



FCC REPORT


Applicant: BTI Wireless

Address of Applicant: 6185 Phyllis Dr. Unit D Cypress California 90630 United States

Equipment Under Test (EUT)

Product Name: mBSC-C RU

Model No.: mBSC0850i-040-RUC11, mBSC0850i -040-RUC12,
mBSC0850i-020-RUC11, mBSC0850i -020-RUC12

Trade Mark: 

FCC ID: WBKMBSC850IRUC

Applicable standards: FCC CFR Title 47 Part 2:2016
FCC CFR Title 47 Part 90 Subpart S:2016

Date of sample receipt: April 10, 2016

Date of Test: April 10-25, 2016

Date of report issued: April 25, 2016

Test Result : PASS *

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

Authorized Signature:



Robinson Lo
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

Any mention of GTS or testing done by GTS in connection with, distribution or use of the product described in this report must be approved by GTS in writing.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. 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

2 Version

Version No.	Date	Description
00	April 25, 2016	Original

Prepared By:

Edward. Pan

Date:

April 25, 2016

Project Engineer

Check By:

hank. yan

Date:

April 25, 2016

Reviewer

3 Contents

	Page
1 COVER PAGE	1
2 VERSION	2
3 CONTENTS	3
4 TEST SUMMARY	5
5 GENERAL INFORMATION	6
5.1 CLIENT INFORMATION	6
5.2 GENERAL DESCRIPTION OF EUT	6
5.3 RELATED SUBMITTAL(S) / GRANT (S)	7
PRIVATE LAND MOBILE RADIO SERVICES	7
5.4 TEST METHODOLOGY	7
5.5 DESCRIPTION OF SUPPORT UNITS	7
5.6 TEST FACILITY	7
5.7 TEST LOCATION	8
5.8 TEST INSTRUMENTS LIST	9
6 TEST CONFIGURATION AND CONDITIONS	10
6.1 EUT CONFIGURATION	10
6.2 CONFIGURATION OF TESTED SYSTEM	11
6.3 TEST ENVIRONMENTS	13
6.4 TEST FREQUENCY SELECTION	14
6.5 DESCRIPTION OF TEST MODES	15
7 RF POWER OUTPUT(ERP) MEASUREMENT	16
7.1 STANDARD APPLICABLE	16
7.2 TEST SETUP	16
7.3 MEASUREMENT PROCEDURE	16
7.4 TEST RESULT	17
7.5 PEAK TO AVERAGE RATIO	19
8 MEASURING THE EUT AGC THRESHOLD	20
8.1 STANDARD APPLICABLE	20
8.2 TEST SETUP	20
8.3 TEST PROCEDURE	20
8.4 TEST RESULT	20
9 PASSBAND GAIN AND OCCUPIED BANDWIDTH	22
9.1 STANDARD APPLICABLE	22
9.2 TEST SETUP	22
9.3 TEST PROCEDURE	22
9.4 TEST RESULT	22
10 OUT OF BAND EMISSION AT ANTENNA TERMINALS	32
10.1 STANDARD APPLICABLE	32
10.2 TEST SETUP	32
10.3 MEASUREMENT PROCEDURE	32

10.4	MEASUREMENT RESULT	32
10.4.1	Spurious emission	32
10.4.2	Band edge emission	47
11	INTERMODULATION.....	51
11.1	STANDARD APPLICABLE	51
11.2	TEST SETUP	51
11.3	MEASUREMENT PROCEDURE.....	51
11.4	TEST RESULT	51
12	FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT	64
12.1	STANDARD APPLICABLE	64
12.2	EUT SETUP (BLOCK DIAGRAM OF CONFIGURATION).....	64
12.3	MEASUREMENT PROCEDURE.....	64
12.4	MEASUREMENT DATA	65
13	FREQUENCY STABILITY.....	71
13.1	STANDARD APPLICABLE	71
13.2	TEST SETUP	71
13.3	TEST PROCEDURE	71
13.4	TEST RESULT	72
14	OUT-OF-BAND REJECTION.....	74
14.1	STANDARD APPLICABLE	74
14.2	TEST SETUP	74
14.3	TEST PROCEDURE	74
14.4	TEST RESULT	74
15	POWER LINE CONDUCTED EMISSION TEST	75
15.1	STANDARD APPLICABLE	75
15.2	TEST SETUP	75
15.3	TEST PROCEDURE	75
15.4	MEASUREMENT RESULT	75
16	TEST SETUP PHOTO	80
17	EUT CONSTRUCTIONAL DETAILS	81

4 Test Summary

Test Item	Test Description	Result
Maximum Permissible Exposure(MPE)	§ 1.1307(b)(1), § 2.1091	PASS* (Please refer to MPE Report)
Effective radiated power (ERP).	§ 2.1046; § 90.635	PASS
Modulation Characteristics	§ 2.1047	N/A*
Passband Gain and Occupied Bandwidth	§ 2.1049	PASS
Spurious Emissions at Antenna Terminal	§ 2.1051; § 90.691	PASS
Intermodulation	§ 2.1051; § 90.691	PASS
Field Strength of Spurious Radiation	§ 2.1053; § 90.691	PASS
Out of Band Emission, Band Edge	§ 90.219(d); § 90.691	PASS
Frequency Stability vs. Temperature Frequency Stability vs. Voltage	§ 2.1055; § 90.213	PASS
Measuring the EUT AGC threshold	---	PASS
Out-of-Band Rejection	---	PASS
AC Power Line Conducted Emission Test	§ 15.207	PASS

Remark:

N/A*: Not application

5 General Information

5.1 Client Information

Applicant:	BTI Wireless
Address of Applicant:	6185 Phyllis Dr. Unit D Cypress California 90630 United States
Manufacturer:	BTI Wireless(ShenZhen)Co.,Ltd.
Address of Manufacturer:	No. 8 Building, The 3rd Zone, Tangtou Industrial Park Shiyan, Baoan District, Shenzhen, China
Factory:	BTI Wireless(ShenZhen)Co.,Ltd.
Address of Factory:	No. 8 Building, The 3rd Zone, Tangtou Industrial Park Shiyan, Baoan District, Shenzhen, China

5.2 General Description of EUT

Product Name:	mBSC-C RU	
Model No.:	mBSC0850i-040-RUCM11, mBSC0850i -040-RUCM12, mBSC0850i-020-RUCM11, mBSC0850i -020-RUCM12	
Power supply:	Input: AC 100-240V AC,50-60Hz , 5A Max Normal test voltage: AC 120V/60Hz	
Operating Temperature:	-20℃ to + 55℃	
Operating Humidity:	up to 95%	
Technical Parameter:		
Frequency Range	Downlink	862MHz~869MHz
	Uplink	817MHz~824MHz
Operating Bandwidth	7MHz	
Channel Spacing(s) / Bandwidth(s)	CDMA: 1.25MHz; LTE: 1.4M,3M,5M;	
Maximun RF Output Power	Downlink: 46.26dBm(For 40W); 43.27dBm(For 20W); Uplink: 15.40dBm(For 40W); 15.35dBm(For 20W);	
Max Gain	Downlink: 62.39dB; Uplink: 62.37dB	
Type of modulation and Designator	CDMA(F9W), LTE(W7D);	
Antenna Type	External antenna (N female)	
Antenna Gain	Maximum permissible antenna gain is 14dBi	

5.3 Related Submittal(s) / Grant (s)

Title 47 Part 2	General Requirements and Information for the Certification of Radio Apparatus
Title 47 Part 90	PRIVATE LAND MOBILE RADIO SERVICES

5.4 Test Methodology

Title 47 Part 2	General Requirements and Information for the Certification of Radio Apparatus
Title 47 Part 90	PRIVATE LAND MOBILE RADIO SERVICES
ANSI C63.4: 2014	Methods of Measurement of Radio-Noise Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
KDB	AMPLIFIER, BOOSTER, AND REPEATER REMINDER SHEET PART 90 700/800 BANDS INDUSTRIAL BOOSTERS REQUIREMENTS SUMMARY
KDB 935210	D01 Signal Booster Definitions v02; D02 Signal Booster Certification v03 D03 Signal Booster Measurements v03 D04 Signal Booster Provider Specific v01r01 D05 Indus Booster Basic Meas v01

5.5 Description of Support Units

Manufacturer	Description	Model	Serial Number
BTI	RTM	mBSC1430-RTM-5SW	N/A

5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- CNAS —Registration No.: CNAS L5775

CNAS has accredited Global United Technology Services Co., Ltd. to ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- FCC —Registration No.: 600491

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, June 28, 2013.

- Industry Canada (IC)

The 3m Semi-anechoic chamber of China Certification & Inspection Services Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, June 26, 2013.

5.7 Test Location

All tests were performed at:
Global United Technology Services Co., Ltd. Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102 Tel: 0755-27798480 Fax: 0755-27798960

5.8 Test Instruments list

Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 28 2015	Mar. 27 2016
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 01 2014	Jun. 30, 2015
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 22 2015	Feb. 21 2016
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 27 2014	June 26 2015
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Coaxial Cable	GTS	N/A	GTS213	Mar. 28 2015	Mar. 27 2016
8	Coaxial Cable	GTS	N/A	GTS211	Mar. 28 2015	Mar. 27 2016
9	Coaxial cable	GTS	N/A	GTS210	Mar. 28 2015	Mar. 27 2016
10	Coaxial Cable	GTS	N/A	GTS212	Mar. 28 2015	Mar. 27 2016
11	Amplifier(100KHz-5GHz)	HP	8347A	GTS204	Jul. 01 2014	Jun. 30, 2015
12	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 01 2014	Jun. 30, 2015
13	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 27 2014	June 26 2015
14	Shielding Room	ZhongYu Electron	7.0(L)x3.0(W)x3.0(H)	GTS264	Sep. 07 2013	Sep. 06 2015
15	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	Jul. 01 2014	Jun. 30, 2015
16	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	Jul. 01 2014	Jun. 30, 2015
17	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	Jul. 01 2014	Jun. 30, 2015
18	Temp. Humidity/Barometer	Oregon Scientific	BA-888	GTS248	May 09 2014	May 08 2016
19	Spectrum Analyzer	Agilent	E4440A	GTS 536	Oct.21 2014	Oct.20 2015
20	Spectrum Analyzer	Agilent	E4445A	MY41000047	Sept. 10 2013	Sept. 01 2015
21	Splitter	Agilent	11636B	GTS237	May 09 2014	May 08 2016
22	Signal Generator	Rohde & Schwarz	SML03	GTS236	May 09 2014	May 08 2016
23	Signal Generator	AEROFLEX	IFR3414	341300/019	Sept. 10 2014	Sept. 10 2015
24	Power Reflection Meter	Rohde & Schwarz	NRT	100540	Sept. 10 2014	Sept. 10 2015
25	Power Sensor	Giga-tronics	80601A	1831785	Sept. 10 2014	Sept. 10 2015
26	Power Attenuator	BTI	30dB/250W	040706090	Sept. 10 2014	Sept. 10 2015
27	Power Attenuator	BTI	20dB	040706089	Sept. 10 2014	Sept. 10 2015
28	Power Attenuator	BTI	10dB	040706088	Sept. 10 2014	Sept. 10 2015
29	Signal Generator	Agilent	E4438C	MY45093111	Oct.21 2014	Oct.20 2015
30	Signal Generator	Agilent	4432B	GB40051373	May 09 2014	May 08 2016
31	Noise Figure Analyzer	Agilent	N8973A	GB42151304	May 09 2014	May 08 2016

6 TEST CONFIGURATION AND CONDITIONS

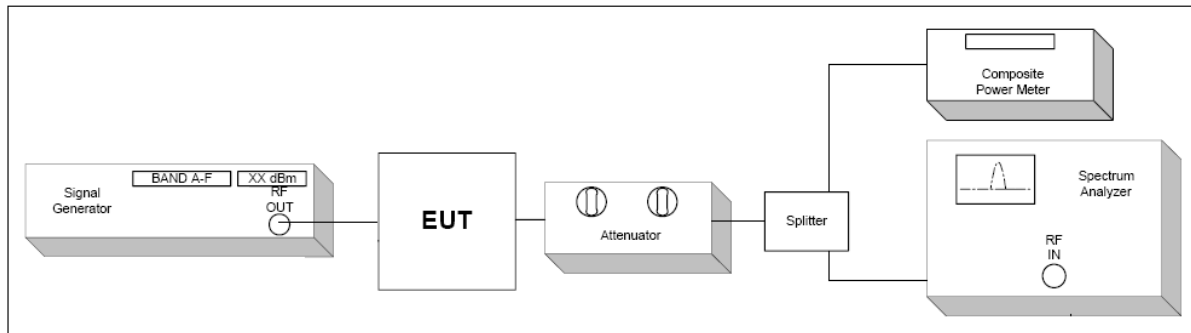
6.1 EUT Configuration

This mBSC0850i-040-RUCM11、mBSC0850i-040-RUCM12、mBSC0850i-020-RUCM11、mBSC0850i-020-RUCM12 are the Remote Unit on BTI CM system. This remote unit supports 850MHz band with the air standard CDMA and LTE. The unit consists of Duplexer, PA and CPU board. This product is designed to operate in an outdoor or indoor environment. The conducted output power of the RUM at Antenna interface port is average 46.26dBm (for 40W) and 43.27dBm (for 20W) Downlink path with Convection Cooling.

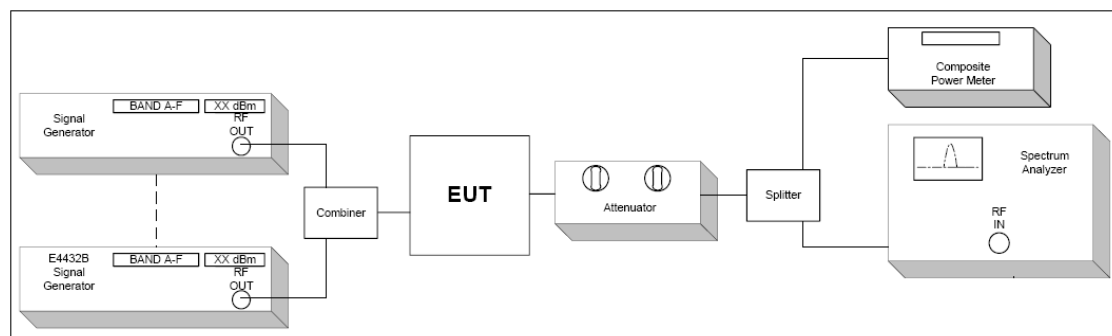
For details, refer to technical document and the user manual.

6.2 Configuration of Tested System

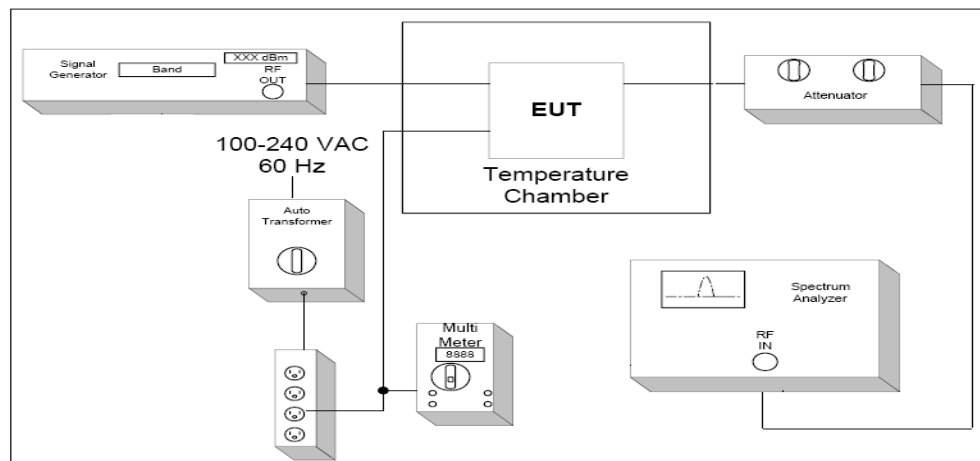
(A) RF Output Power, Occupied Bandwidth, Spurious Emissions at Antenna Terminal, Band Edge, Emission Mask , Noise Test Set-UP



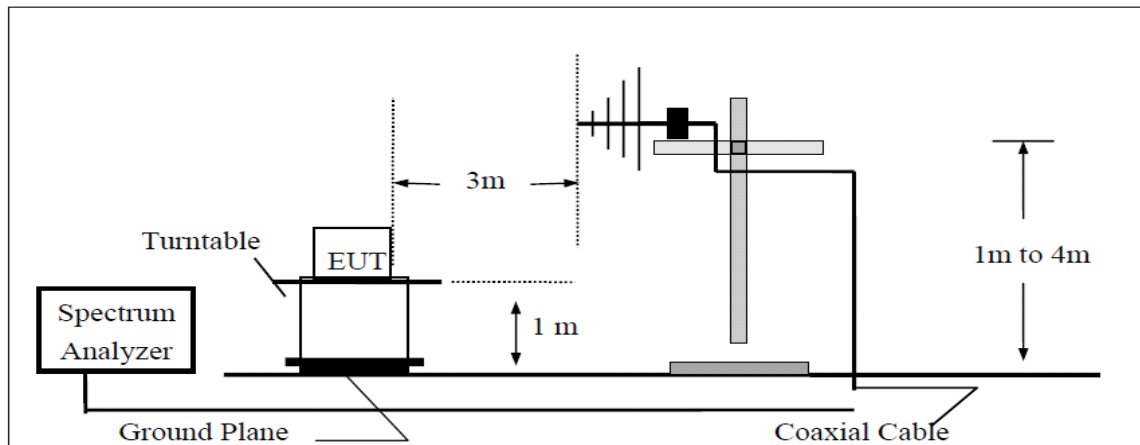
(B) Intermodulation Test Set-UP



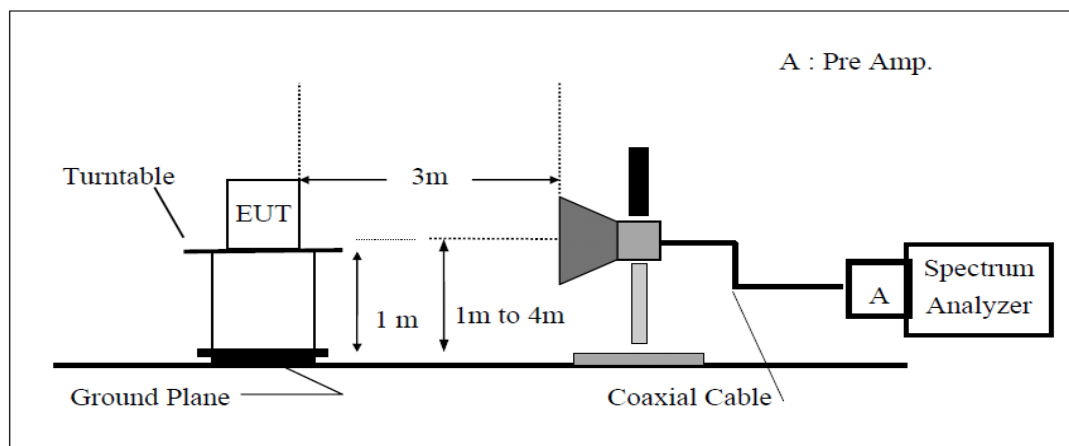
(C) Frequency stability Test Set-UP



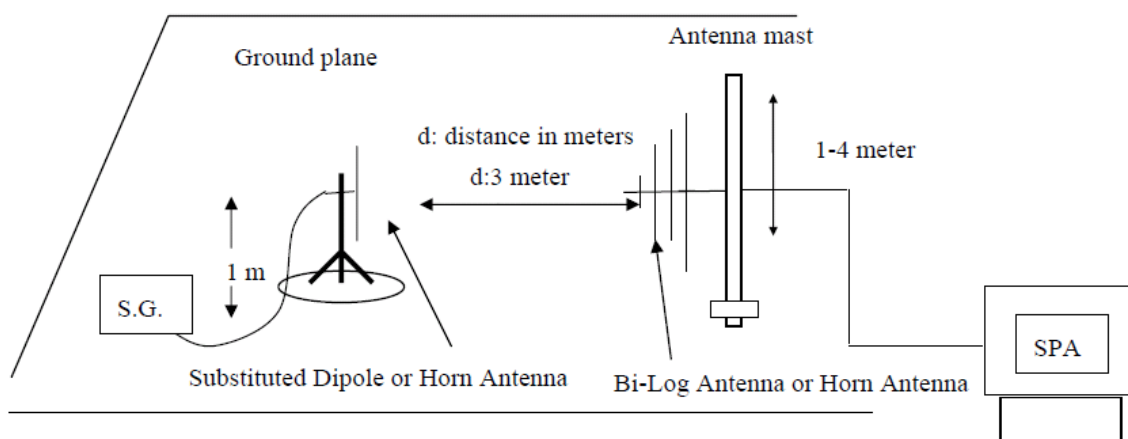
(D) Radiated Emission Test Set-Up, Frequency below 1000MHz



(E) Radiated Emission Test Set-UP Frequency over 1 GHz



(F) Substituted Method Test Set-UP



6.3 Test Environments

Condition	Minimum value	Maximum value
Barometric pressure	86 kPa	106 kPa
Temperature	15°C	30°C
Relative Humidity	20 %	75 %
Power supply range	±5% of rated voltages	
Normal Test Condition	(1). Temperature: +15 °C to +30 °C; (2). voltage is 120V AC.	
Extreme Test Conditions:	(1). Temperatures: -20°C to +55°C. (2). Voltages: 102V AC to 138V AC.	

