

FCC CFR47 PART 22H & 24E

CERTIFICATION TEST REPORT

FOR

Tablet with Cellular GSM/GPRS/EGPRS/WCDMA/HSPA+/DC- HSDPA/LTE/IEEE 802.11a/b/g/n (MIMO 2x2) and Bluetooth Radio

MODEL NUMBER: A1476

FCC ID: BCGA1476

REPORT NUMBER: 13U16584-2, REVISION A

ISSUE DATE: FEBRUARY 14, 2014

Prepared for APPLE, INC. **1 INFINITE LOOP** CUPERTINO, CA 95014, U.S.A

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Page 2 of 241

TABLE OF CONTENTS

1.	ATTES	TATION OF TEST RESULTS	.5
2.	TEST N	IETHODOLOGY	.6
3.	FACILI	TIES AND ACCREDITATION	.6
4.	CALIB	RATION AND UNCERTAINTY	.6
4	.1. ME	ASURING INSTRUMENT CALIBRATION	.6
4	.2. SA	MPLE CALCULATION	.6
4	.3. ME	ASUREMENT UNCERTAINTY	.6
5.	EQUIP	MENT UNDER TEST	.8
5	.1. DE	SCRIPTION OF EUT	.8
5	.2. MA	XIMUM OUTPUT POWER	.8
5		FTWARE AND FIRMWARE	
5	.4. MA	XIMUM ANTENNA GAIN	0
5	.5. WO	DRST-CASE CONFIGURATION AND MODE1	0
5	.6. DE	SCRIPTION OF TEST SETUP1	11
6.	TEST A	ND MEASUREMENT EQUIPMENT1	3
7.	RF PO	WER OUTPUT VERIFICATION1	4
••		WER OUTPUT VERIFICATION1 E BAND 21	
7	.1. LT		15
7	.1. LT .2. LT	E BAND 21	15 21
7 7 8 .	.1. LT .2. LT CONDU	E BAND 21 E BAND 5	15 21 25
7 7 8 .	.1. LT .2. LT CONDU	E BAND 2	15 21 25 25
7 7 8 .	.1. LT .2. LT CONDU .1. OC	E BAND 2	15 21 25 25 29
7 7 8. 8	.1. LT .2. LT CONDU .1. OC 8.1.1. 8.1.2.	E BAND 2	15 21 25 29 53
7 7 8. 8	.1. LT .2. LT CONDU .1. OC 8.1.1. 8.1.2.	E BAND 2	15 21 25 25 29 53 59
7 7 8. 8	.1. LT .2. LT CONDU .1. OC 8.1.1. 8.1.2. .2. BA	E BAND 2	15 21 25 29 53 39 70
7 7 8. 8	.1. LT .2. LT CONDU .1. OC 8.1.1. 8.1.2. .2. BA 8.2.1. 8.2.2.	E BAND 2	15 21 25 29 53 59 70 18
7 7 8. 8	.1. LT .2. LT CONDU .1. OC 8.1.1. 8.1.2. .2. BA 8.2.1. 8.2.2.	E BAND 2	15 21 25 29 53 59 70 18 50
7 7 8. 8 8	.1. LT .2. LT CONDU .1. OC 8.1.1. 8.1.2. .2. BA 8.2.1. 8.2.2. .3. OL 8.3.1. 8.3.2.	E BAND 2 1 E BAND 5 2 JCTED TEST RESULTS 2 JCUPIED BANDWIDTH 2 LTE BAND 2 2 LTE BAND 5 5 NDEDGE AND EMISSION MASK 6 LTE BAND 5 7 LTE BAND 5 11 JT OF BAND EMISSIONS 15 LTE BAND 2 15 LTE BAND 5 15 ITE BAND 5 15	15 21 25 29 53 59 70 18 50 51 75
7 7 8. 8 8	.1. LT .2. LT CONDU .1. OC 8.1.1. 8.1.2. .2. BA 8.2.1. 8.2.2. .3. OL 8.3.1. 8.3.2.	E BAND 2	15 21 25 29 53 59 70 18 50 51 75
7 7 8. 8 8 8 8	.1. LT .2. LT CONDU .1. OC 8.1.1. 8.1.2. .2. BA 8.2.1. 8.2.2. .3. OL 8.3.1. 8.3.2. .4. FR	E BAND 2 1 E BAND 5 2 JCTED TEST RESULTS 2 JCUPIED BANDWIDTH 2 LTE BAND 2 2 LTE BAND 5 5 NDEDGE AND EMISSION MASK 6 LTE BAND 5 7 LTE BAND 5 11 JT OF BAND EMISSIONS 15 LTE BAND 2 15 LTE BAND 5 15 ITE BAND 5 15	15 21 25 29 53 59 70 18 50 51 75 91

Page 3 of 241

10. SETU	Р РНОТОЅ	239
9.2.2.	LTE BAND 5	231
9.2.1.	LTE BAND 2	219
9.2. F	IELD STRENGTH OF SPURIOUS RADIATION	
9.1.2.	LTE BAND 5	210
9.1.1.	LTE BAND 2	

Page 4 of 241

1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	APPLE, INC. 1 INFINITE LOOP CUPERTINO, CA 95014, U.S.A				
EUT DESCRIPTION:		Tablet with Cellular GSM/GPRS/EGPRS/WCDMA/HSPA+/DC- HSDPA/LTE/IEEE 802.11a/b/g/n (MIMO 2x2) and Bluetooth Radio			
MODEL:	A1476				
SERIAL NUMBER:	10898				
DATE TESTED:	NOVEMBER 18, 2013 – FEARUARY	′ 05, 2014			
	APPLICABLE STANDARDS				
STANDARD TEST RESULTS					
FCC CFR47 F	PART 22H AND 24E	Pass			

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL Verification Services Inc. By:

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Page 5 of 241

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 2, Part 22 and Part 24.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
Chamber A	🖂 Chamber D
Chamber B	🛛 Chamber E
Chamber C	Chamber F

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <u>http://www.ul.com</u>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided: Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB) 36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

Page 6 of 241

Page 7 of 241

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a tablet device with cellular GSM/GPRS/EGPRS/WCDMA/HSPA+/DC-HSDPA/LTE/IEEE 802.11a/b/g/n (MIMO 2x2) and bluetooth radio.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted and ERP / EIRP output powers as follows:

LTE BAND 2

Part 24 LTE Band 2							
Bandwidth		Mashalatian	Conducted(Peak) EIRP(Peak)			P(Peak)	
(MHz)	Frequency Range	Modulation	dBm	mW	dBm	mW	
1.4	1850.7 - 1909.3	QPSK	28.00	631.0	29.22	835.6	
1.4	1830.7 - 1909.3	16QAM	27.82	605.3	28.24	666.8	
3	1851.5 - 1908.5	QPSK	27.55	568.9	29.35	861.0	
5	1001.0 - 1900.0	16QAM	27.47	558.5	28.34	682.3	
5	1852.5 - 1907.5	QPSK	27.93	620.9	29.48	887.2	
5	1852.5 - 1907.5	16QAM	27.91	618.0	28.58	721.1	
10	1855.0 - 1905.0	QPSK	27.90	616.6	29.53	897.4	
10	1855.0 - 1905.0	16QAM	27.65	582.1	28.78	755.1	
15	1857.5 - 1902.5	QPSK	28.00	631.0	29.48	887.2	
10	1007.0 - 1902.0	16QAM	27.71	590.2	28.68	737.9	
20	1860.0 - 1900.0	QPSK	27.81	603.9	29.38	867.0	
20	1000.0 - 1900.0	16QAM	27.80	602.6	28.68	737.9	

Page 8 of 241

LTE BAND 5

Part 22 LTE Band 5							
	_		Conducted(Average) ERP(Average)			verage)	
Bandwidth (MHz)	Frequency Range	Modulation	dBm	mW	dBm	mW	
1.4	824.7 - 848.3	QPSK	24.00	251.2	23.03	200.9	
1.4 824.7	024.7 - 040.3	16QAM	23.36	216.8	22.13	163.3	
3	825.5 - 847.5	QPSK	24.00	251.2	23.08	203.2	
5	825.5 - 847.5	16QAM	23.28	212.8	22.18	165.2	
5	826.5 - 846.5	QPSK	24.00	251.2	23.12	205.1	
5	820.5 - 840.5	16QAM	23.57	227.5	22.20	166.0	
10	829.0 - 844.0	QPSK	23.80	239.9	23.05	201.8	
10	029.0 - 044.0	16QAM	22.70	186.2	22.18	165.2	

Page 9 of 241

5.3. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was 4324b5_roml.

The EUT is linked CMW500 Test Set.

5.4. MAXIMUM ANTENNA GAIN

Please see table below:

LTE BANDS	Antenna Gain (dBi)
LTE Band 2, 1850.7-1909.3MHz	1.78
LTE Band 5, 824.7 - 848.3MHz	-1.13

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case scenario for all measurements is based on the investigation results.

The device has LTE Bands of 2, and 5.

The RB Size was selected to measure for peak or average ERP and EIRP, which was based on the conducted power verification baseline data.

For the fundamental investigation of radiated emissions, the EUT is investigated for vertical and horizontal antenna orientations and X, Y, and Z orientation. It was determined that X-position was the worst-case for Cell bands and X-position for PCS bands.

Page 10 of 241

5.6. DESCRIPTION OF TEST SETUP

RADIATED TESTS SUPPORT EQUIPMENT

Support Equipment List								
Description Manufacturer Model Serial Number FCC ID								
AC/DC adapter	Apple	A1401	60812	DoC				
Earphone Apple NA NA NA								

I/O CABLES (RF Conducted Test)

	I/O CABLE LIST							
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks		
1	RF Out	1	Directional Coupler	Un-shielded	0.1m	NA		
2	RF In/Out	1	Spectrum Analyzer	Un-shielded	None	NA		
3	RF In/Out	1	Communications Test Set	Un-shielded	1.2m	NA		

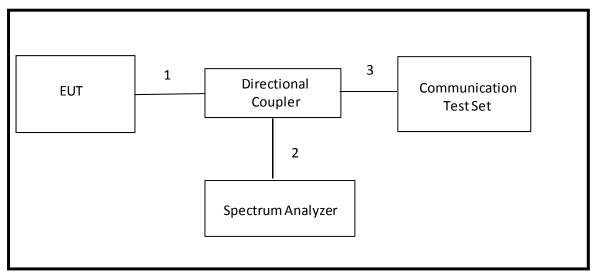
I/O CABLES (RF Radiated Test)

	I/O CABLE LIST							
Cable No.	Port	# of Identic Ports	Connector Type	Cable Type	Cable Length	Remarks		
1	RF In/Out	1	Antenna	Un-shielded	5m	NA		

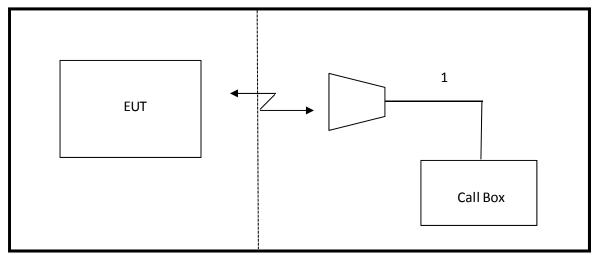
Page 11 of 241

TEST SETUP

CONDUCTED SETUP DIAGRAM FOR TESTS



RADIATED SETUP DIAGRAM FOR TESTS



Page 12 of 241

6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

	TEST EQUIPMI	ENT LIST		
Description	Manufacturer	Model	Asset	Cal Due
Communication Test Set	R & S	CMW500	F00014	02/21/14
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	C00930	06/27/14
Vector signal generator, 6 GHz	Agilent / HP	E4438C	F00037	07/06/14
Horn Antenna	ETS Lindgren	3117	F00131	02/19/14
PreAmp 1-18GHz	Agilent/HP	8449B	C01063	03/18/14
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02686	CNR
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02688	CNR
Antenna, Tuned Dipole 400~1000 MHz	ETS Lindgren	3121C DB4	C00994	07/12/14
Spectrum Analyzer, 44GHz	Agilent	N9030A	F00129	02/21/14
Directional Coupler	Krytar	1817	N02656	CNR
Bilog, 30-1GHz	Sunol Science	A0222813-1	C01011	03/07/14
Peak Power Meter	Boonton	4541	C01189	06/20/14
Peak Power Sensor	Boonton	57006	C01202	05/29/14
PreAmp 30-1000MHz	Sonama	310	981661	11/06/14

Page 13 of 241

7. RF POWER OUTPUT VERIFICATION

LTE Measurement Procedure:

All LTE bands conducted power peak and average are obtained from the CMW500 telecommunication test set.

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Modulation	Cha	Channel bandwidth / Transmission bandwidth (RB)								
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz				
QPSK	> 5	> 4	>8	> 12	> 16	> 18	≤ 1			
16 QAM	≤ <mark>5</mark>	≤ 4	≤ <mark>8</mark>	≤ 12	≤ 16	≤ 18	≤ 1			
16 QAM	> 5	> 4	>8	> 12	> 16	> 18	≤ 2			

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".3

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks ($N_{\rm RB}$)	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
			3	>5	≤ 1
			5	>6	≤ 1
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	10	>6	≤ 1
		,	15	>8	≤ 1
			20	>10	≤ 1
	6.6.2.2.2	41	5	>6	≤ 1
NS_04	0.0.2.2.2	41	10, 15, 20	See Tab	le 6.2.4-4
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40 > 55	≤ 1 ≤ 2
NS 10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23'	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
NS_32	-	-	-	-	-
Note 1: A	pplies to the lower l	block of Band 23, i.e	a carrier place	d in the 2000-20	10 MHz region.

7.1. LTE BAND 2

Output power for LTE Band 2 (1.4 MHz)

		_		RB	RB	Peak Power	Average
Bandwidth	UL Channel	Frequency	Modulation	Size	Offset	(dBm)	(dBm)
				1	0	27.00	22.30
				1	2	27.11	22.28
				1	5	27.10	22.27
			QPSK	3	0	27.45	22.29
				3	1	27.42	22.20
				3	2	27.48	22.17
1.4	18607	1850.7		6	0	27.70	21.30
1.4	10007	1650.7		1	0	26.86	21.20
			1	2	26.83	21.10	
				1	5	26.86	21.20
		16QAM	3	0	27.38	21.27	
			3	1	27.29	21.30	
				3	2	27.32	21.28
			6	0	27.34	20.48	
				1	0	27.23	22.30
				1	2	27.16	22.29
				1	5	27.25	22.27
	18900	1880	QPSK	3	0	27.72	22.25
				3	1	27.56	22.26
				3	2	27.55	22.20
1.4				6	0	28.00	21.30
1.4	16900		16QAM	1	0	26.76	21.30
				1	2	26.77	21.10
				1	5	27.32	21.29
				3	0	27.60	21.29
				3	1	27.65	21.29
				3	2	27.70	21.28
				6	0	27.82	20.30
				1	0	27.20	22.30
				1	2	27.14	22.29
				1	5	27.10	22.27
			QPSK	3	0	27.48	22.25
				3	1	27.50	22.20
				3	2	27.56	22.20
1.4	19193	1909.3		6	0	27.86	21.30
1.4	19192	1909.3		1	0	26.90	21.30
				1	2	26.87	21.20
				1	5	26.86	21.27
			16QAM	3	0	27.65	21.25
				3	1	27.45	21.20
				3	2	27.58	21.10
				6	0	27.64	20.30

Output power for LTE Band 2 (3.0 MHz)

Denduridth		Frequency	Madulation	RB	RB	Peak Power	Average
Bandwidth	UL Channel	Frequency	Modulation	Size	Offset	(dBm)	(dBm)
				1	0	27.14	22.30
				1	7	27.15	22.29
				1	14	27.18	22.27
			QPSK	8	0	27.52	21.50
				8	4	27.50	21.60
				8	7	27.33	21.69
3	10015	1051 5		15	0	27.10	21.58
3	18615	1851.5		1	0	27.00	21.30
				1	7	27.12	21.27
				1	14	27.16	21.10
		16QAM	8	0	27.00	20.88	
			8	4	27.18	20.70	
				8	7	27.10	20.70
				15	0	27.32	20.56
				1	0	27.00	22.30
				1	7	26.94	22.28
				1	14	26.95	22.25
			QPSK	8	0	27.00	21.40
				8	4	27.30	21.50
		D 1880		8	7	27.26	21.60
3	18900			15	0	27.55	21.48
0	10500		16QAM	1	0	26.80	21.20
				1	7	26.85	21.00
				1	14	26.84	21.00
				8	0	27.00	20.56
				8	4	27.14	20.60
				8	7	27.12	20.60
				15	0	27.47	20.50
				1	0	27.00	22.30
				1	7	26.90	22.29
				1	14	26.78	22.25
			QPSK	8	0	27.24	21.70
				8	4	27.26	21.70
				8	7	27.21	21.68
3	19185	1908.5		15	0	27.36	21.70
-				1	0	26.97	21.30
				1	7	27.00	21.20
				1	14	26.90	21.18
			16QAM	8	0	27.21	20.80
				8	4	27.12	20.80
				8	7	27.12	20.70
				15	0	27.44	20.70

Page 16 of 241

Output power for LTE Band 2 (5.0 MHz)

Davadu i dibb		F	Madulation	RB	RB	Peak Power	Average
Bandwidth	UL Channel	Frequency	Modulation	Size	Offset	(dBm)	(dBm)
				1	0	26.98	22.30
				1	12	27.00	22.28
				1	24	27.00	22.25
			QPSK	12	0	27.30	21.60
				12	6	27.24	21.70
				12	11	27.29	21.60
_	10005	4050 5		25	0	27.88	21.60
5	18625	1852.5		1	0	26.69	21.30
				1	12	26.80	21.10
				1	24	26.74	21.20
		16QAM	12	0	27.25	20.60	
				12	6	27.27	20.60
			12	11	27.31	20.80	
				25	0	27.91	20.80
				1	0	27.23	22.30
				1	12	27.10	22.29
				1	24	27.00	22.27
			QPSK	12	0	27.25	21.70
				12	6	27.14	21.60
				12	11	27.18	21.70
F	18900	1000		25	0	27.60	21.60
5	18900	1880	16QAM	1	0	26.77	21.30
				1	12	26.70	21.29
				1	24	26.62	21.20
				12	0	27.00	20.60
				12	6	26.87	20.66
				12	11	27.17	20.67
				25	0	27.85	20.70
				1	0	27.12	22.30
				1	12	27.00	22.30
				1	24	26.95	22.27
			QPSK	12	0	27.78	21.57
				12	6	27.61	21.69
				12	11	27.49	21.70
5	19175	1907.5		25	0	27.93	21.66
5	19175	1907.5		1	0	27.00	21.88
				1	12	26.89	21.70
				1	24	26.66	21.67
			16QAM	12	0	27.39	20.60
				12	6	27.31	20.70
				12	11	27.25	20.70
				25	0	27.72	20.60

Page 17 of 241

Output power for LTE Band 2 (10 MHz)

D eve els sú elt le		F	Madulation	RB	RB	Peak Power	Average
Bandwidth	UL Channel	Frequency	Modulation	Size	Offset	(dBm)	(dBm)
				1	0	26.92	22.30
				1	24	26.81	22.29
				1	49	26.90	22.27
			QPSK	25	0	27.23	21.50
				25	12	27.06	21.40
				25	24	27.14	21.37
10	18650	1855		50	0	27.90	21.50
10	10000	1655		1	0	26.87	20.95
				1	24	26.71	20.95
				1	49	26.78	20.97
			16QAM	25	0	27.12	20.50
				25	12	27.34	20.40
				25	24	27.35	20.68
				50	0	27.24	20.35
				1	0	27.35	22.29
				1	24	27.20	22.29
				1	49	27.15	22.30
		1880	QPSK	25	0	27.00	21.50
				25	12	27.30	21.40
				25	24	27.21	21.50
10	18900			50	0	27.64	21.37
10	10900		16QAM	1	0	27.50	21.10
				1	24	27.30	21.10
				1	49	27.04	21.17
				25	0	27.57	20.40
				25	12	27.50	20.80
				25	24	27.40	20.36
				50	0	27.62	20.19
				1	0	27.40	22.28
			[1	24	27.82	22.29
			[1	49	27.29	22.29
			QPSK	25	0	27.60	21.30
			[25	12	27.72	21.28
			[25	24	27.68	21.40
10	19150	1905		50	0	27.54	21.20
10	10100	1000		1	0	27.37	21.37
				1	24	27.47	21.60
				1	49	27.23	21.57
			16QAM	25	0	27.32	20.30
				25	12	27.65	20.30
				25	24	27.53	20.60
				50	0	27.59	20.20

Page 18 of 241

Output power for LTE Band 2 (15 MHz)

Denduidth		Frequency	Madulation	RB	RB	Peak Power	Average
Bandwidth	UL Channel	Frequency	Modulation	Size	Offset	(dBm)	(dBm)
				1	0	27.14	22.30
				1	37	26.92	22.27
				1	74	27.20	22.27
			QPSK	36	0	27.27	21.50
				36	16	27.23	21.50
				36	35	27.36	21.47
15	10075	1057 F		75	0	27.85	21.40
15	18675	1857.5		1	0	27.10	21.15
				1	37	26.89	21.10
				1	74	27.18	20.96
			16-QAM	36	0	27.37	20.60
			36	16	27.23	20.58	
				36	35	27.33	20.48
				75	0	27.65	20.57
				1	0	27.51	22.30
				1	37	27.40	22.28
	18900			1	74	27.10	22.26
		1880	QPSK	36	0	27.70	21.60
				36	16	27.64	21.58
				36	35	27.22	21.69
15				75	0	28.00	21.50
15			16-QAM	1	0	27.40	21.00
				1	37	27.20	21.20
				1	74	27.00	21.17
				36	0	27.60	20.66
				36	16	27.40	20.56
				36	35	27.25	20.75
				75	0	27.71	20.50
				1	0	27.20	22.30
				1	37	27.30	22.29
				1	74	27.00	22.26
			QPSK	36	0	27.37	21.27
				36	16	27.62	21.37
				36	35	27.52	21.46
15	19125	1902.5		75	0	27.85	21.40
15	13125	1902.5		1	0	27.00	21.60
				1	37	27.40	21.39
				1	74	27.38	21.66
			16-QAM	36	0	27.46	20.30
				36	16	27.70	20.35
				36	35	27.56	20.50
				75	0	27.70	20.45

