81	3.00	-68.22	-13.00	-55.22
968.96	33.09	Н	-51.71	-8.00	3.97	-63.67	-13.00	-50.67
3860.00	49.36	Н	-51.33	12.60	7.98	-46.70	-13.00	-33.70
5197.80		Н		12.85	9.41		-13.00	
6930.40		Н		11.72	11.05		-13.00	
8663.00		Н		11.77	12.74		-13.00	
10395.60		Н		11.75	13.95		-13.00	
12128.20		Н		13.35	15.32		-13.00	
13860.80		Н		11.98	16.77		-13.00	
15593.40		Н		16.35	18.21		-13.00	
17326.00		Н		14.02	19.68		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 173 of 204

Operation Mode	: TX CH High Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1752.6MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
149.31	33.18	V	-64.51	-7.80	1.46	-73.78	-13.00	-60.78
250.19	41.99	V	-58.71	-7.89	1.99	-68.58	-13.00	-55.58
301.60	36.76	V	-62.77	-7.91	2.00	-72.68	-13.00	-59.68
558.65	33.83	V	-58.78	-7.77	2.78	-69.32	-13.00	-56.32
650.80	33.15	V	-57.27	-7.81	3.00	-68.09	-13.00	-55.09
982.54	33.69	V	-50.80	-7.99	3.97	-62.77	-13.00	-49.77
3827.50	49.77	V	-51.22	12.60	7.93	-46.55	-13.00	-33.55
5257.80		V		12.91	9.46		-13.00	
7010.40		V		11.65	11.14		-13.00	
8763.00		V		11.80	12.82		-13.00	
10515.60		V		11.66	14.08		-13.00	
12268.20		V		13.54	15.39		-13.00	
14020.80		V		11.67	16.95		-13.00	
15773.40		V		16.75	18.27		-13.00	
17526.00		V		13.21	19.62		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 174 of 204

Operation Mode	: TX CH High Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1752.6MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
149.31	33.67	Н	-64.97	-7.80	1.46	-74.24	-13.00	-61.24
250.19	42.59	Н	-58.31	-7.89	1.99	-68.18	-13.00	-55.18
330.70	33.53	Н	-64.58	-7.75	2.29	-74.62	-13.00	-61.62
558.65	33.58	Н	-58.57	-7.77	2.78	-69.11	-13.00	-56.11
662.44	33.21	Н	-56.97	-7.82	3.08	-67.87	-13.00	-54.87
930.16	32.81	Н	-52.50	-7.98	3.90	-64.38	-13.00	-51.38
3827.50	50.33	Н	-50.49	12.60	7.93	-45.82	-13.00	-32.82
5257.80		Н		12.91	9.46		-13.00	
7010.40		Н		11.65	11.14		-13.00	
8763.00		Н		11.80	12.82		-13.00	
10515.60		Н		11.66	14.08		-13.00	
12268.20		Н		13.54	15.39		-13.00	
14020.80		Н		11.67	16.95		-13.00	
15773.40		Н		16.75	18.27		-13.00	
17526.00		Н		13.21	19.62		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 175 of 204

Radiated Spurious Emission Measurement Result: HSDPA V Mode

Operation Mode	: TX CH Low Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 826.4MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
167.74	37.03	V	-61.85	-9.95	1.63	-73.44	-13.00	-60.44
250.19	42.24	V	-57.64	-10.03	1.99	-69.66	-13.00	-56.66
338.46	32.88	V	-64.89	-9.84	2.32	-77.05	-13.00	-64.05
558.65	32.46	V	-59.52	-9.91	2.97	-72.40	-13.00	-59.40
699.30	34.75	V	-54.68	-10.00	3.29	-67.97	-13.00	-54.97
978.66	33.75	V	-50.21	-10.13	3.97	-64.31	-13.00	-51.31
1650.00	38.56	V	-66.02	9.29	5.23	-61.96	-13.00	-48.96
2479.20		V		10.07	6.54		-13.00	
3305.60		V		12.19	7.73		-13.00	
4132.00		V		12.62	8.87		-13.00	
4958.40		V		12.65	9.75		-13.00	
5784.80		V		13.58	10.55		-13.00	
6611.20		V		12.03	11.31		-13.00	
7437.60		V		11.48	12.12		-13.00	
8264.00		V		11.50	12.73		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 176 of 204

Operation Mode	: TX CH Low Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 826.4MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
165.80	34.70	Н	-64.30	-9.95	1.63	-75.88	-13.00	-62.88
250.19	41.21	Н	-58.00	-10.03	1.99	-70.02	-13.00	-57.02
332.64	33.31	Н	-64.05	-9.88	2.29	-76.22	-13.00	-63.22
555.74	33.19	Н	-58.41	-9.90	2.97	-71.28	-13.00	-58.28
658.56	33.99	Н	-55.37	-9.96	3.18	-68.51	-13.00	-55.51
982.54	34.06	Н	-49.95	-10.13	3.98	-64.07	-13.00	-51.07
1650.00	45.61	Н	-58.79	9.29	5.23	-54.73	-13.00	-41.73
2479.20		Н		10.07	6.54		-13.00	
3305.60		Н		12.19	7.73		-13.00	
4132.00		Н		12.62	8.87		-13.00	
4958.40		Н		12.65	9.75		-13.00	
5784.80		Н		13.58	10.55		-13.00	
6611.20		Н		12.03	11.31		-13.00	
7437.60		Н		11.48	12.12		-13.00	
8264.00		Н		11.50	12.73		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 177 of 204