6.4 Test frequency selection

Downlink:

Operating Mode(TX)	Channels No. Multi- Carriers	Channels frequency (MHz)		
		Low Ch.	Mid Ch.	High Ch.
CDMA	Single Carrier	863.25	865.50	867.75
LTE 1.4MHz Bandwidth	Single Carrier	862.70	865.50	868.30
LTE 3MHz Bandwidth	Single Carrier	863.50	865.50	867.50
LTE 5MHz Bandwidth	Single Carrier	---	865.50	---

Uplink:

Operating Mode(TX)	Channels No. Multi- Carriers	Channels frequency (MHz)		
		Low Ch.	Mid Ch.	High Ch.
CDMA	Single Carrier	818.25	820.50	822.75
LTE 1.4MHz Bandwidth	Single Carrier	817.70	820.50	823.30
LTE 3MHz Bandwidth	Single Carrier	818.50	820.50	822.50
LTE 5MHz Bandwidth	Single Carrier	---	820.50	---

6.5 DESCRIPTION OF TEST MODES

Test mode	Detail description of the test mode
Downlink	Downlink (Low channel; middle channel; high channel)
Uplink	Uplink (Low channel; middle channel; high channel)
Modulation type	CDMA and LTE

Remark:

- 1: The EUT was powered by 120VAC.
- 2: The EUT was configured for maximum gain and maximum output power. The input power was the maximum declared by the manufacturer. This is to ensure that the equipment is operating in the linear output range.
- 3: Signal generator was used to provide the input signals to the EUT. Tests were performed with CDMA and LTE signal input and multi-carrier signal mode input.
- 4: Pre-test all test modes as above, only the worst case and typical mode is listed in report.
- 5: All testing is end-to-end (input to host through to output from remote, and vice-versa)

7 RF POWER OUTPUT(ERP) MEASUREMENT

7.1 Standard Applicable

According to FCC § 2.1046 and § 90.635

Stations with antennas below 305 m (1,000 ft) (AAT) will be restricted to a maximum power of 1 kw (ERP).

7.2 Test setup

Please refer the section §6.2 Configuration of Tested System.

7.3 Measurement Procedure

1. The output from the EUT t signal shall be increased, antenna connector was connected to the power meter.
2. The level of RF input until the maximum output power per channel, declared by client, is reached.
3. The RF output power was measured at low, middle and high channel with CDMA and LTE signal.

7.4 Test Result

40W

Downlink:

Test mode	Carrier Conf.	Channel	Average Power (dBm)	Average Power (W)	RF Output Power(W/MHz)	Result
WCDMA	Single Carrier	Low	46.13	41.02	8.20	Compliant
		Middle	46.26	42.27	8.45	Compliant
		High	46.21	41.78	8.36	Compliant
LTE 1.4MHz Bandwidth	Single Carrier	Low	46.15	41.21	29.44	Compliant
		Middle	46.25	42.17	30.12	Compliant
		High	46.19	41.59	29.71	Compliant
LTE 3MHz Bandwidth	Single Carrier	Low	46.13	41.02	13.67	Compliant
		Middle	46.22	41.88	13.96	Compliant
		High	46.18	41.50	13.83	Compliant
LTE 5MHz Bandwidth	Single Carrier	Low	---	---	---	---
		Middle	46.24	42.07	8.41	Compliant
		High	---	---	---	---

Uplink:

Test mode	Carrier Conf.	Channel	Average Power (dBm)	Average Power (W)	RF Output Power(W/MHz)	Result
WCDMA	Single Carrier	Low	15.32	0.034	0.007	Compliant
		Middle	15.40	0.035	0.007	Compliant
		High	15.29	0.034	0.007	Compliant
LTE 1.4MHz Bandwidth	Single Carrier	Low	15.26	0.034	0.024	Compliant
		Middle	15.37	0.034	0.025	Compliant
		High	15.24	0.033	0.024	Compliant
LTE 3MHz Bandwidth	Single Carrier	Low	15.23	0.033	0.011	Compliant
		Middle	15.35	0.034	0.011	Compliant
		High	15.29	0.034	0.011	Compliant
LTE 5MHz Bandwidth	Single Carrier	Low	---	---	---	---
		Middle	15.37	0.0034	0.0007	Compliant
		High	---	---	---	---

20W

Downlink:

Test mode	Carrier Conf.	Channel	Average Power (dBm)	Average Power (W)	RF Output Power(W/MHz)	Result
WCDMA	Single Carrier	Low	43.19	20.84	4.17	Compliant
		Middle	43.27	21.23	4.25	Compliant
		High	43.17	20.75	4.15	Compliant
LTE 1.4MHz Bandwidth	Single Carrier	Low	43.15	20.65	14.75	Compliant
		Middle	43.26	21.18	15.13	Compliant
		High	43.14	20.61	14.72	Compliant
LTE 3MHz Bandwidth	Single Carrier	Low	43.13	20.56	6.85	Compliant
		Middle	43.26	21.18	7.06	Compliant
		High	43.11	20.46	6.82	Compliant
LTE 5MHz Bandwidth	Single Carrier	Low	---	---	---	---
		Middle	43.21	20.94	4.19	Compliant
		High	---	---	---	---

Uplink:

Test mode	Carrier Conf.	Channel	Average Power (dBm)	Average Power (W)	RF Output Power(W/MHz)	Result
WCDMA	Single Carrier	Low	15.30	0.034	0.007	Compliant
		Middle	15.35	0.034	0.007	Compliant
		High	15.26	0.034	0.007	Compliant
LTE 1.4MHz Bandwidth	Single Carrier	Low	15.27	0.034	0.024	Compliant
		Middle	15.32	0.034	0.024	Compliant
		High	15.24	0.033	0.024	Compliant
LTE 3MHz Bandwidth	Single Carrier	Low	15.23	0.033	0.011	Compliant
		Middle	15.31	0.034	0.011	Compliant
		High	15.27	0.034	0.011	Compliant
LTE 5MHz Bandwidth	Single Carrier	Low	---	---	---	---
		Middle	15.32	0.034	0.007	Compliant
		High	---	---	---	---

7.5 Peak to Average Ratio

Downlink:

Test mode	Carrier Conf.	Peak to Average Ratio (dB)			Limit (dB)	Result
		Low Ch.	Middle Ch.	High Ch.		
CDMA	Single Carrier	6.26	6.41	6..38	13	Compliant
LTE 1.4MHz Bandwidth	Single Carrier	7.61	7.52	7.84	13	Compliant
LTE 3MHz Bandwidth	Single Carrier	7.54	7.79	7.37	13	Compliant
LTE 5MHz Bandwidth	Single Carrier	---	7.50	---	13	Compliant

Uplink:

Test mode	Carrier Conf.	Peak to Average Ratio (dB)			Limit (dB)	Result
		Low Ch.	Middle Ch.	High Ch.		
CDMA	Single Carrier	6.20	6.37	6.51	13	Compliant
LTE 1.4MHz Bandwidth	Single Carrier	7.50	7. 53	7.47	13	Compliant
LTE 3MHz Bandwidth	Single Carrier	7.37	7.39	7.51	13	Compliant
LTE 5MHz Bandwidth	Single Carrier	---	7.46	---	13	Compliant

8 MEASURING THE EUT AGC THRESHOLD

8.1 Standard Applicable

Please refer the section §3.2 8 MEASURING THE EUT AGC THRESHOLD of D05 Indus Booster Basic Meas v01

8.2 Test setup

Please refer the section §6.2 Configuration of Tested System.

8.3 Test Procedure

Please refer the section §3.2 8 MEASURING THE EUT AGC THRESHOLD of D05 Indus Booster Basic Meas v01

8.4 Test Result

Downlink:

Test mode	Carrier Conf.	AGC threshold level (dB)			Result
		Low Ch.	Middle Ch.	High Ch.	
CDMA	Single Carrier	48.38	48.56	48.47	Compliant
LTE 1.4MHz Bandwidth	Single Carrier	48.42	48.57	48.43	Compliant
LTE 3MHz Bandwidth	Single Carrier	48.33	48.53	48.52	Compliant
LTE 5MHz Bandwidth	Single Carrier	---	48.46	---	Compliant

Uplink:

Test mode	Carrier Conf.	AGC threshold level (dB)			Result
		Low Ch.	Middle Ch.	High Ch.	
CDMA	Single Carrier	17.80	17.83	17.79	Compliant
LTE 1.4MHz Bandwidth	Single Carrier	17.69	17.75	17.68	Compliant
LTE 3MHz Bandwidth	Single Carrier	17.73	17.80	17.75	Compliant
LTE 5MHz Bandwidth	Single Carrier	---	17.78	---	Compliant

9 PASSBAND GAIN AND OCCUPIED BANDWIDTH

9.1 Standard Applicable

According to FCC § 2.1049

9.2 Test setup

Please refer the section §6.2 Configuration of Tested System.

9.3 Test Procedure

1. The EUT RF output port was connected to spectrum analyzer.
2. The level of RF input signal shall be increased, until the maximum output power per channel, declared by client, is reached.
3. The spectrum analyzer was setup to measure the Occupied Bandwidth (defined as the 99% Power Bandwidth).
4. The Occupied Bandwidth was measured at the input and output ports of the EUT at low, middle and high channel of each type of modulation and each type of carrier signal.

Spectrum analyzer settings:

Detector: RMS.

iDEN: RBW= 300Hz, VBW \geq RBW, Sweep: Auto

C4FM/Analog FM: RBW= 100Hz, VBW \geq RBW, Sweep: Auto

9.4 Test Result

Pass band Gain

Downlink:

Test mode	Carrier Conf.	Channel	Pass band Gain (dB)	Nominal Gain (dB)	Result
CDMA	Single Carrier	Low	62.23	62±0.5	Compliant
		Middle	62.39		Compliant
		High	62.31		Compliant
LTE 1.4MHz Bandwidth	Single Carrier	Low	62.19		Compliant
		Middle	62.33		Compliant
		High	62.24		Compliant
LTE 3MHz Bandwidth	Single Carrier	Low	62.21		Compliant
		Middle	62.38		Compliant
		High	62.28		Compliant
LTE 5MHz Bandwidth	Single Carrier	Low	---		---
		Middle	62.33		Compliant
		High	---		---

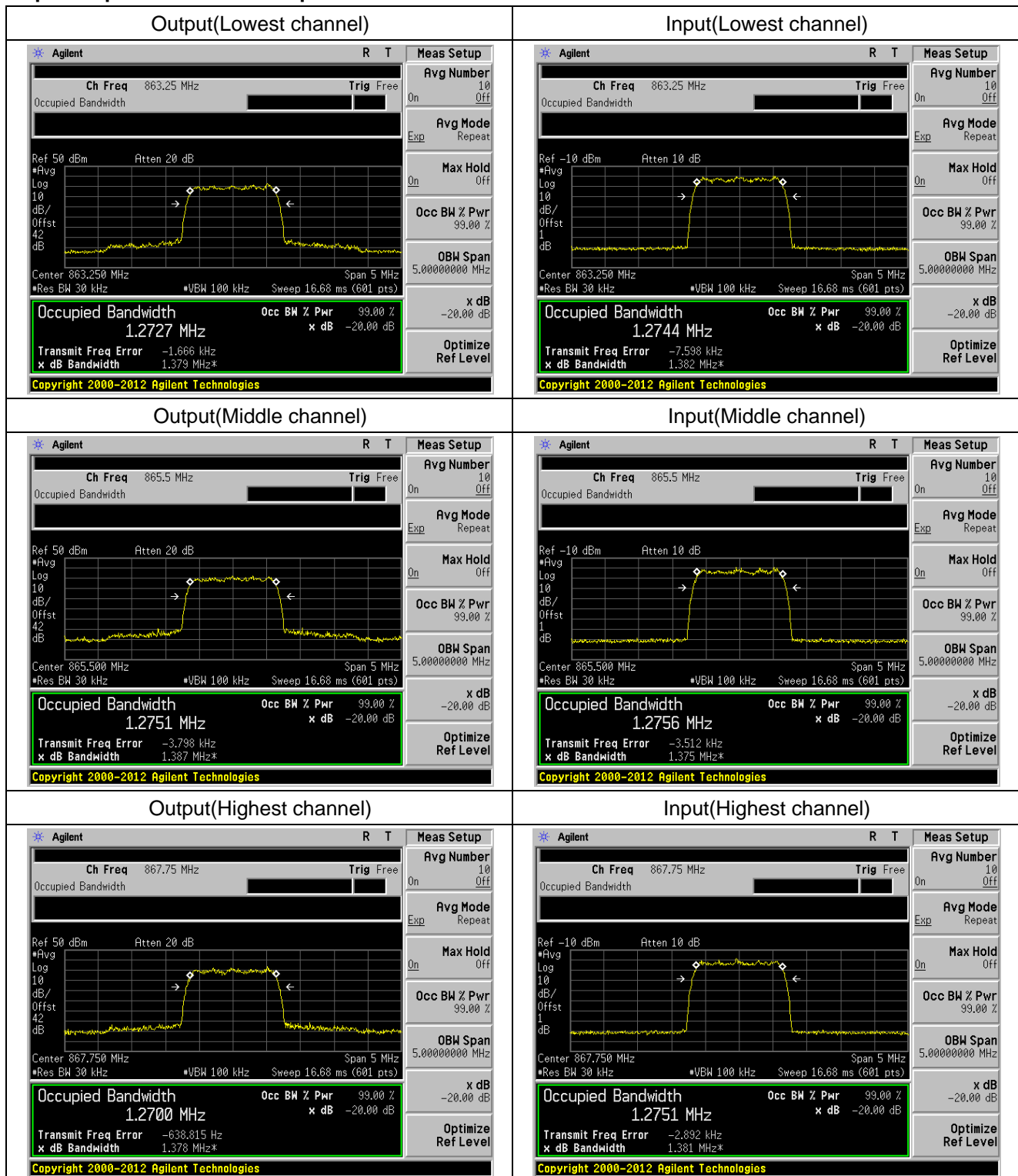
Uplink:

Test mode	Carrier Conf.	Channel	Pass band Gain (dB)	Nominal Gain (dB)	Result
CDMA	Single Carrier	Low	62.21	62±0.5	Compliant
		Middle	62.37		Compliant
		High	62.19		Compliant
LTE 1.4MHz Bandwidth	Single Carrier	Low	62.23		Compliant
		Middle	62.35		Compliant
		High	62.21		Compliant
LTE 3MHz Bandwidth	Single Carrier	Low	62.19		Compliant
		Middle	62.26		Compliant
		High	62.17		Compliant
LTE 5MHz Bandwidth	Single Carrier	Low	---		---
		Middle	62.36		Compliant
		High	---		---

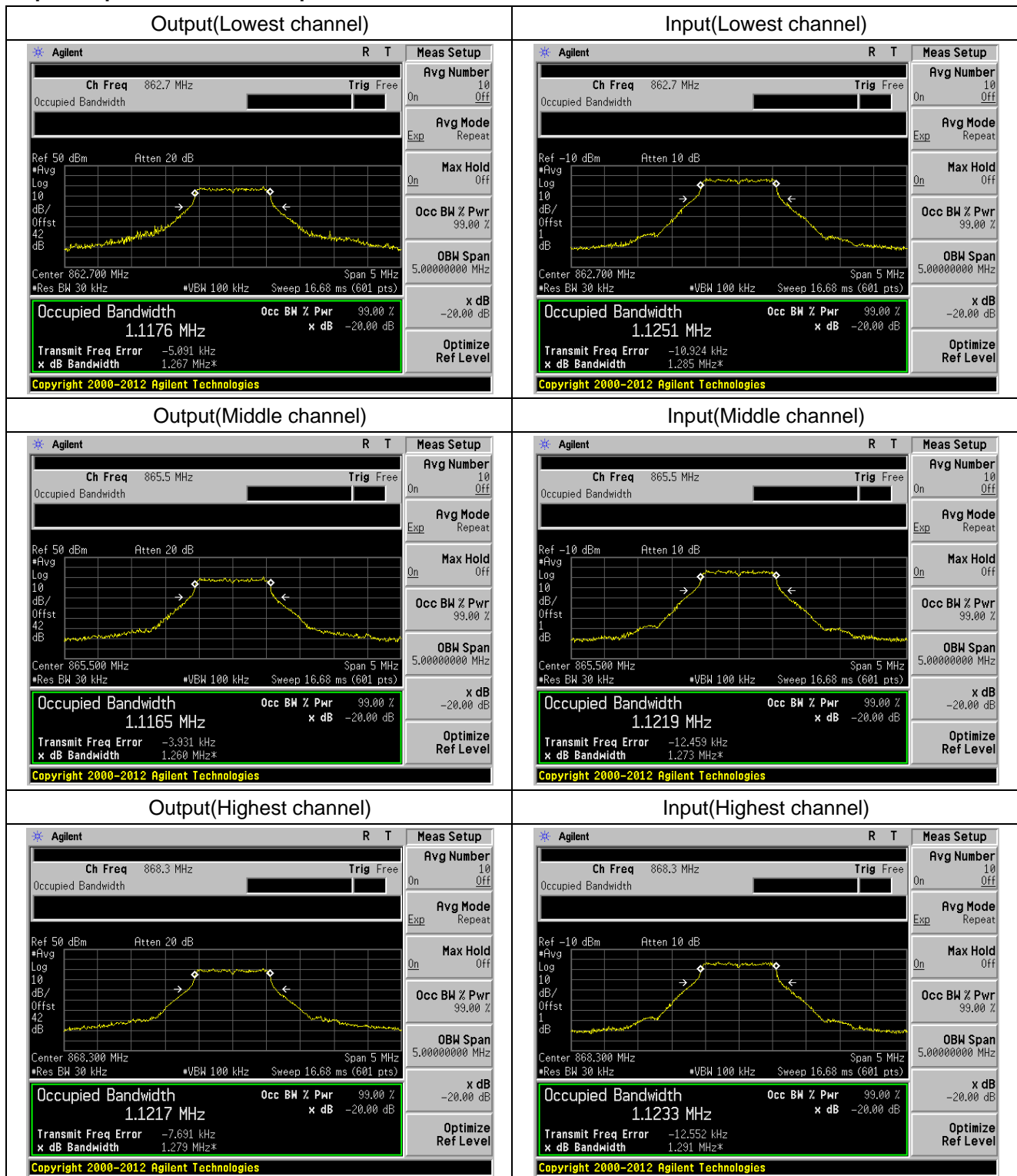
Input/output Bandwidth Comparison

Downlink:

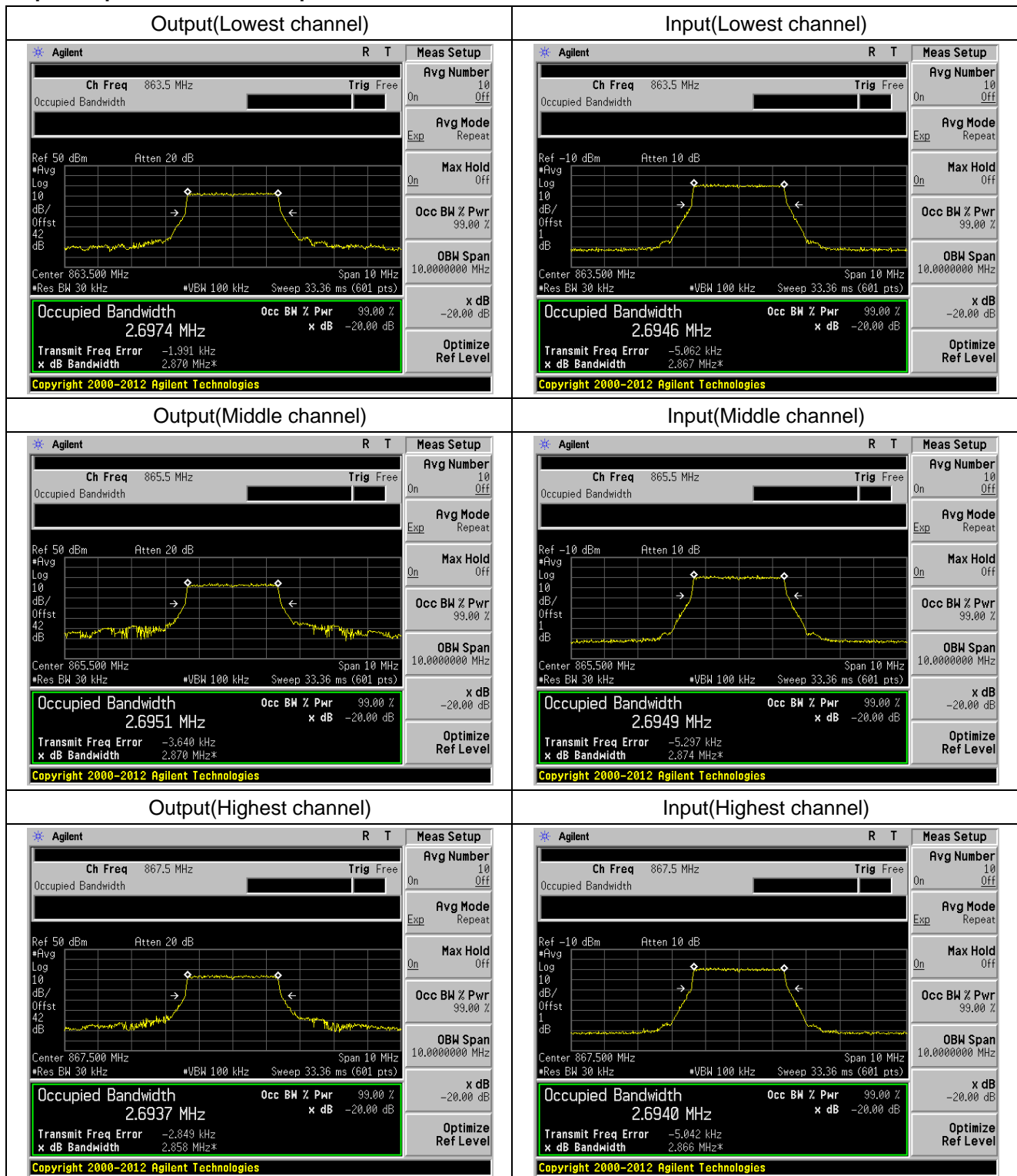
Input/output Bandwidth Comparison for CDMA