Page 19 of 241

Output power for LTE Band 2 (20 MHz)

Developiette		F ree en voer en v		RB	RB	Peak Power	Average
Bandwidth	UL Channel	Frequency	Modulation	Size	Offset	(dBm)	(dBm)
				1	0	26.70	22.30
				1	49	27.20	22.20
				1	99	27.23	22.26
			QPSK	50	0	27.34	21.30
				50	24	27.38	21.20
				50	49	27.56	21.20
20	40700	1000		100	0	27.73	21.20
20	18700	1860		1	0	26.50	21.30
			1	49	26.42	21.30	
			1	99	26.94	21.30	
		16-QAM	50	0	27.26	20.30	
			50	24	27.38	20.30	
			50	49	27.59	20.30	
				100	0	27.80	20.30
				1	0	27.13	22.30
				1	49	27.30	22.27
				1	99	27.22	22.26
	18900	1880	QPSK	50	0	27.60	22.26
				50	24	27.36	21.40
				50	49	27.50	21.40
20				100	0	27.73	21.40
20			16-QAM	1	0	26.83	21.70
				1	49	26.84	21.70
				1	99	27.33	21.50
				50	0	27.30	20.60
				50	24	27.41	20.56
				50	49	27.27	20.68
				100	0	27.47	20.55
				1	0	27.60	22.30
				1	49	27.31	22.28
				1	99	27.50	22.10
			QPSK	50	0	27.50	21.30
				50	24	27.60	21.30
				50	49	27.77	21.20
20	19100	1900		100	0	27.81	21.30
20	10100	1300		1	0	27.49	21.78
				1	49	27.60	21.47
				1	99	27.40	21.70
			16-QAM	50	0	27.50	20.60
				50	24	27.50	20.30
			50	49	27.31	20.30	
				100	0	27.52	20.50

Page 20 of 241

7.2. LTE BAND 5

Output power for LTE Band 5 (1.4 MHz)

D e re du vi el t le		F	Mada	RB	RB	Peak Power	Average
Bandwidth	UL Channel	Frequency	Mode	Size	Offset	(dBm)	(dBm)
				1	0	28.16	24.00
				1	2	28.27	23.97
				1	5	28.21	23.86
			QPSK	3	0	28.25	23.90
				3	1	28.26	23.90
				3	2	28.30	23.90
1.4	20407	004 7		6	0	28.30	22.90
1.4	20407	824.7		1	0	27.78	22.90
			1	2	27.94	22.85	
			1	5	27.88	22.70	
			16QAM	3	0	28.24	22.90
			3	1	28.22	22.90	
			3	2	28.28	22.90	
				6	0	28.19	22.00
				1	0	27.50	24.00
				1	2	27.51	23.99
				1	5	27.58	23.99
	20525	836.5	QPSK	3	0	27.85	23.99
				3	1	27.72	23.98
				3	2	27.74	23.99
1.4				6	0	28.44	22.97
1.4	20525		16QAM	1	0	27.39	22.91
				1	2	27.38	22.49
				1	5	27.49	22.60
				3	0	27.93	22.85
				3	1	27.77	22.85
				3	2	27.80	22.90
				6	0	27.92	22.15
				1	0	27.56	23.98
				1	2	27.57	23.88
				1	5	27.31	23.87
			QPSK	3	0	27.86	23.88
				3	1	27.60	23.80
				3	2	27.50	23.78
1.4	20643	848.3		6	0	27.71	22.89
1.4	20043	040.3		1	0	27.58	23.36
				1	2	27.40	23.07
				1	5	27.30	23.00
			16QAM	3	0	27.80	22.97
				3	1	27.61	22.89
				3	2	27.46	22.80
				6	0	27.80	21.77

Output power for LTE Band 5 (3.0 MHz)

Dandwidth		Frequency	Mada	RB	RB	Peak Power	Average
Bandwidth	UL Channel	Frequency	Mode	Size	Offset	(dBm)	(dBm)
				1	0	27.82	23.90
				1	7	27.80	23.77
				1	14	27.62	23.70
			QPSK	8	0	28.14	22.90
				8	4	28.16	22.80
				8	7	28.27	22.95
2	00445	005 5		15	0	28.38	22.80
3	20415	825.5		1	0	28.00	23.28
				1	7	27.99	22.36
				1	14	27.63	22.26
			16QAM	8	0	27.96	21.95
			8	4	27.99	21.94	
			8	7	27.96	21.93	
				15	0	28.11	21.86
				1	0	27.58	24.00
				1	7	27.55	23.99
			1	14	27.72	23.94	
		836.5	QPSK	8	0	28.00	23.03
				8	4	28.08	23.02
				8	7	28.00	23.02
3	20525			15	0	28.09	22.93
3	20525		16QAM	1	0	27.65	22.75
				1	7	27.60	22.56
				1	14	27.64	22.53
				8	0	27.98	22.19
				8	4	27.99	22.13
				8	7	28.14	22.11
				15	0	28.34	22.00
				1	0	27.68	23.99
				1	7	27.58	23.99
				1	14	27.26	23.88
			QPSK	8	0	28.15	23.14
				8	4	27.99	23.13
				8	7	27.97	23.03
3	20635	847.5		15	0	28.23	23.01
3	20030	047.3		1	0	27.57	22.74
				1	7	27.55	22.72
				1	14	27.21	22.55
			16QAM	8	0	27.72	22.12
				8	4	27.56	22.10
				8	7	27.44	22.00
				15	0	28.27	21.97

Page 22 of 241

Output power for LTE Band 5 (5.0 MHz)

Bandwidth	UL Channel	Frequency	Mode	RB	RB	Peak Power	Average
Banuwiuth		Frequency	woue	Size	Offset	(dBm)	(dBm)
				1	0	27.85	23.97
				1	12	27.80	23.86
				1	24	27.87	23.90
			QPSK	12	0	28.25	22.83
				12	6	28.20	22.90
				12	11	28.31	22.87
5	20425	000 F		25	0	28.56	22.80
Э	20425	826.5		1	0	27.75	22.65
				1	12	27.71	22.50
			1	24	27.86	22.49	
			16QAM	12	0	28.03	21.80
			12	6	27.84	21.80	
			12	11	28.15	21.90	
				25	0	28.81	21.90
				1	0	27.52	23.99
		836.5		1	12	27.53	23.99
	20525			1	24	27.59	23.88
			QPSK	12	0	27.98	23.00
				12	6	27.87	23.00
				12	11	27.94	23.00
5				25	0	28.45	22.90
Э			16QAM	1	0	27.43	22.60
				1	12	27.52	22.56
				1	24	27.47	22.48
				12	0	27.73	22.05
				12	6	27.59	22.10
				12	11	27.70	22.05
				25	0	28.62	22.00
				1	0	28.10	24.00
				1	12	27.85	23.99
				1	24	27.45	23.89
			QPSK	12	0	28.20	23.30
				12	6	28.05	23.15
				12	11	28.08	23.10
5	20625	946 E		25	0	28.74	23.00
Э	20625	846.5		1	0	27.76	23.57
				1	12	27.56	23.40
				1	24	27.20	23.28
			16QAM	12	0	28.03	21.97
				12	6	27.92	22.00
				12	11	27.78	22.00
				25	0	28.50	21.90

Page 23 of 241

Output power for LTE Band 5 (10 MHz)

Deve du vielt le		F rancisco est	Mada	RB	RB	Max Peak	A
Bandwidth	UL Channel	Frequency	Mode	Size	Offset	Power (dBm)	Average
				1	0	27.97	23.60
				1	24	27.92	23.60
				1	49	27.45	23.50
			QPSK	25	0	28.36	23.10
				25	12	28.24	23.10
				25	24	28.21	23.20
10.00	00450	000.00		50	0	28.48	23.00
10.00	20450	829.00		1	0	28.05	22.68
				1	24	28.00	22.60
				1	49	27.51	22.60
			16QAM	25	0	28.49	21.95
				25	12	28.29	21.90
				25	24	28.26	21.90
				50	0	28.70	21.85
				1	0	27.73	23.60
				1	24	27.53	23.50
				1	49	27.60	23.70
	20525		QPSK	25	0	28.11	22.90
		000 50		25	12	27.91	23.00
				25	24	28.11	23.10
10.00				50	0	28.38	22.90
10.00		836.50		1	0	27.81	22.70
			1	1	24	27.57	22.60
				1	49	27.66	22.58
			16QAM	25	0	28.08	21.95
				25	12	27.97	21.95
				25	24	28.08	22.00
				50	0	28.35	21.80
			QPSK	1	0	27.67	23.70
				1	24	27.82	23.80
				1	49	27.34	23.60
				25	0	28.21	23.20
				25	12	28.13	23.20
				25	24	28.17	23.10
10.00	20600	044.00		50	0	28.35	23.10
	20000	844.00		1	0	27.57	22.50
				1	24	27.67	22.50
				1	49	27.29	22.50
			16QAM	25	0	28.26	22.00
				25	12	28.19	22.10
				25	24	28.25	22.00
				50	0	28.40	21.90

Page 24 of 241

8. CONDUCTED TEST RESULTS

8.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

<u>LIMITS</u>

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

MODES TESTED

- LTE Band 2
- LTE Band 5

RESULTS

Page 25 of 241

REPORT NO: 13U16584-2A FCC ID: BCGA1476

Band	Mode	RB SIZE / RB OFFSET	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
	1.4 MHz BAND	3/2	1850.7		
	QPSK	6/0	1000.1	1.0873	1.235
	1.4 MHz BAND	3/2	1880		
	QPSK	6/0	1000	1.0732	1.16
	1.4 MHz BAND	3/2	1909.3		
	QPSK	6/0	1000.0	1.0936	1.332
	1.4 MHz BAND	3/2	1850.7		
	16QAM	6/0	1000.7	1.073	1.212
	1.4 MHz BAND	3/2	1880		
	16QAM	6/0	1000	1.0717	1.278
	1.4 MHz BAND	3/2	1909.3		
	16QAM	6/0	1909.5	1.0832	1.213
	3.0 MHz BAND	8/4	1851.5		
	QPSK	15/0	1051.5	2.6992	3.008
	3.0 MHz BAND	8/4	1880		
	QPSK	15/0	1000	2.7047	2.904
	3.0 MHz BAND	8/4	1000 5		
	QPSK	15/0	1908.5	2.7156	2.919
LTE Band 2	3.0 MHz BAND	8/4	4054 5		
	16QAM	15/0	1851.5	2.7316	2.899
	3.0 MHz BAND	8/4	1000		
	16QAM	15/0	1880	2.657	2.901
	3.0 MHz BAND	8/4	4000 5		
	16QAM	15/0	1908.5	2.6946	2.941
	5.0 MHz BAND	12/6	4050 5		
	QPSK	25/0	1852.5	4.412	4.815
	5.0 MHz BAND	12/6	4000		
	QPSK	25/0	1880	4.489	4.763
	5.0 MHz BAND	12/6			
	QPSK	25/0	1907.5	4.4945	4.72
	5.0 MHz BAND	12/6			
	16QAM	25/0	1852.5	4.4969	4.805
	5.0 MHz BAND	12/6			
	16QAM	25/0	1880	4.4689	4.779
	5.0 MHz BAND	12/6			
	16QAM	25/0	1907.5	4.4838	4.821

Page 26 of 241

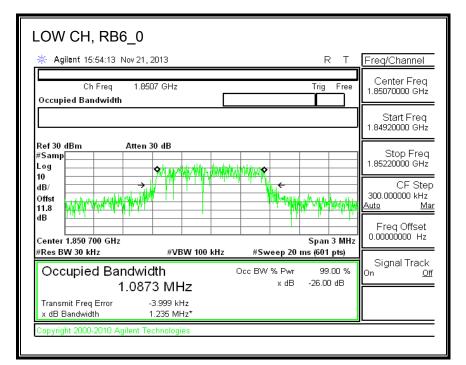
Band	Mode	RB SIZE / RB OFFSET	f (MHz)	99% BW	-26dB BW
	10 MHz BAND	25/12		(MHz)	(MHz)
	QPSK	50/0	1855	8.8904	9.351
	10 MHz BAND	25/12		0.0004	0.001
	QPSK	50/0	1880	8.9136	9.396
	10 MHz BAND	25/12			
	QPSK	50/0	1905	8.9438	9.428
	10 MHz BAND	25/12			
	16QAM	50/0	1855	8.9141	9.407
	10 MHz BAND	25/12			
	16QAM	50/0	1880	8.847	9.588
	10 MHz BAND	25/12			
	16QAM	50/0	1905	8.9323	9.391
	15 MHz BAND	36/18			
	QPSK	75/0	1857.5	13.3245	13.867
	15 MHz BAND	36/18	4000		
	QPSK	75/0	1880	13.3259	13.885
	15 MHz BAND	36/18	1000 5		
	QPSK	75/0	1902.5	13.3621	14.057
LTE Band 2	15 MHz BAND	36/18	4057.5		
	16QAM	75/0	1857.5	13.3252	13.841
	15 MHz BAND	36/18	4000		
	16QAM	75/0	1880	13.4061	13.824
	15 MHz BAND	36/18	1002 F		
	16QAM	75/0	1902.5	13.3257	13.822
	20 MHz BAND	50/19	1960		
	QPSK	100/0	1860	17.8713	18.808
	20 MHz BAND	50/19	1000		
	QPSK	100/0	1880	17.6061	18.932
	20 MHz BAND	50/19	1900		
	QPSK	100/0	1900	17.8509	18.559
	20 MHz BAND	50/19	1860		
	16QAM	100/0	1000	17.744	18.855
	20 MHz BAND	50/19	1880		
	16QAM	100/0	1000	17.7876	18.827
	20 MHz BAND	50/19	1900		
	16QAM	100/0	1300	17.9299	19.001

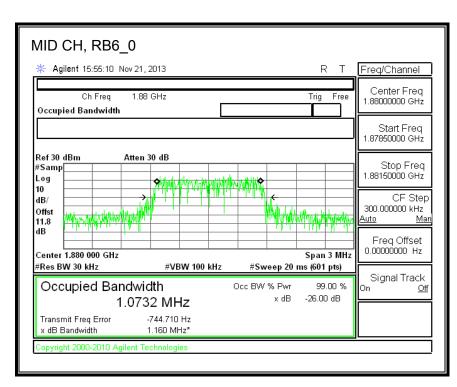
Band	Mode	RB SIZE/ RB OFFSET	f (MHz)	99% BW (MHz)	(-) 26dB BW (MHz)
	1.4 MHz BAND	3/2			
	QPSK	6/0	824.7	1.0945	1.2350
	1.4 MHz BAND	3/2		1.0845	1.2000
	QPSK	6/0	836.5	1.0000	1.2250
	1.4 MHz BAND	3/2		1.0909	1.2250
	QPSK	6/0	848.3	1.0702	1.2480
	1.4 MHz BAND	3/2		1.0703	1.2400
	16QAM	6/0	824.7	1.066	1.2040
	1.4 MHz BAND	3/2		1.066	1.2040
	16QAM	6/0	836.5	1.0651	1.1480
	1.4 MHz BAND	3/2		1.0651	1.1400
	16QAM	6/0	848.3	1.002	1.2060
	3.0 MHz BAND	8/4		1.082	1.2000
	QPSK	15/0	825.5	2 (704	2.7810
	3.0 MHz BAND	8/4		2.6784	2.7010
			836.5	0.0005	2 2050
	QPSK 3.0 MHz BAND	15/0 8/4		2.6695	2.8050
		-	847.5		0.7040
		15/0		2.6973	2.7840
	3.0 MHz BAND	8/4	825.5		0.0050
	16QAM	15/0		2.6549	2.9250
	3.0 MHz BAND	8/4	836.5	0.0500	. ==.
	16QAM	15/0		2.6539	2.7870
	3.0 MHz BAND	8/4	847.5		
LTE BAND 5	16QAM	15/0		2.6764	2.8860
-	5.0 MHz BAND	12/6	821.5 836.5		
	QPSK	25/0		4.4484	4.7150
	5.0 MHz BAND	12/6			
	QPSK	25/0		4.4328	4.7670
	5.0 MHz BAND	12/6	846.5		
	QPSK	25/0		4.4829	4.6810
	5.0 MHz BAND	12/6	821.5		
	16QAM	25/0	02110	4.4323	4.8350
	5.0 MHz BAND	12/6	836.5		
	16QAM	25/0		4.4639	4.7770
	5.0 MHz BAND	12/6	846.5		
	16QAM	25/0	0-10.0	4.4223	4.6950
	10.0 MHz BAND	25/12	829.0		
	QPSK	50/0	023.0	9.0032	9.3470
	10.0 MHz BAND	25/12	836.5		
	QPSK	50/0	000.0	8.9457	9.3390
	10.0 MHz BAND	25/12	844.0		
	QPSK	50/0	044.0	8.9463	9.4030
	10.0 MHz BAND	25/12	829.0		
	16QAM	50/0	029.0	8.9385	9.3590
	10.0 MHz BAND	25/12	926 F		
	16QAM	50/0	836.5	8.8899	9.3200
	10.0 MHz BAND	25/12	044.0	0.0000	
	16QAM	50/0	844.0	8.9944	9.3450

8.1.1. LTE BAND 2

Band 2 (1.4 MHz Bandwidth)

LTE QPSK





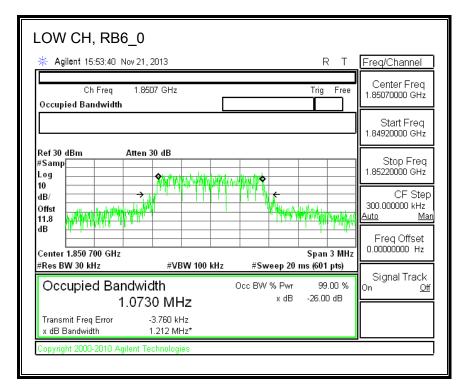
Page 29 of 241

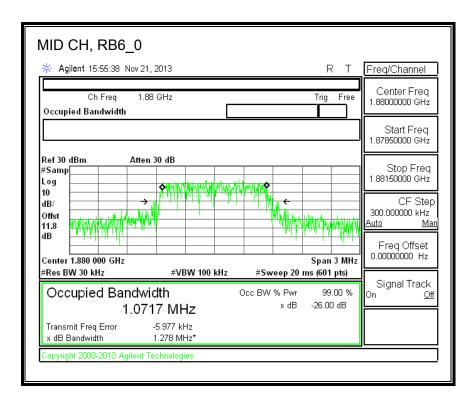
HI CH, RB6_0	R T	Freq/Channel
Ch Freq 1.9093 GHz Occupied Bandwidth	Trig Free	Center Freq 1.90930000 GHz
		Start Freq 1.90780000 GHz
Ref 30 dBm Atten 30 dB #Samp Log 10 dB/ Offst 11.8 dB		Stop Freq 1.91080000 GHz CF Step 300.000000 KHz <u>Auto</u> Freq Offset 0.0000000 Hz
Center 1.909 300 GHz #Res BW 30 kHz #VBW 100 kHz	Span 3 MHz #Sweep 20 ms (601 pts)	
Occupied Bandwidth 1.0936 MHz Transmit Freq Error 2.030 kHz x dB Bandwidth 1.332 MHz*	Осс BW % Pwr 99.00 % x dB -26.00 dB	Signal Track On <u>Off</u>
Copyright 2000-2010 Agilent Technologies		

Page 30 of 241

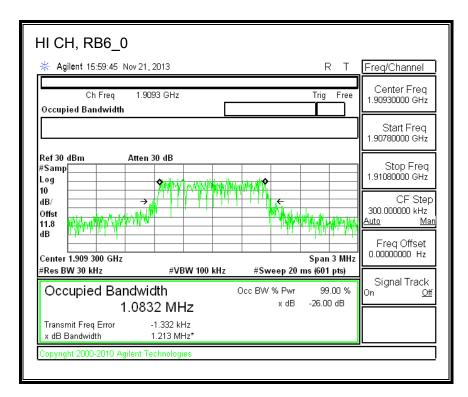
Band 2 (1.4 MHz Bandwidth)

LTE 16QAM





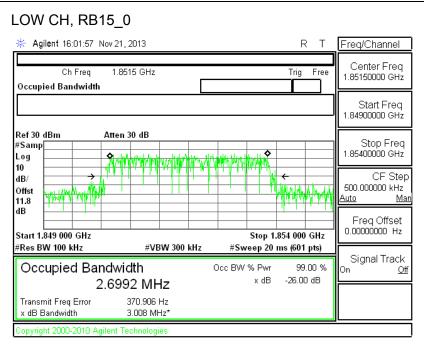
Page 31 of 241

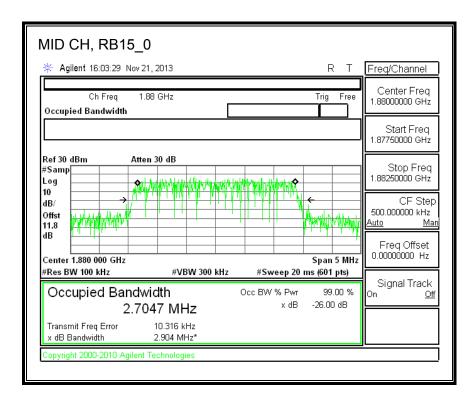


Page 32 of 241

Band 2 (3MHz Bandwidth)