Operation Mode	: TX CH Mid Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 836.6MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
154.16	33.29	V	-64.37	-9.94	1.60	-75.92	-13.00	-62.92
250.19	42.09	V	-57.79	-10.03	1.99	-69.81	-13.00	-56.81
335.55	32.83	V	-64.98	-9.86	2.31	-77.15	-13.00	-64.15
546.04	32.80	V	-59.82	-9.90	2.95	-72.66	-13.00	-59.66
691.54	34.24	V	-55.11	-9.99	3.27	-68.37	-13.00	-55.37
972.84	34.35	V	-49.74	-10.14	3.95	-63.83	-13.00	-50.83
1682.50	36.62	V	-67.93	9.39	5.28	-63.82	-13.00	-50.82
2508.00		V		10.08	6.58		-13.00	
3344.00		V		12.27	7.79		-13.00	
4180.00		V		12.62	8.93		-13.00	
5016.00		V		12.67	9.81		-13.00	
5852.00		V		13.68	10.62		-13.00	
6688.00		V		11.96	11.39		-13.00	
7524.00		V		11.45	12.20		-13.00	
8360.00		V		11.58	12.81		-13.00	

	30MHz - 80MHz: 5.04dB		
Measurement uncertainty	80MHz -1000MHz: 3.76dB		
	1GHz - 13GHz: 4.45dB		

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 178 of 204

Operation Mode	: TX CH Mid Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 836.6MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
154.16	33.57	Н	-64.52	-9.94	1.60	-76.07	-13.00	-63.07
250.19	41.74	Н	-57.47	-10.03	1.99	-69.49	-13.00	-56.49
335.55	33.08	Н	-64.25	-9.86	2.31	-76.42	-13.00	-63.42
558.65	34.08	Н	-57.46	-9.91	2.97	-70.34	-13.00	-57.34
694.45	33.92	Н	-53.94	-9.99	3.28	-67.21	-13.00	-54.21
949.56	34.52	Н	-49.70	-10.14	3.88	-63.71	-13.00	-50.71
1682.50	42.95	Н	-61.42	9.39	5.28	-57.31	-13.00	-44.31
2508.00		Н		10.08	6.58		-13.00	
3344.00		Н		12.27	7.79		-13.00	
4180.00		Н		12.62	8.93		-13.00	
5016.00		Н		12.67	9.81		-13.00	
5852.00		Н		13.68	10.62		-13.00	
6688.00		Н		11.96	11.39		-13.00	
7524.00		Н		11.45	12.20		-13.00	
8360.00		Н		11.58	12.81		-13.00	

	30MHz - 80MHz: 5.04dB		
Measurement uncertainty	80MHz -1000MHz: 3.76dB		
	1GHz - 13GHz: 4.45dB		

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 179 of 204

Operation Mode	: TX CH High Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 846.6MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
154.16	33.29	V	-64.37	-9.94	1.60	-75.92	-13.00	-62.92
250.19	41.96	V	-57.92	-10.03	1.99	-69.94	-13.00	-56.94
335.55	34.19	V	-63.62	-9.86	2.31	-75.79	-13.00	-62.79
553.80	33.01	V	-59.26	-9.90	2.97	-72.13	-13.00	-59.13
665.35	34.33	V	-54.75	-9.97	3.20	-67.91	-13.00	-54.91
932.10	33.91	V	-50.76	-10.12	3.85	-64.73	-13.00	-51.73
1702.00	37.81	V	-66.72	9.45	5.32	-62.59	-13.00	-49.59
2539.80		V		10.18	6.62		-13.00	
3386.40		V		12.36	7.85		-13.00	
4233.00		V		12.63	8.99		-13.00	
5079.60		V		12.73	9.87		-13.00	
5926.20		V		13.79	10.69		-13.00	
6772.80		V		11.87	11.47		-13.00	
7619.40		V		11.41	12.26		-13.00	
8466.00		V		11.68	12.89		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 180 of 204

Operation Mode	: TX CH High Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 846.6MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
154.16	34.29	Н	-63.80	-9.94	1.60	-75.35	-13.00	-62.35
250.19	41.76	Н	-57.45	-10.03	1.99	-69.47	-13.00	-56.47
309.36	33.40	Н	-64.17	-10.01	2.21	-76.39	-13.00	-63.39
559.62	32.50	Н	-59.02	-9.91	2.97	-71.90	-13.00	-58.90
660.50	34.00	Н	-55.28	-9.96	3.19	-68.43	-13.00	-55.43
946.65	33.75	Н	-50.50	-10.14	3.87	-64.51	-13.00	-51.51
1702.00	44.35	Н	-59.99	9.45	5.32	-55.86	-13.00	-42.86
2539.80		Н		10.18	6.62		-13.00	
3386.40		Н		12.36	7.85		-13.00	
4233.00		Н		12.63	8.99		-13.00	
5079.60		Н		12.73	9.87		-13.00	
5926.20		Н		13.79	10.69		-13.00	
6772.80		Н		11.87	11.47		-13.00	
7619.40		Н		11.41	12.26		-13.00	
8466.00		Н		11.68	12.89		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 181 of 204