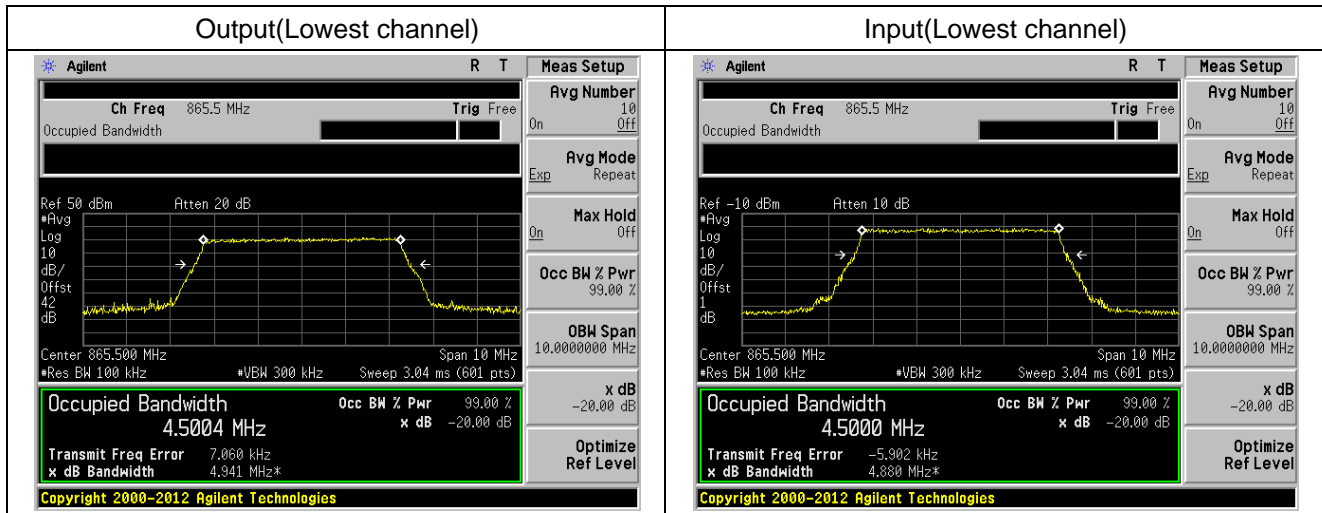
Input/output Bandwidth Comparison for LTE 1.4MHz Bandwidth



Input/output Bandwidth Comparison for LTE 3MHz Bandwidth

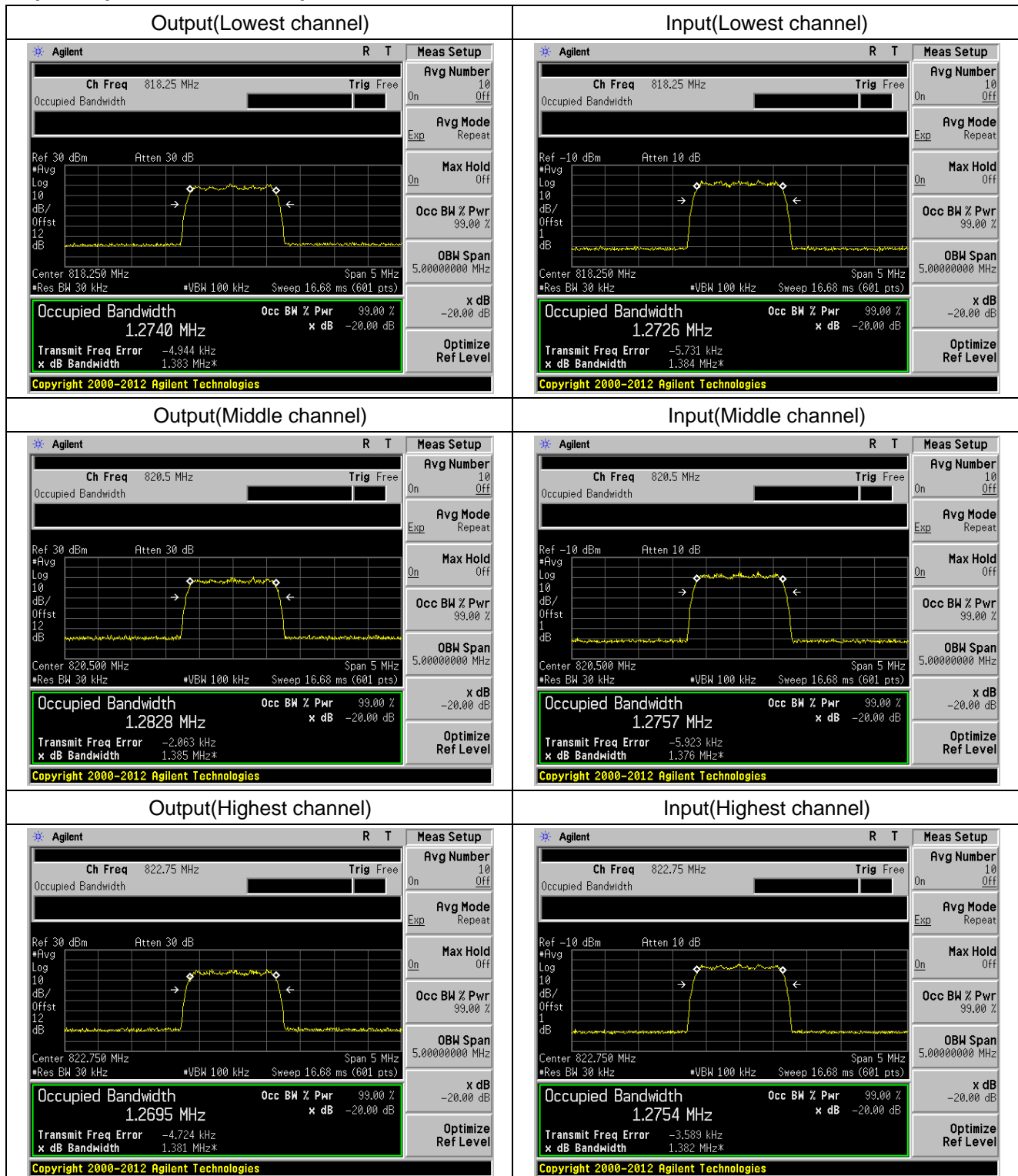


Input/output Bandwidth Comparison for LTE 5MHz Bandwidth

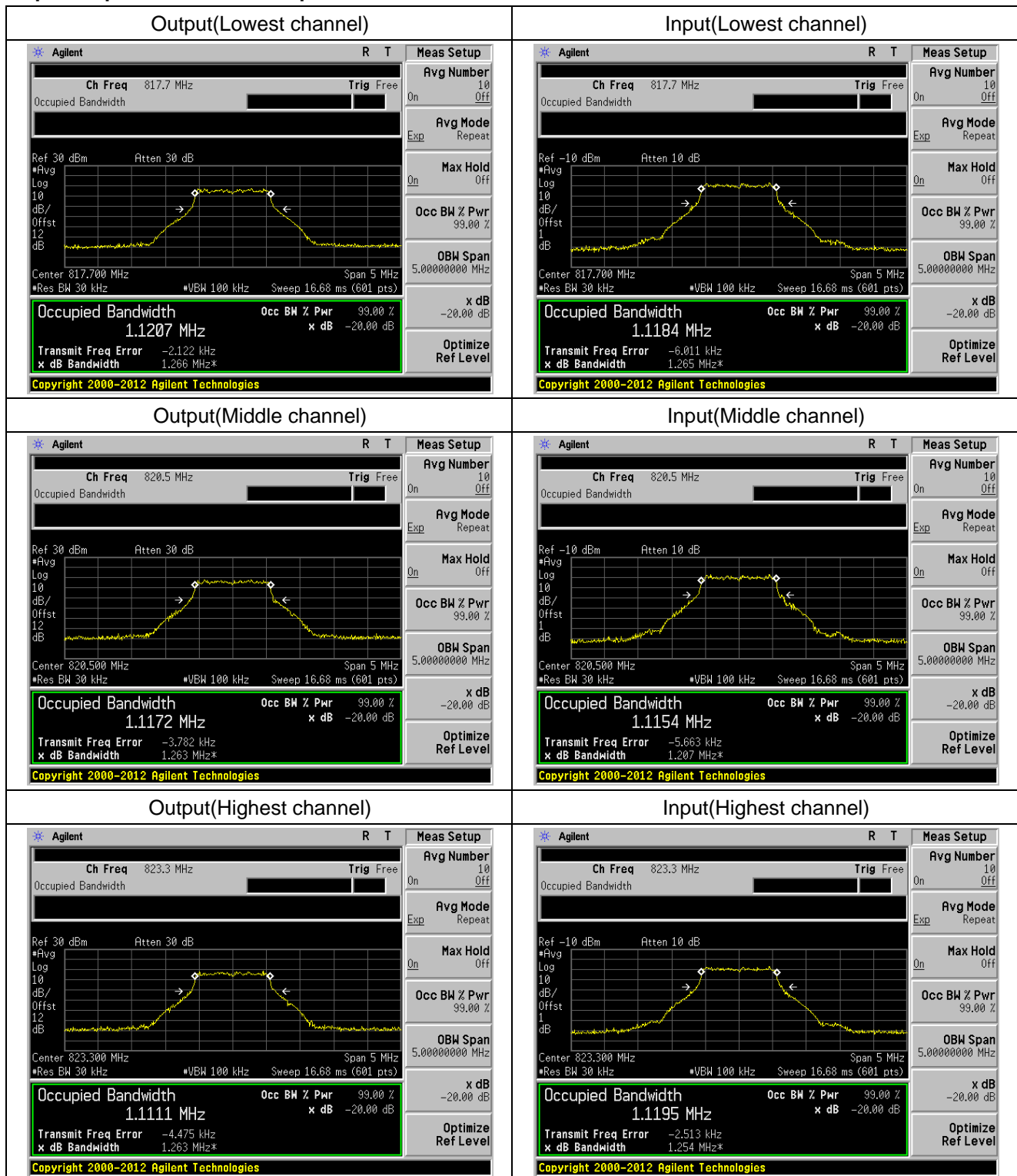


Uplink:

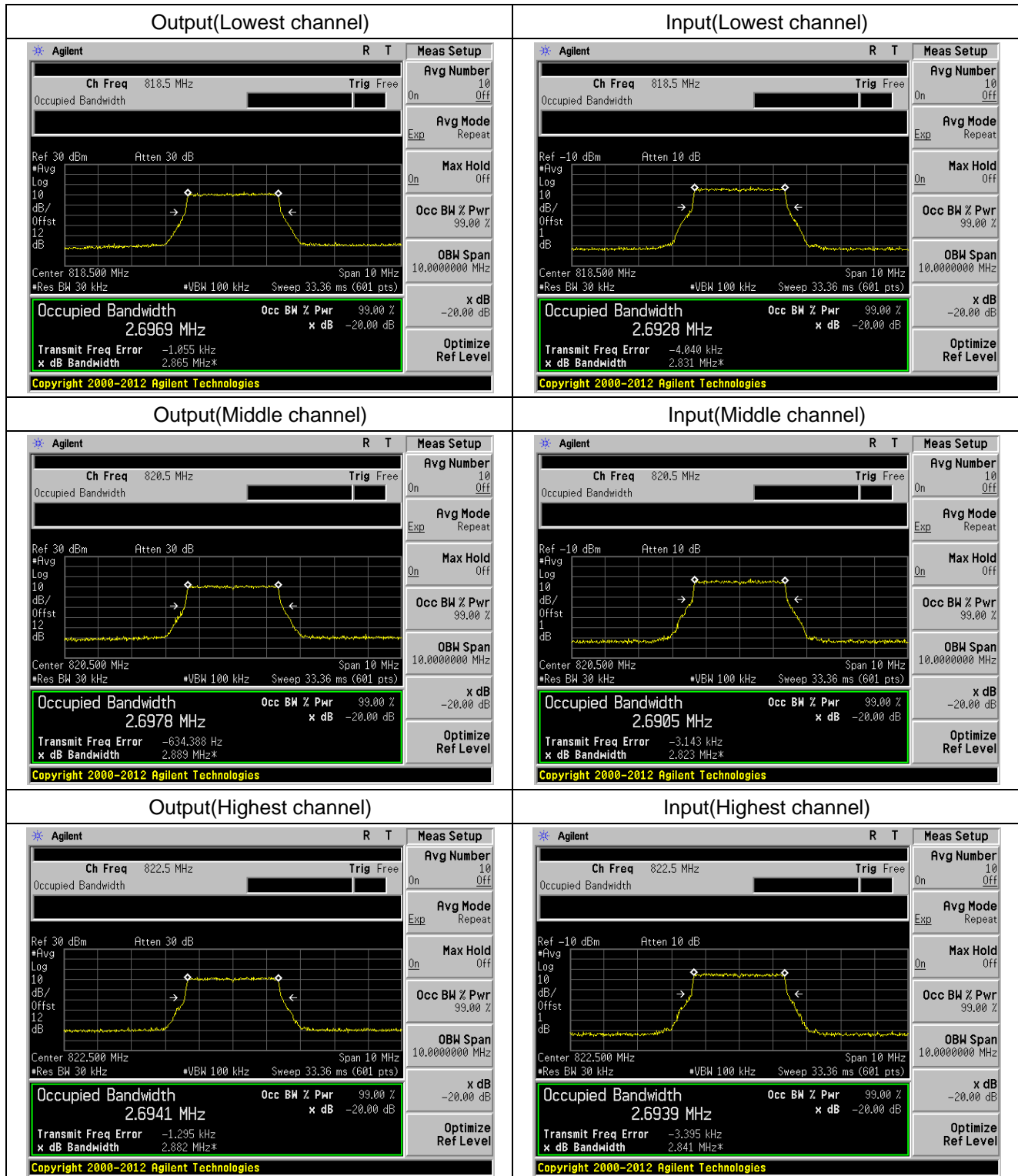
Input/output Bandwidth Comparison for CDMA



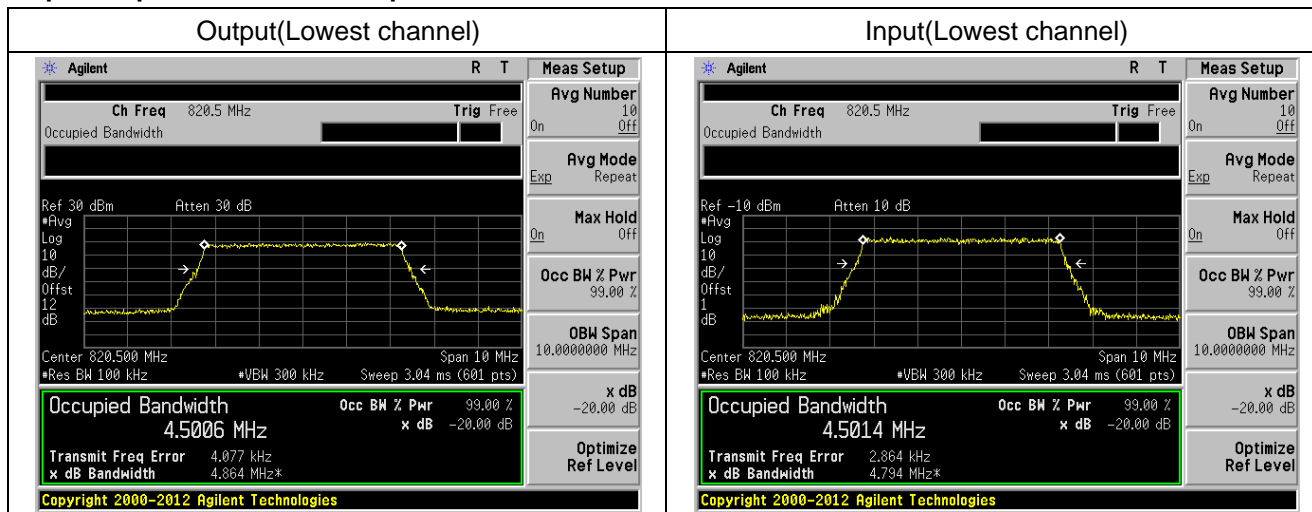
Input/output Bandwidth Comparison for LTE 1.4MHz Bandwidth



Input/output Bandwidth Comparison for LTE 3MHz Bandwidth



Input/output Bandwidth Comparison for LTE 5MHz Bandwidth



10 OUT OF BAND EMISSION AT ANTENNA TERMINALS

10.1 Standard Applicable

According to FCC § 2.1051 and § 90.691.

10.2 Test setup

Please refer the section §6.2 Configuration of Tested System.

10.3 Measurement Procedure

The out of band emissions were measured directly from the EUT antenna output with a spectrum analyzer from 30 MHz to the 10th harmonic of the highest carrier frequency. Test signals used is CDMA and LTE. The different signals were input one at a time to the EUT. Tests was performed with CDMA and LTE signal input.

Band edge compliance is also demonstrated using a CDMA and LTE signal at the upper and lower limits of the band.

1. The EUT RF output port was connected to spectrum analyzer.
2. The level of RF input signal shall be increased, until the maximum output power per channel, declared by client, is reached.
3. The spurious emissions at antenna were measured at the RF output port of the EUT at middle channel of each type of modulation.

Spectrum analyzer settings:

Detector: RMS.

Band Edge:

RBW=1%of the occupied channel bandwidth without going below 1%, VBW \geq RBW

Spurious emissions:

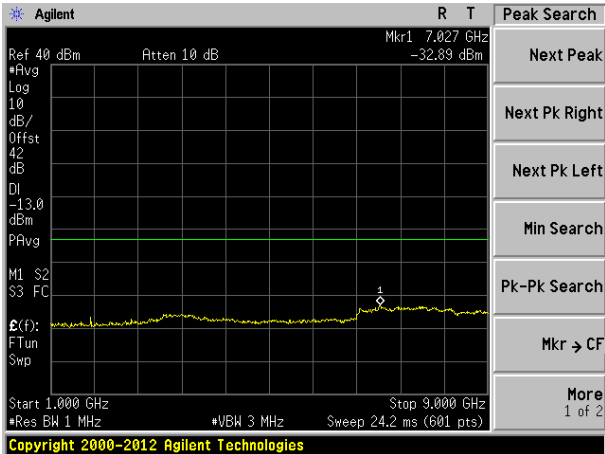
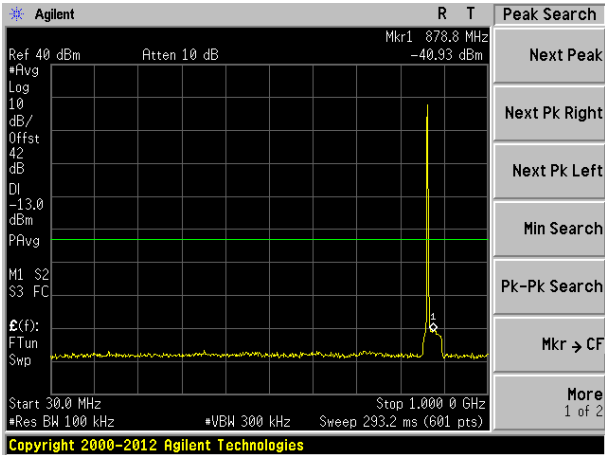
Below 1G: RBW=100kHz; VBW=300KHz; Above 1G: RBW=1 MHz ; VBW \geq RBW

10.4 Measurement Result

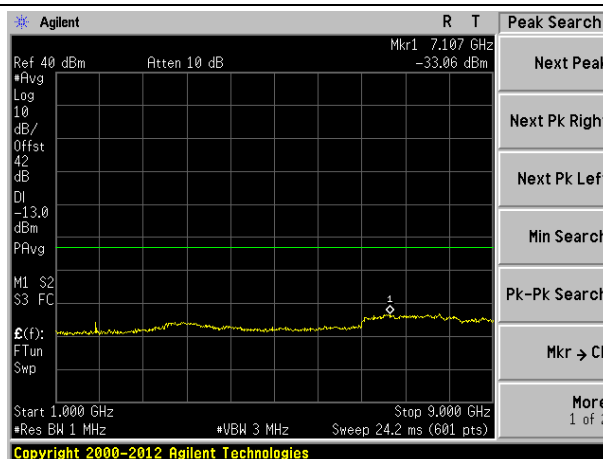
10.4.1 Spurious emission

Downlink:

Spurious emission of CDMA

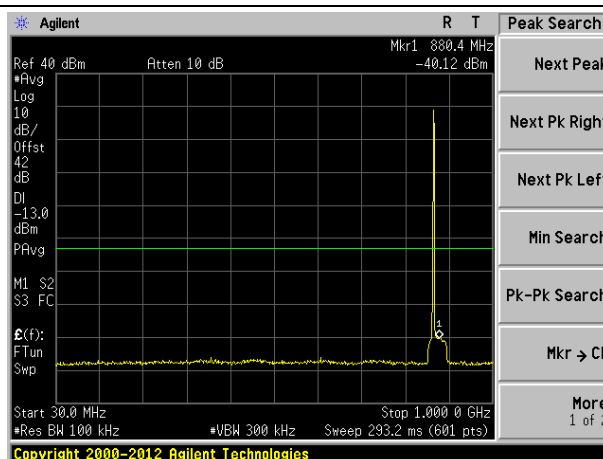
Lowest channel	
30MHz-1000MHz	
	
1000MHz-9000MHz	
	
Middle channel	
30MHz-1000MHz	
	

1000MHz-9000MHz

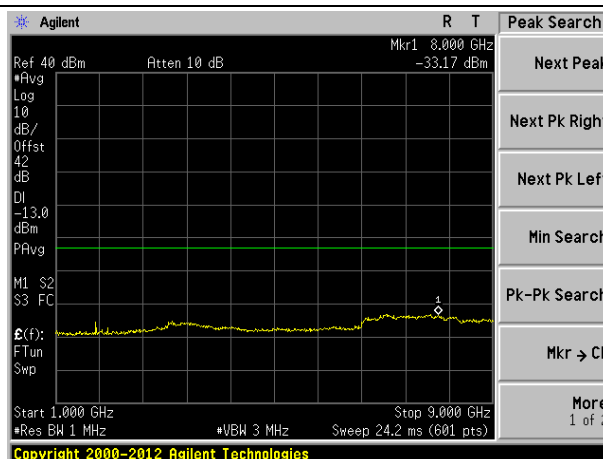


Highest channel

30MHz-1000MHz



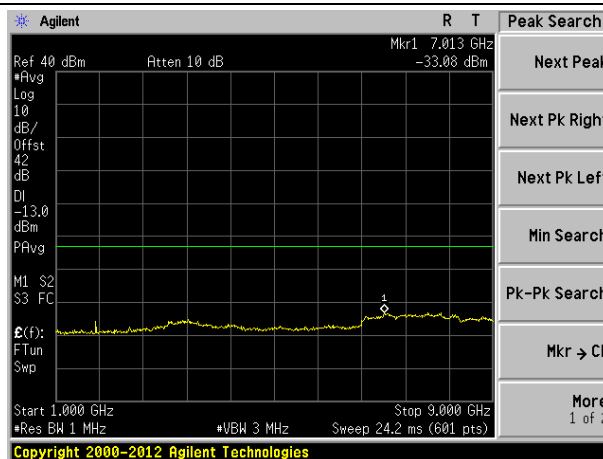
1000MHz-9000MHz



Spurious emission of LTE for 1.4MHz Bandwidth

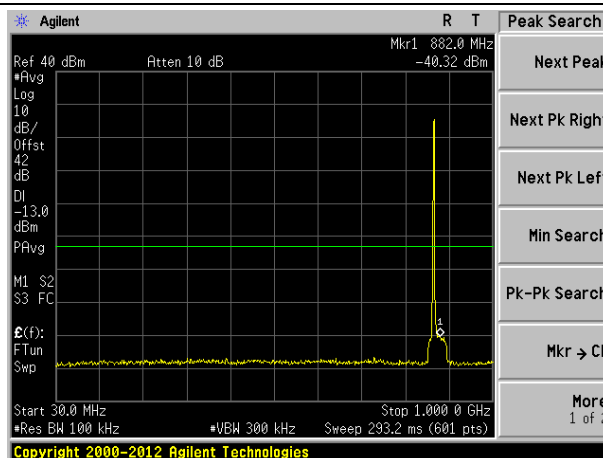
Lowest channel	
30MHz-1000MHz	
	
1000MHz-9000MHz	
	
Middle channel	
30MHz-1000MHz	
	

1000MHz-9000MHz

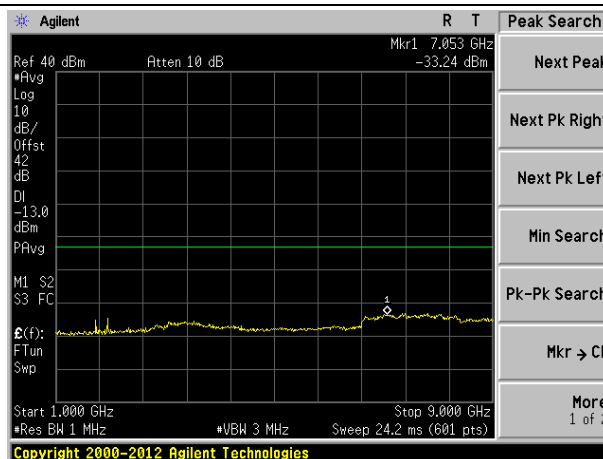


Highest channel

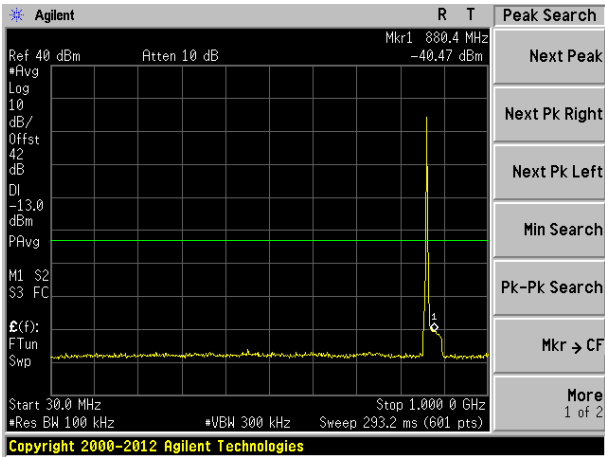
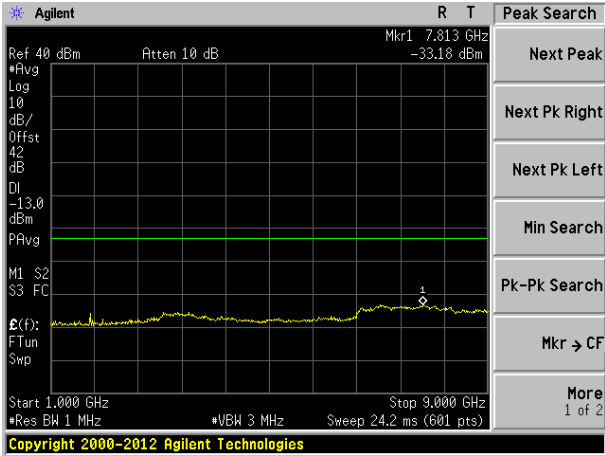
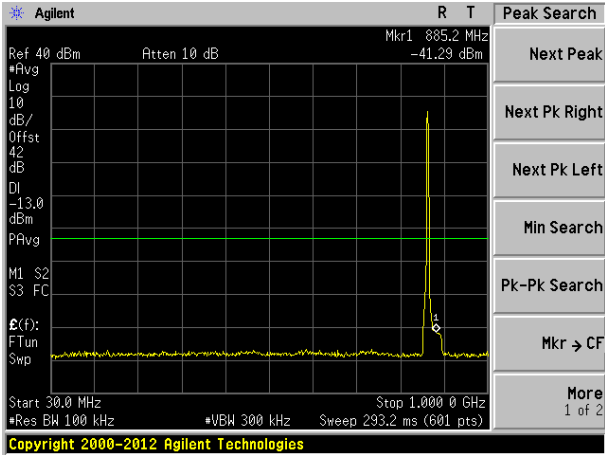
30MHz-1000MHz



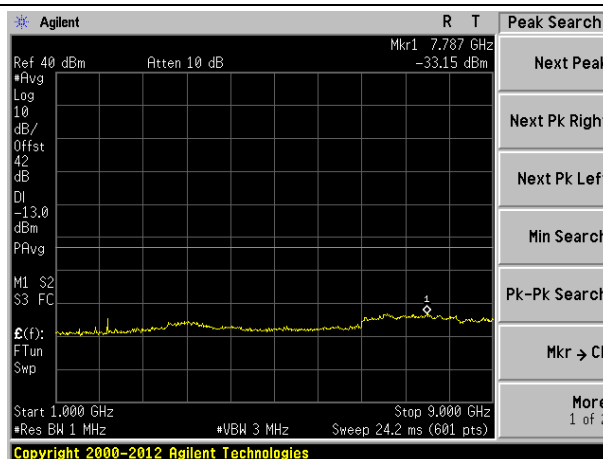
1000MHz-9000MHz



Spurious emission of LTE 3MHz Bandwidth

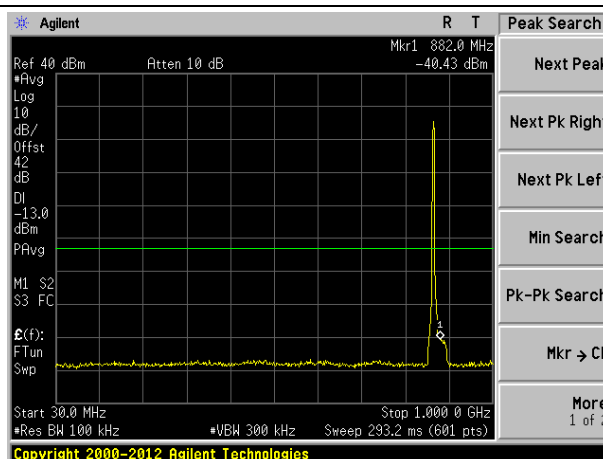
Lowest channel	
30MHz-1000MHz	
	
1000MHz-9000MHz	
	
Middle channel	
30MHz-1000MHz	
	

1000MHz-9000MHz

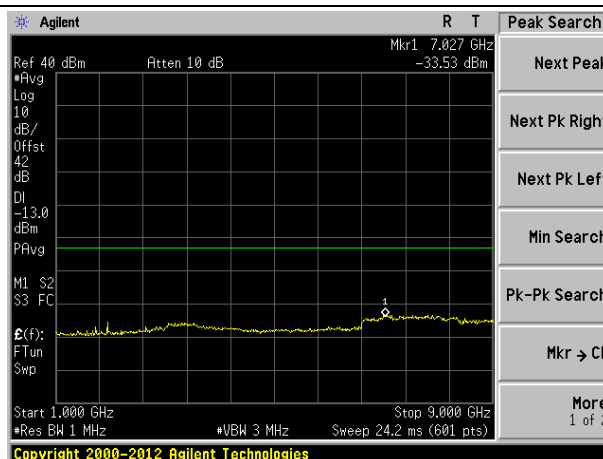


Highest channel

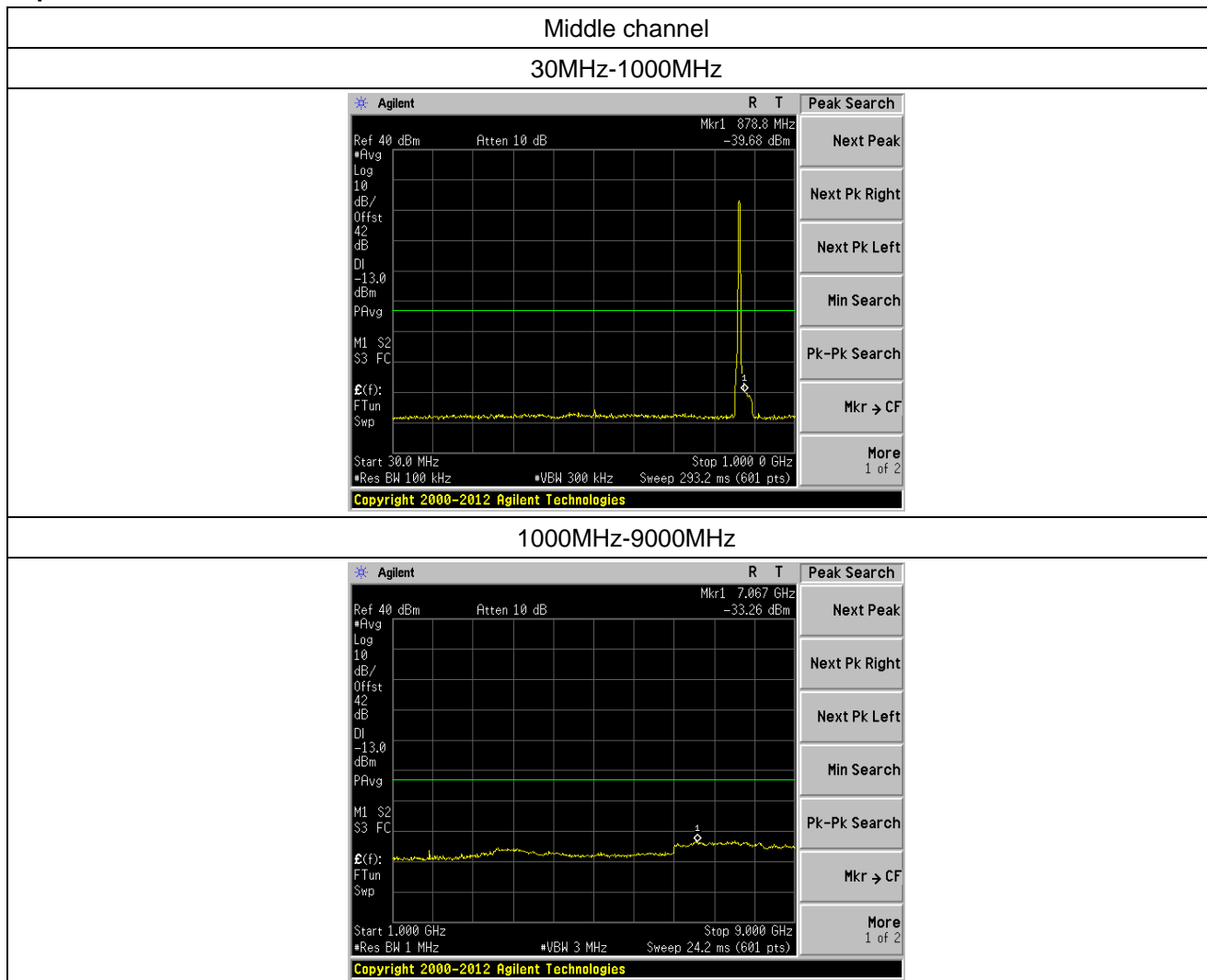
30MHz-1000MHz



1000MHz-9000MHz



Spurious emission of LTE 5MHz Bandwidth

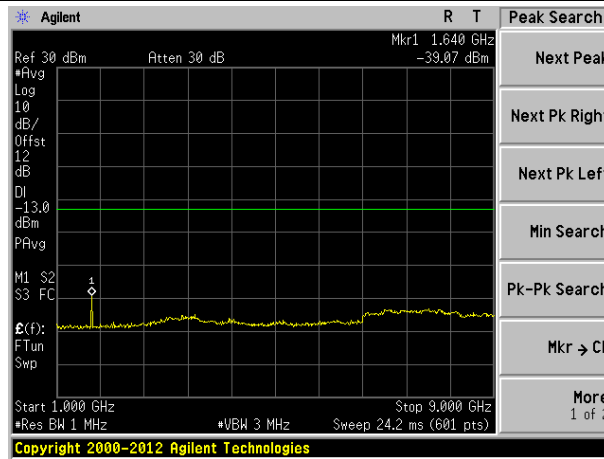


Uplink:

Spurious emission of CDMA

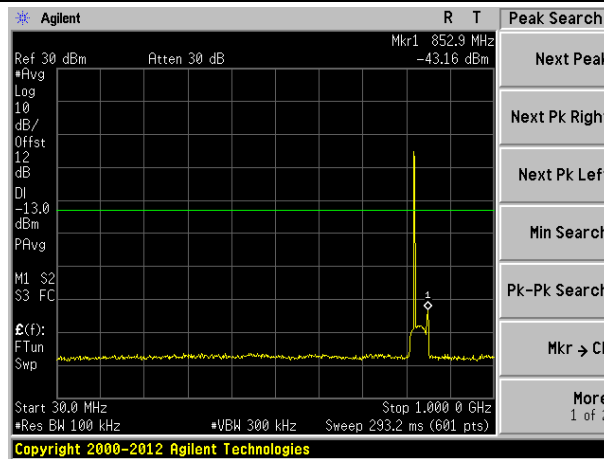


1000MHz-9000MHz

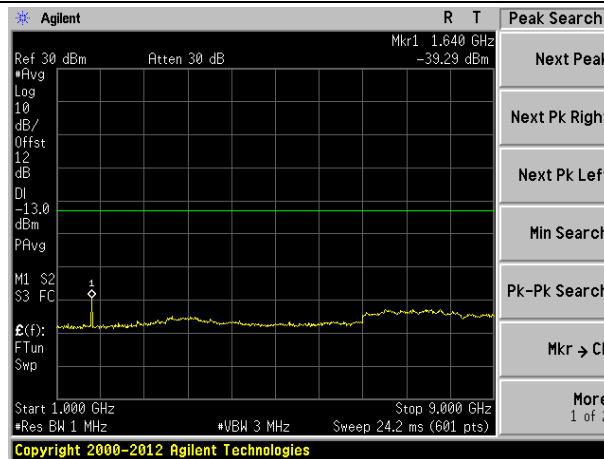


Highest channel

30MHz-1000MHz



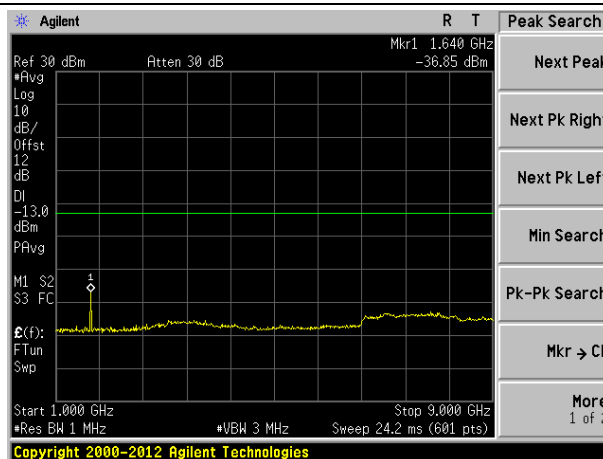
1000MHz-9000MHz



Spurious emission of LTE for 1.4MHz Bandwidth

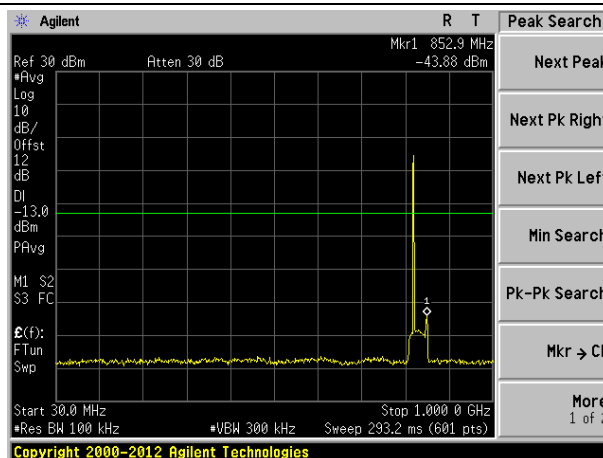
Lowest channel	
30MHz-1000MHz	
	
1000MHz-9000MHz	
	
Middle channel	
30MHz-1000MHz	
	

1000MHz-9000MHz

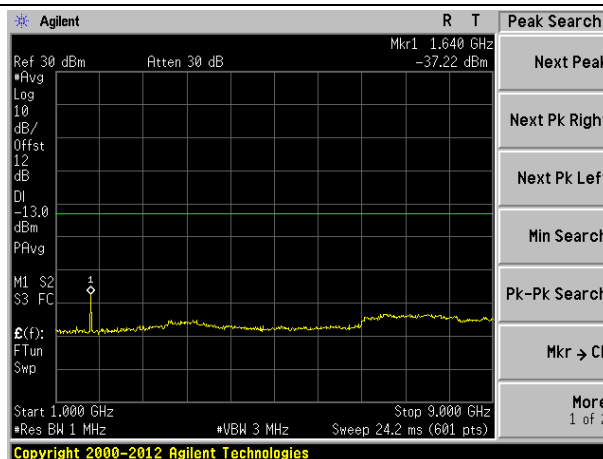


Highest channel

30MHz-1000MHz



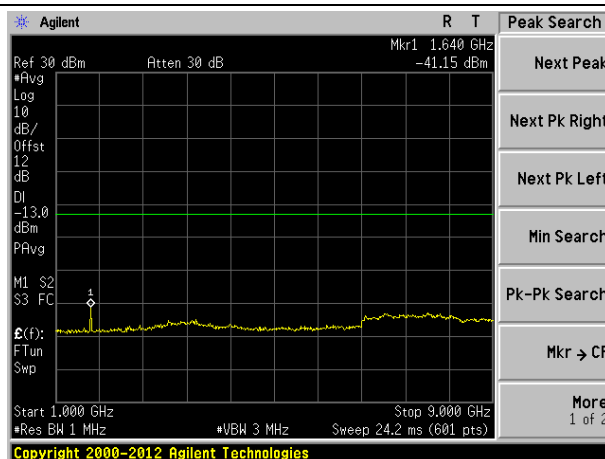
1000MHz-9000MHz



Spurious emission of LTE 3MHz Bandwidth

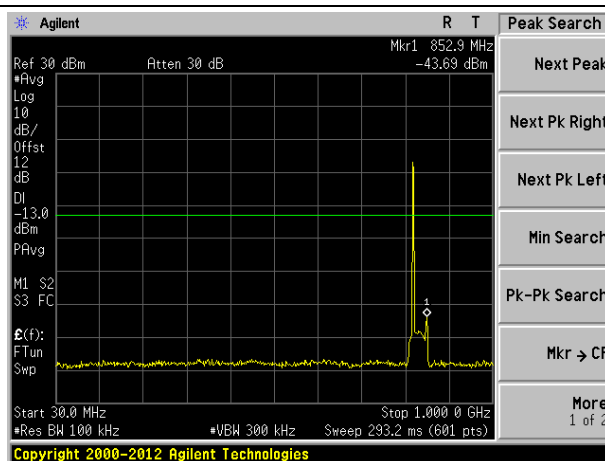
Lowest channel	
30MHz-1000MHz	
	
1000MHz-9000MHz	
	
Middle channel	
30MHz-1000MHz	
	

1000MHz-9000MHz

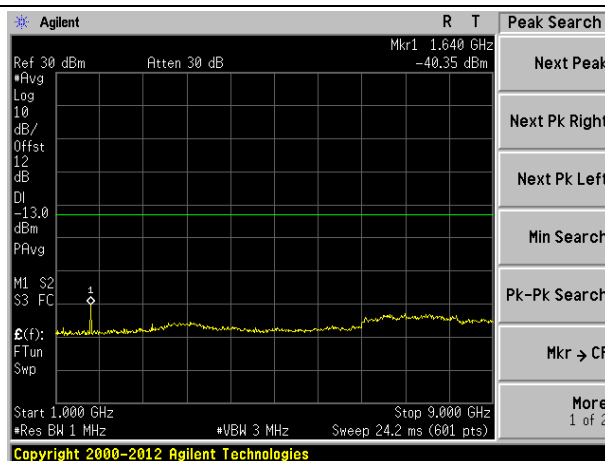


Highest channel

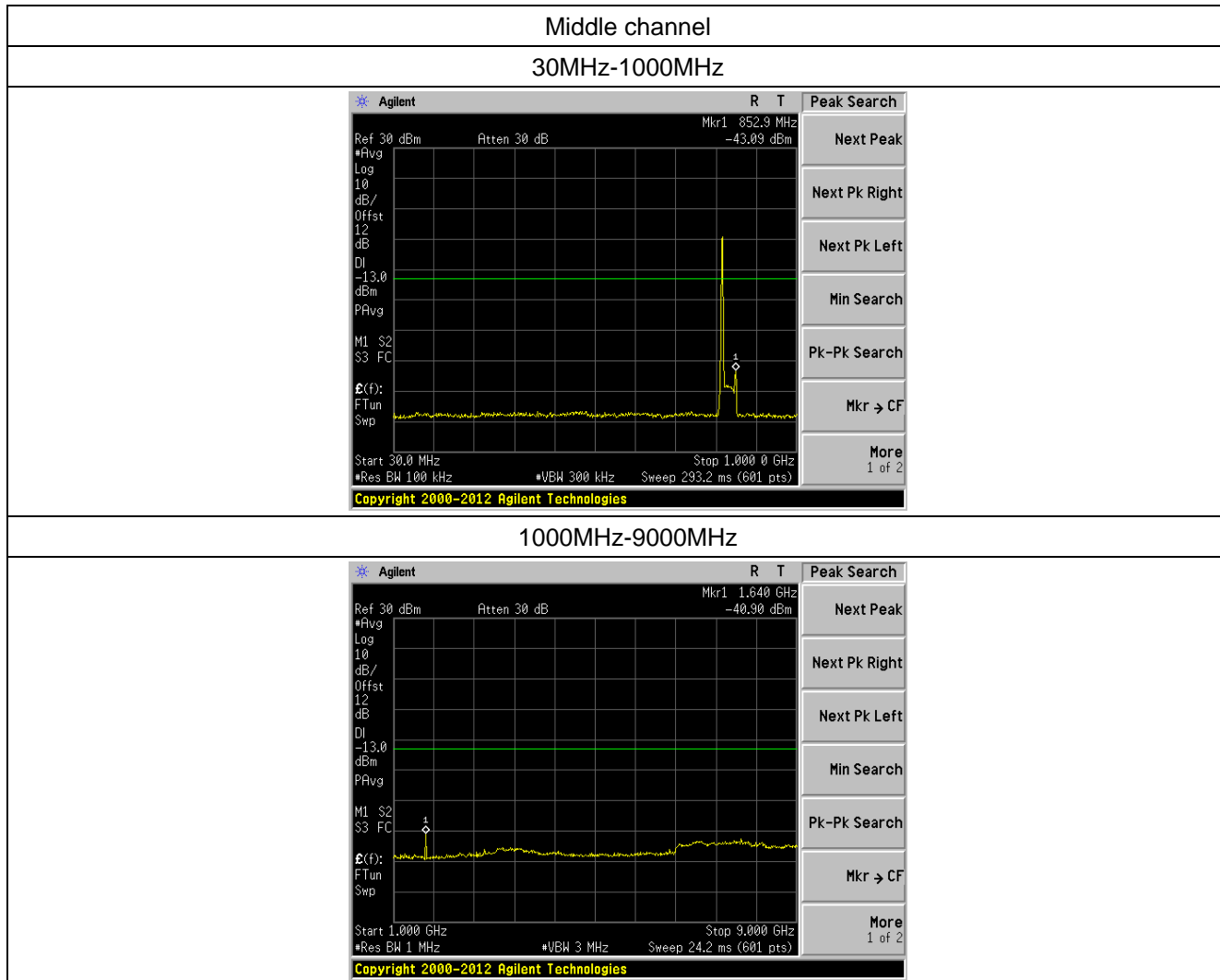
30MHz-1000MHz



1000MHz-9000MHz



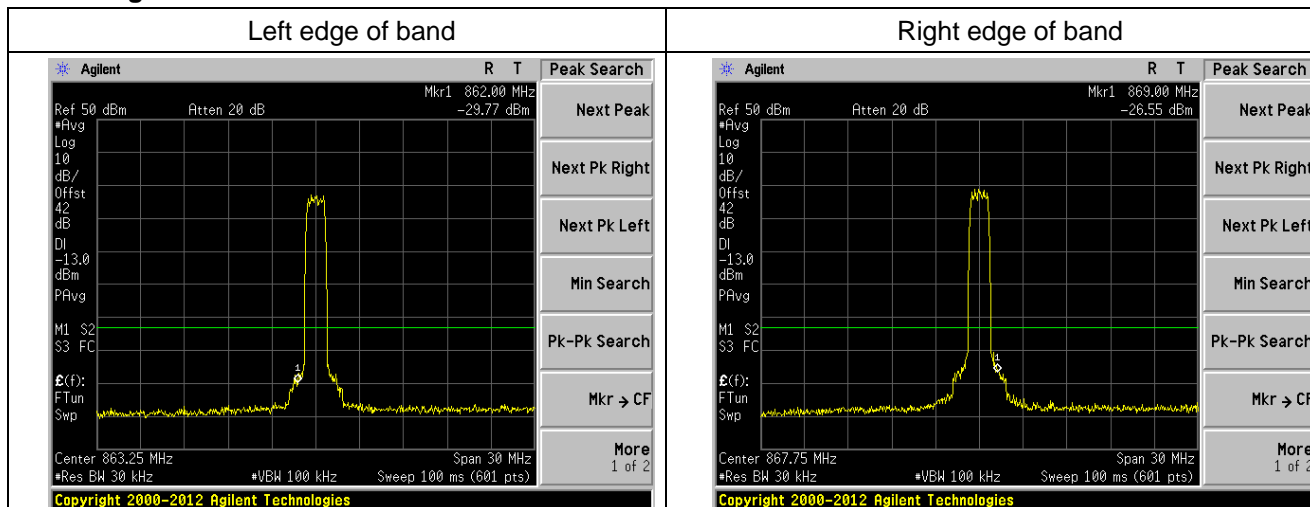
Spurious emission of LTE 5MHz Bandwidth



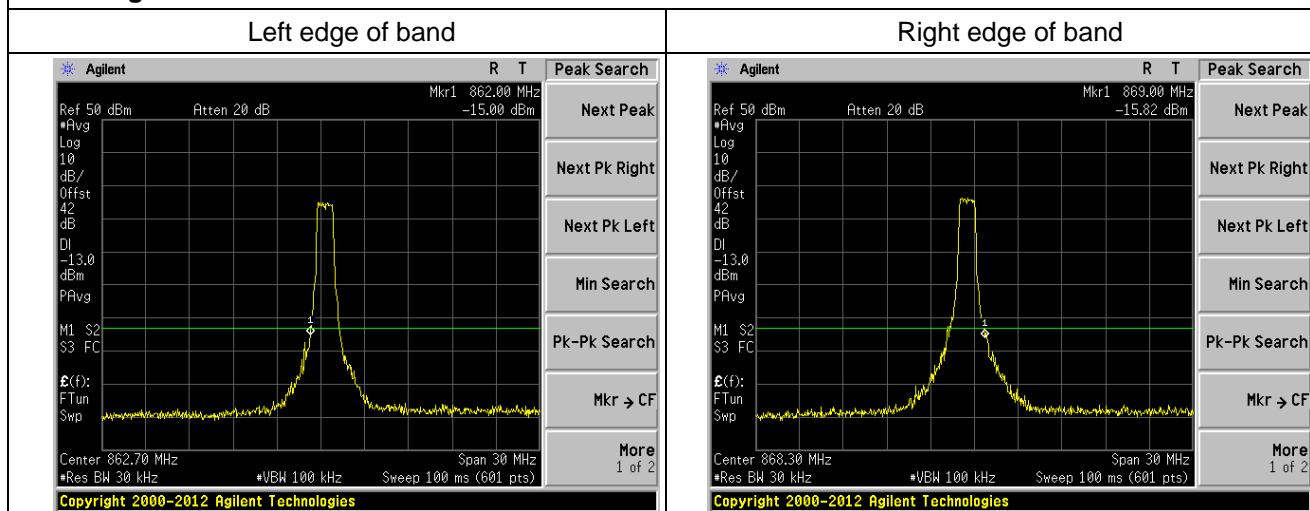
10.4.2 Band edge emission

Downlink:

Band edge of CDMA

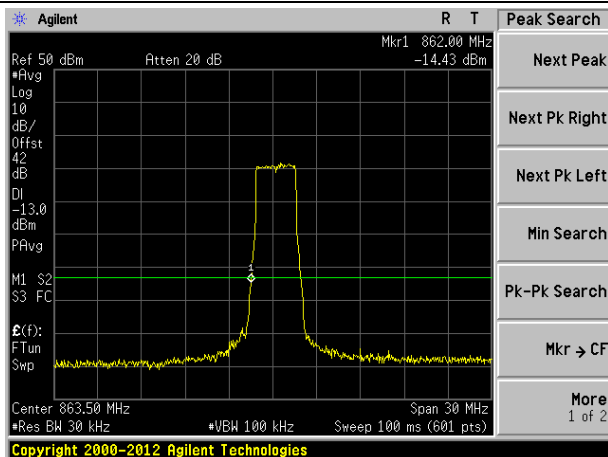


Band edge of LTE 1.4MHz Bandwidth

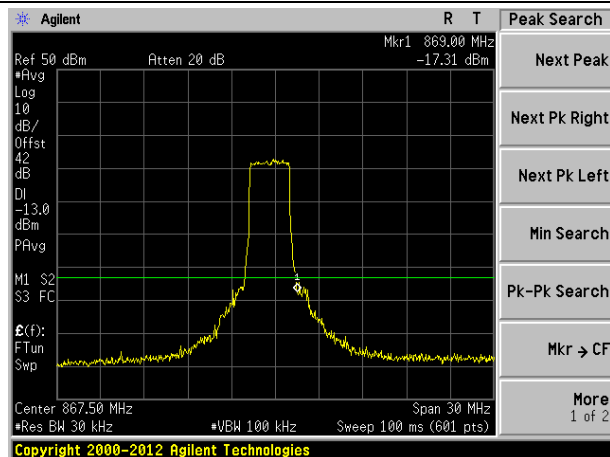


Band edge of 3MHz Bandwidth

Left edge of band

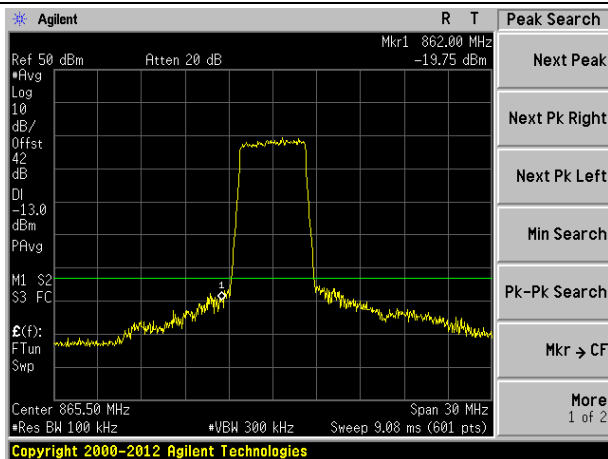


Right edge of band

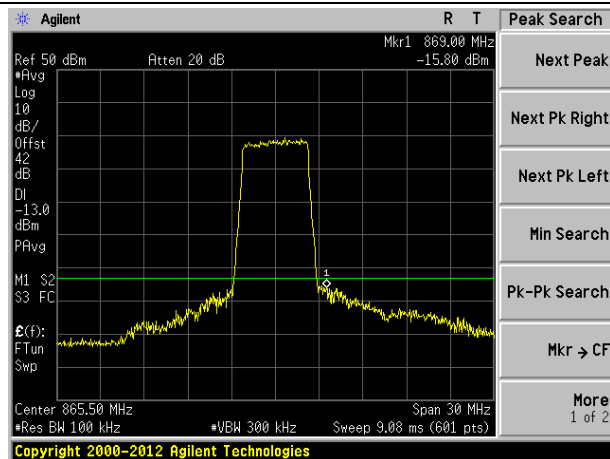


Band edge of 5MHz Bandwidth

Left edge of band



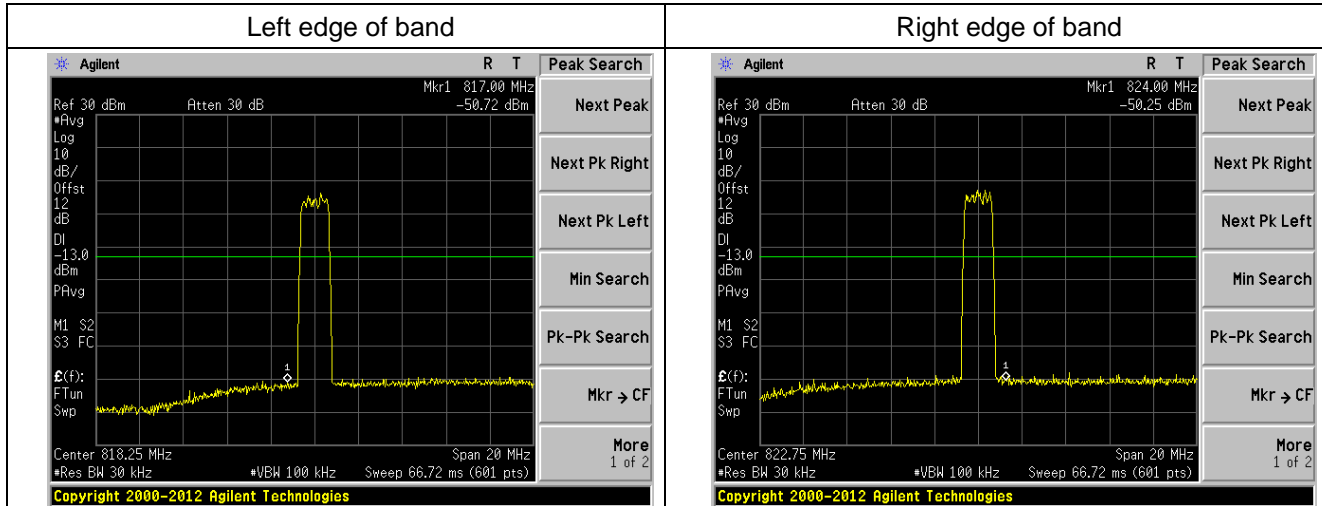
Right edge of band



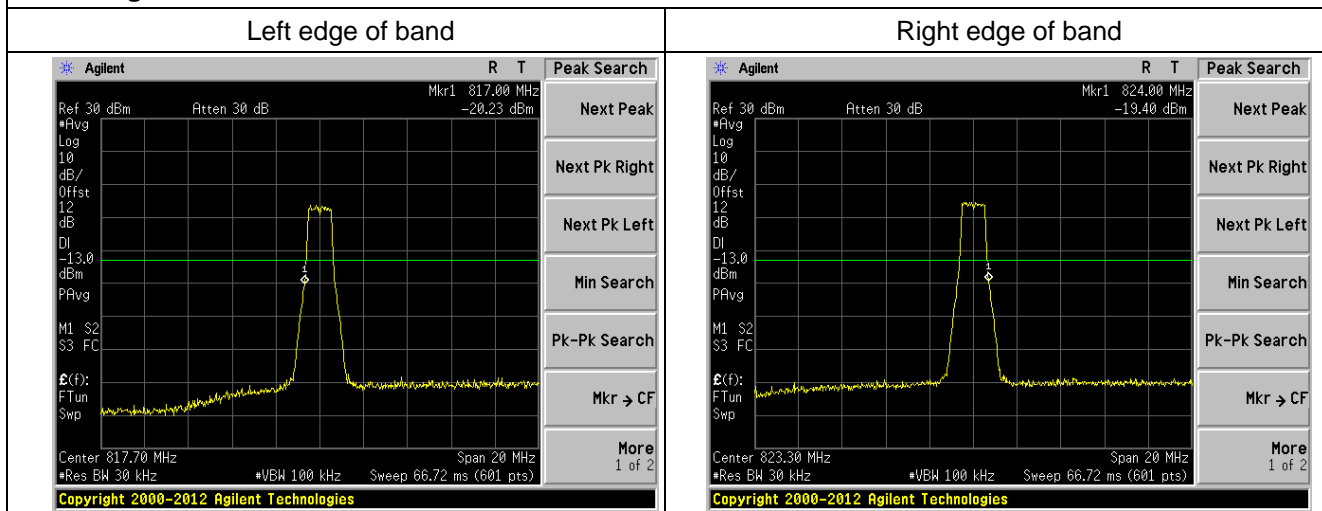
Uplink:

Downlink:

Band edge of CDMA

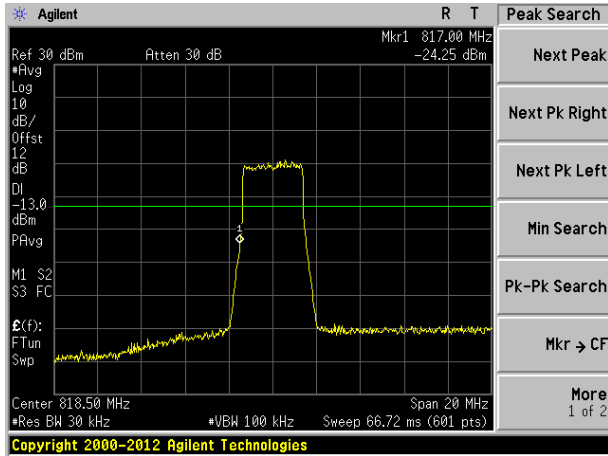


Band edge of LTE 1.4MHz Bandwidth

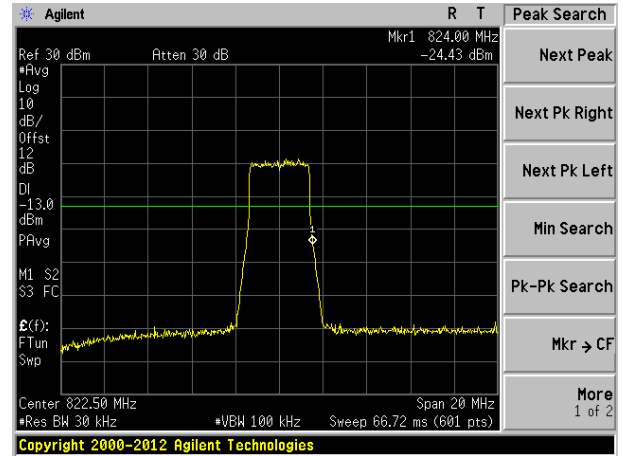


Band edge of 3MHz Bandwidth

Left edge of band

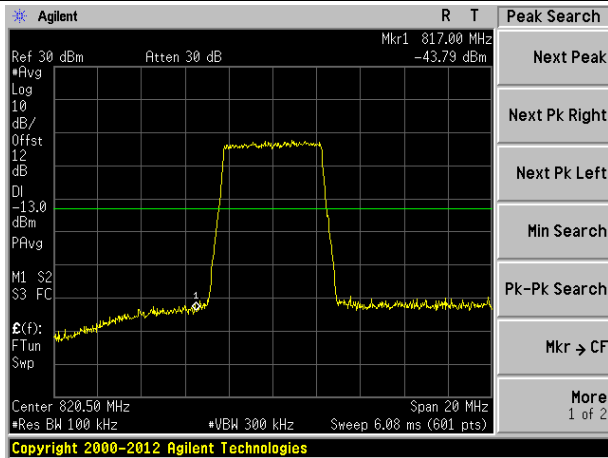


Right edge of band

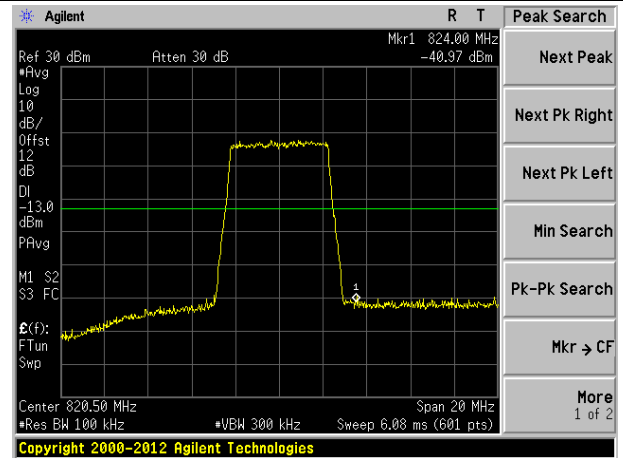


Band edge of 5MHz Bandwidth

Left edge of band



Right edge of band



11 INTERMODULATION

11.1 Standard Applicable

According to FCC § 2.1051 and § 90.691.

11.2 Test setup

Please refer the section §6.2 Configuration of Tested System.

11.3 Measurement Procedure

1. The EUT RF output port was connected to spectrum analyzer. The EUT shall be set to maximum gain and maximum rated output power per channel.
2. Two continuous sinusoidal RF signals shall be fed to the input antenna port of the repeater using a combining device. The two channels near each other should be separated by at least one operating channel width.
3. The spurious emissions at antenna were measured at the RF output port of the EUT.
4. The modulation types tested is CDMA and LTE.

Spectrum analyzer settings:

Detector: RMS.