LTE QPSK





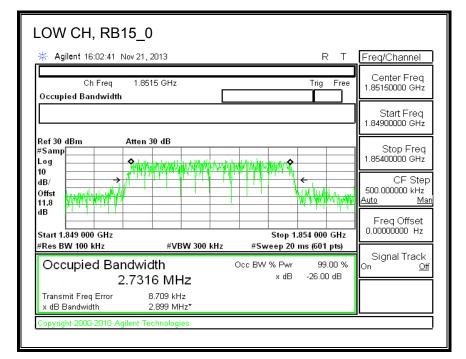
Page 33 of 241

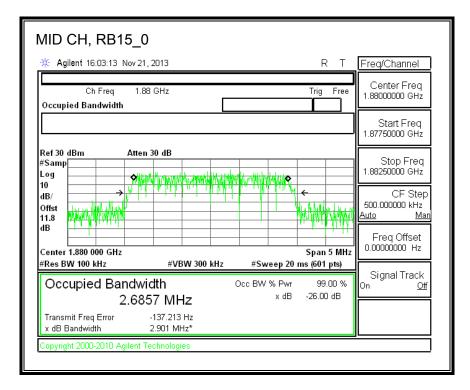
HI CH, RB15_0	2013		RТ	Freq/Channel
Ch Freq 1.908 Occupied Bandwidth	35 GHz		Trig Free	Center Freq 1.90850000 GHz
				Start Freq 1.90600000 GHz
dB/ <th></th> <th></th> <th>← Span 5 MHz</th> <th>Stop Freq 1.91100000 GHz CF Step 500.000000 kHz <u>Auto Man</u> Freq Offset 0.00000000 Hz</th>			← Span 5 MHz	Stop Freq 1.91100000 GHz CF Step 500.000000 kHz <u>Auto Man</u> Freq Offset 0.00000000 Hz
	6 MHz	# Sweep 20 i Occ BW % Pwr x dB	ns (601 pts) 99.00 % -26.00 dB	Signal Track On <u>Off</u>
	9.410 kHz 2.919 MHz* chnologies			

Page 34 of 241

Band 2 (3MHz Bandwidth)

LTE 16QAM





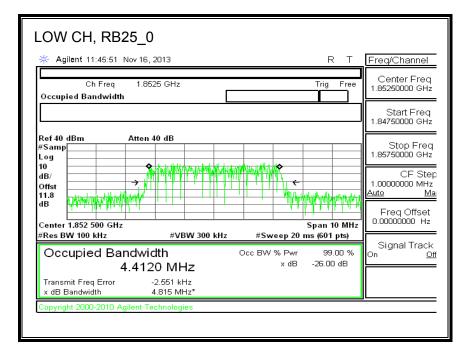
Page 35 of 241

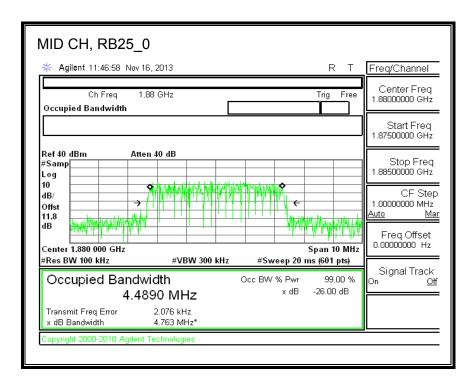
HI CH, RB15_0				
🔆 Agilent 16:04:32 Nov 3	21, 2013		RT	Freq/Channel
Ch Freq 1 Occupied Bandwidth	.9085 GHz		Trig Free	Center Freq 1.90850000 GHz
				Start Freq 1.90600000 GHz
#Samp Log	en 30 dB	uditur new www.		Stop Freq 1.91100000 GHz
10 dB/ Offst 11.8				CF Step 500.000000 kHz <u>Auto Man</u>
dB			Span 5 MHz	Freq Offset 0.00000000 Hz
#Res BW 100 kHz	#VBW 300 kHz	#Sweep 20	ms (601 pts)	
Occupied Band	width 946 MHz	Occ BW % Pwr x dB	99.00 % -26.00 dB	Signal Track ^{On <u>Off</u>}
Transmit Freq Error x dB Bandwidth	-3.596 kHz 2.941 MHz*			
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Page 36 of 241

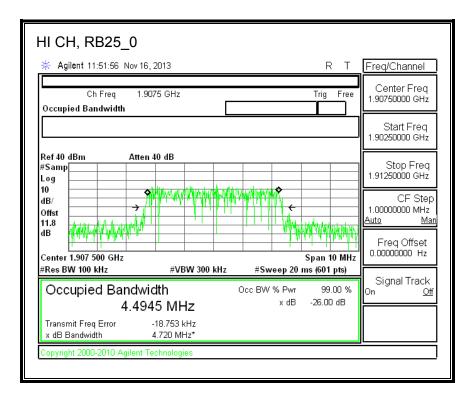
Band 2 (5MHz Bandwidth)

LTE QPSK





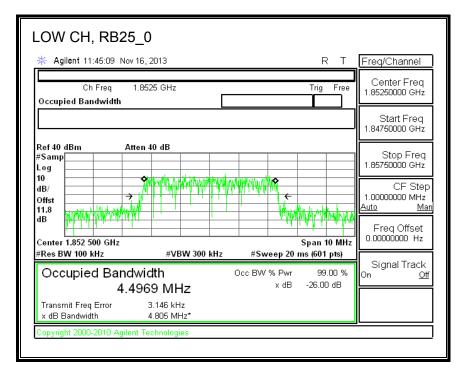
Page 37 of 241

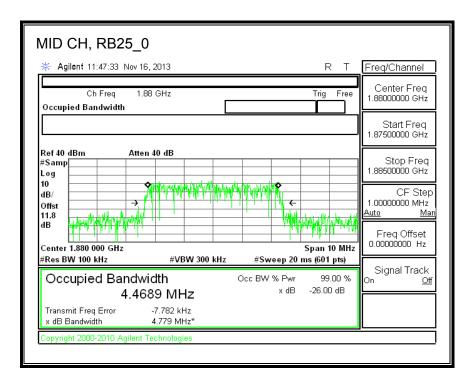


Page 38 of 241

Band 2 (5MHz Bandwidth)

LTE 16QAM





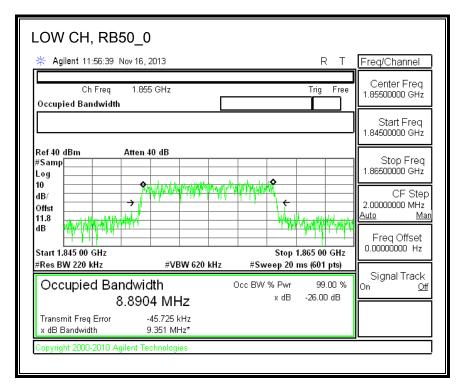
Page 39 of 241

HI CH, RB25_0	3		RТ	Freq/Channel
Ch Freq 1.9075 (Occupied Bandwidth	GHz		Trig Free	Center Freq 1.90750000 GHz
				Start Freq 1.90250000 GHz
Ref 40 dBm Atten 40 d #Samp				Stop Freq 1.91250000 GHz
10 dB/ Offst 11.8 dB dB		E	ATTACHINE TO A TABLE STRATE	CF Step 1.0000000 MHz <u>Auto Man</u>
Center 1.907 500 GHz			Span 10 MHz	Freq Offset 0.00000000 Hz
#Res BW 100 kHz Occupied Bandwidth 4.4838		#Sweep 20 Occ BW % Pwr x dB	ms (601 pts) 99.00 % -26.00 dB	Signal Track On <u>Off</u>
	070 kHz 1 MHz*			
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Page 40 of 241

Band 2 (10MHz Bandwidth)

LTE QPSK



* Agilent 11:57:28 Nov 16,	2013		R T	Freq/Channel
Ch Freq 1.88 Occupied Bandwidth	3 GHz		Trig Free	Center Freq 1.88000000 GHz
				Start Freq 1.87000000 GHz
#Samp Log	40 dB			Stop Freq 1.89000000 GHz
ab/ Offst →	iden Australian den Australian Australian	+ + + + + + + + + + + + + + + + + + +	ter de la tel de la telle d	CF Step 2.00000000 MHz <u>Auto Ma</u>
Center 1.880 00 GHz			Span 20 MHz	Freq Offset 0.00000000 Hz
#Res BW 220 kHz	#VBW 620 kHz	#Sweep 20 n	ns (601 pts)	Signal Track
Occupied Bandwi 8.913	dth 36 MHz	Occ BW % Pwr x dB	99.00 % -26.00 dB	On <u>Of</u>
	-3.536 kHz 9.396 MHz*			

Page 41 of 241

* Agilent 12:03:07 Nov 10	6, 2013		RT	Freq/Channel
Ch Freq 1.9 Occupied Bandwidth	305 GHz		Trig Free	Center Freq 1.90500000 GHz
				Start Freq 1.89500000 GHz
#Samp Log	n 40 dB			Stop Freq 1.91500000 GHz
10 dB/ Offst → 11.8 dB	Andre Herder Antonio Antonio Antonio Antonio Antonio		alles h kilonen sin is	CF Step 2.00000000 MHz <u>Auto Ma</u>
dB			Span 20 MHz	Freq Offset 0.00000000 Hz
#Res BW 220 kHz	#VBW 620 kHz	#Sweep 20 г	ns (601 pts)	
Occupied Bandw 8.94	idth 38 MHz	Occ BW % Pwr x dB	99.00 % -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error x dB Bandwidth	2.849 kHz 9.428 MHz*			

Page 42 of 241

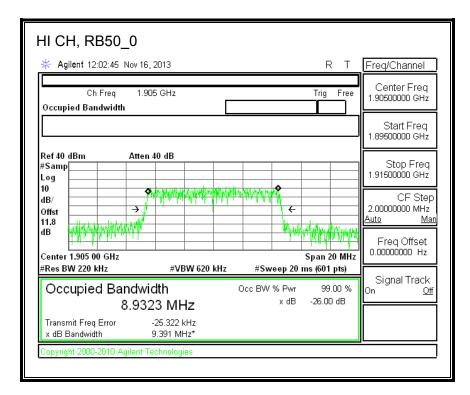
Band 2 (10MHz Bandwidth)

LTE 16QAM

LOW CH, RB50_(RT	Freq/Channel
Ch Freq 1.85 Occupied Bandwidth	55 GHz		Trig Free	Center Freq 1.85500000 GHz
				Start Freq 1.84500000 GHz
#Samp Log 10 dB/ Offst 11.8 dB Start 1.845 00 GHz	40 dB	Stop	1.865 00 GHz	Stop Freq 1.86500000 GHz CF Step 2.00000000 MHz <u>Auto</u> Man Freq Offset 0.0000000 Hz
#Res BW 220 kHz Occupied Bandwi	#VBW 620 kH:	z #Sweep 20		Signal Track
II .	41 MHz	x dB	-26.00 dB	On <u>Off</u>
	15.052 kHz 9.407 MHz*			
Copyright 2000-2010 Agilent T	echnologies			

MID CH, RB50_0				
🔆 Agilent 11:57:49 Nov 16, 2013			RΤ	Freq/Channel
Ch Freq 1.88 GHz Occupied Bandwidth			Trig Free	Center Freq 1.88000000 GHz
				Start Freq 1.87000000 GHz
Ref 40 dBm Atten 40 dB #Samp Log 10 ◆tag three tag				Stop Freq 1.89000000 GHz
dB/ Offst →	ernaliseder og for som		that the second	CF Step 2.0000000 MHz <u>Auto Man</u>
dB Center 1.880 00 GHz			Span 20 MHz	Freq Offset 0.00000000 Hz
#Res BW 220 kHz #VBW 6	20 kHz	#Sweep 20 n	ns (601 pts)	Signal Track
Occupied Bandwidth 8.8470 MHz	0	cc BW % Pwr x dB	99.00 % -26.00 dB	On <u>Off</u>
Transmit Freq Error 11.142 kHz x dB Bandwidth 9.588 MHz*				
Copyright 2000-2010 Agilent Technologies				

Page 43 of 241

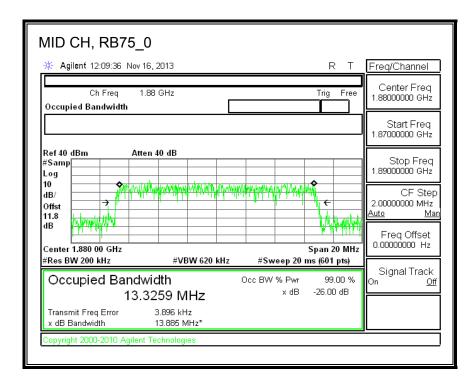


Page 44 of 241

Band 2 (15MHz Bandwidth)

LTE QPSK

LOW CH, RB75_0	Freq/Channel
Ch Freq 1.8575 GHz Trig Free Occupied Bandwidth	Center Freq 1.85750000 GHz
	Start Freq 1.84750000 GHz
Ref 40 dBm Atten 40 dB #Samp	Stop Freq 1.86750000 GHz
10 dB/ Offst 11.8 the state of the state	CF Step 2.00000000 MHz <u>Auto Man</u>
dB Center 1.857 50 GHz Span 20 MHz	Freq Offset 0.00000000 Hz
#Res BW 200 kHz #VBW 620 kHz #Sweep 20 ms (601 pts) Occupied Bandwidth Occ BW % Pwr 99.00 %	Signal Track On Off
13.3245 MHz × dB -26.00 dB	On <u>Off</u>
Transmit Freq Error -11.636 kHz x dB Bandwidth 13.867 MHz*	
Copyright 2000-2010 Agilent Technologies	



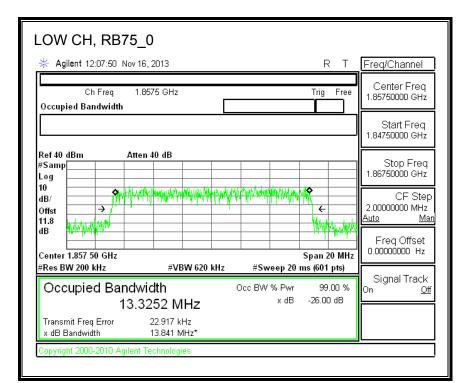
Page 45 of 241

HI CH, RB75_0	R T Freq/Channel
Ch Freq 1.9025 GHz Occupied Bandwidth	Trig Free Center Freq 1.90250000 GHz
	Start Freq 1.89250000 GHz
Ref 40 dBm Atten 40 dB #Samp	Stop Freq 1.91250000 GHz
dB/	CF Step 2.0000000 MHz <u>Auto Man</u>
dB 1	Span 20 MHz
	Sweep 20 ms (601 pts)
Occupied Bandwidth occ⊫ 13.3621 MHz	3W % Pwr 99.00 % On <u>Off</u> x dB -26.00 dB
Transmit Freq Error -37.506 kHz x dB Bandwidth 14.057 MHz*	
Copyright 2000-2010 Agilent Technologies	

Page 46 of 241

Band 2 (15MHz Bandwidth)

LTE 16QAM



MID CH, RB75_0				
🔆 Agilent 12:09:58 Nov 16, 3	2013		RТ	Freq/Channel
Ch Freq 1.88 Occupied Bandwidth	GHz		Trig Free	Center Freq 1.88000000 GHz
				Start Freq 1.87000000 GHz
Ref 40 dBm Atten 4 #Samp	40 dB			Stop Freq 1.8900000 GHz
Offst →	<u>ระทั่งที่มา,เค้คะให้รูลเต้ระทุญหนัง</u>	rachterne hellen hel Kan hellen hel	♦	CF Step 2.0000000 MHz <u>Auto Man</u>
dB			Span 20 MHz	Freq Offset 0.00000000 Hz
#Res BW 200 kHz	#VBW 620 kHz	#Sweep 20 n		
Occupied Bandwid 13.40	lth 61 MHz	Occ BW % Pwr x dB		Signal Track ^{On <u>Off</u>}
I	3.949 kHz 13.824 MHz*			
Copyright 2000-2010 Agilent Te	chnologies			

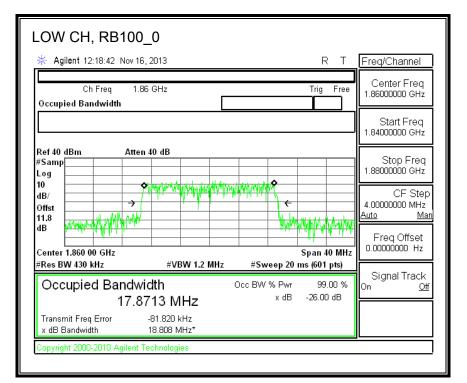
Page 47 of 241

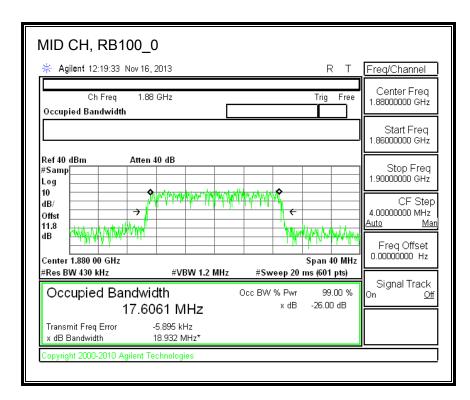
HI CH, RB75_0				
🔆 Agilent 12:13:36 Nov 16, 2013			RT	Freq/Channel
Ch Freq 1.9025 GHz Occupied Bandwidth	: [Trig Free	Center Freq 1.90250000 GHz
				Start Freq 1.89250000 GHz
Ref 40 dBm Atten 40 dB #Samp Log 10 Atten 40 dB				Stop Freq 1.91250000 GHz
dB/ Offst 11.8 4 bolt of \$/to				CF Step 2.0000000 MHz <u>Auto Man</u>
dB			Span 20 MHz	Freq Offset 0.00000000 Hz
#Res BW 200 kHz #V	/BW 620 kHz	#Sweep	o 20 ms (601 pts)	
Occupied Bandwidth 13.3257 M	ЛНz	Occ BW % F x	^o wr 99.00 % dB -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error28.023x dB Bandwidth13.822				
Copyright 2000-2010 Agilent Technolog	gies			

Page 48 of 241

Band 2 (20MHz Bandwidth)

LTE QPSK





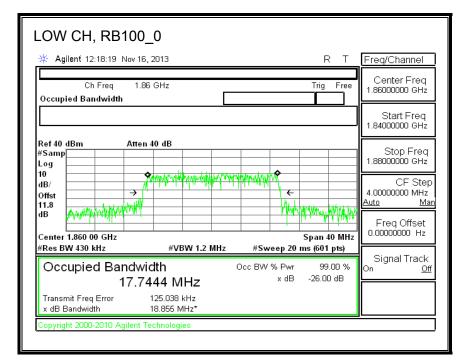
Page 49 of 241

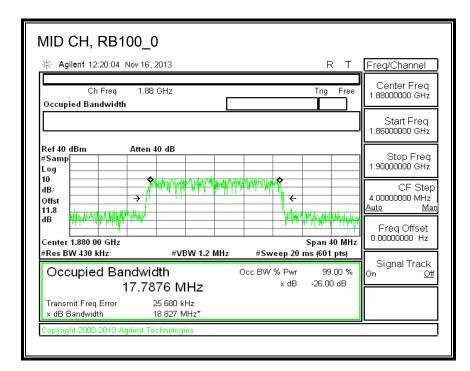
HI CH, RB100_0	2013		RT	Freq/Channel
Ch Freq 1.89 Occupied Bandwidth	9 GHz		Trig Free	Center Freq 1.8900000 GHz
	L			Start Freq 1.8700000 GHz
#Samp Log	40 dB			Stop Freq 1.91000000 GHz
dB/ Offst →	alan tan dalam dalah dalah A sa			CF Step 4.00000000 MHz <u>Auto Man</u>
11.8 dB Center 1.890 00 GHz			Span 40 MHz	Freq Offset 0.00000000 Hz
#Res BW 430 kHz Occupied Bandwi 17.85	#VBW 1.2 MHz dth 509 MHz	# Sweep 20 i Occ BW % Pwr x dB	ns (601 pts) 99.00 % -26.00 dB	Signal Track On <u>Off</u>
	54.470 kHz 18.559 MHz*			
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Page 50 of 241

Band 2 (20MHz Bandwidth)

LTE 16QAM





Page 51 of 241

HI CH, RB100_0	RT	Freq/Channel
Ch Freq 1.89 GHz	Trig Free	Center Freq 1.89000000 GHz
Occupied Bandwidth		Start Freq 1.8700000 GHz
Ref 40 dBm Atten 40 dB #Samp Log 10 dB/ Offst 11.8 dB 44447 with an	Span 40 MHz	Stop Freq 1.91000000 GHz CF Step 4.00000000 MHz <u>Auto</u> Man Freq Offset 0.00000000 Hz
#Res BW 430 kHz #VBW 1.2 MHz Occupied Bandwidth	#Sweep 20 ms (601 pts)	Signal Track On Off
17.9299 MHz	x dB -26.00 dB	
Transmit Freq Error -87.177 kHz x dB Bandwidth 19.001 MHz* Copyright 2000-2010 Agilent Technologies		
Copyright 2000-2010 Agrient Technologies		