Radiated Spurious Emission Measurement Result: 5MHz BW LTE-Band 4

(16QAM RB 1 Offset 24) (Worst case for each band)							
peration Mode	: TX CH Low Mode	Test Date:	May 31, 2011				
Fundamental Frequency	: 1712.5MHz	Test By:	Lion				
Temperature	: 25°C	Pol:	Ver				
Humidity	: 65%						

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
151.25	33.63	V	-63.77	-7.80	1.59	-73.17	-13.00	-60.17
250.19	42.32	V	-57.56	-7.89	1.99	-67.44	-13.00	-54.44
321.00	35.83	V	-62.16	-7.80	2.25	-72.21	-13.00	-59.21
558.65	32.93	V	-59.05	-7.77	2.97	-69.79	-13.00	-56.79
660.50	33.26	V	-55.77	-7.82	3.19	-66.78	-13.00	-53.78
978.66	32.55	V	-51.41	-7.99	3.97	-63.37	-13.00	-50.37
3425.00		V		12.45	7.91		-13.00	
3437.50	47.42	V	-51.42	12.47	7.93	-46.88	-13.00	-33.88
5137.50		V		12.79	9.92		-13.00	
6850.00		V		11.80	11.54		-13.00	
8562.50		V		11.73	12.97		-13.00	
10275.00		V		11.85	14.50		-13.00	
11987.50		V		13.16	15.91		-13.00	
13700.00		V		12.32	17.04		-13.00	
15412.50		V		15.70	18.36		-13.00	
17125.00		V		14.67	19.47		-13.00	

	30MHz - 80MHz: 5.04dB	
Measurement uncertainty	80MHz -1000MHz: 3.76dB	
	1GHz - 13GHz: 4.45dB	

Remark:

1 The emission behaviors belong to narrowband spurious emission.

2 Remark "---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

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No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com



Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 182 of 204

Operation Mode	: TX CH Low Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1712.5MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
151.25	33.99	Н	-63.88	-7.80	1.59	-73.27	-13.00	-60.27
250.19	40.89	Н	-58.32	-7.89	1.99	-68.20	-13.00	-55.20
332.64	33.12	Н	-64.24	-7.74	2.29	-74.27	-13.00	-61.27
555.74	32.55	Н	-59.05	-7.76	2.97	-69.78	-13.00	-56.78
684.75	32.53	Н	-55.74	-7.84	3.25	-66.83	-13.00	-53.83
961.20	32.83	Н	-51.31	-8.00	3.91	-63.22	-13.00	-50.22
3425.00		Н		12.45	7.91		-13.00	
3437.50	58.13	Н	-40.87	12.47	7.93	-36.32	-13.00	-23.32
5137.50		Н		12.79	9.92		-13.00	
6850.00		Н		11.80	11.54		-13.00	
8562.50		Н		11.73	12.97		-13.00	
10275.00		Н		11.85	14.50		-13.00	
11987.50		Н		13.16	15.91		-13.00	
13700.00		Н		12.32	17.04		-13.00	
15412.50		Н		15.70	18.36		-13.00	
17125.00		Н		14.67	19.47		-13.00	

	30MHz - 80MHz: 5.04dB	
Measurement uncertainty	80MHz -1000MHz: 3.76dB	
	1GHz - 13GHz: 4.45dB	

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 183 of 204

Operation Mode	: TX CH Mid Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1732.5MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
170.65	36.28	V	-62.86	-7.82	1.64	-72.32	-13.00	-59.32
250.19	41.91	V	-57.97	-7.89	1.99	-67.85	-13.00	-54.85
287.05	33.95	V	-64.72	-7.91	2.12	-74.76	-13.00	-61.76
539.25	34.59	V	-58.25	-7.75	2.93	-68.93	-13.00	-55.93
633.34	34.04	V	-55.10	-7.80	3.12	-66.02	-13.00	-53.02
985.45	32.16	V	-51.64	-7.99	3.99	-63.62	-13.00	-50.62
3465.00	49.75	V	-49.09	12.53	7.98	-44.53	-13.00	-31.53
5197.50		V		12.85	9.98		-13.00	
6930.00		V		11.72	11.61		-13.00	
8662.50		V		11.77	13.05		-13.00	
10395.00		V		11.75	14.59		-13.00	
12127.50		V		13.35	16.03		-13.00	
13860.00		V		11.98	17.16		-13.00	
15592.50		V		16.35	18.47		-13.00	
17325.00		V		14.02	19.62		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 184 of 204