Intermodulation:

RBW=1%of the occupied channel bandwidth without going below 1%; VBW≥ RBW

Spurious emissions:

Below 1G: RBW=100kHz; Above 1G: RBW=1 MHz ; VBW≥ RBW

11.4 Test Result

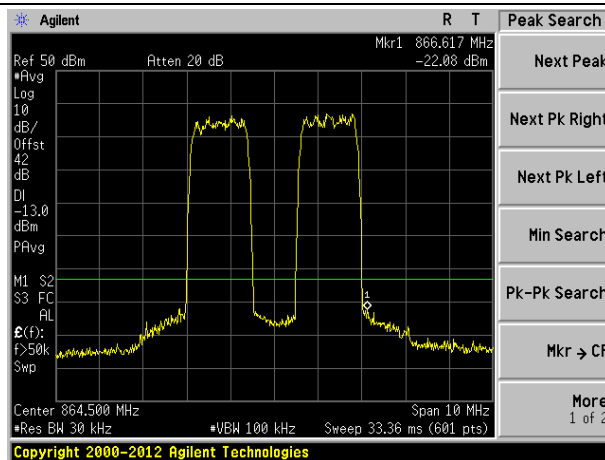
Passed.

Remark: Both case of the normal input power level and increase 3dB above the AGC threshold were tested, we found this case increase 3dB above the AGC threshold which was the worst, and record in the report.

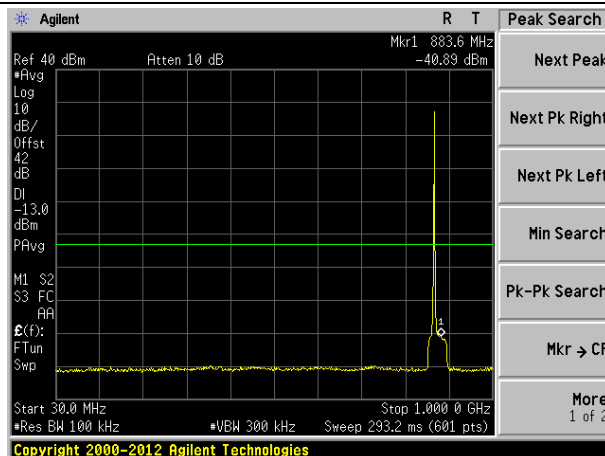
Downlink:

Intermodulation of CDMA

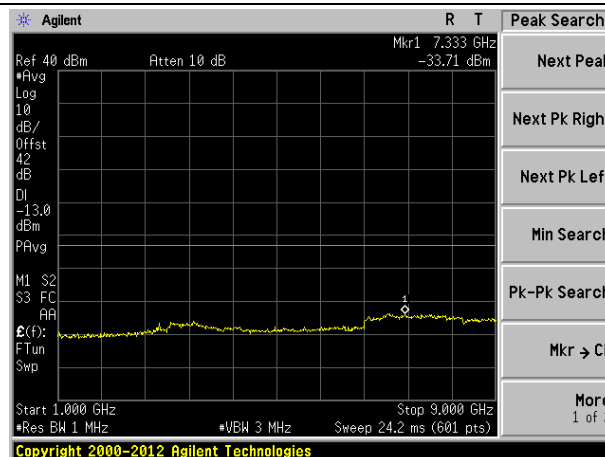
Intermodulation - Low part of band



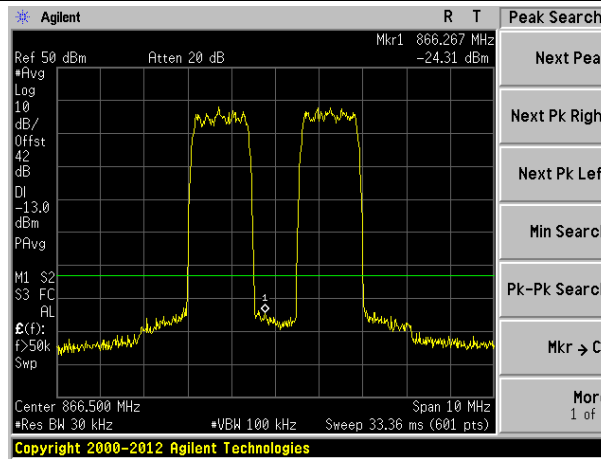
30MHz-1000MHz spurious emissions



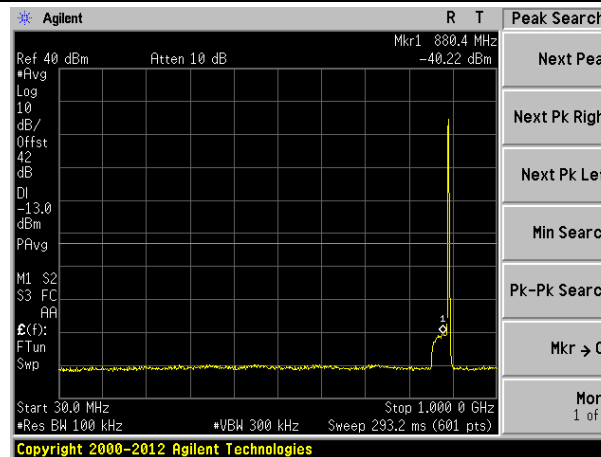
1000MHz-9000MHz spurious emissions



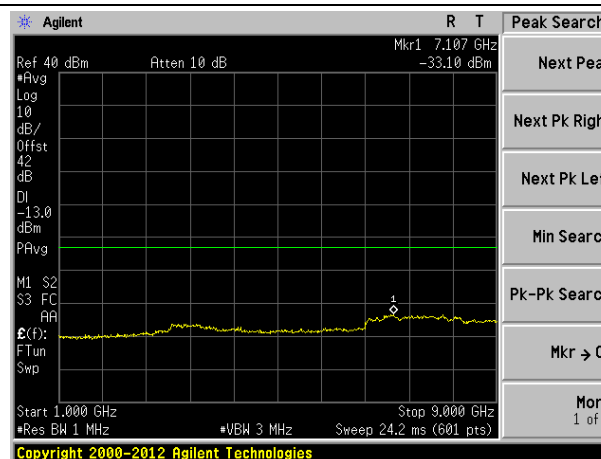
Intermodulation - High part of band



30MHz-1000MHz spurious emissions

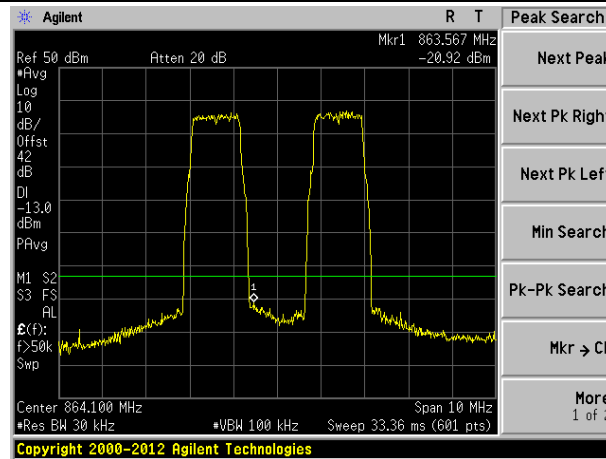


1000MHz-9000MHz spurious emissions

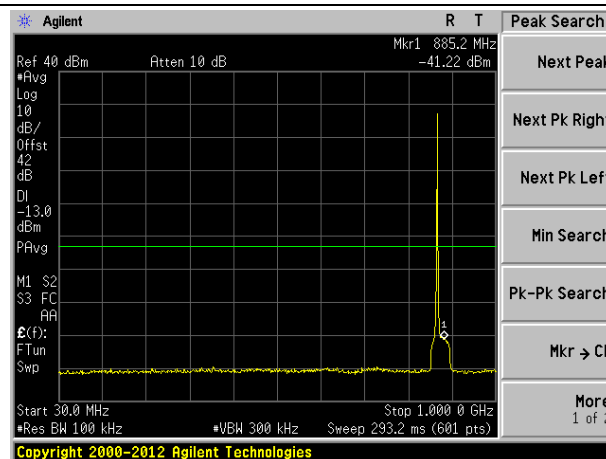


Intermodulation of LTE 1.4MHz Bandwidth

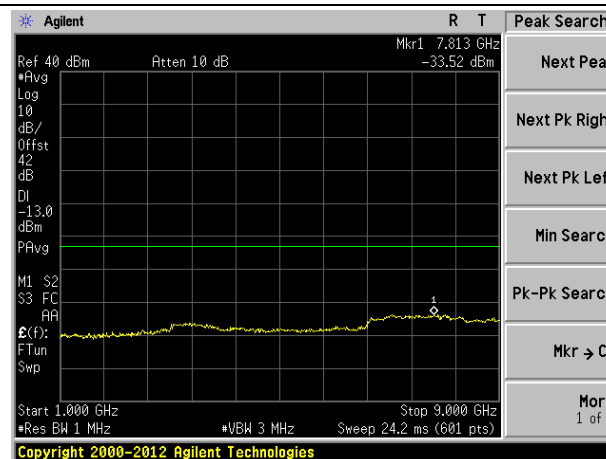
Intermodulation - Low part of band



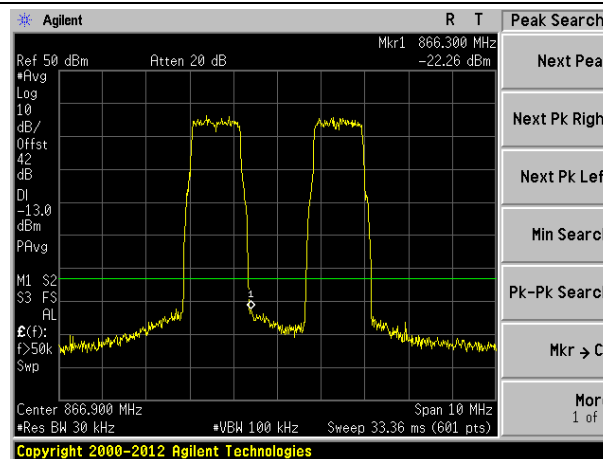
30MHz-1000MHz spurious emissions



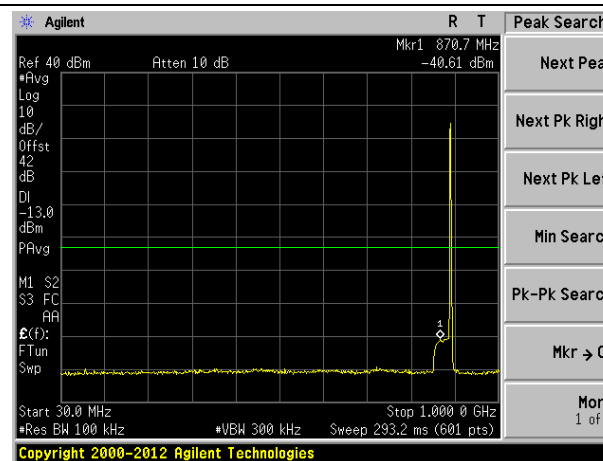
1000MHz-9000MHz spurious emissions



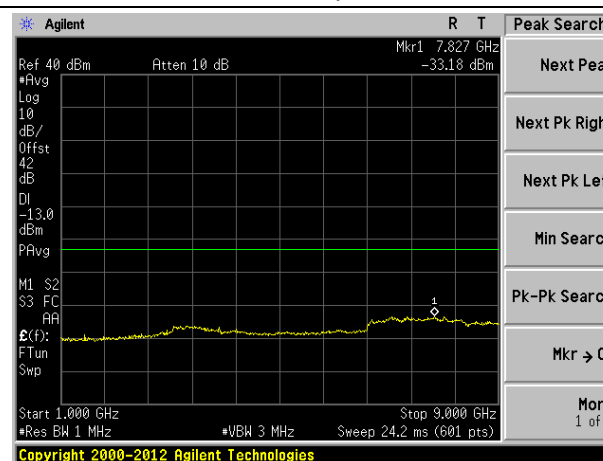
Intermodulation - High part of band



30MHz-1000MHz spurious emissions

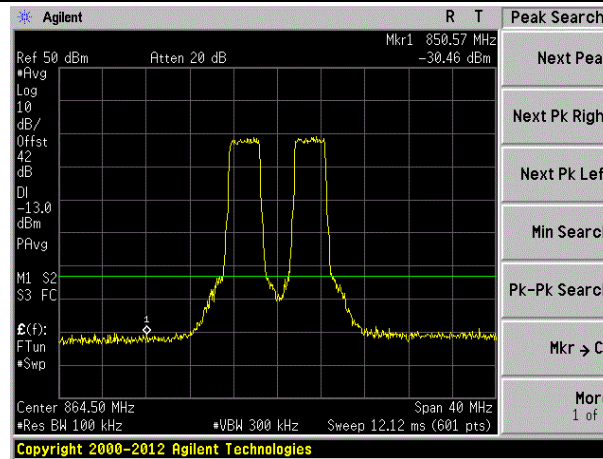


1000MHz-9000MHz spurious emissions

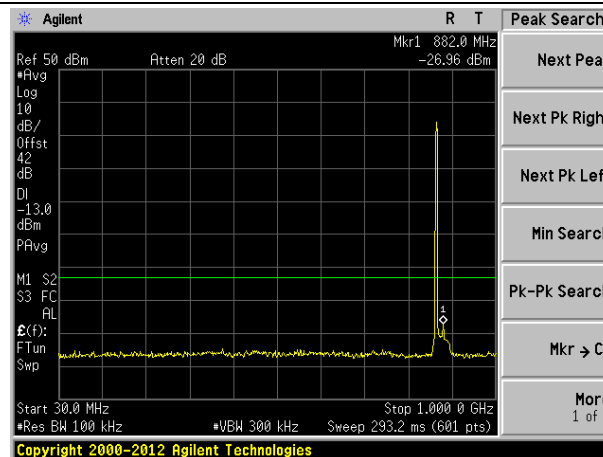


Intermodulation of LTE 3MHz Bandwidth

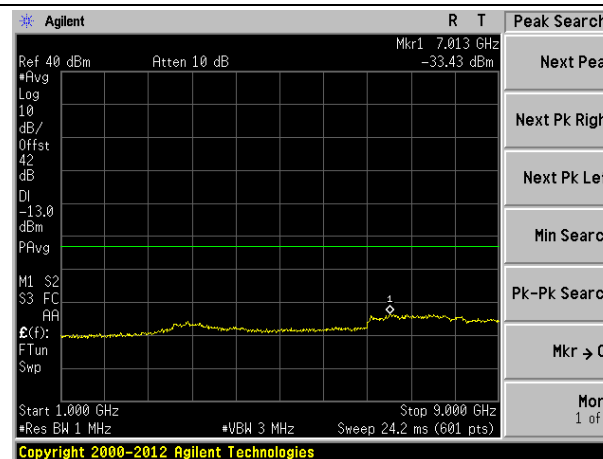
Intermodulation - Low part of band



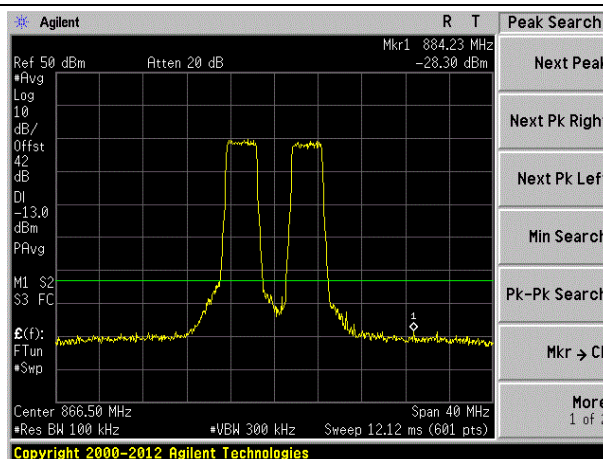
30MHz-1000MHz spurious emissions



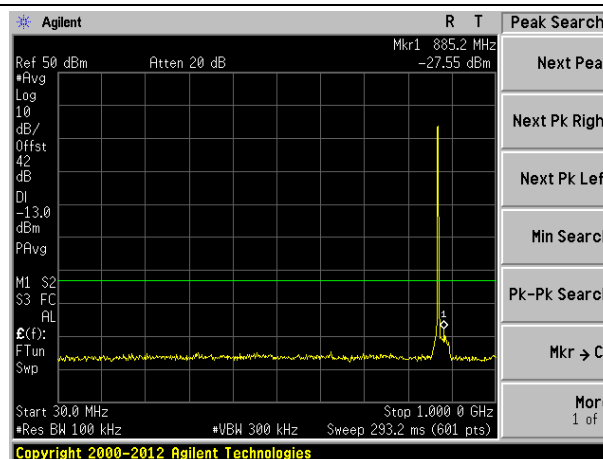
1000MHz-9000MHz spurious emissions



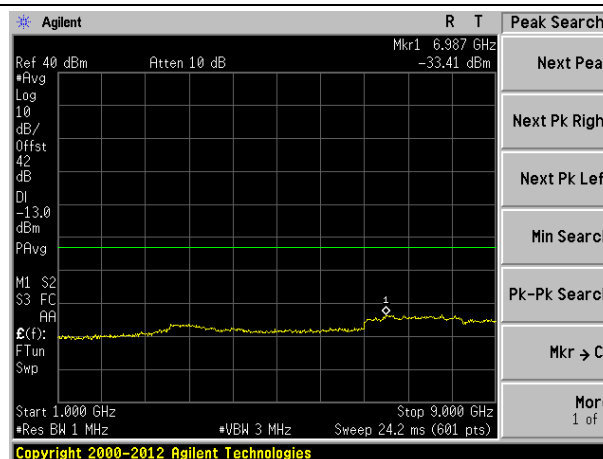
Intermodulation - High part of band



30MHz-1000MHz spurious emissions



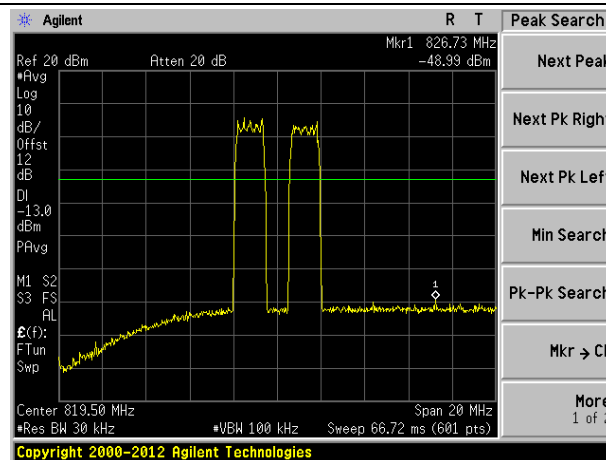
1000MHz-9000MHz spurious emissions



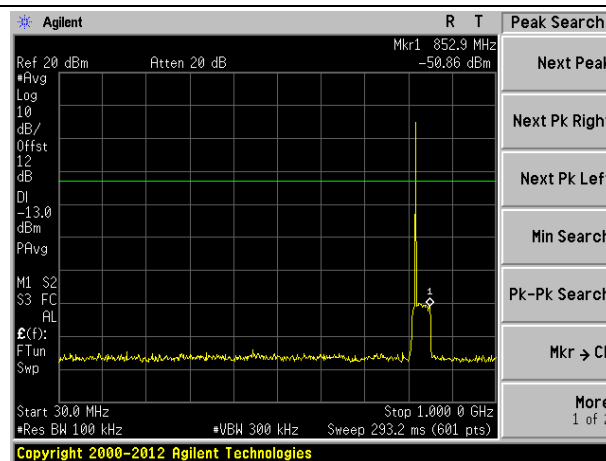
Uplink:

Intermodulation of CDMA

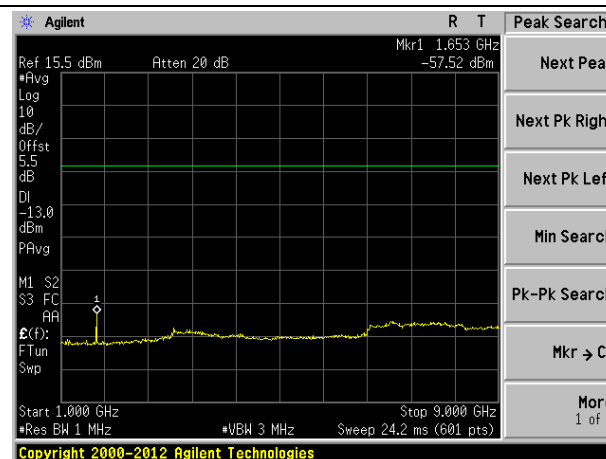
Intermodulation - Low part of band



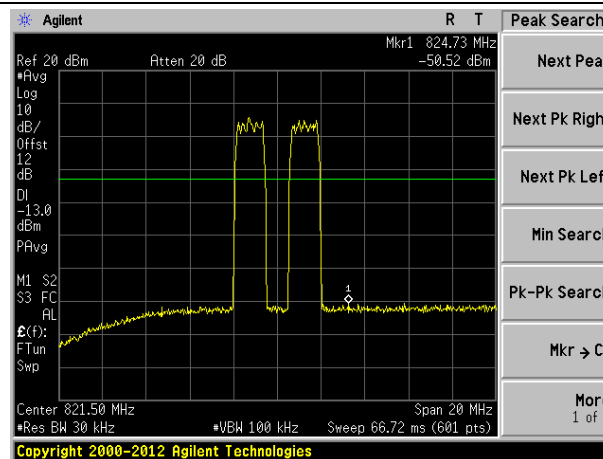
30MHz-1000MHz spurious emissions



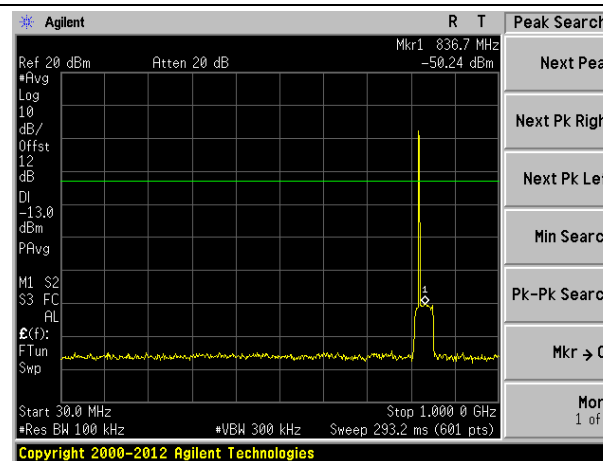
1000MHz-9000MHz spurious emissions



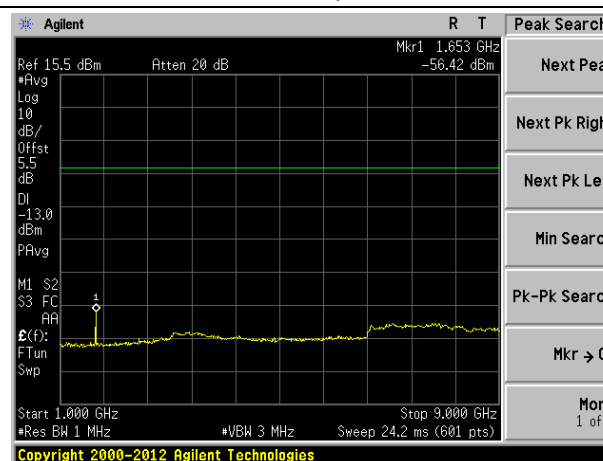
Intermodulation - High part of band



30MHz-1000MHz spurious emissions

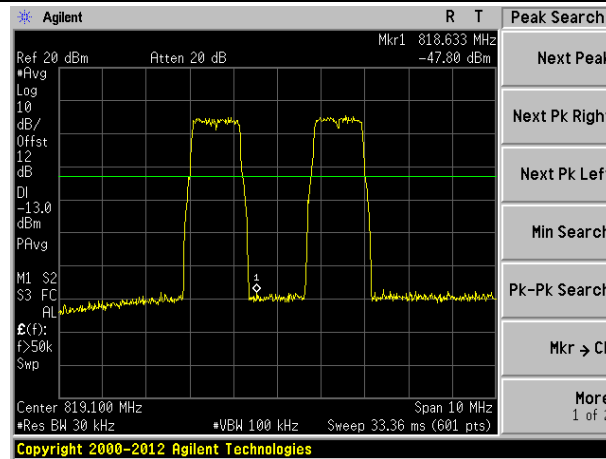


1000MHz-9000MHz spurious emissions

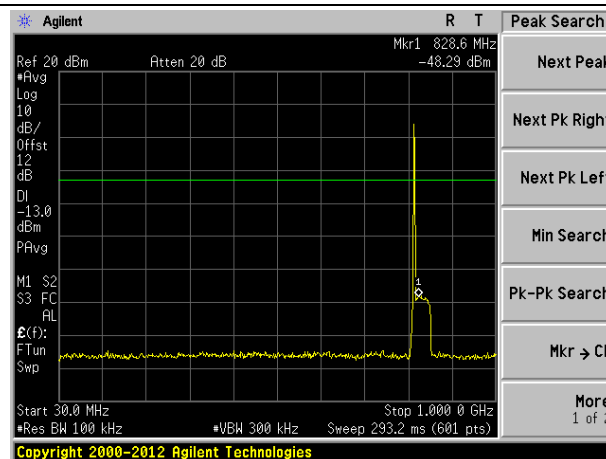


Intermodulation of LTE 1.4MHz Bandwidth

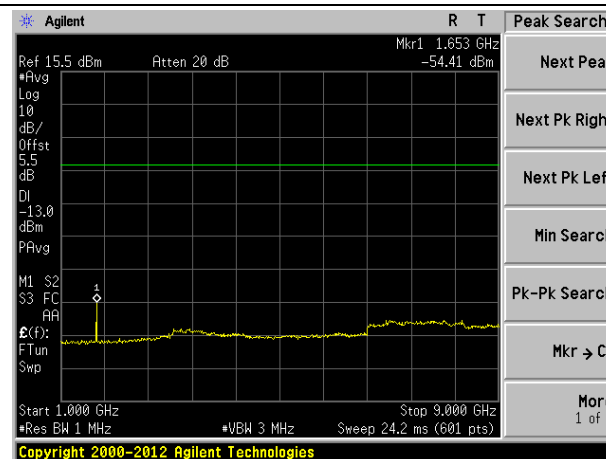
Intermodulation - Low part of band



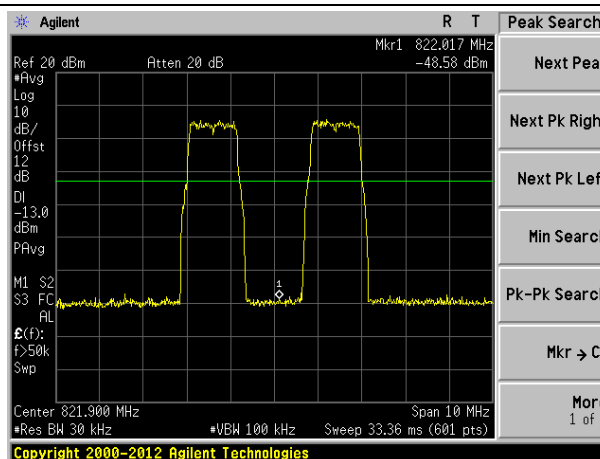
30MHz-1000MHz spurious emissions



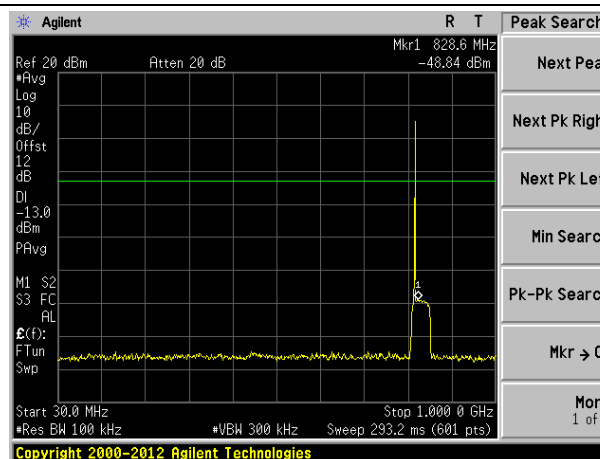
1000MHz-9000MHz spurious emissions



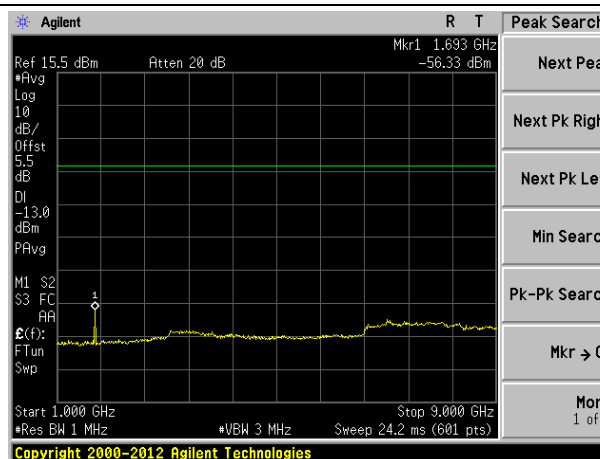
Intermodulation - High part of band



30MHz-1000MHz spurious emissions

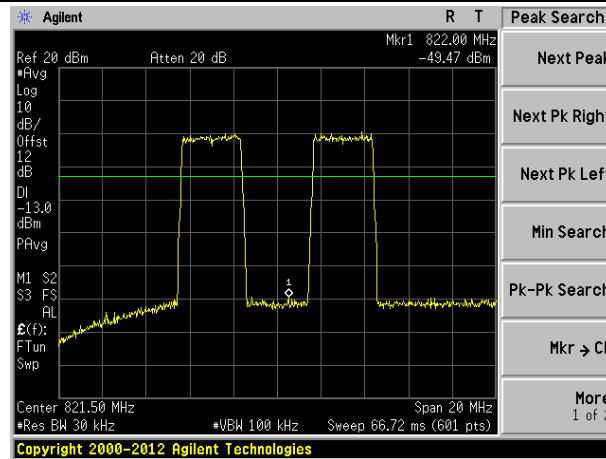


1000MHz-9000MHz spurious emissions

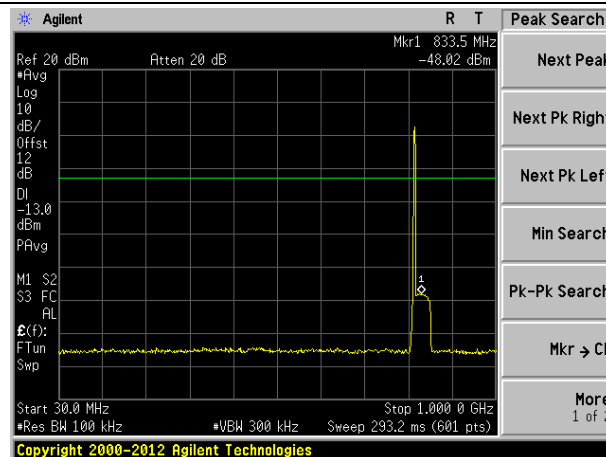


Intermodulation of LTE 3MHz Bandwidth

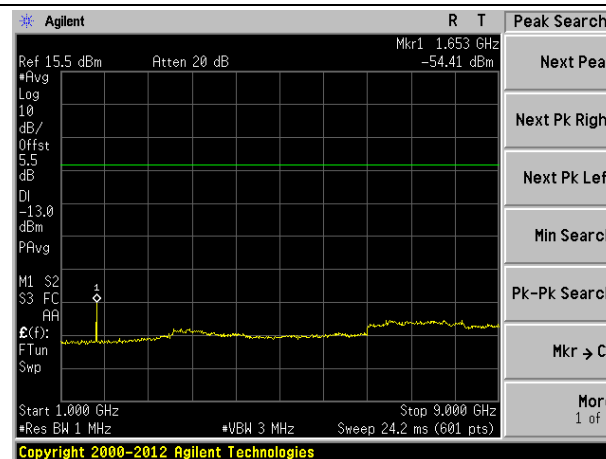
Intermodulation - Low part of band



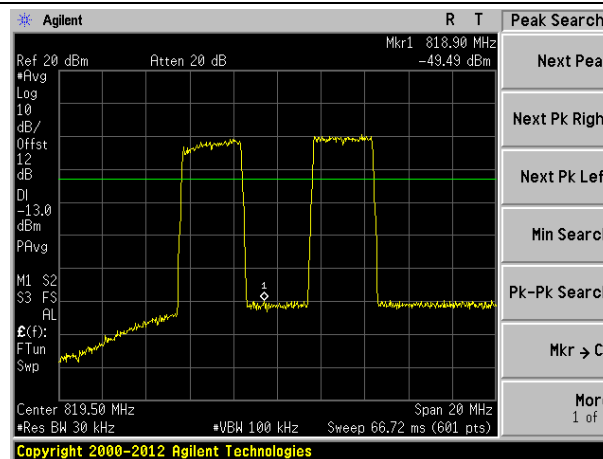
30MHz-1000MHz spurious emissions



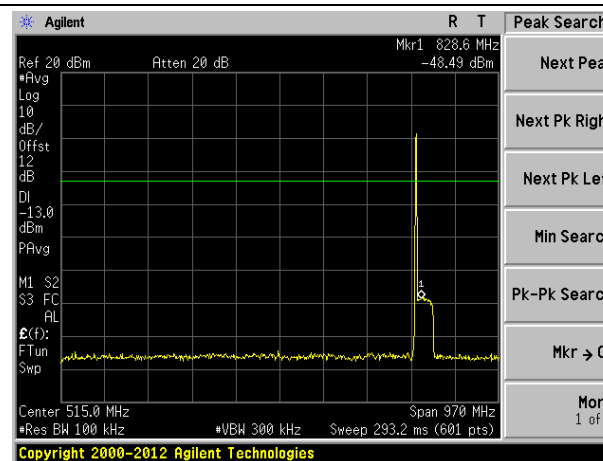
1000MHz-9000MHz spurious emissions



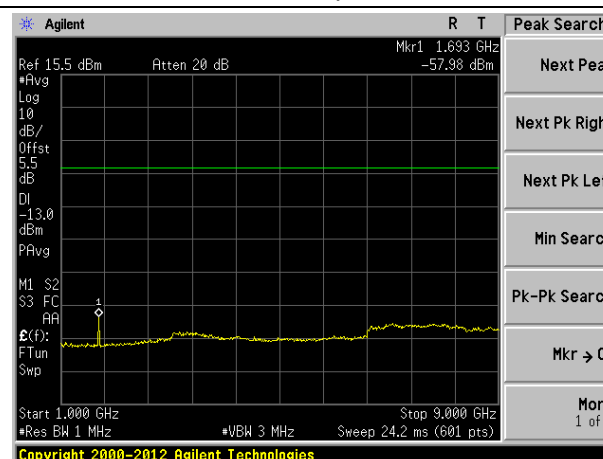
Intermodulation - High part of band



30MHz-1000MHz spurious emissions



1000MHz-9000MHz spurious emissions



12 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

12.1 Standard Applicable

According to FCC § 2.1053 and § 90.691

12.2 EUT Setup (Block Diagram of Configuration)

Please refer the section §6.2 Configuration of Tested System.

12.3 Measurement Procedure

1. The EUT RF output port was connected to 50 ohm RF load.
2. The EUT input port was connected to signal generator and was setup to transmit maximum power.
3. The measurement antenna was placed at a distance of 3 meters from the EUT.
4. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from EUT.
5. The frequency range up to 10-th harmonic of each of the three fundamental frequencies (low, middle and high channels) was investigated. The worst case of emissions was reported.
6. For spurious emissions attenuation, the substitution method was used.
7. The EUT was substituted by a reference antenna (half-wave dipole – below 1 GHz, or Horn antenna – above 1 GHz), connected to a signal generator.
8. The signal generator output level was adjusted to obtain the same reading as from EUT. The EIRP at the spurious emissions frequency was calculated as follows:
$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain(dBi)} - \text{Cable Loss (dB)}$$
9. The antenna substitution method is used to determine the equivalent radiated power at spurious frequencies. The spurious emissions are measured at a distance of 3 meters. The EUT is then replaced with a reference substitution antenna with a known gain referenced to a dipole. This antenna is fed with a signal at the spurious frequency. The level of the signal is adjusted to repeat the previously measured level. The resulting eirp is the signal level fed to the reference antenna corrected for gain referenced to an isotropic dipole
10. From KDB (AMPLIFIER, BOOSTER, AND REPEATER REMINDER SHEET): Radiated spurs (enclosure) – Use of CW signal (low, mid. and high freq.) is acceptable rather than all modulations.
11. The maximum RFI field strength was determined during the measurement by rotating the turntable (± 180 degrees) and varying the height of the receive antenna ($h = 1 \dots 4$ m) as like defined in ANSI C63.4. A measurement receiver has been used with a RBW 120 kHz up to 1 GHz and 1 MHz above 1 GHz. Steps with during pre measurement was half the RBW.
12. Both, the Fully Anechoic Chamber (FAC) and the Semi Anechoic Chamber (SAC) fulfil the requirements of ANSI C63.4 and CISPR 16-1-4 with regards to NSA and SVSWR.

12.4 Measurement data

Downlink mode

Test mode:	Below 1G		Test channel:	Lowest channel
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
45.95	Vertical	-44.79	-13.00	Pass
68.45	V	-45.07		
183.56	V	-44.33		
285.53	V	-48.79		
375.14	V	---		
592.33	V	---		
37.51	Horizontal	-47.24	-13.00	Pass
127.56	H	-45.75		
183.45	H	-42.29		
277.55	H	-48.37		
396.56	H	---		
528.96	H	---		
Test mode:	Above 1G		Test channel:	Lowest channel
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1575.00	Vertical	-54.35	-13.00	Pass
2769.00	V	-55.27		
3571.00	V	-54.33		
5724.00	V	---		
8922.00	V	---		
2467.00	Horizontal	-55.03	-13.00	Pass
3375.00	H	-54.81		
4724.00	H	-56.75		
5237.00	H	---		
8219.00	H	---		

Test mode:	Below 1G		Test channel:	Middle channel
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
45.53	Vertical	-43.54	-13.00	Pass
99.86	V	-45.79		
245.71	V	-43.34		
385.41	V	-41.57		
595.26	V	---		
654.50	V	---		
35.69	Horizontal	-43.75	-13.00	Pass
88.59	H	-44.67		
152.71	H	-45.38		
258.24	H	-45.20		
346.95	H	---		
452.17	H	---		
Test mode:	Above 1G		Test channel:	Middle channel
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1869.00	Vertical	-53.43	-13.00	Pass
2758.00	V	-56.75		
4637.00	V	-54.60		
6245.00	V	---		
8309.00	V	---		
2758.00	Horizontal	-57.71	-13.00	Pass
3751.00	H	-55.22		
5327.00	H	-54.86		
6951.00	H	---		
8467.00	H	---		

Test mode:	Below 1G		Test channel:	Highest channel
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
42.86	Vertical	-43.56	-13.00	Pass
135.64	V	-46.27		
245.01	V	-45.33		
395.75	V	-44.85		
468.53	V	---		
657.14	V	---		
35.26	Horizontal	-43.46	-13.00	Pass
89.41	H	-45.30		
153.47	H	-45.17		
267.58	H	-42.79		
397.40	H	---		
654.55	H	---		
Test mode:	Above 1G		Test channel:	Highest channel
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
2453.00	Vertical	-52.49	-13.00	Pass
3751.00	V	-54.33		
4689.00	V	-53.47		
6347.00	V	---		
7937.00	V	---		
1864.00	Horizontal	-53.10	-13.00	Pass
3586.00	H	-55.41		
5749.00	H	-52.52		
7275.00	H	---		
8387.00	H	---		

Remark:

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

Uplink mode

Test mode:	Below 1G		Test channel:	Lowest channel
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
38.71	Vertical	-43.79	-13.00	Pass
108.66	V	-45.07		
245.75	V	-44.48		
384.50	V	-46.25		
465.17	V	---		
579.58	V	---		
42.35	Horizontal	-45.15	-13.00	Pass
117.24	H	-44.37		
243.75	H	-43.58		
462.33	H	-45.10		
586.07	H	---		
675.19		---		
Test mode:	Above 1G)		Test channel:	Lowest channel
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1578.00	Vertical	-55.49	-13.00	Pass
2759.00	V	-53.37		
4287.00	V	-55.24		
6375.00	V	---		
7966.00	V	---		
2475.00	Horizontal	-53.33	-13.00	Pass
3865.00	H	-55.67		
4955.00	H	-55.15		
6798.00	H	---		
8274.00	H	---		

Test mode:	Below 1G		Test channel:	Middle channel
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
45.69	Vertical	-45.33	-13.00	Pass
134.27	V	-44.76		
237.82	V	-44.44		
356.51	V	-45.29		
469.57	V	---		
538.14	V	---		
35.33	Horizontal	-43.27	-13.00	Pass
139.45	H	-45.48		
215.47	H	-43.38		
356.74	H	-44.70		
498.50	H	---		
654.28	H	---		
Test mode:	Above 1G		Test channel:	Middle channel
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
2756.00	Vertical	-56.37	-13.00	Pass
3769.00	V	-57.21		
5367.00	V	-55.89		
7432.00	V	---		
8517.00	V	---		
1589.00	Horizontal	-54.37	-13.00	Pass
3567.00	H	-55.46		
4992.00	H	-56.58		
7207.00	H	---		
8394.00	H	---		

Test mode:	Below 1G		Test channel:	Highest channel
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
39.85	Vertical	-43.67	-13.00	Pass
139.28	V	-45.33		
197.47	V	-45.48		
286.39	V	-44.08		
398.53	V	---		
467.27	V	---		
53.76	Horizontal	-43.52	-13.00	Pass
124.75	H	-46.31		
246.99	H	-44.67		
389.17	H	-43.38		
538.28	H	---		
646.90	H	---		
Test mode:	Above 1G		Test channel:	Highest channel
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
2161.00	Vertical	-53.73	-13.00	Pass
3865.00	V	-55.21		
4968.00	V	-54.47		
5312.00	V	---		
7951.00	V	---		
1864.00	Horizontal	-55.39	-13.00	Pass
2968.00	H	-53.23		
4658.00	H	-54.25		
6539.00	H	---		
8301.00	H	---		

Remark:

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

13 FREQUENCY STABILITY

13.1 Standard Applicable

According to FCC § 2.1055 and § 90.213

13.2 Test setup

Please refer the section §6.2 Configuration of Tested System.

13.3 Test Procedure

1. The EUT was placed inside the temperature chamber.
2. The RF output port was connected to a spectrum analyzer.
3. The level of RF input signal shall be increased, until the maximum output power per channel, declared by client, is reached.
4. After the temperature stabilized for approximately 20 min, the transmitting frequency was measured by the spectrum analyzer and recorded.
5. At room temperature, the frequency was measured when EUT was powered with the nominal voltage and with 85% and 115% of the nominal voltage.

13.4 Test Result

Passed.

Downlink:

CDMA mode					
Reference Frequency: Middle channel=865.50MHz					
Voltage with nominal Voltage	Power Supplied (VAC)	Temperature (°C)	Frequency Error (Hz)	Frequency Error (ppm)	Result
100%	120V	-40	21	0.0243	Passed
100%		-30	19	0.0220	Passed
100%		-20	16	0.0185	Passed
100%		-10	15	0.0173	Passed
100%		0	13	0.0150	Passed
100%		10	10	0.0116	Passed
100%		20	12	0.0139	Passed
100%		30	15	0.0173	Passed
100%		40	17	0.0196	Passed
100%		50	19	0.0220	Passed
100%		55	20	0.0231	Passed
85%	102V	20	21	0.0243	Passed
115%	138V	20	22	0.0254	Passed

Remark: EUT is specified for outdoor use with temperature range of -40° to +55° C, and was tested with its range.