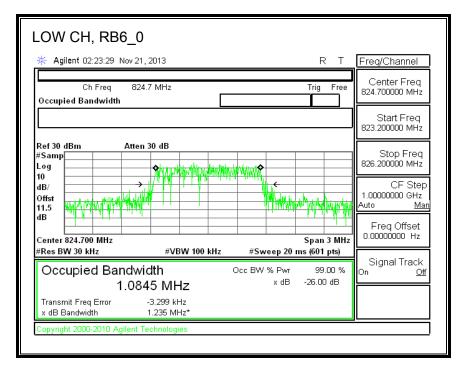
Page 52 of 241

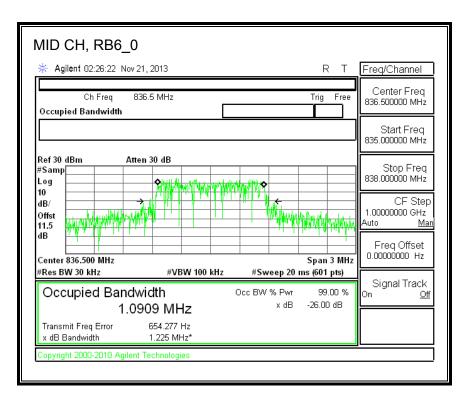
70

8.1.2. LTE BAND 5

Band 5 (1.4 MHz Bandwidth)

LTE QPSK





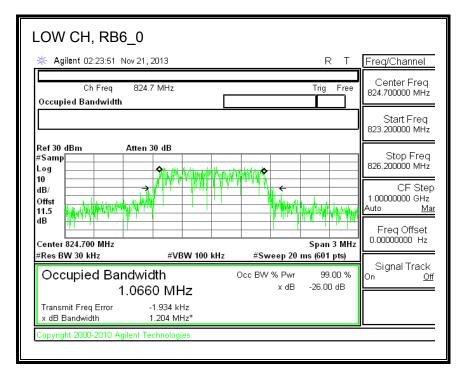
Page 53 of 241

HI CH, RB6_0	Freq/Channel
Ch Freq 848.3 MHz Trig Free Occupied Bandwidth	Center Freq 848.300000 MHz
	Start Freq 846.800000 MHz
Ref 30 dBm Atten 30 dB #Samp	Stop Freq 849.800000 MHz CF Step 1.00000000 GHz Auto Man Freq Offset 0.00000000 Hz
Occupied Bandwidth Occ BW % Pwr 99.00 % 1.0703 MHz x dB -26.00 dB Transmit Freq Error -6.804 kHz	Signal Track ^{On <u>Off</u>}
x dB Bandwidth 1.248 MHz* Copyright 2000-2010 Agilent Technologies	

Page 54 of 241

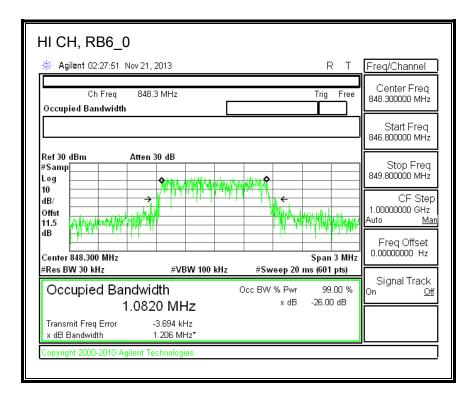
Band 5 (1.4 MHz Bandwidth)

LTE 16QAM



MID CH, RB6_0		
🔆 Agilent 02:26:40 Nov 21, 2013	RT	Freq/Channel
Ch Freq 836.5 MHz Occupied Bandwidth	Trig Free	Center Freq 836.500000 MHz
		Start Freq 835.000000 MHz
Ref 30 dBm Atten 30 dB #Samp		Stop Freq 838.000000 MHz
dB/ offst → d = d = d = d = d = d = d = d = d = d	Autoria and	CF Step 1.00000000 GHz Auto <u>Man</u>
dB	Span 3 MHz	Freq Offset 0.00000000 Hz
#ResBW 30 kHz #VBW 100 kHz #Sweep 20 m	ns (601 pts)	
Occupied Bandwidth Occ BW % Pwr 1.0651 MHz × dB	99.00 % -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error -2.503 kHz x dB Bandwidth 1.148 MHz*		
Copyright 2000-2010 Agilent Technologies		

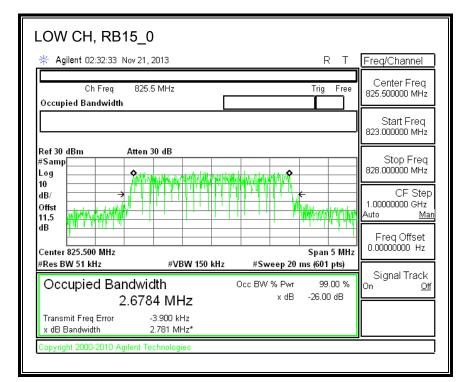
Page 55 of 241

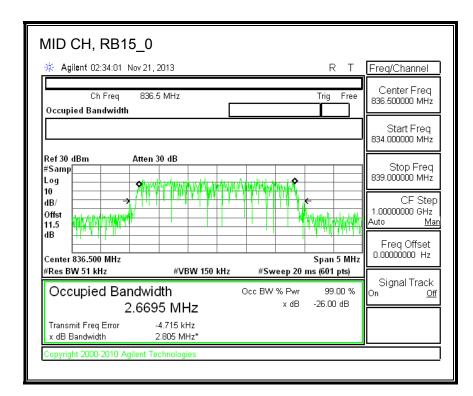


Page 56 of 241

Band 5 (3MHz BANDWIDTH)

LTE QPSK





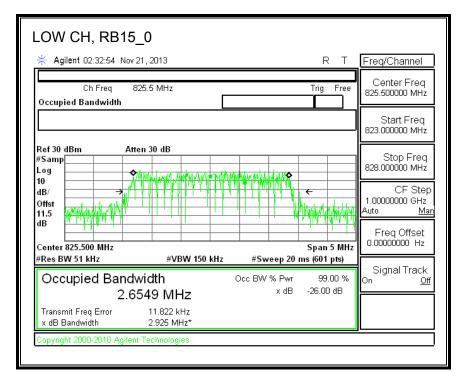
Page 57 of 241

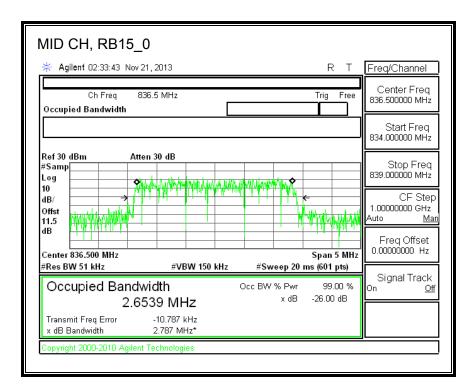
HI CH, RB15_0	Freq/Channel
Ch Freq 847.5 MHz Trig Free Occupied Bandwidth	Center Freq 847.500000 MHz
	Start Freq 845.00000 MHz
Ref 30 dBm Atten 30 dB #Samp	Stop Freq 850.00000 MHz CF Step 1.0000000 GHz Auto <u>Man</u> Freq Offset 0.0000000 Hz
Center 847.500 MHz Span 5 MHz #Res BW 51 kHz #VBW 150 kHz #Sweep 20 ms (601 pts)	
2.6973 MHz × dB -26.00 dB Transmit Freq Error 9.243 kHz	Signal Track On <u>Off</u>
x dB Bandwidth 2.784 MHz* Copyright 2000-2010 Agilent Technologies	

Page 58 of 241

Band 5 (3MHz BANDWIDTH)

LTE 16QAM





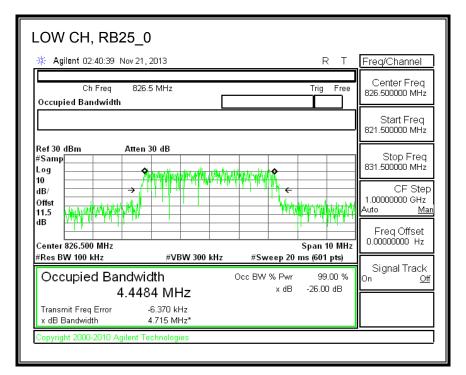
Page 59 of 241

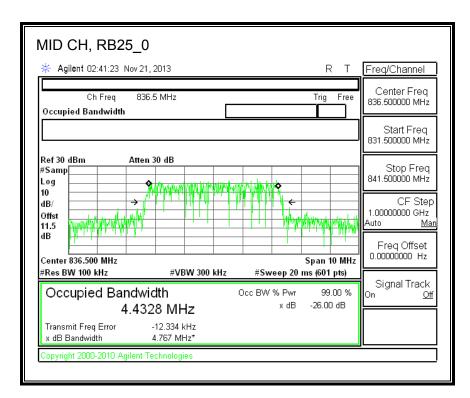
HI CH, RB15_0	
Agilent 02:37:26 Nov 21, 2013 R T	Freq/Channel
Ch Freq 847.5 MHz Trig Free Occupied Bandwidth	Center Freq 847.500000 MHz
	Start Freq 845.000000 MHz
Ref 30 dBm Atten 30 dB #Samp Log 10	Stop Freq 850.00000 MHz
dB/ → · · · · · · · · · · · · · · · · · ·	CF Step 1.0000000 GHz Auto <u>Man</u>
dB	Freq Offset 0.00000000 Hz
#Res BW 51 kHz #VBW 150 kHz #Sweep 20 ms (601 pts)	
Occupied Bandwidth Occ BW % Pwr 99.00 % 2.6764 MHz x dB -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error -14.793 kHz x dB Bandwidth 2.886 MHz*	
Copyright 2000-2010 Agilent Technologies	

Page 60 of 241

Band 5 (5MHz BANDWIDTH)

<u>LTE QPSK</u>





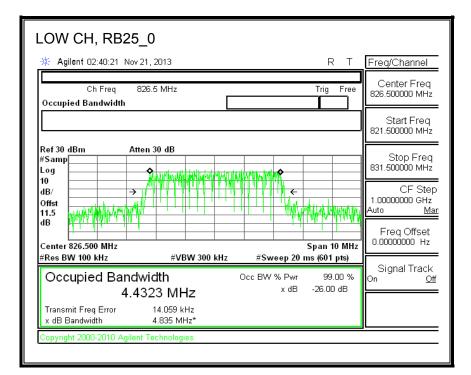
Page 61 of 241

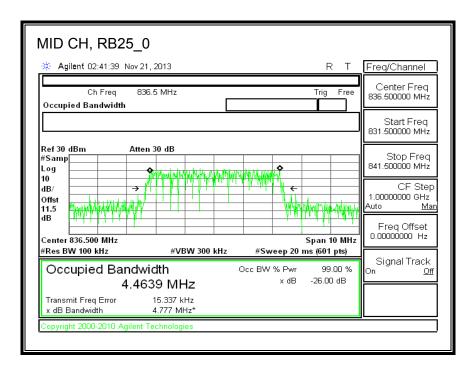
HI CH, RB25_0	2013		RТ	Freq/Channel
	5 MHz		Trig Free	Center Freq 846.500000 MHz
	L			Start Freq 841.500000 MHz
Ref 30 dBm Atten #Samp Log 10		11 11 11 11 11 11 11 11 11 11 11 11 11		Stop Freq 851.500000 MHz
dB/ Offst 11.5 dB				CF Step 1.00000000 GHz Auto <u>Man</u>
Center 846.500 MHz #Res BW 100 kHz	#VBW 300 kHz	#Sweep 20	Span 10 MHz ms (601 pts)	Freq Offset 0.00000000 Hz
Occupied Bandwid 4.482	dth 9 MHz	Occ BW % Pwr x dB	99.00 % -26.00 dB	Signal Track On <u>Off</u>
	21.868 kHz 4.681 MHz*			
Coopyright 2000-2010 Agriefit Te	chilologies			

Page 62 of 241

Band 5 (5MHz BANDWIDTH)

LTE 16QAM





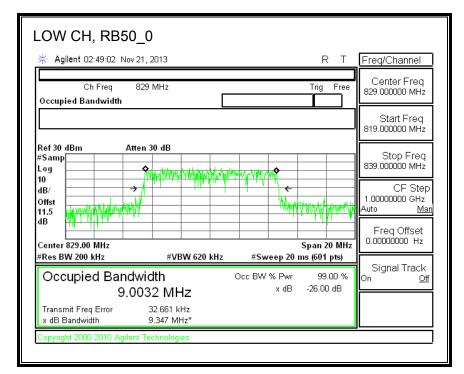
Page 63 of 241

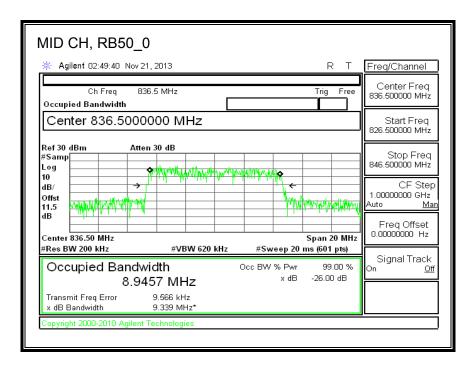
HI CH, RB25_0 # Agilent 02:45:02 Nov 21, 2013	R T Freq/Channel	
Ch Freq 846.5 MHz Occupied Bandwidth	Trig Free B46.500000 MHz	
	Start Freq 841.500000 MHz	
Ref 30 dBm Atten 30 dB #Samp Log 10	Stop Freq 851.500000 MHz	
dB/ Offst 11.5 dB	1.00000000 GHz 1.00000000 GHz Auto <u>Mi</u>	
Center 846.500 MHz #Res BW 100 kHz #VBW 3		
Occupied Bandwidth 4.4223 MHz	Occ BW % Pwr 99.00 % On Q x dB -26.00 dB	
Transmit Freq Error-14.890 kHzx dB Bandwidth4.695 MHz*		
Copyright 2000-2010 Agilent Technologies		_

Page 64 of 241

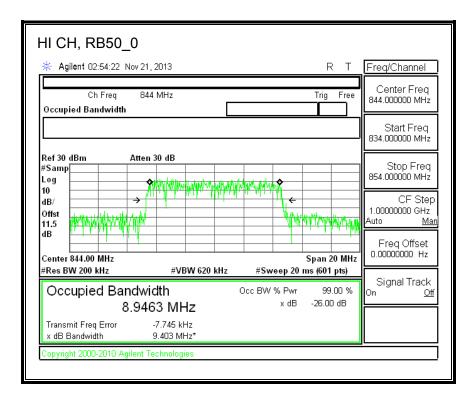
Band 5 (10MHz BANDWIDTH)

LTE QPSK





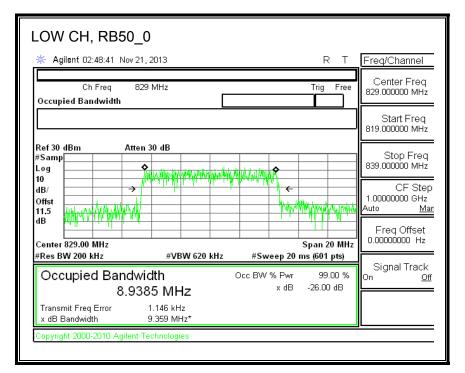
Page 65 of 241

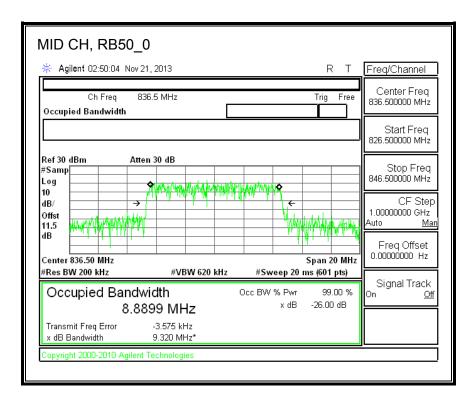


Page 66 of 241

Band 5 (10MHz BANDWIDTH)

LTE 16QAM





Page 67 of 241

✤ Agilent 02:54:06 Nov 21, 2	2013		RT	Freq/Channel
Ch Freq 844 Occupied Bandwidth	MHz		Trig Free	Center Freq 844.000000 MHz
				Start Freq 834.000000 MHz
Ref 30 dBm Atten 3 #Samp Log 10 dB/ offst 11.5 dB Center 844.00 MHz			Span 20 MHz	Stop Freq 854.000000 MHz 1.00000000 GHz Auto <u>Ma</u> Freq Offset 0.00000000 Hz
#Res BW 200 kHz Occupied Bandwic	#VBW 620 kHz	#Sweep 20 r	ns (601 pts) 99 00 %	Signal Track
	4 MHz	x dB	-26.00 dB	On <u>Off</u>
	4.840 kHz 9.345 MHz*			

Page 68 of 241

8.2. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051, §22.901, §22.917 and §24.238.

LIMITS

FCC: §22.359, §24.238

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

TEST PROCEDURE

The transmitter output was connected to a CMW500Test Set and configured to operate at maximum power. The bandedge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each bandedge measurement:

Set the spectrum analyzer span to include the block edge frequency (824, 849, 1850 and 1910MHz)

Set a marker to point the corresponding bandedge frequency in each test case.

Set display line at -13 dBm

Set resolution bandwidth to at least 1% of emission bandwidth.

MODES TESTED

- Band 2
- Band 5

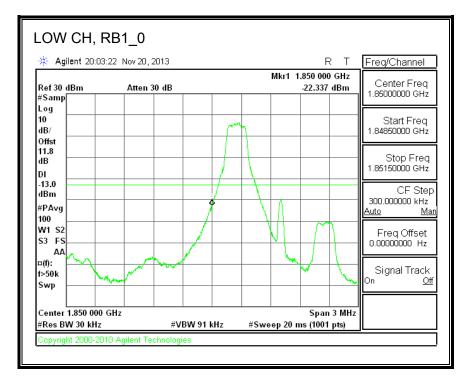
RESULTS

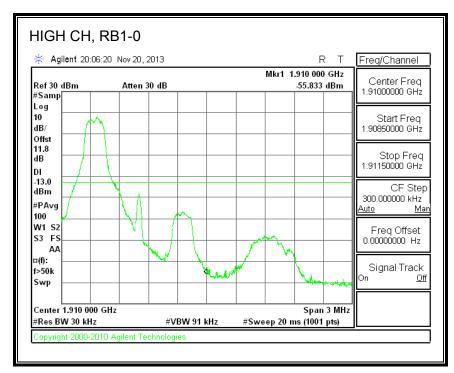
Page 69 of 241

8.2.1. LTE BAND 2

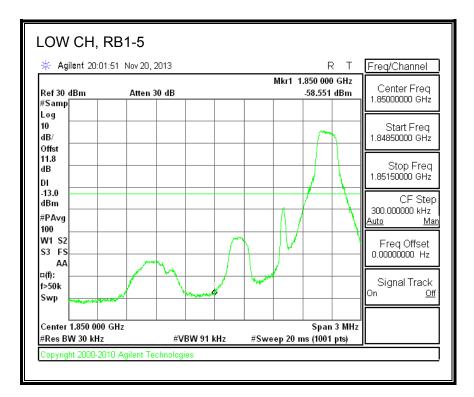
Band 2 (1.4 MHz BANDWIDTH)

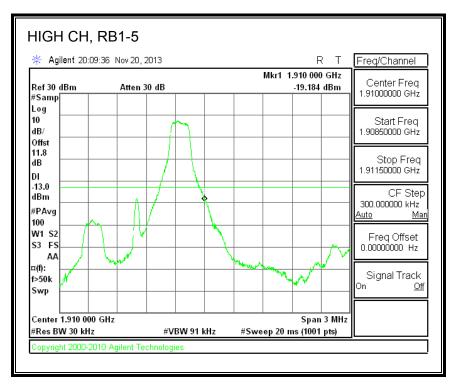
LTE QPSK



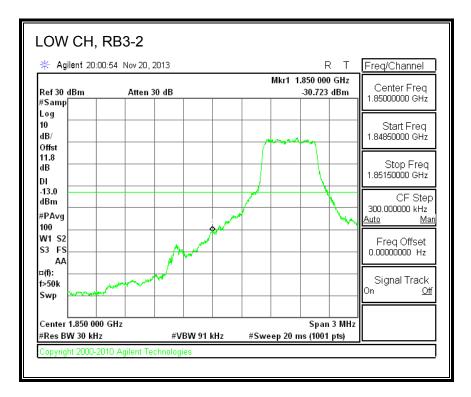


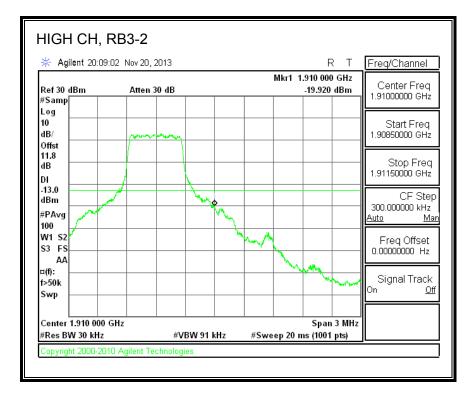
Page 70 of 241



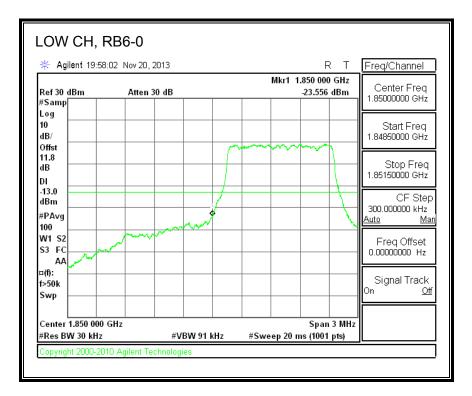


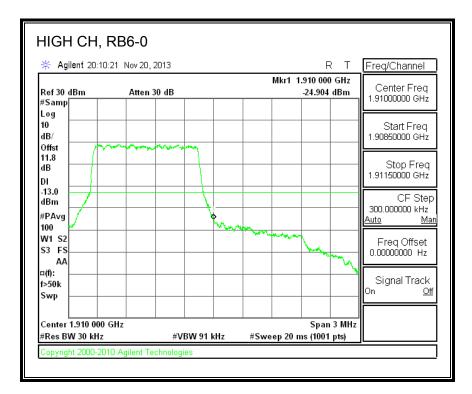
Page 71 of 241





Page 72 of 241

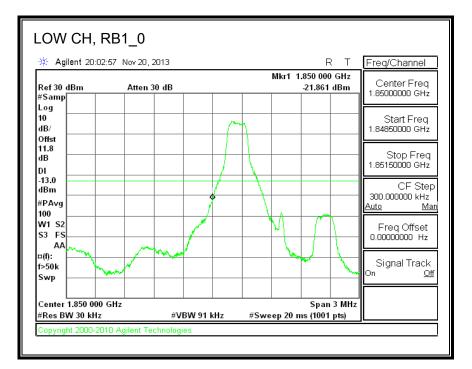


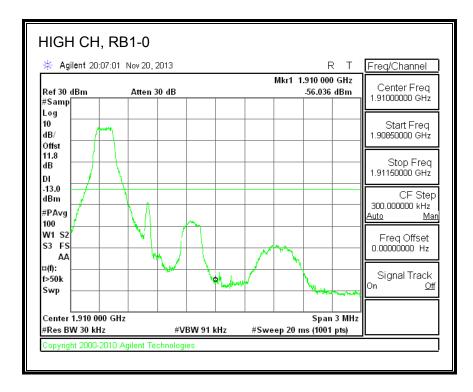


Page 73 of 241

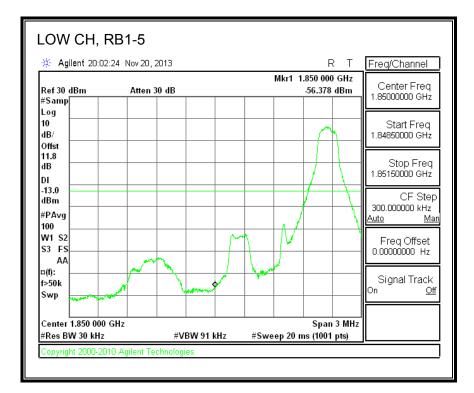
Band 2 (1.4 MHz BANDWIDTH)