Operation Mode	: TX CH Mid Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1732.5MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
199.75	37.99	Н	-63.64	-7.84	1.71	-73.19	-13.00	-60.19
250.19	41.25	Н	-57.96	-7.89	1.99	-67.84	-13.00	-54.84
311.30	34.43	Н	-63.13	-7.86	2.21	-73.20	-13.00	-60.20
553.80	33.19	Н	-58.45	-7.76	2.97	-69.18	-13.00	-56.18
687.66	32.56	Н	-55.59	-7.85	3.26	-66.69	-13.00	-53.69
975.75	32.55	Н	-51.51	-7.99	3.96	-63.46	-13.00	-50.46
3465.00	51.12	Н	-47.86	12.53	7.98	-43.30	-13.00	-30.30
5197.50		Н		12.85	9.98		-13.00	
6930.00		Н		11.72	11.61		-13.00	
8662.50		Н		11.77	13.05		-13.00	
10395.00		Н		11.75	14.59		-13.00	
12127.50		Н		13.35	16.03		-13.00	
13860.00		Н		11.98	17.16		-13.00	
15592.50		Н		16.35	18.47		-13.00	
17325.00		Н		14.02	19.62		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 185 of 204

Operation Mode	: TX CH High Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1752.5MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
154.16	33.90	V	-63.76	-7.80	1.60	-73.17	-13.00	-60.17
250.19	42.91	V	-56.97	-7.89	1.99	-66.85	-13.00	-53.85
291.90	33.79	V	-64.73	-7.92	2.14	-74.78	-13.00	-61.78
559.62	32.65	V	-59.28	-7.77	2.97	-70.02	-13.00	-57.02
660.50	32.80	V	-56.23	-7.82	3.19	-67.24	-13.00	-54.24
963.14	32.88	V	-51.44	-8.00	3.92	-63.35	-13.00	-50.35
3505.00	48.08	V	-50.73	12.61	8.04	-46.15	-13.00	-33.15
5257.50		V		12.91	10.04		-13.00	
7010.00		V		11.65	11.69		-13.00	
8762.50		V		11.80	13.13		-13.00	
10515.00		V		11.66	14.68		-13.00	
12267.50		V		13.54	16.14		-13.00	
14020.00		V		11.67	17.28		-13.00	
15772.50		V		16.74	18.60		-13.00	
17525.00		V		13.22	19.76		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 186 of 204

Operation Mode	: TX CH High Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 1752.5MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
158.04	34.80	Н	-63.59	-7.81	1.61	-73.01	-13.00	-60.01
250.19	40.94	Н	-58.27	-7.89	1.99	-68.15	-13.00	-55.15
330.70	32.79	Н	-64.59	-7.75	2.29	-74.62	-13.00	-61.62
558.65	32.73	Н	-58.81	-7.77	2.97	-69.55	-13.00	-56.55
691.54	32.55	Н	-55.43	-7.85	3.27	-66.55	-13.00	-53.55
982.54	32.44	Н	-51.57	-7.99	3.98	-63.55	-13.00	-50.55
3505.00	49.49	Н	-49.44	12.61	8.04	-44.86	-13.00	-31.86
5257.50		Н		12.91	10.04		-13.00	
7010.00		Н		11.65	11.69		-13.00	
8762.50		Н		11.80	13.13		-13.00	
10515.00		Н		11.66	14.68		-13.00	
12267.50		Н		13.54	16.14		-13.00	
14020.00		Н		11.67	17.28		-13.00	
15772.50		Н		16.74	18.60		-13.00	
17525.00		Н		13.22	19.76		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 187 of 204

Radiated Spurious Emission Measurement Result: 5MHz BW LTE-Band 17

(16QAM RB 1 Offset 24) (Worst case for each band)							
peration Mode	: TX CH Low Mode	Test Date:	May 31, 2011				
Fundamental Frequency	: 706.5MHz	Test By:	Lion				
Temperature	: 25°C	Pol:	Ver				
Humidity	: 65%						

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
151.25	33.67	V	-63.73	-7.80	1.59	-73.13	-13.00	-60.13
250.19	42.17	V	-57.71	-7.89	1.99	-67.59	-13.00	-54.59
280.26	36.65	V	-62.25	-7.91	2.10	-72.25	-13.00	-59.25
555.74	33.64	V	-58.51	-7.76	2.97	-69.25	-13.00	-56.25
621.70	33.47	V	-55.82	-7.80	3.09	-66.70	-13.00	-53.70
978.66	32.54	V	-51.42	-7.99	3.97	-63.38	-13.00	-50.38
1413.00	44.23	V	-60.86	8.34	4.11	-56.64	-13.00	-43.64
2119.50		V		10.28	5.99		-13.00	
2826.00		V		11.01	7.01		-13.00	
3532.50		V		12.61	8.07		-13.00	
4239.00		V		12.63	9.00		-13.00	
4945.50		V		12.65	9.74		-13.00	
5652.00		V		13.38	10.43		-13.00	
6358.50		V		12.64	11.08		-13.00	
7065.00		V		11.63	11.75		-13.00	

	30MHz - 80MHz: 5.04dB		
Measurement uncertainty	80MHz -1000MHz: 3.76dB		
	1GHz - 13GHz: 4.45dB		