Uplink:

CDMA mode					
Reference Frequency: Middle channel=820.50MHz					
Voltage with nominal Voltage	Power Supplied (VAC)	Temperature (°C)	Frequency Error (Hz)	Frequency Error (ppm)	Result
100%	120V	-40	21	0.0256	Passed
100%		-30	19	0.0232	Passed
100%		-20	16	0.0195	Passed
100%		-10	15	0.0183	Passed
100%		0	11	0.0134	Passed
100%		10	9	0.0110	Passed
100%		20	13	0.0158	Passed
100%		30	16	0.0195	Passed
100%		40	18	0.0219	Passed
100%		50	19	0.0232	Passed
100%		55	22	0.0268	Passed
85%	102V	20	21	0.0256	Passed
115%	138V	20	18	0.0219	Passed

Remark: EUT is specified for outdoor use with temperature range of -40° to +55° C, and was tested with its range.

14 OUT-OF-BAND REJECTION

14.1 Standard Applicable

According to KDB (AMPLIFIER, BOOSTER, AND REPEATER REMINDER SHEET):

Out of Band Rejection – Test for rejection of out of band signals. Filter freq. response plots are acceptable.

Please refer the section §3.3 OUT-OF-BAND REJECTION of D05 Indus Booster Basic Meas v01

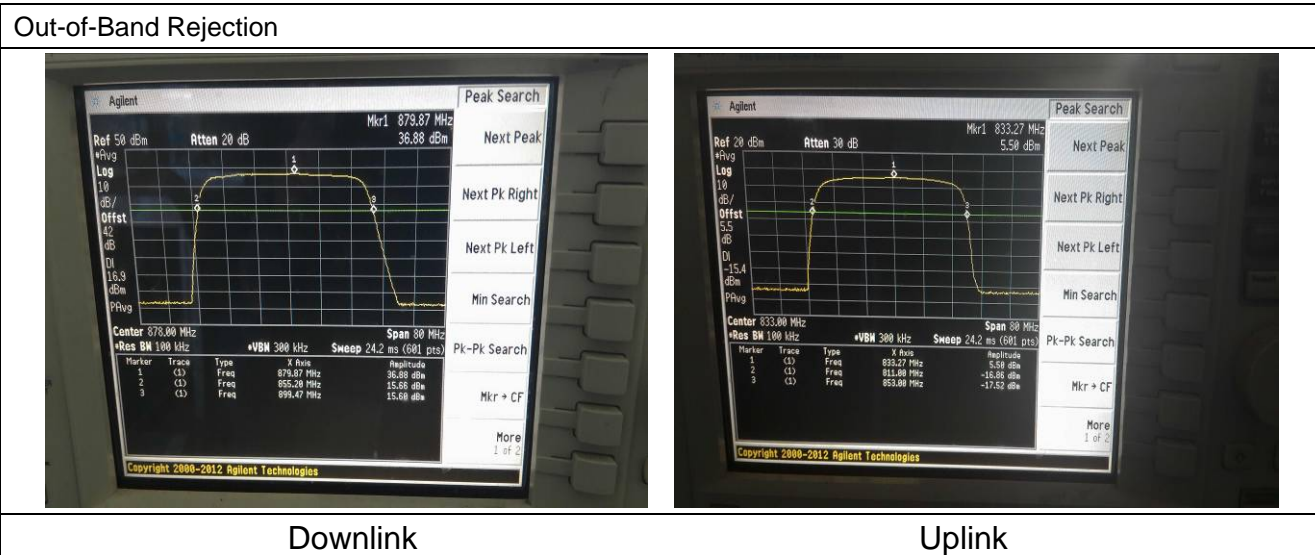
14.2 Test setup

Please refer the section §6.2 Configuration of Tested System.

14.3 Test Procedure

Please refer the section §3.3 OUT-OF-BAND REJECTION of D05 Indus Booster Basic Meas v01

14.4 Test Result



15 POWER LINE CONDUCTED EMISSION TEST

15.1 Standard Applicable

According to FCC §15.207. The emission value for frequency within 150KHz to 30MHz shall not Exceed criteria of below chart.

Frequency range (MHz)	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	79	66
0.50 to 30	73	60
Note 1.The lower limit shall apply at the transition frequencies 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

15.2 Test setup

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4-2001.
2. The EUT was plug-in DC power adaptor and was placed on the center of the back edge on the test table. The peripherals like earphone was placed on the side of the EUT. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
3. The Power adaptor was connected with 110VAC/60Hz power source.

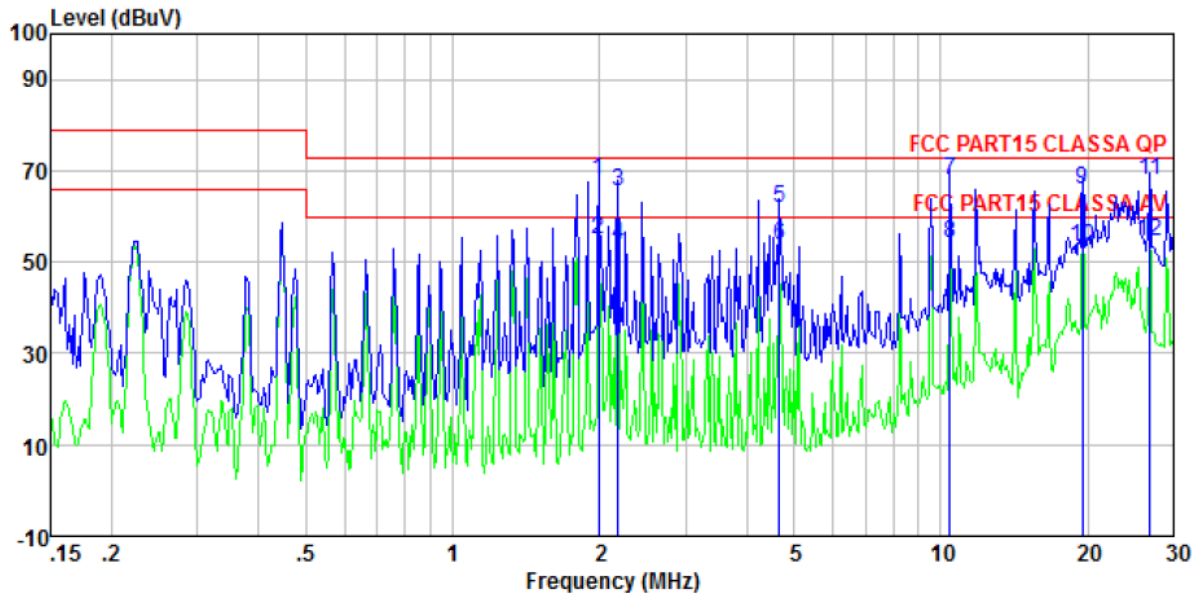
15.3 Test Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

15.4 Measurement Result

Downlink:

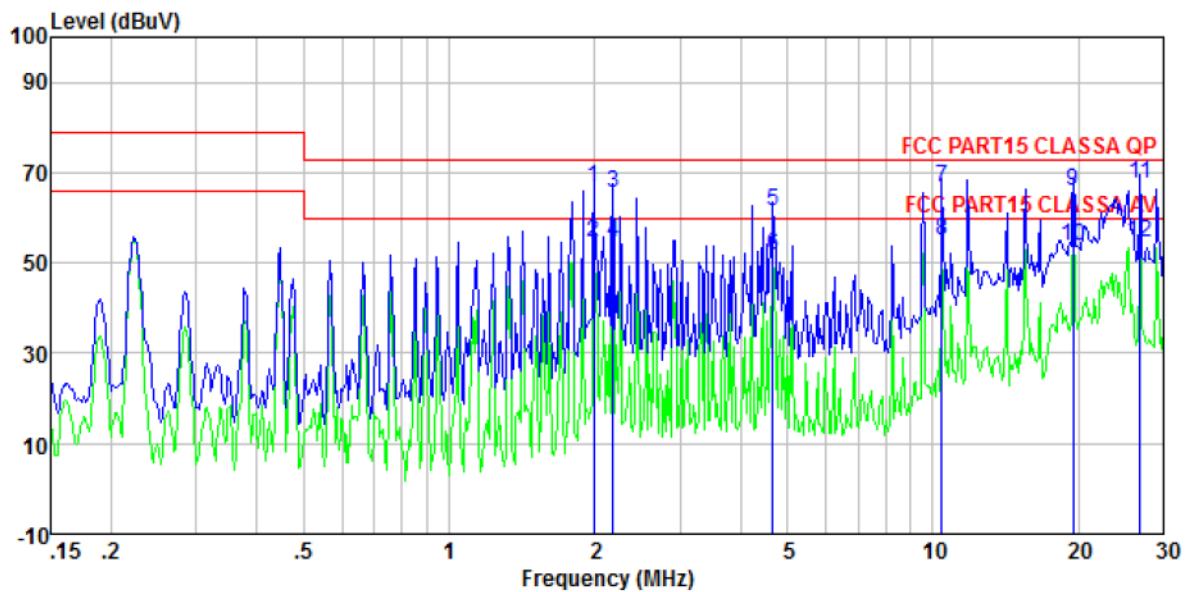
Line:



Site : Shielded room
Condition : FCC PART15 CLASS A QP LISN-2013 LINE
Job No. : 0043
Test mode : Downlink mode
Test Engineer: Sky

	Freq	Read Level	Level	Cable Loss	Aux Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	1.991	67.65	67.92	0.15	0.00	73.00	-5.08	QP
2	1.991	54.58	54.85	0.15	0.00	60.00	-5.15	Average
3	2.178	65.33	65.60	0.15	0.00	73.00	-7.40	QP
4	2.178	53.55	53.82	0.15	0.00	60.00	-6.18	Average
5	4.672	61.33	61.69	0.15	0.00	73.00	-11.31	QP
6	4.672	53.38	53.74	0.15	0.00	60.00	-6.26	Average
7	10.452	67.55	68.04	0.19	0.00	73.00	-4.96	QP
8	10.452	53.83	54.32	0.19	0.00	60.00	-5.68	Average
9	19.532	65.27	66.07	0.22	0.00	73.00	-6.93	QP
10	19.532	52.71	53.51	0.22	0.00	60.00	-6.49	Average
11	26.841	66.50	67.74	0.23	0.00	73.00	-5.26	QP
12	26.841	53.39	54.63	0.23	0.00	60.00	-5.37	Average

Neutral:

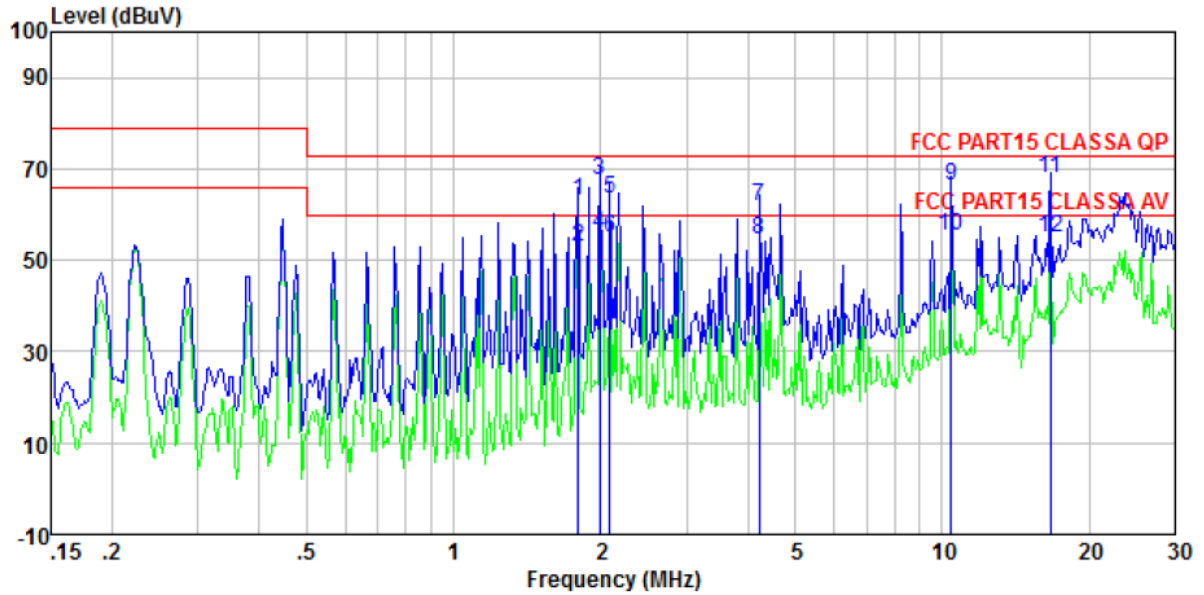


Site : Shielded room
 Condition : FCC PART15 CLASS A QP LISN-2013 NEUTRAL
 Job No. : 0043
 Test mode : Downlink mode
 Test Engineer: Sky

	Freq	Read Level	Level	Cable Loss	Aux Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	1.991	66.35	66.59	0.15	0.00	73.00	-6.41	QP
2	1.991	54.20	54.44	0.15	0.00	60.00	-5.56	Average
3	2.178	65.37	65.61	0.15	0.00	73.00	-7.39	QP
4	2.178	54.37	54.61	0.15	0.00	60.00	-5.39	Average
5	4.672	61.32	61.62	0.15	0.00	73.00	-11.38	QP
6	4.672	51.29	51.59	0.15	0.00	60.00	-8.41	Average
7	10.452	66.25	66.69	0.19	0.00	73.00	-6.31	QP
8	10.452	54.50	54.94	0.19	0.00	60.00	-5.06	Average
9	19.532	65.36	66.08	0.22	0.00	73.00	-6.92	QP
10	19.532	52.87	53.59	0.22	0.00	60.00	-6.41	Average
11	26.841	66.21	67.37	0.23	0.00	73.00	-5.63	QP
12	26.841	53.44	54.60	0.23	0.00	60.00	-5.40	Average

Uplink:

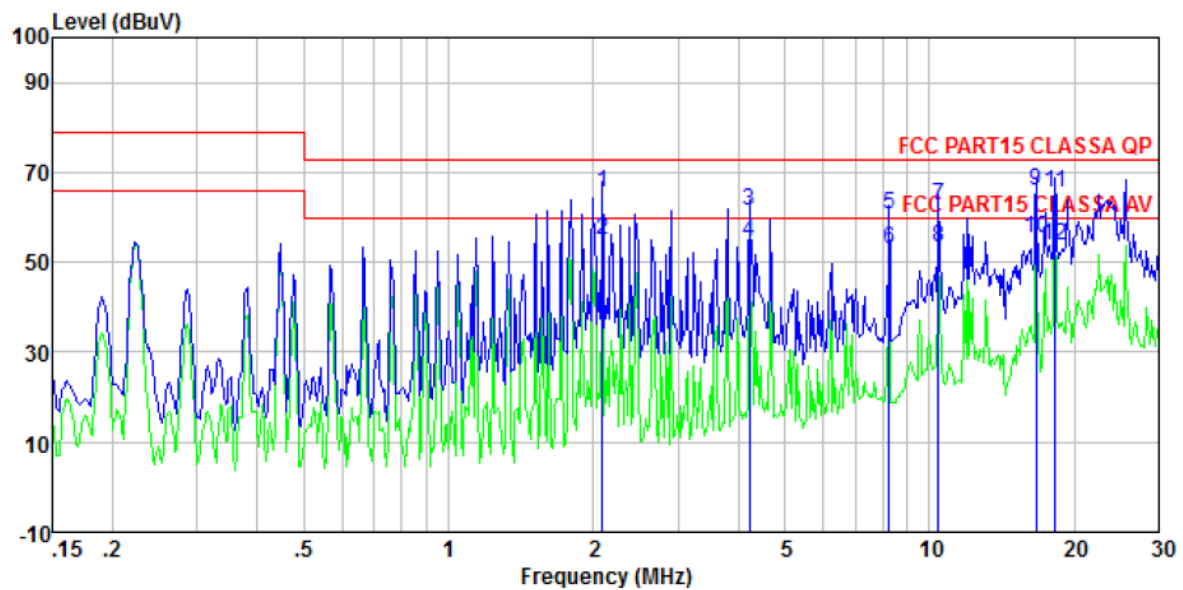
Line:



Site : Shielded room
 Condition : FCC PART15 CLASSA QP LISN-2013 LINE
 Job No. : 0043
 Test mode : Uplink mode
 Test Engineer: Sky

	Freq	Read Level	Level	Cable Loss	Aux Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	1.800	62.72	62.98	0.14	0.00	73.00	-10.02	QP
2	1.800	52.78	53.04	0.14	0.00	60.00	-6.96	Average
3	1.991	67.45	67.72	0.15	0.00	73.00	-5.28	QP
4	1.991	55.64	55.91	0.15	0.00	60.00	-4.09	Average
5	2.088	63.32	63.59	0.15	0.00	73.00	-9.41	QP
6	2.088	54.73	55.00	0.15	0.00	60.00	-5.00	Average
7	4.224	61.37	61.72	0.15	0.00	73.00	-11.28	QP
8	4.224	54.07	54.42	0.15	0.00	60.00	-5.58	Average
9	10.452	65.71	66.20	0.19	0.00	73.00	-6.80	QP
10	10.452	54.98	55.47	0.19	0.00	60.00	-4.53	Average
11	16.661	67.12	67.75	0.22	0.00	73.00	-5.25	QP
12	16.661	54.52	55.15	0.22	0.00	60.00	-4.85	Average

Neutral:

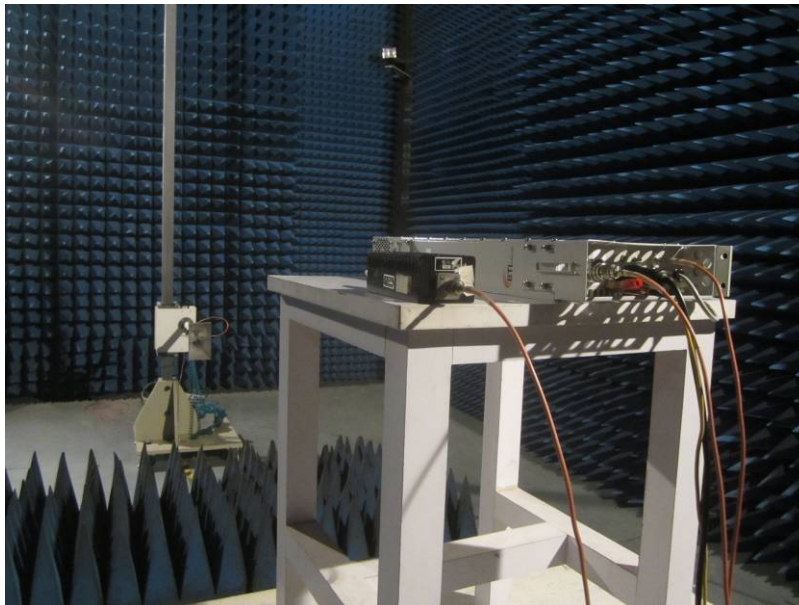
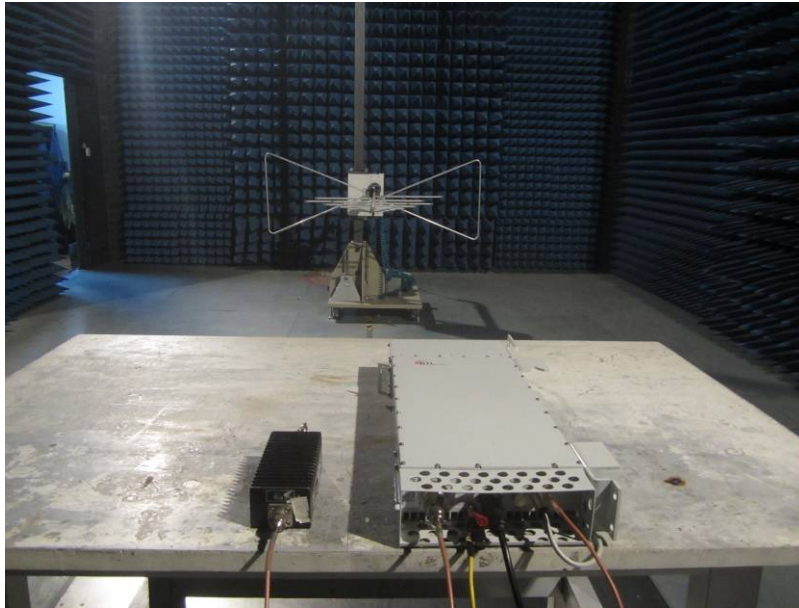


Site : Shielded room
 Condition : FCC PART15 CLASS A QP LISN-2013 NEUTRAL
 Job No. : 0043
 Test mode : Uplink mode
 Test Engineer: Sky

	Freq	Read Level	Level	Cable Loss	Aux Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	2.088	65.24	65.48	0.15	0.00	73.00	-7.52	QP
2	2.088	54.56	54.80	0.15	0.00	60.00	-5.20	Average
3	4.224	61.14	61.43	0.15	0.00	73.00	-11.57	QP
4	4.224	54.45	54.74	0.15	0.00	60.00	-5.26	Average
5	8.235	60.07	60.45	0.18	0.00	73.00	-12.55	QP
6	8.235	52.40	52.78	0.18	0.00	60.00	-7.22	Average
7	10.452	62.12	62.56	0.19	0.00	73.00	-10.44	QP
8	10.452	52.72	53.16	0.19	0.00	60.00	-6.84	Average
9	16.661	65.38	65.98	0.22	0.00	73.00	-7.02	QP
10	16.661	54.95	55.55	0.22	0.00	60.00	-4.45	Average
11	18.232	65.02	65.66	0.22	0.00	73.00	-7.34	QP
12	18.232	53.00	53.64	0.22	0.00	60.00	-6.36	Average

16 Test Setup Photo

Radiated Emission



Conducted Emission



17 EUT Constructional Details

Reference to the test report No. GTS1605000043E01

-----end-----