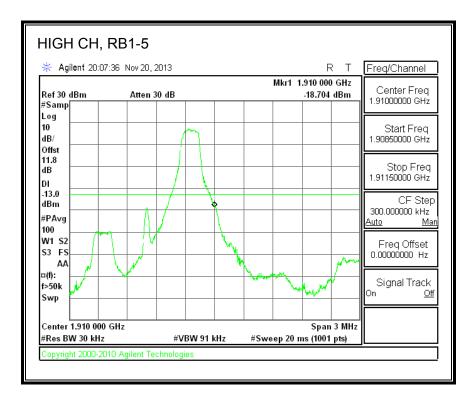
LTE 16QAM



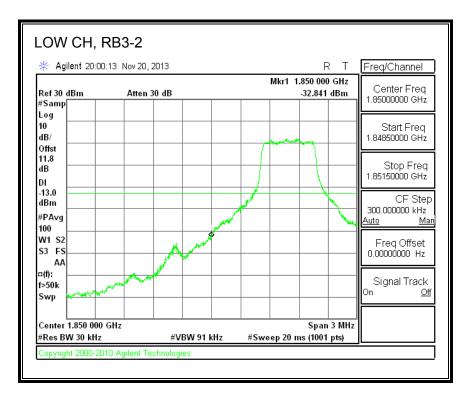


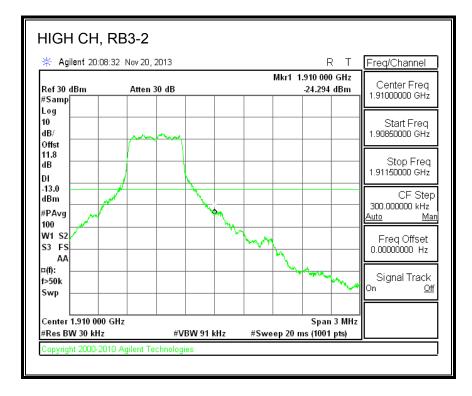
Page 74 of 241



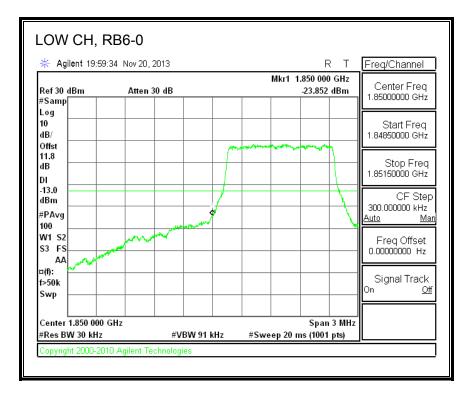


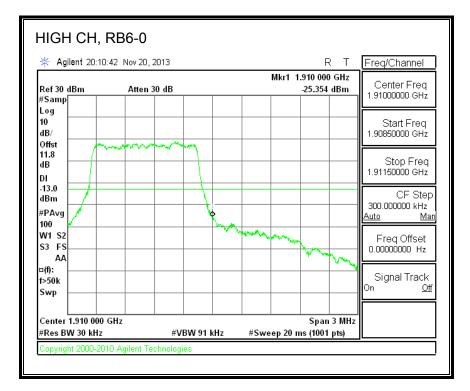
Page 75 of 241





Page 76 of 241

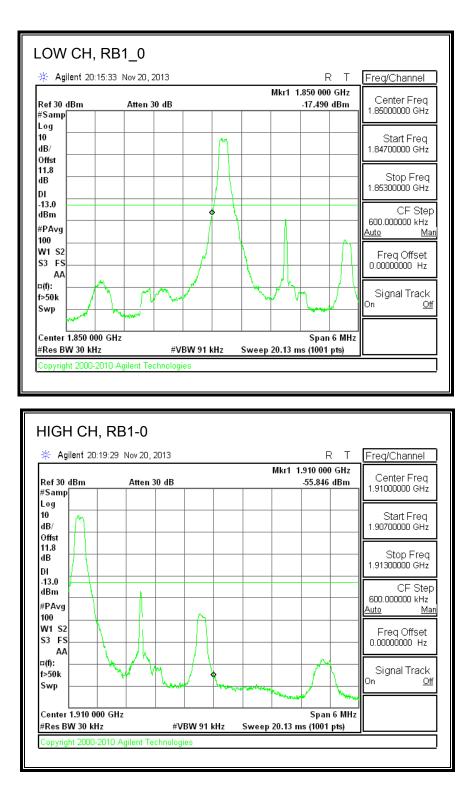




Page 77 of 241

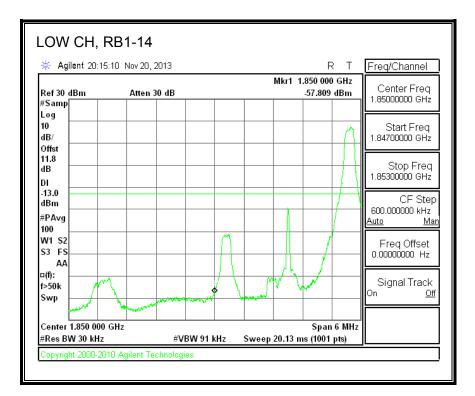
Band 2 (3MHz BANDWIDTH)

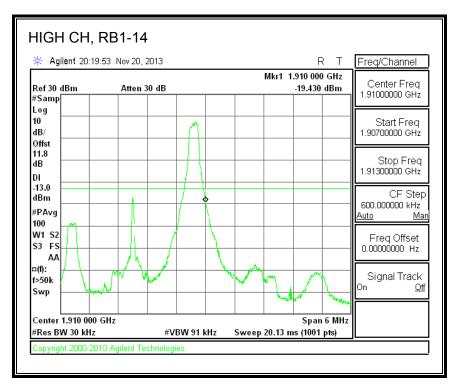
LTE QPSK



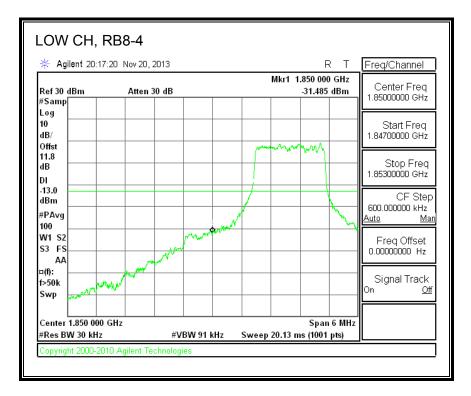
DATE: FEBRUARY 14, 2014

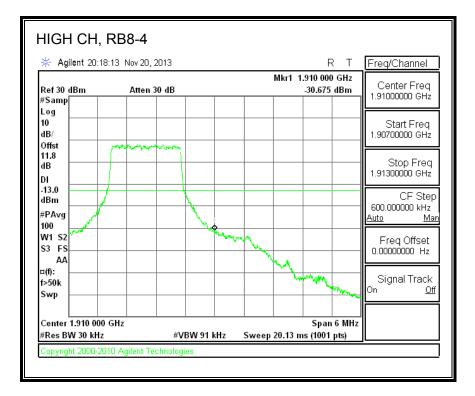
Page 78 of 241



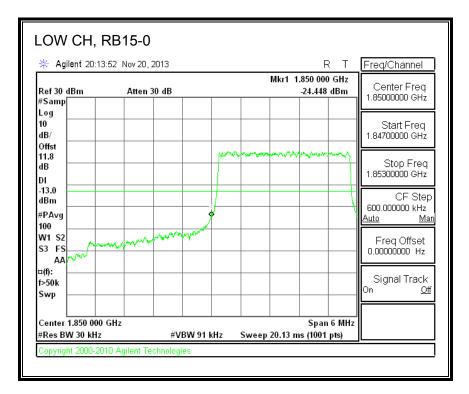


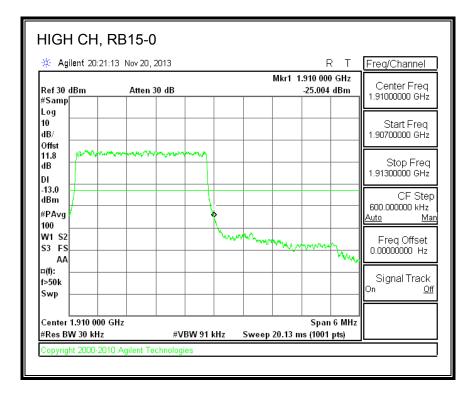
Page 79 of 241





Page 80 of 241

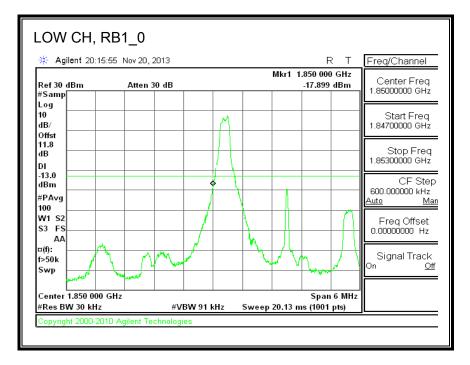


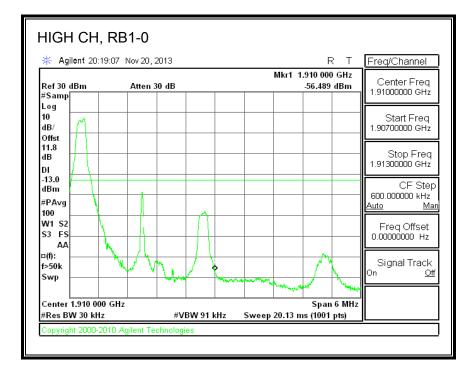


Page 81 of 241

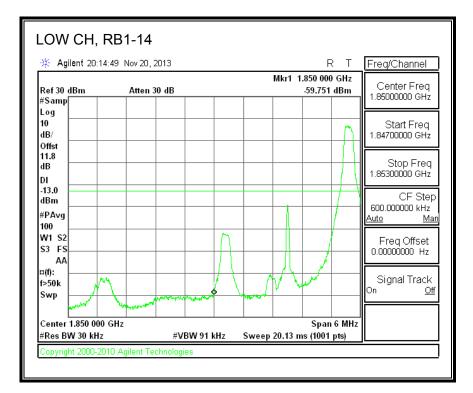
Band 2 (3MHz BANDWIDTH)

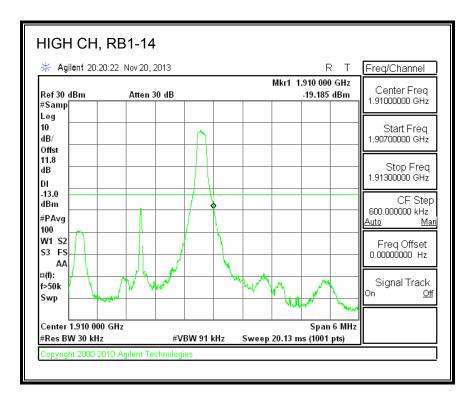
LTE 16QAM



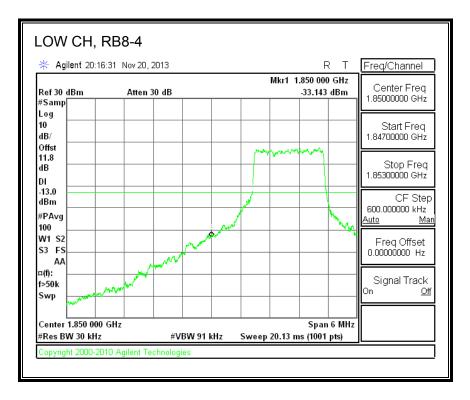


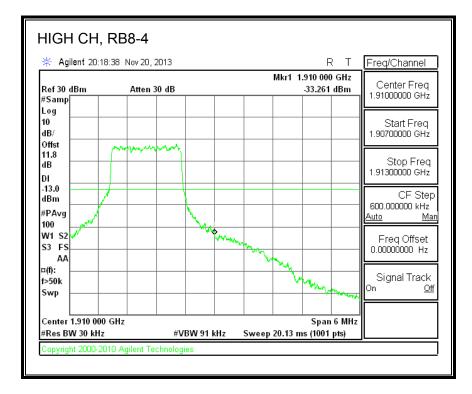
Page 82 of 241



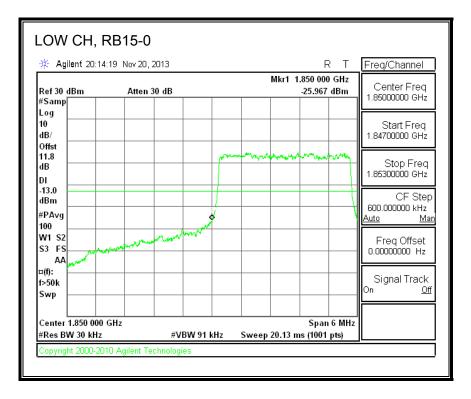


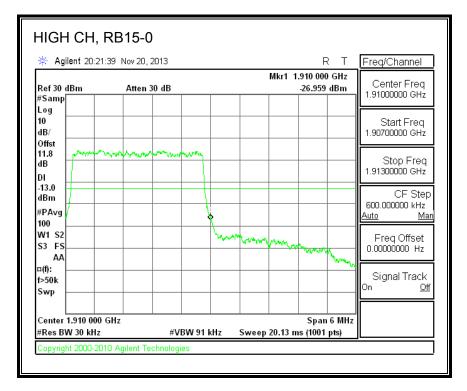
Page 83 of 241





Page 84 of 241

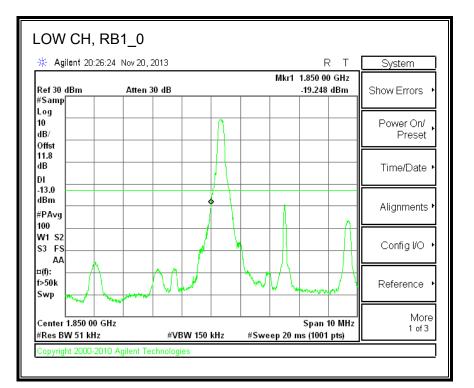


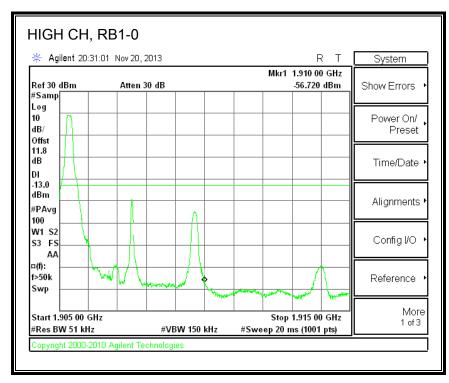


Page 85 of 241

Band 2 (5MHz BANDWIDTH)

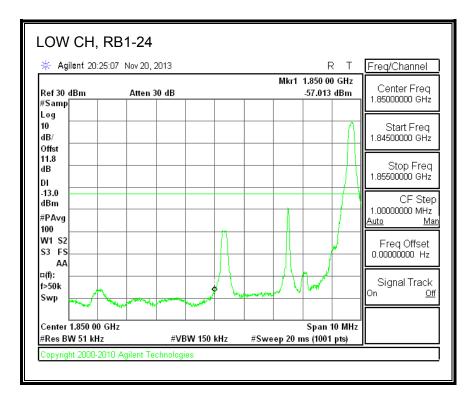
LTE QPSK

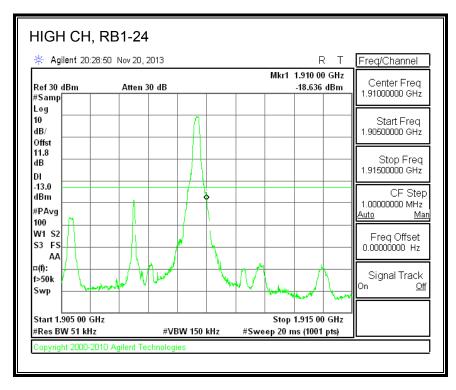




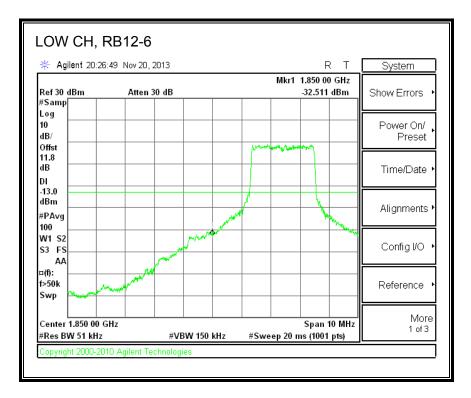
Page 86 of 241

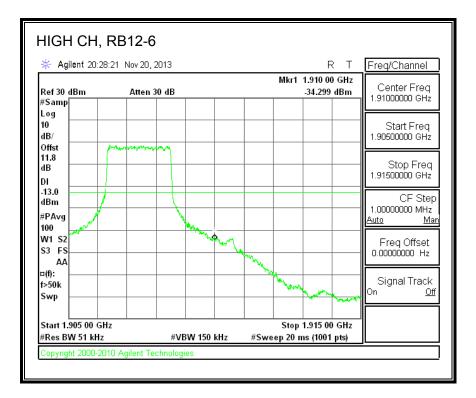
UL VERIFICATION SERVICES INC. 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.