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 188 of 204

Operation Mode	: TX CH Low Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 706.5MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
151.25	34.02	Н	-63.85	-7.80	1.59	-73.24	-13.00	-60.24
233.70	41.62	Н	-58.39	-7.87	1.90	-68.16	-13.00	-55.16
335.55	33.17	Н	-64.16	-7.72	2.31	-74.19	-13.00	-61.19
544.10	33.12	Н	-58.80	-7.76	2.94	-69.50	-13.00	-56.50
672.14	33.15	Н	-55.64	-7.83	3.22	-66.69	-13.00	-53.69
975.75	32.62	Н	-51.44	-7.99	3.96	-63.39	-13.00	-50.39
1413.00	53.50	Н	-51.47	8.34	4.11	-47.24	-13.00	-34.24
2119.50		Н		10.28	5.99		-13.00	
2826.00		Н		11.01	7.01		-13.00	
3532.50		Н		12.61	8.07		-13.00	
4239.00		Н		12.63	9.00		-13.00	
4945.50		Н		12.65	9.74		-13.00	
5652.00		Н		13.38	10.43		-13.00	
6358.50		Н		12.64	11.08		-13.00	
7065.00		Н		11.63	11.75		-13.00	

	30MHz - 80MHz: 5.04dB		
Measurement uncertainty	80MHz -1000MHz: 3.76dB		
	1GHz - 13GHz: 4.45dB		

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 189 of 204

Operation Mode	: TX CH Mid Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 710MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
154.16	33.64	V	-64.02	-7.80	1.60	-73.43	-13.00	-60.43
250.19	42.48	V	-57.40	-7.89	1.99	-67.28	-13.00	-54.28
316.15	33.44	V	-64.61	-7.83	2.23	-74.67	-13.00	-61.67
559.62	32.16	V	-59.77	-7.77	2.97	-70.51	-13.00	-57.51
660.50	33.38	V	-55.65	-7.82	3.19	-66.66	-13.00	-53.66
972.84	33.59	V	-50.50	-8.00	3.95	-62.45	-13.00	-49.45
1420.00	42.02	V	-63.04	8.38	4.18	-58.85	-13.00	-45.85
2130.00		V		10.27	6.01		-13.00	
2840.00		V		11.05	7.03		-13.00	
3550.00		V		12.61	8.10		-13.00	
4260.00		V		12.63	9.02		-13.00	
4970.00		V		12.65	9.76		-13.00	
5680.00		V		13.42	10.45		-13.00	
6390.00		V		12.53	11.11		-13.00	
7100.00		V		11.61	11.78		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 190 of 204

Operation Mode	: TX CH Mid Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 710MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
199.75	40.23	Н	-61.40	-7.84	1.71	-70.95	-13.00	-57.95
250.19	41.77	Н	-57.44	-7.89	1.99	-67.32	-13.00	-54.32
319.06	36.66	Н	-60.82	-7.81	2.24	-70.88	-13.00	-57.88
559.62	32.79	Н	-58.73	-7.77	2.97	-69.47	-13.00	-56.47
668.26	33.11	Н	-55.85	-7.83	3.21	-66.88	-13.00	-53.88
975.75	33.01	Н	-51.05	-7.99	3.96	-63.00	-13.00	-50.00
1420.00	53.35	Н	-51.59	8.38	4.18	-47.39	-13.00	-34.39
2130.00		Н		10.27	6.01		-13.00	
2840.00		Н		11.05	7.03		-13.00	
3550.00		Н		12.61	8.10		-13.00	
4260.00		Н		12.63	9.02		-13.00	
4970.00		Н		12.65	9.76		-13.00	
5680.00		Н		13.42	10.45		-13.00	
6390.00		Н		12.53	11.11		-13.00	
7100.00		Н		11.61	11.78		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
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- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 Issue Date: Jun 08, 2011 Page: 191 of 204

Operation Mode	: TX CH High Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 713.5MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
151.25	35.09	V	-62.31	-7.80	1.59	-71.71	-13.00	-58.71
250.19	42.48	V	-57.40	-7.89	1.99	-67.28	-13.00	-54.28
301.60	35.89	V	-62.34	-7.91	2.18	-72.43	-13.00	-59.43
558.65	33.57	V	-58.41	-7.77	2.97	-69.15	-13.00	-56.15
612.00	33.26	V	-56.15	-7.79	3.06	-67.01	-13.00	-54.01
980.60	32.11	V	-51.81	-7.99	3.97	-63.77	-13.00	-50.77
1427.00	44.11	V	-60.93	8.42	4.25	-56.76	-13.00	-43.76
2140.50		V		10.27	6.02		-13.00	
2854.00		V		11.09	7.05		-13.00	
3567.50		V		12.61	8.12		-13.00	
4281.00		V		12.63	9.05		-13.00	
4994.50		V		12.65	9.78		-13.00	
5708.00		V		13.46	10.48		-13.00	
6421.50		V		12.42	11.14		-13.00	
7135.00		V		11.60	11.82		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