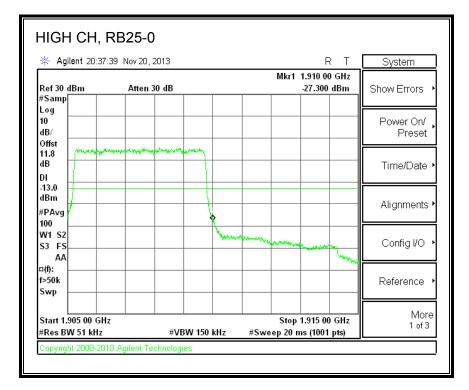
Page 87 of 241





Page 88 of 241

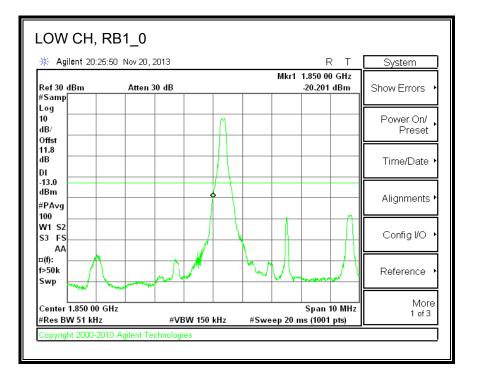
🔆 Agilent 20:24:	22 Nov 20, 2013		R	- i regrenamer
Ref 30 dBm #Samp	Atten 30 dB		Mkr1 1.850 00 -24.542 d	II. Contor Eroz
Log 10 dB/ Offst				Start Fred 1.84500000 GH
dB		- New South Party		Stop Frei 1.8550000 GH
-13.0 dBm #PAvg				CF Ste
100 W1 S2 S3 FS	Norman market and			<u>Auto N</u> Freq Offset 0.00000000 Hz
r=(f): f>50k Swp				Signal Trac
Center 1.850 00 GI #Res BW 51 kHz	Hz #VBW 1	50 kHz #Sv	Span 10 veep 20 ms (1001 p	

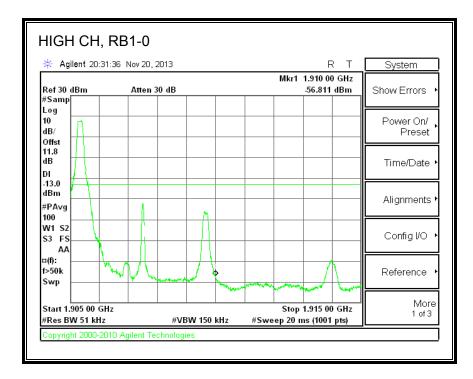


Page 89 of 241

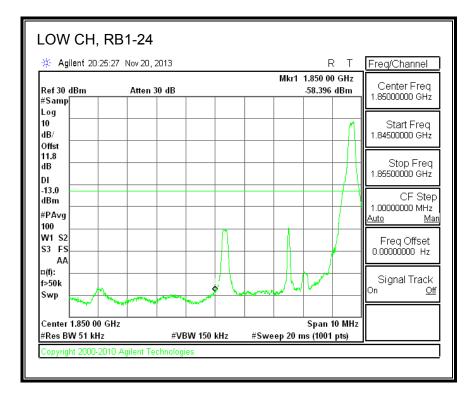
Band 2 (5MHz BANDWIDTH)

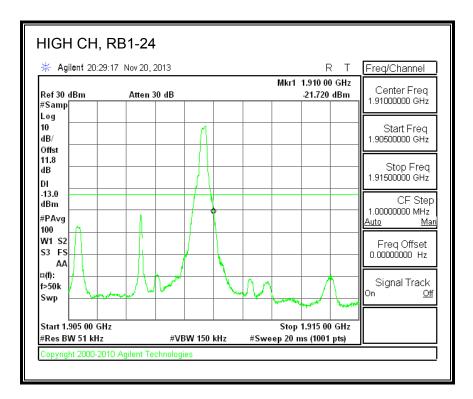
LTE 16QAM



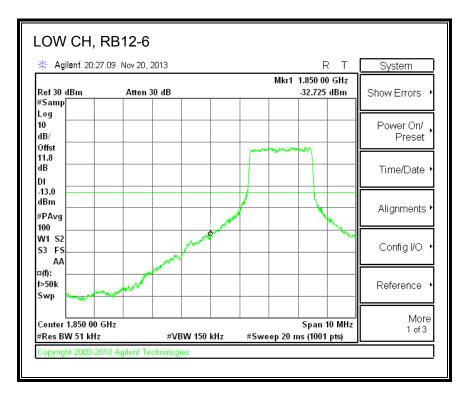


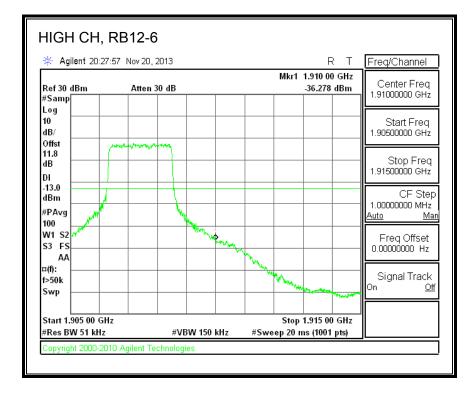
Page 90 of 241



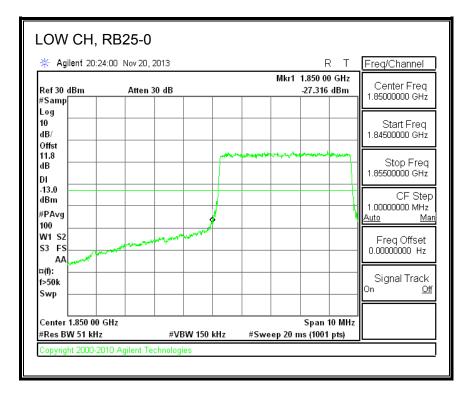


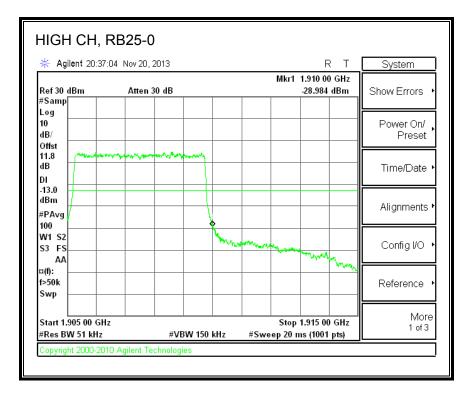
Page 91 of 241





Page 92 of 241

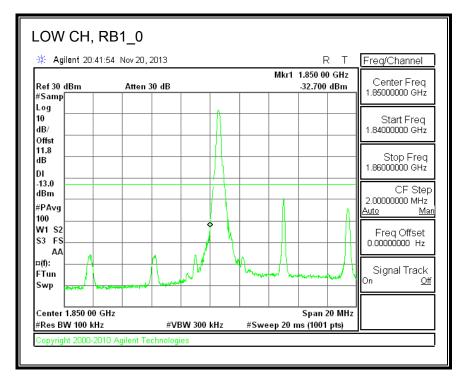


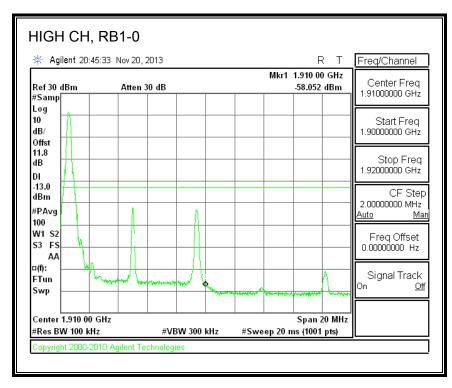


Page 93 of 241

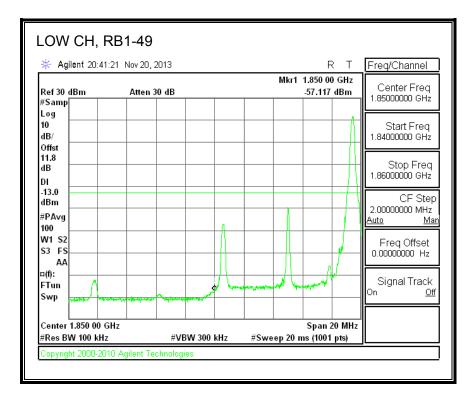
Band 2 (10MHz BANDWIDTH)

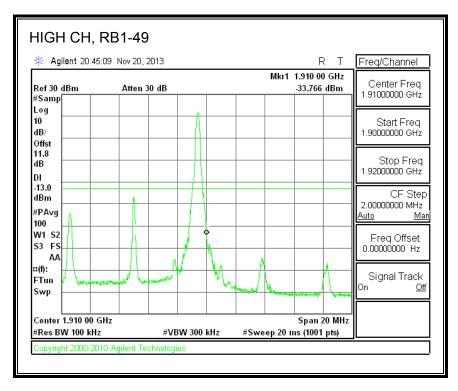
LTE QPSK



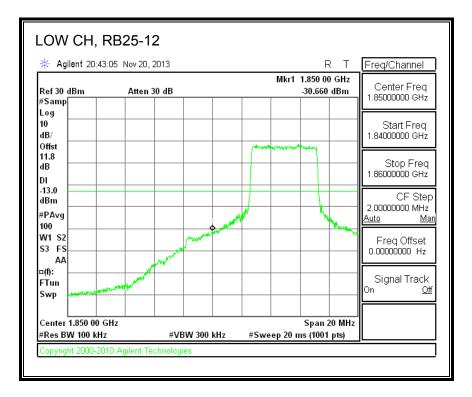


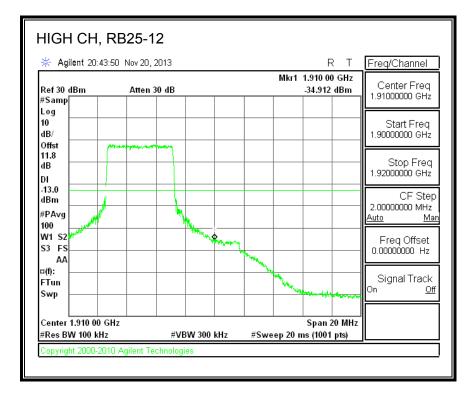
Page 94 of 241



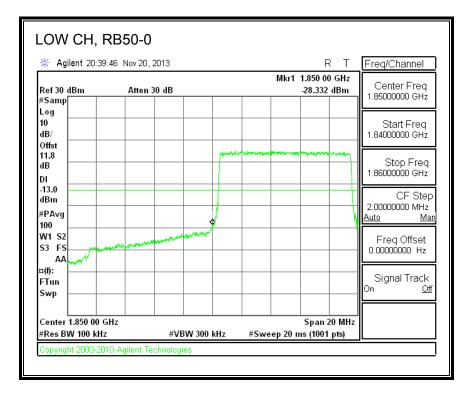


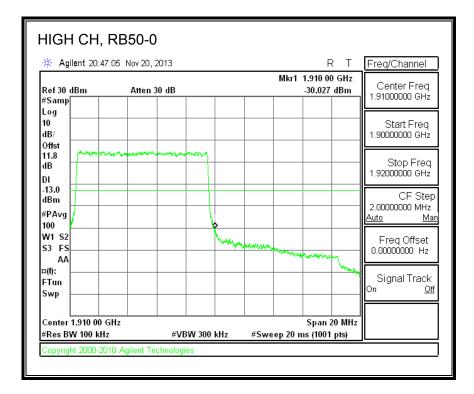
Page 95 of 241





Page 96 of 241

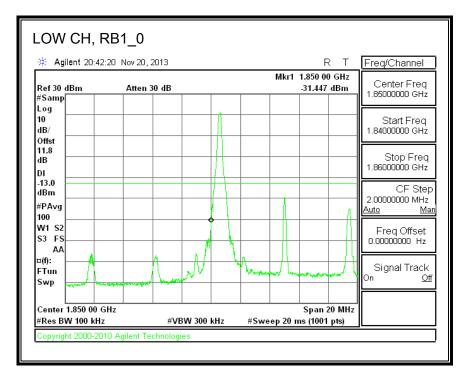


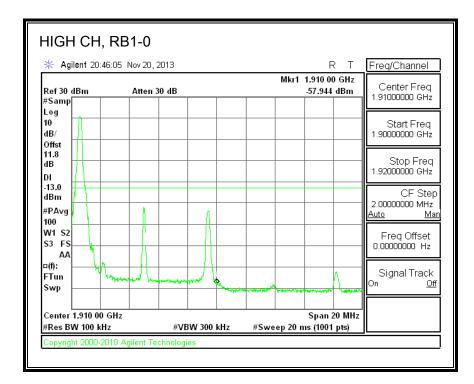


Page 97 of 241

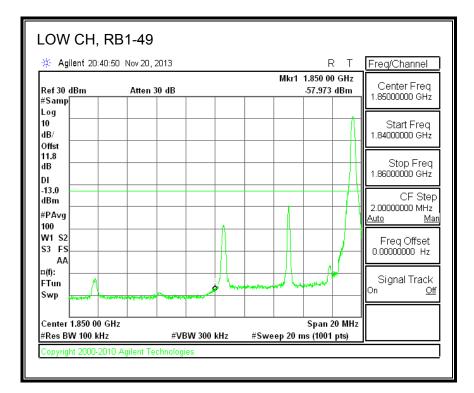
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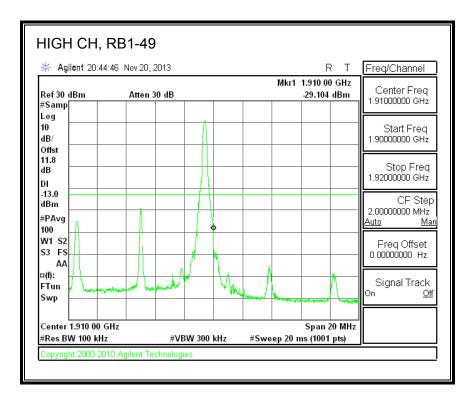
LTE 16QAM



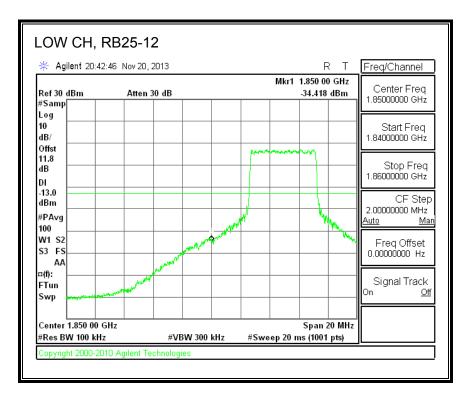


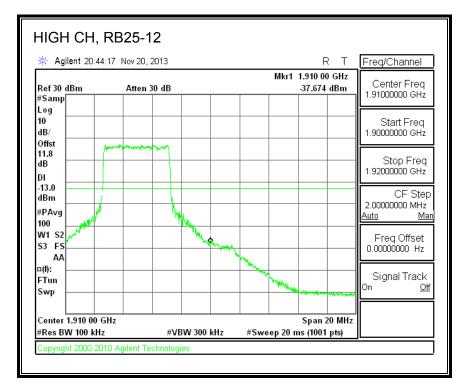
Page 98 of 241



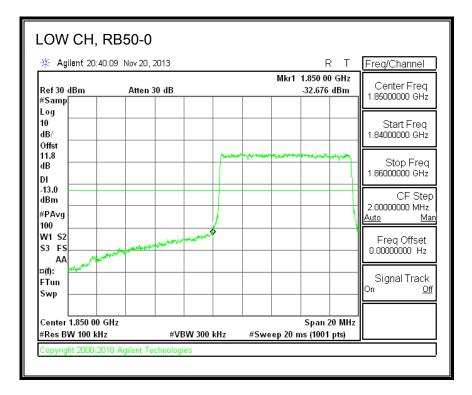


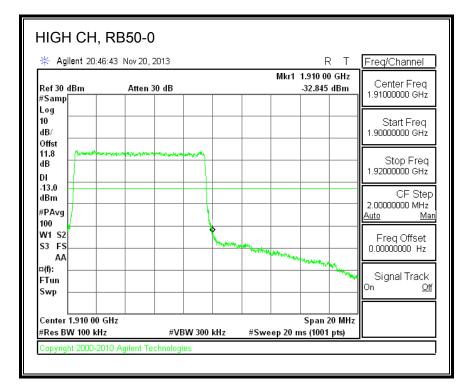
Page 99 of 241





Page 100 of 241

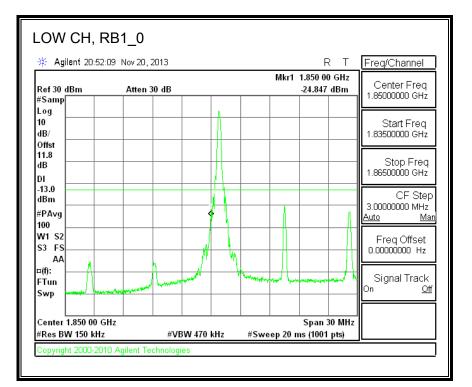


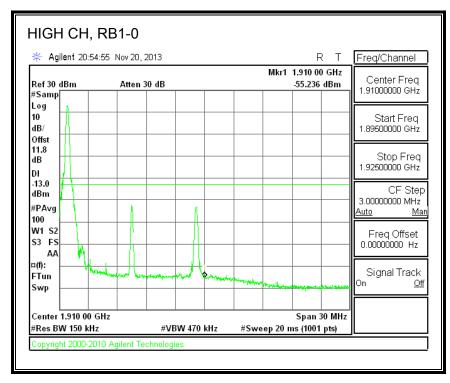


Page 101 of 241

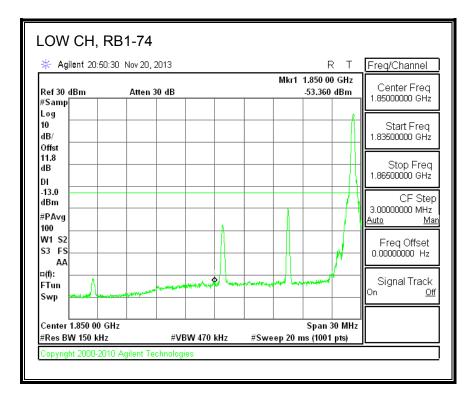
Band 2 (15MHz BANDWIDTH)

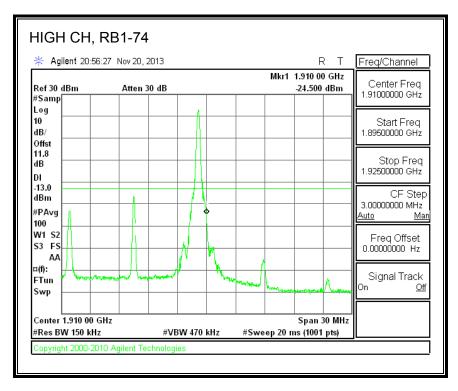
LTE QPSK



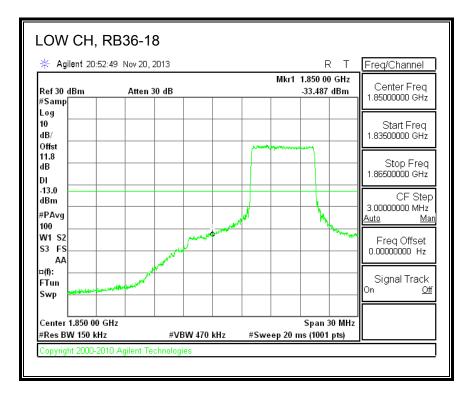


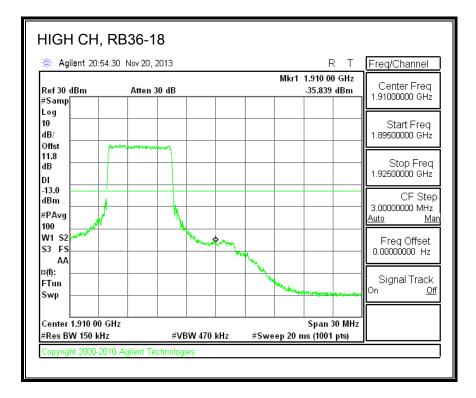
Page 102 of 241



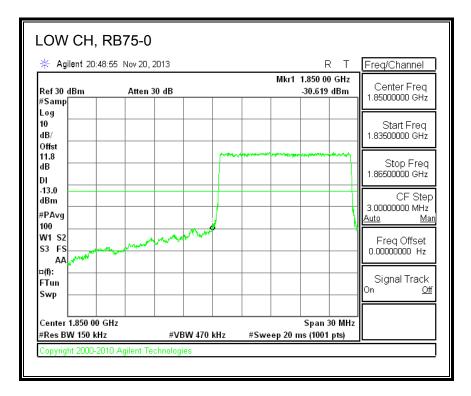


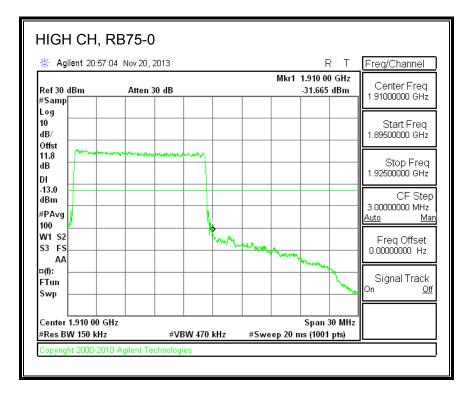
Page 103 of 241





Page 104 of 241

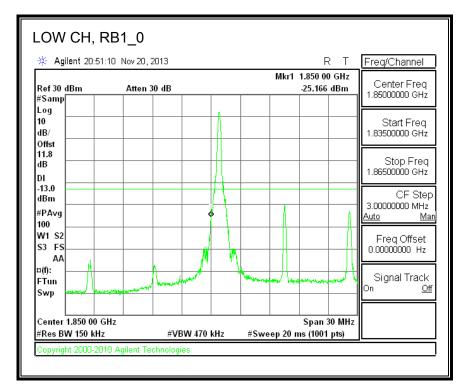


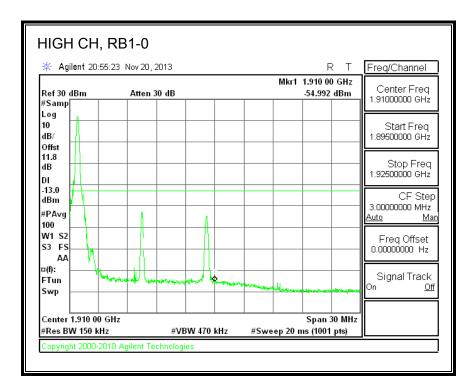


Page 105 of 241

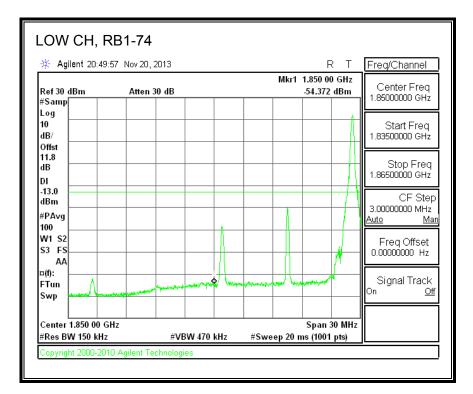
Band 2 (15MHz BANDWIDTH)