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Report No.: EH/2011/50010 **Issue Date: Jun 08, 2011** Page: 192 of 204

Operation Mode	: TX CH High Mode	Test Date:	May 31, 2011
Fundamental Frequency	: 713.5MHz	Test By:	Lion
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
160.95	35.57	Н	-63.05	-7.81	1.62	-72.47	-13.00	-59.47
250.19	40.67	Н	-58.54	-7.89	1.99	-68.42	-13.00	-55.42
321.00	33.06	Н	- 64.41	-7.80	2.25	-74.46	-13.00	-61.46
558.65	33.48	Н	-58.06	-7.77	2.97	-68.80	-13.00	-55.80
670.20	33.03	Н	-55.85	-7.83	3.21	-66.89	-13.00	-53.89
949.56	32.90	Н	-51.32	-8.00	3.88	-63.19	-13.00	-50.19
1427.00	52.96	Н	-51.94	8.42	4.25	-47.78	-13.00	-34.78
2140.50		Н		10.27	6.02		-13.00	
2854.00		Н		11.09	7.05		-13.00	
3567.50		Н		12.61	8.12		-13.00	
4281.00		Н		12.63	9.05		-13.00	
4994.50		Н		12.65	9.78		-13.00	
5708.00		Н		13.46	10.48		-13.00	
6421.50		Н		12.42	11.14		-13.00	
7135.00		Н		11.60	11.82		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark "---" means that the emission level is too low to be measured
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11. FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

11.1. Standard Applicable:

According to FCC §2.1055(a) (1)

Frequency Tolerance: +/-2.5ppm for 850MHz band

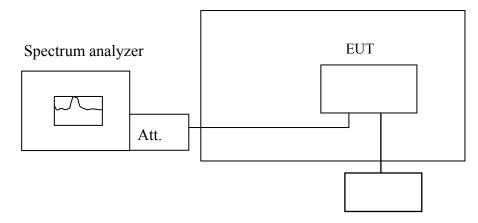
+/-2.5ppm for 1900MHz band

+/-2.5ppm for 1700MHz band

+/-2.5ppm for 700MHz band

11.2. Test Set-up:

Temperature Chamber



Variable DC Power Supply

Note : Measurement setup for testing on Antenna connector

11.3. Measurement Procedure:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30° C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

11.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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11.5. Measurement Result:

Reference Frequency: WCDMA II Mid Channel 1880 (ARFCN9400) MHz					
	Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)	
Vdc	Temperature (°C)	(MHz)	Della (HZ)	Linit (HZ)	
12	-30	1880.000009	-5.00	4700	
12	-20	1880.000005	-1.00	4700	
12	-10	1880.000004	0.00	4700	
12	0	1880.000008	-4.00	4700	
12	10	1880.000007	-3.00	4700	
12	20	1880.000003	1.00	4700	
12	30	1880.000004	0.00	4700	
12	40	1880.000006	-2.00	4700	
12	50	1880.000009	-5.00	4700	

Reference Frequency: WCDMA IV Mid Channel 1732.5 (ARFCN1413) MHz @ 20°C				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Delta (112)	Linint (112)
12	-30	1732.600008	-6.00	4331
12	-20	1732.599996	6.00	4331
12	-10	1732.600004	-2.00	4331
12	0	1732.599995	7.00	4331
12	10	1732.599998	4.00	4331
12	20	1732.600001	1.00	4331
12	30	1732.600002	0.00	4331
12	40	1732.600005	-3.00	4331
12	50	1732.600006	-4.00	4331

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Reference Frequency: WCDMA V Mid Channel 836.6 (ARFCN4183) MHz					
	Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)	
Vdc	Temperature (°C)	(MHz)	Delta (112)	Linint (112)	
12	-30	836.599988	8.00	2091	
12	-20	836.599992	4.00	2091	
12	-10	836.599994	2.00	2091	
12	0	836.599995	1.00	2091	
12	10	836.599998	-2.00	2091	
12	20	836.599999	-3.00	2091	
12	30	836.599996	0.00	2091	
12	40	836.599995	1.00	2091	
12	50	836.599993	3.00	2091	

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Reference Frequency: LTE B4 Mid Channel 1732.5 MHz 5M QPSK CH 20175				
Limit: +/- 2.5 ppm = 4331 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Della (IIZ)	Linit (112)
12	-30	1732.500005	-3.00	4331
12	-20	1732.500003	-1.00	4331
12	-10	1732.500003	-1.00	4331
12	0	1732.500001	1.00	4331
12	10	1732.500004	-2.00	4331
12	20	1732.500002	0.00	4331
12	30	1732.500002	0.00	4331
12	40	1732.500006	-4.00	4331
12	50	1732.500007	-5.00	4331

Reference Frequency: LTE B4 Mid Channel 1732.5 MHz 5M 16QAM CH 20175					
	Limit: +/- 2.5 ppm = 4331 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	I (II.)	
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)	
12	-30	1732.500012	-10.00	4331	
12	-20	1732.500010	-8.00	4331	
12	-10	1732.500008	-6.00	4331	
12	0	1732.499998	4.00	4331	
12	10	1732.500001	1.00	4331	
12	20	1732.500002	0.00	4331	
12	30	1732.500008	-6.00	4331	
12	40	1732.500005	-3.00	4331	
12	50	1732.500006	-4.00	4331	

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Reference Frequency: LTE B4 Mid Channel 1732.5 MHz 10M QPSK CH 20175				
Limit: +/- 2.5 ppm = 4331 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Della (IIZ)	Linit (112)
12	-30	1732.499991	5.00	4331
12	-20	1732.499994	2.00	4331
12	-10	1732.499998	-2.00	4331
12	0	1732.499997	-1.00	4331
12	10	1732.499997	-1.00	4331
12	20	1732.499996	0.00	4331
12	30	1732.499996	0.00	4331
12	40	1732.499999	-3.00	4331
12	50	1732.499999	-3.00	4331

Reference Frequency: LTE B4 Mid Channel 1732.5 MHz 10M 16QAM CH 20175				
Limit: +/- 2.5 ppm = 4331 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Della (112)	Linit (112)
12	-30	1732.499998	-6.00	4331
12	-20	1732.499997	-5.00	4331
12	-10	1732.499992	0.00	4331
12	0	1732.499999	-7.00	4331
12	10	1732.499994	-2.00	4331
12	20	1732.499992	0.00	4331
12	30	1732.499997	-5.00	4331
12	40	1732.499993	-1.00	4331
12	50	1732.499985	7.00	4331

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Reference Frequency: LTE B17 Mid Channel 710 MHz @ 5M QPSK CH 23790				
Limit: +/- 2.5 ppm = 1775 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Delta (IIZ)	Linint (112)
12	-30	710.000010	-8.00	1775
12	-20	710.000008	-6.00	1775
12	-10	710.000005	-3.00	1775
12	0	710.000004	-2.00	1775
12	10	710.000002	0.00	1775
12	20	710.000002	0.00	1775
12	30	710.000003	-1.00	1775
12	40	710.000006	-4.00	1775
12	50	710.000009	-7.00	1775

Reference Frequency: LTE B17 Mid Channel 710 MHz 5M 16QAM CH 23790				
Limit: +/- 2.5 ppm = 1775 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Delta (IIZ)	Linin (112)
12	-30	709.999991	7.00	1775
12	-20	709.999993	5.00	1775
12	-10	709.999997	1.00	1775
12	0	709.999998	0.00	1775
12	10	709.999995	3.00	1775
12	20	709.999998	0.00	1775
12	30	710.000003	-5.00	1775
12	40	710.000005	-7.00	1775
12	50	710.000010	-12.00	1775

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Reference Frequency: LTE B17 Mid Channel 710 MHz 10M QPSK CH 23790				
Limit: +/- 2.5 ppm = 1775 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Delta (IIZ)	Linit (112)
12	-30	710.000005	-4.00	1775
12	-20	710.000006	-5.00	1775
12	-10	710.000008	-7.00	1775
12	0	710.000002	-1.00	1775
12	10	710.000001	0.00	1775
12	20	710.000001	0.00	1775
12	30	710.000004	-3.00	1775
12	40	710.000005	-4.00	1775
12	50	710.000006	-5.00	1775

Reference Frequency: LTE B17 Mid Channel 710 MHz 10M 16QAM CH 23790				
Limit: +/- 2.5 ppm = 1775 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Delta (112)	Linit (112)
12	-30	710.000007	-6.00	1775
12	-20	710.000002	-1.00	1775
12	-10	710.000003	-2.00	1775
12	0	710.000006	-5.00	1775
12	10	710.000002	-1.00	1775
12	20	710.000001	0.00	1775
12	30	709.999995	6.00	1775
12	40	709.999993	8.00	1775
12	50	709.999990	11.00	1775

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12. FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

12.1. Standard Applicable:

According to FCC §2.1055(a) (1)

Frequency Tolerance: +/-2.5ppm for 850MHz band

+/-2.5ppm for 1900MHz band

+/-2.5ppm for 1700MHz band

+/-2.5ppm for 700MHz band

12.2. Test Set-up:

Refer to section 10.2 in this report

12.3. Measurement Procedure:

Set chamber temperature to 25°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.

12.4. Measurement Equipment Used:

Refer to section 2.4 in this report

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

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12.5. Measurement Result:

Reference Frequency: WCDMA II Mid Channel 1880 (ARFCN9400) MHz				
	Limit: +/- 2.5 ppm = 2091 Hz			
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Delta (IIZ)	Linint (112)
13.8	25	1880.000008	-5.00	4700
12.0	25	1880.000003	0.00	4700
10.2	25	1879.999995	8.00	4700
4.2	25	1970 00000	12.00	4700
(End Point)	25	1879.999990	13.00	4700

Reference Frequency: WCDMA IV Mid Channel 1732.6 (ARFCN1413) MHz				
	Limit	:: +/- 2.5 ppm = 470	00 Hz	
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Delta (IIZ)	Linint (112)
13.8	25	1732.599998	3.00	4700
12.0	25	1732.600001	0.00	4700
10.2	25	1732.599996	5.00	4700
4.2	25		0.00	1700
(End Point)	25	1732.599992	9.00	4700