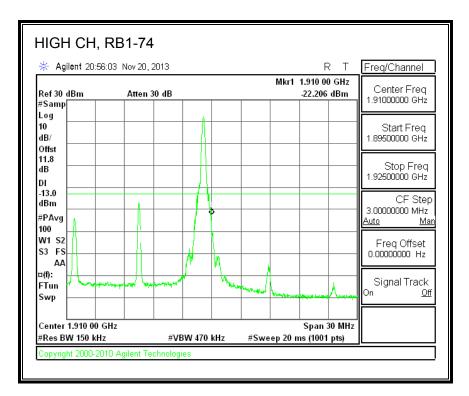
LTE 16QAM



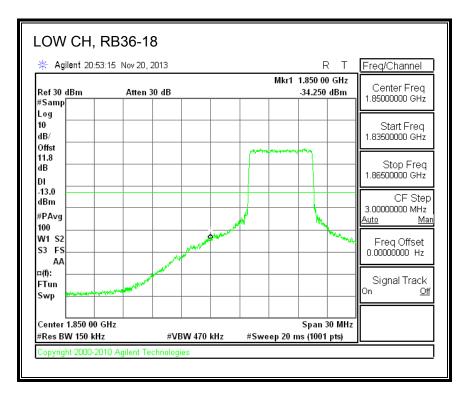


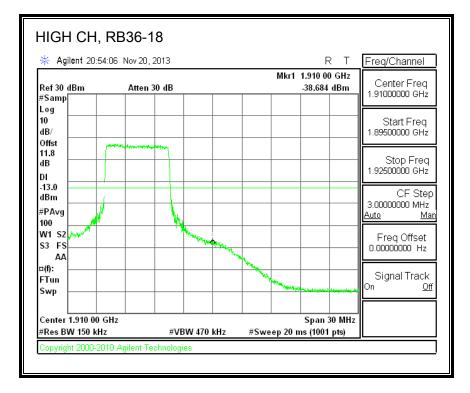
Page 106 of 241



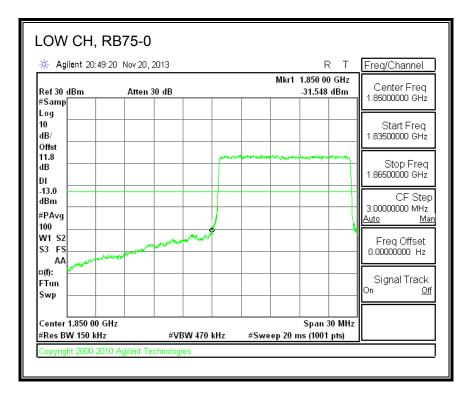


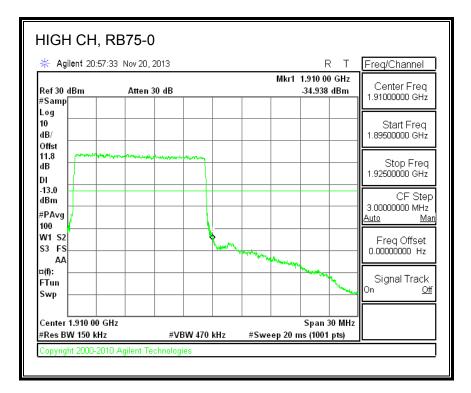
Page 107 of 241





Page 108 of 241

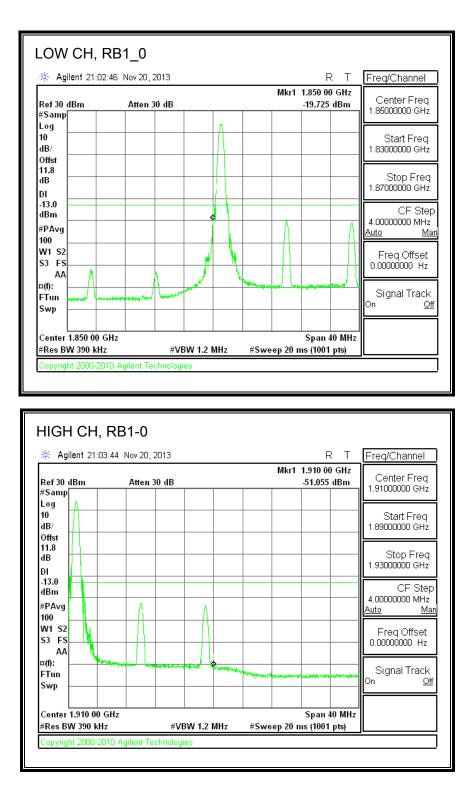




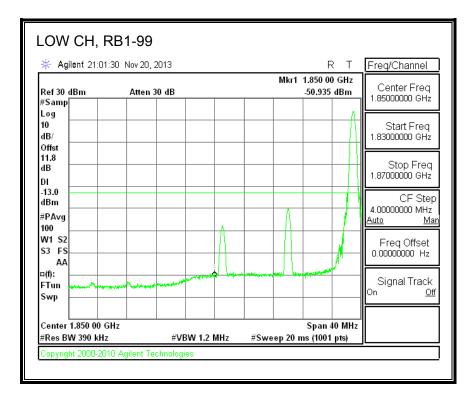
Page 109 of 241

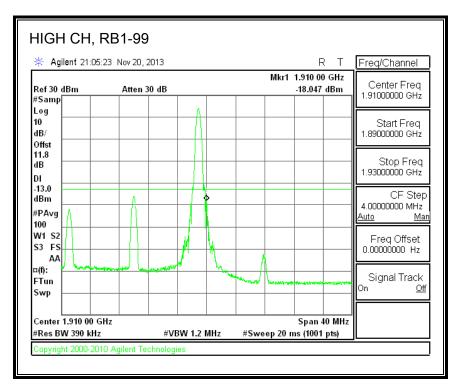
Band 2 (20MHz BANDWIDTH)

LTE QPSK

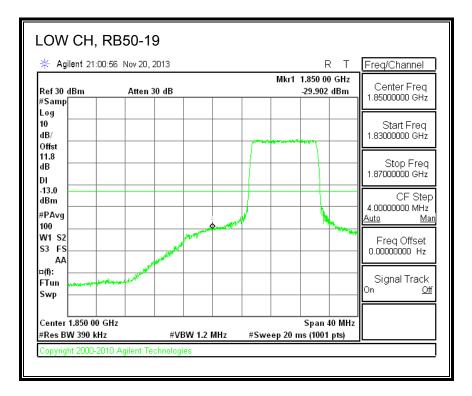


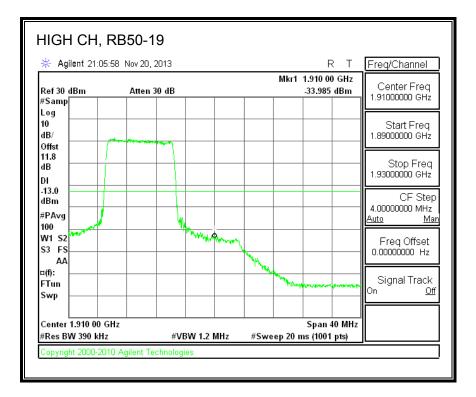
Page 110 of 241



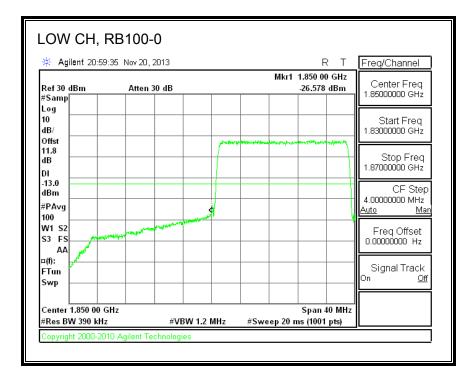


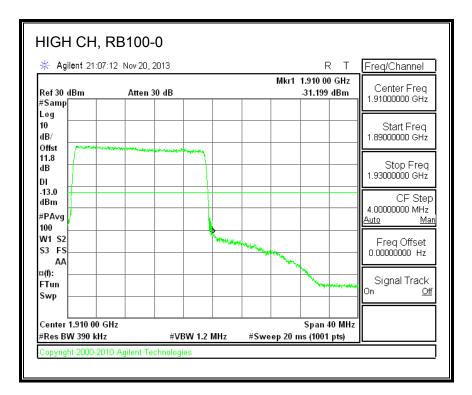
Page 111 of 241





Page 112 of 241

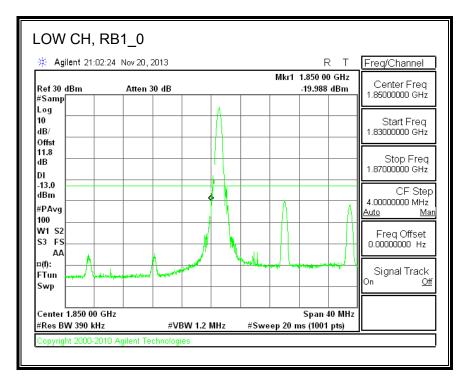


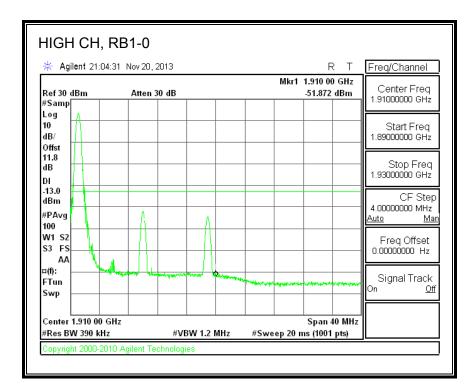


Page 113 of 241

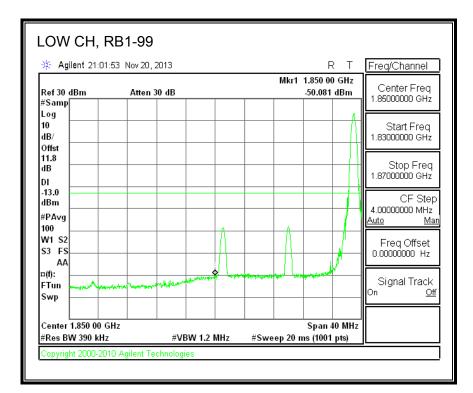
Band 2 (20MHz BANDWIDTH)

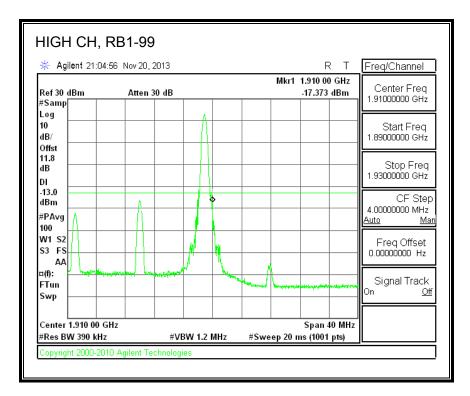
LTE 16QAM



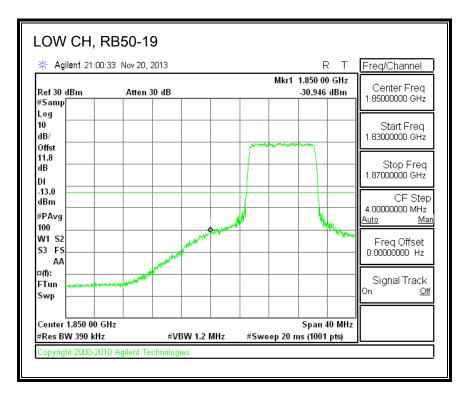


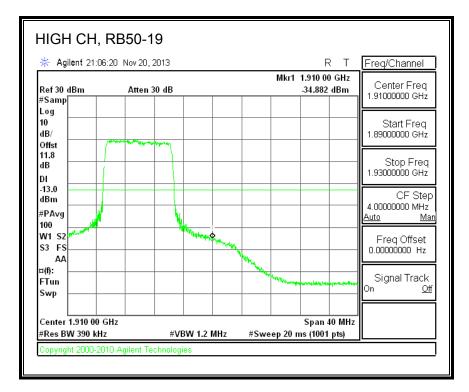
Page 114 of 241



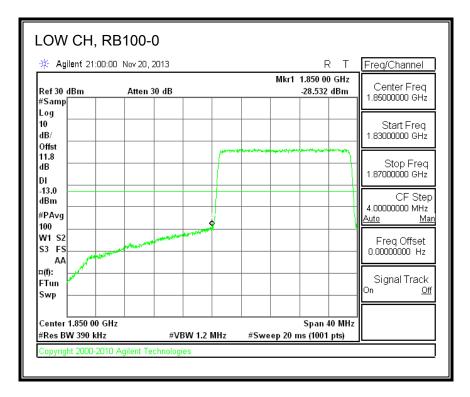


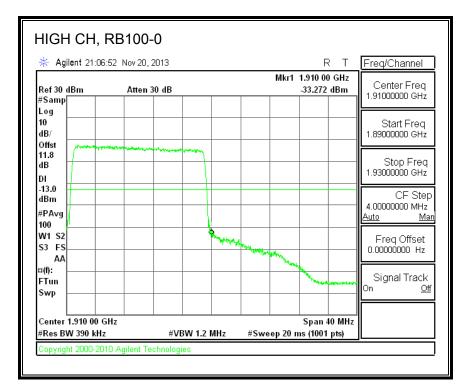
Page 115 of 241





Page 116 of 241



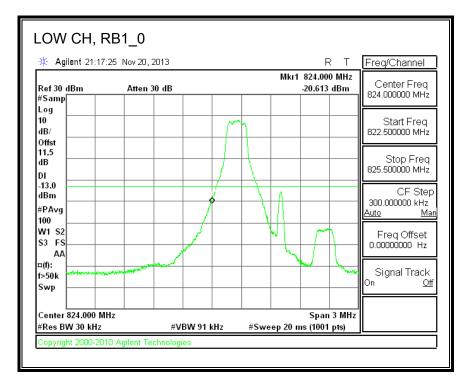


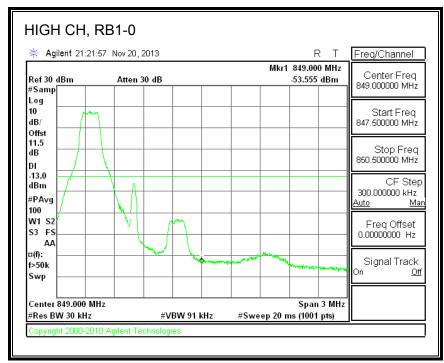
Page 117 of 241

8.2.2. LTE BAND 5

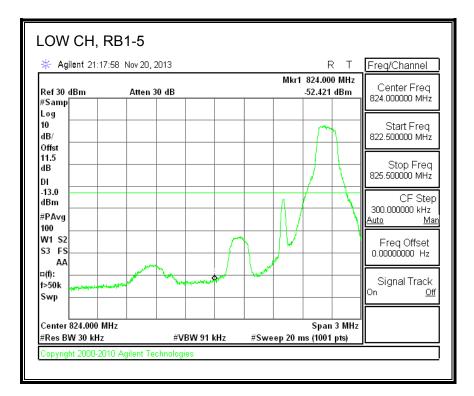
Band 5 (1.4 MHz BANDWIDTH)

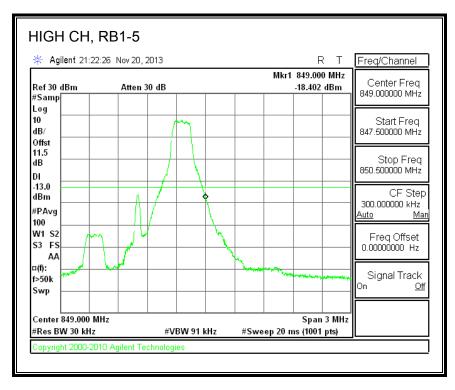
LTE QPSK



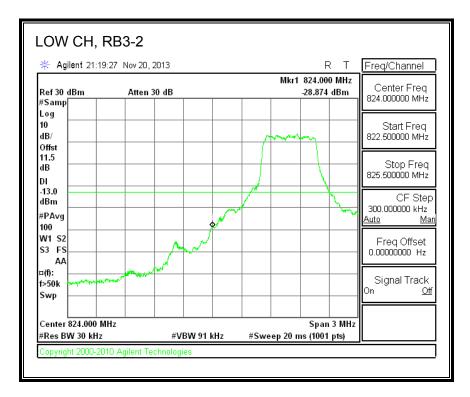


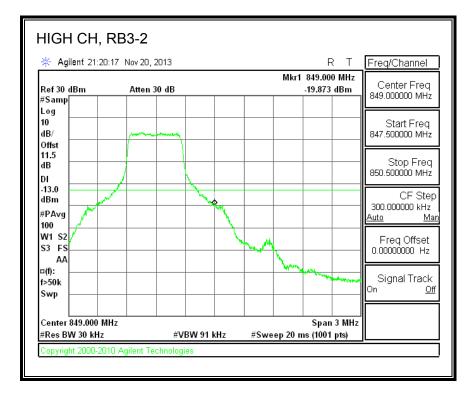
Page 118 of 241



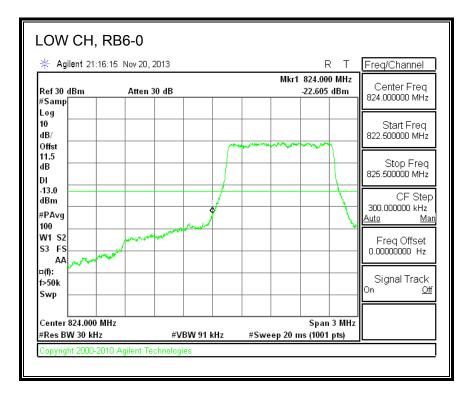


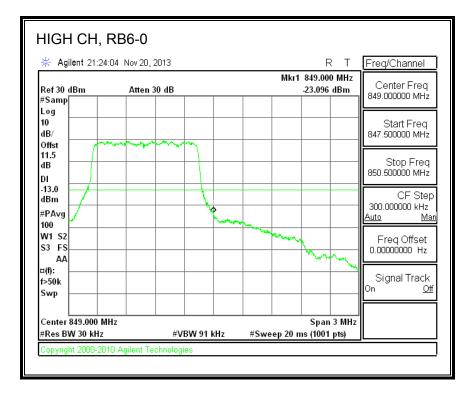
Page 119 of 241





Page 120 of 241

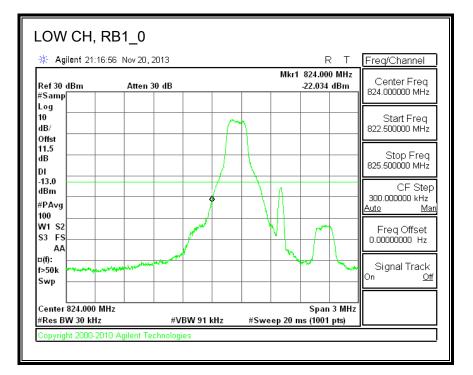


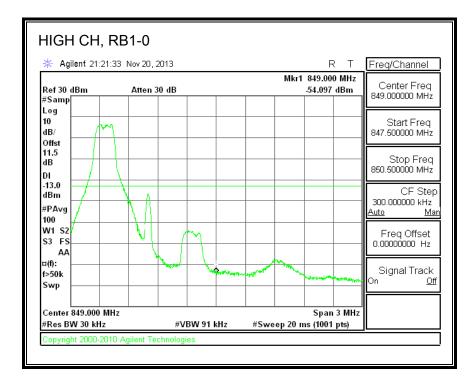


Page 121 of 241

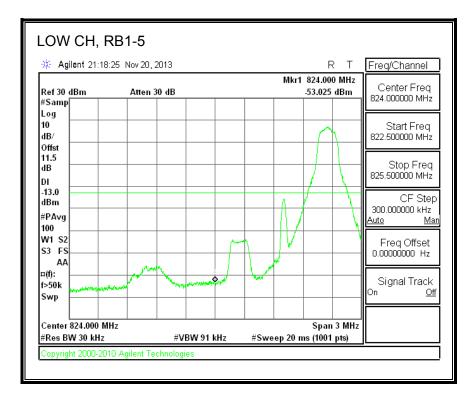
Band 5 (1.4 MHz BANDWIDTH)