Reference Frequency: WCDMA V Mid Channel 836.6 (ARFCN4183) MHz				
	Limit	: +/- 2.5 ppm = 209	91 Hz	
Power Supply	Environment	Frequency	Dolta (Uz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)
13.8	25.00	836.600002	-3.00	2091.00
12.0	25.00	836.599999	0.00	2091.00
10.2	25.00	836.599995	4.00	2091.00
4.2	25.00	026 500001	0.00	2001.00
(End Point)	25.00	836.599991	8.00	2091.00

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Reference Frequency: LTE B4 Mid Channel 1732.5 MHz @ 25°C 5M QPSK CH 20175					
	Limi	t: $+/- 2.5 \text{ ppm} = 433$	31 Hz		
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)	
Vdc	Temperature (°C)	(MHz)	Della (HZ)	Limit (Hz)	
13.8	25.00	1732.5000030	-1.00	4331	
12.0	25.00	1732.500002	0.00	4331	
10.2	25.00	1732.5000050	-3.00	4331	
4.2 (End Point)25.001732.5000090-7.004331					
Reference Frequ	iency: LTE B4 Mid	Channel 1732 5 M	Hz @ 25°C 5M 16	OAM CH 20175	

Reference Frequency: LTE B4 Mid Channel 1/32.5 MHz @ 25 C SM 16QAM CH 20175						
	Limit: +/- 2.5 ppm = 4331 Hz					
Power Supply	Environment	Frequency	Dalta (Uz)	Limit (IIz)		
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)		
13.8	25	1732.4999950	7.00	4331		
12.0	25	1732.500002	0.00	4331		
10.2	25	1732.4999990	3.00	4331		
4.2 (End Point)	25	1732.4999910	11.00	4331		

Reference Frequency: LTE B4 Mid Channel 1732.5 MHz @ 25°C 10M QPSK CH 20175				
	Limi	t: $+/- 2.5 \text{ ppm} = 433$	31 Hz	
Power Supply	Environment	Frequency		Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Linint (112)
13.8	25.00	1732.5000002	-4.20	4331
12.0	25.00	1732.499996	0.00	4331
10.2	25.00	1732.5000005	-4.50	4331
4.2	25.00	1732.5000090	-13.00	4331
(End Point)				

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Reference Frequency: LTE B4 Mid Channel 1732.5 MHz @ 25°C 10M 16QAM CH 20175				
	Limi	t: $+/- 2.5 \text{ ppm} = 433$	31 Hz	
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Delta (IIZ)	Linint (112)
13.8	25	1732.5000005	-8.50	4331
12.0	25	1732.499992	0.00	4331
10.2	25	1732.5000003	-8.30	4331
4.2 (End Daint)	25	1732.5000019	-9.90	4331
(End Point)				

Reference Frequency: LTE B17 Mid Channel 710 MHz @ 25°C 5M QPSK CH 23790				
	Limit	t: $+/- 2.5 \text{ ppm} = 17^{\circ}$	75 Hz	
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Delta (112)	Linit (112)
13.2	25.00	709.9999991	2.90	1775
12.0	25.00	710.000002	0.00	1775
10.8	25.00	710.0000050	-3.00	1775
4.2	25.00	700 000000	12.00	1775
(End Point)	25.00	709.9999900	12.00	1775

Reference Frequency: LTE B17 Mid Channel 710 MHz @ 25°C 5M 16QAM CH 23790				
	Limi	t: $+/- 2.5 \text{ ppm} = 17^{\circ}$	75 Hz	
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Della (HZ)	Lillint (HZ)
13.8	25	710.0000030	-5.00	1775
12.0	25	709.999998	0.00	1775
10.2	25	710.0000040	-6.00	1775
4.2	25	710 0000120	14.00	1775
(End Point)	25	710.0000120	-14.00	1775

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Reference Frequency: LTE B17 Mid Channel 710 MHz @ 25°C 10M QPSK CH 23790						
	Limit: +/- 2.5 ppm = 1775 Hz					
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)		
Vdc	Temperature (°C)	(MHz)	Delta (112)	Linint (112)		
13.2	25.00	709.9999950	6.00	1775		
12.0	25.00	710.000001	0.00	1775		
10.8	25.00	710.0000060	-5.00	1775		
4.2	25.00	700 000000	11.00	1775		
(End Point)	25.00	709.9999900	11.00	1775		
Reference Frequ	uency: LTE B17 Mi	d Channel 710 MH	Iz @ 25°C 10M 16	QAM CH 23790		
	Limi	t: $+/- 2.5 \text{ ppm} = 17^{\circ}$	75 Hz			
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)		
Vdc	Temperature (°C)	(MHz)	Delta (112)	Linint (112)		
13.2	25	710.0000060	-5.00	1775		
12.0	25	710.000001	0.00	1775		
10.8	25	710.0000030	-2.00	1775		
4.2 (End Point)	25	710.0000150	-14.00	1775		

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