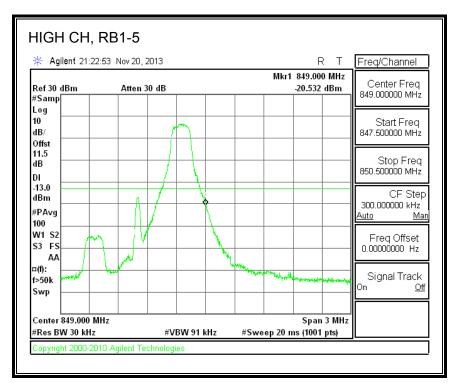
LTE 16QAM



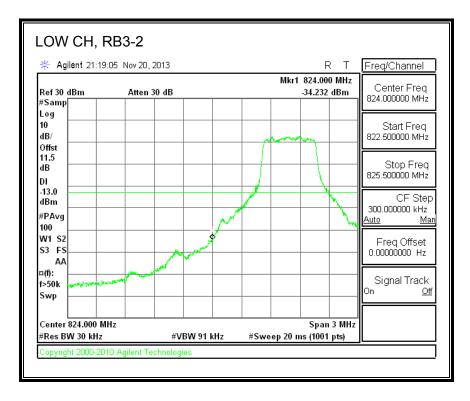


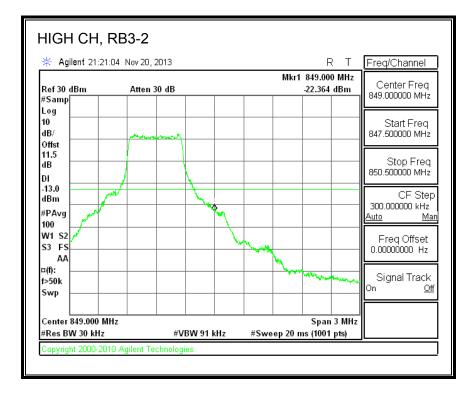
Page 122 of 241



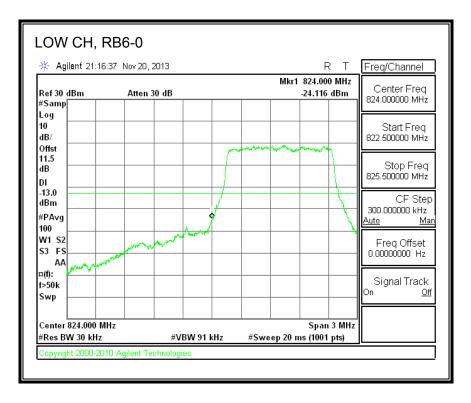


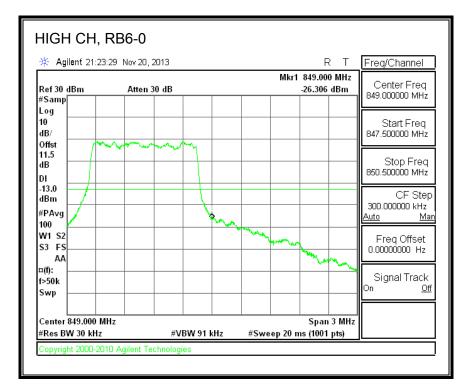
Page 123 of 241





Page 124 of 241

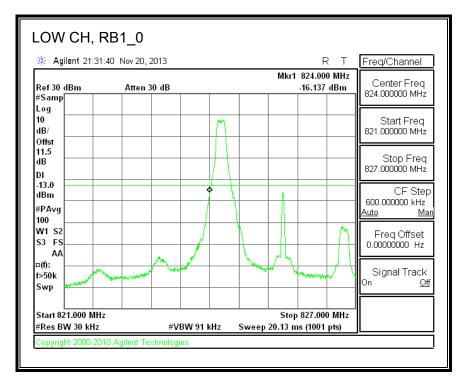


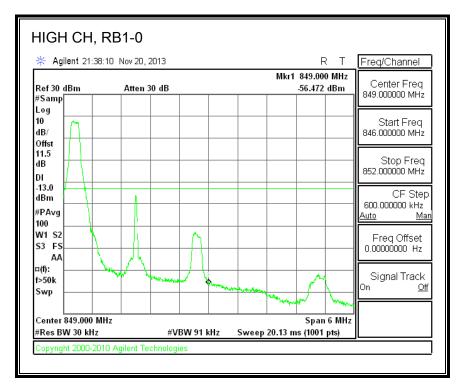


Page 125 of 241

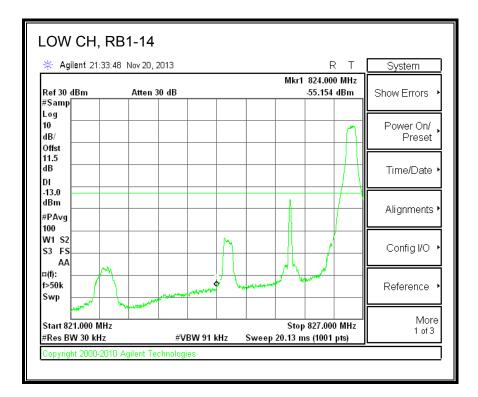
Band 5 (3MHz BANDWIDTH)

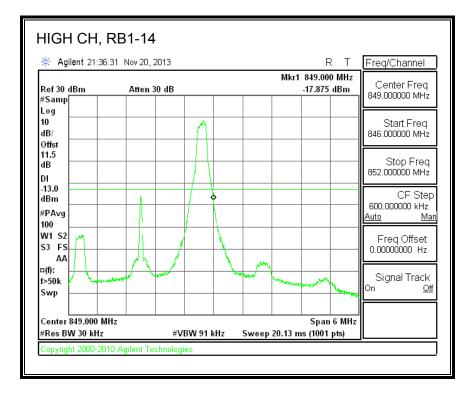
LTE QPSK



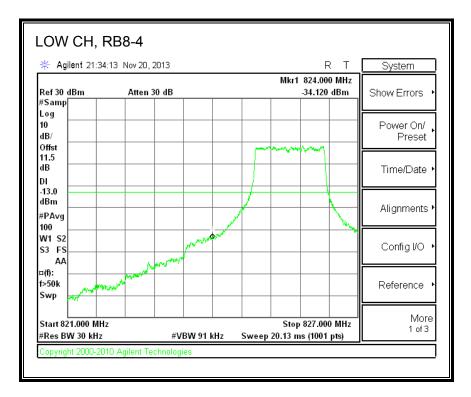


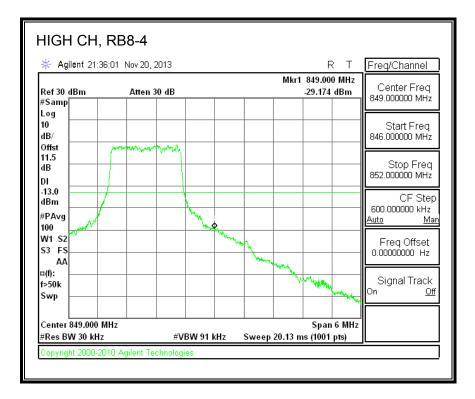
Page 126 of 241



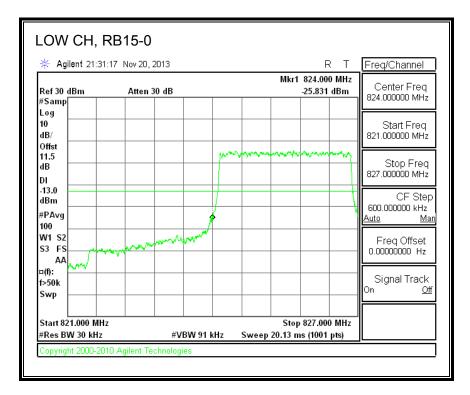


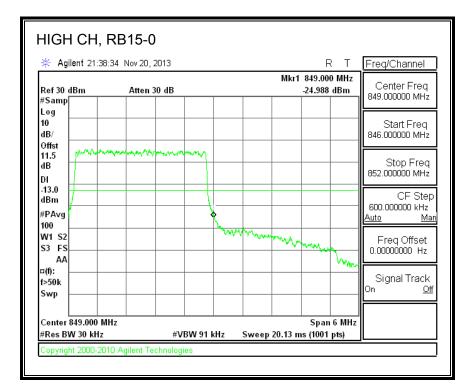
Page 127 of 241





Page 128 of 241

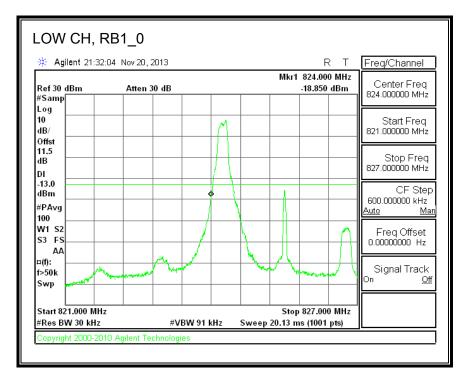


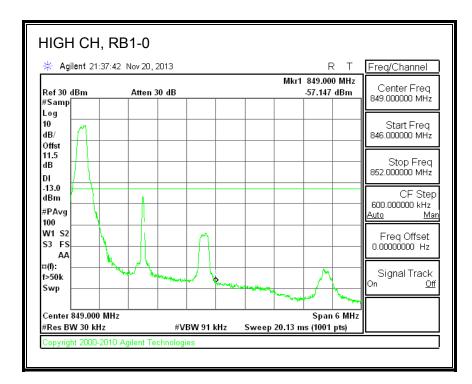


Page 129 of 241

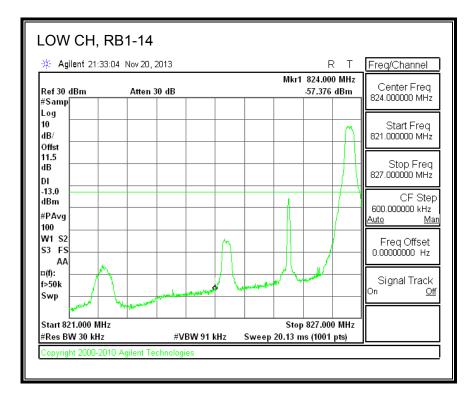
Band 5 (3MHz BANDWIDTH)

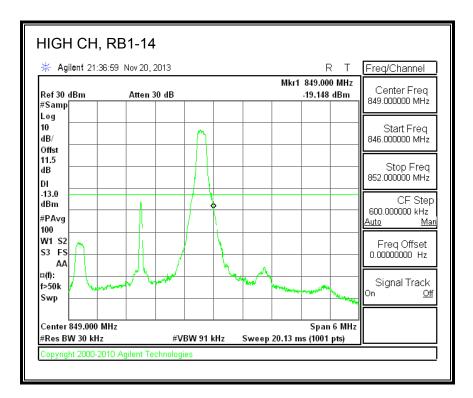
LTE 16QAM



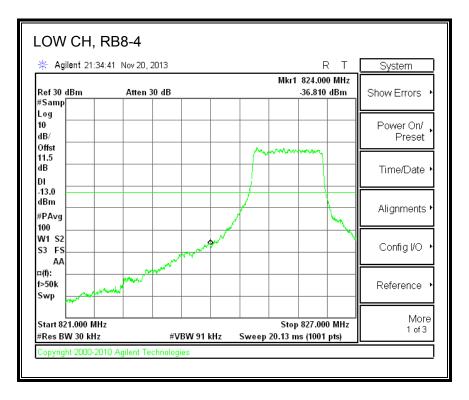


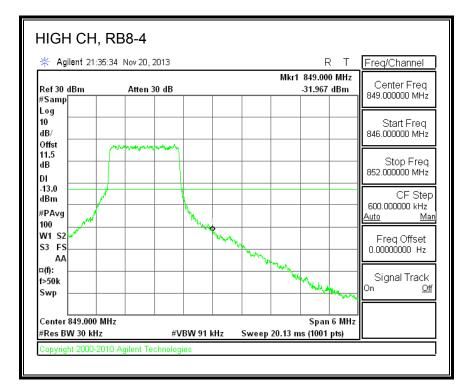
Page 130 of 241



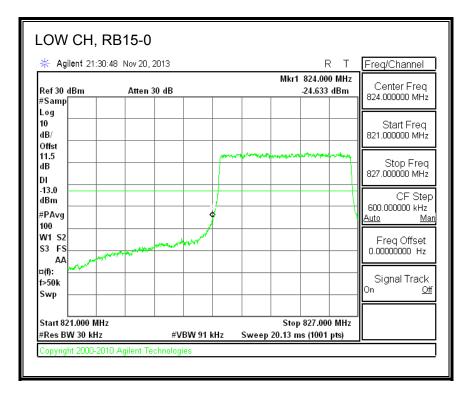


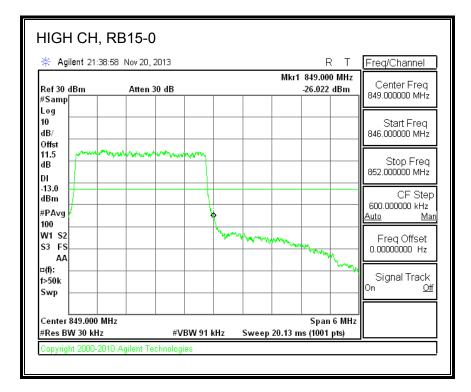
Page 131 of 241





Page 132 of 241

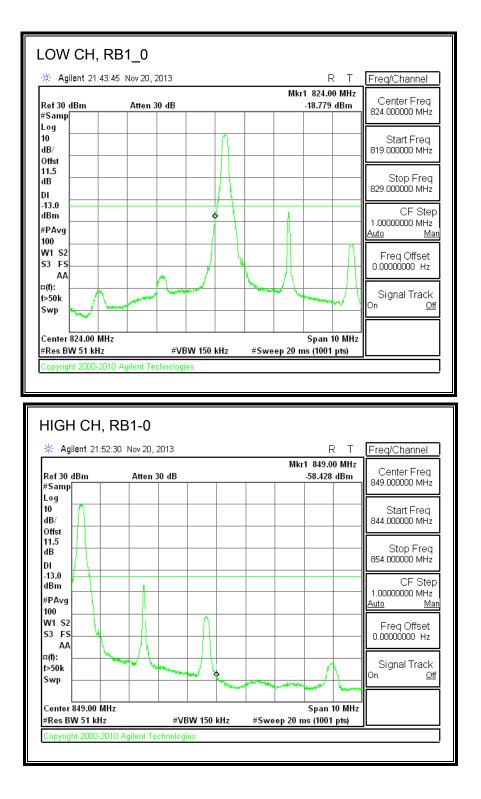




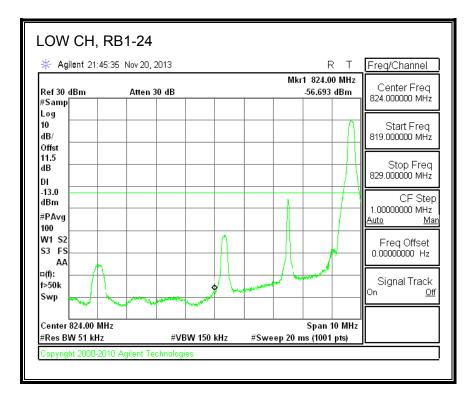
Page 133 of 241

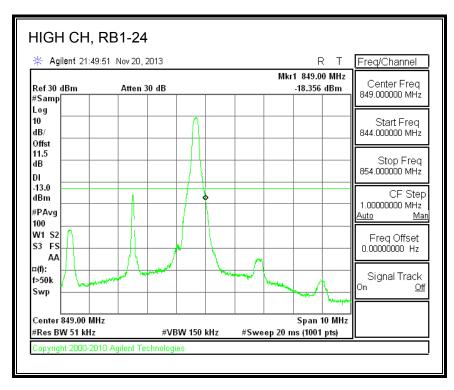
Band 5 (5MHz BANDWIDTH)

LTE QPSK

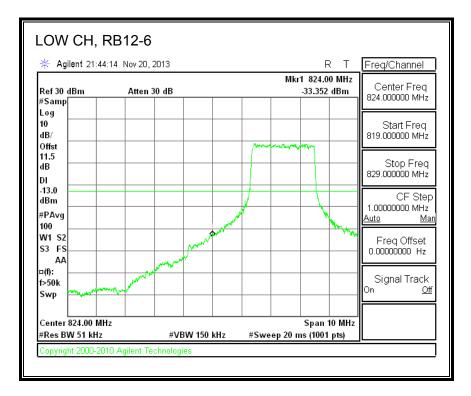


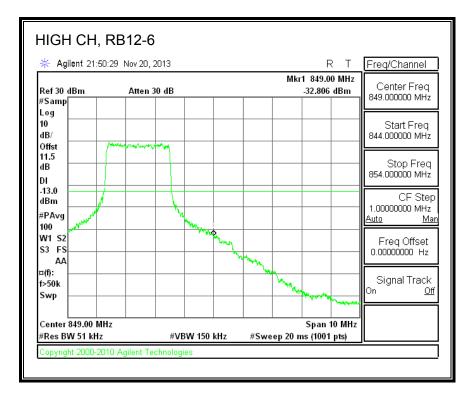
Page 134 of 241



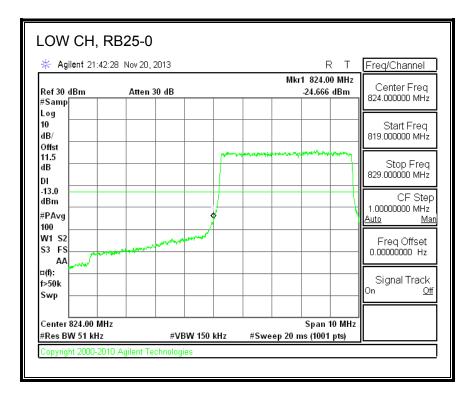


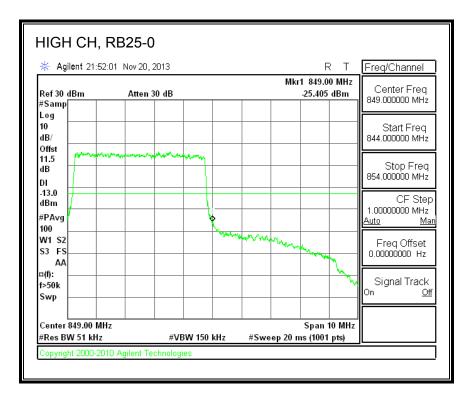
Page 135 of 241





Page 136 of 241

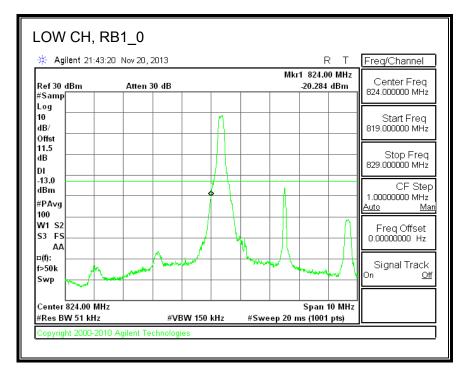


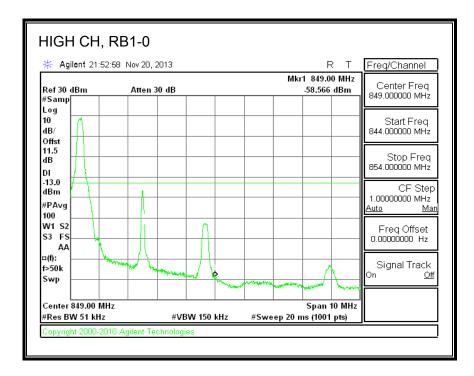


Page 137 of 241

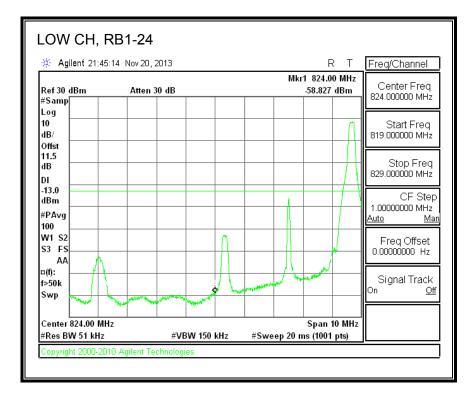
Band 5 (5MHz BANDWIDTH)

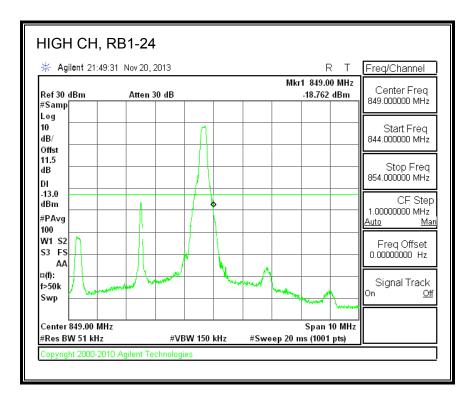
LTE 16QAM



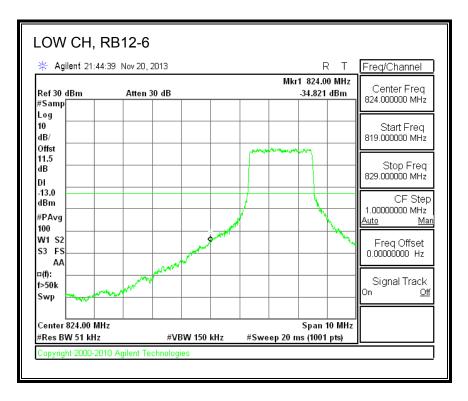


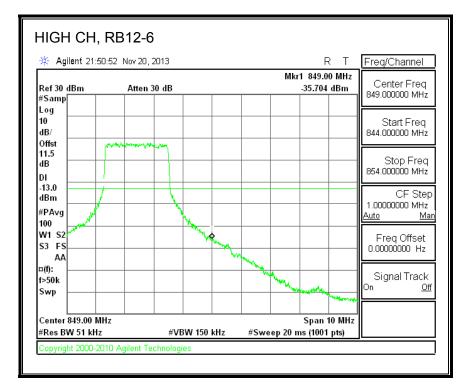
Page 138 of 241



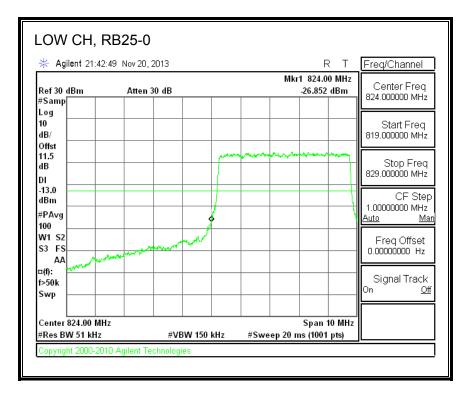


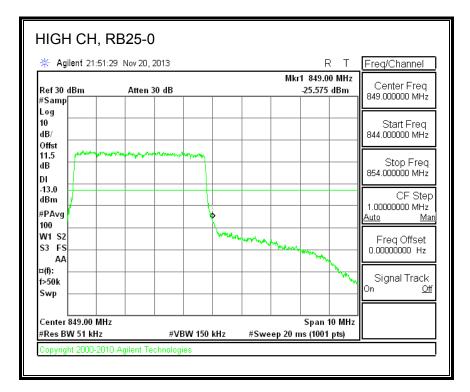
Page 139 of 241





Page 140 of 241

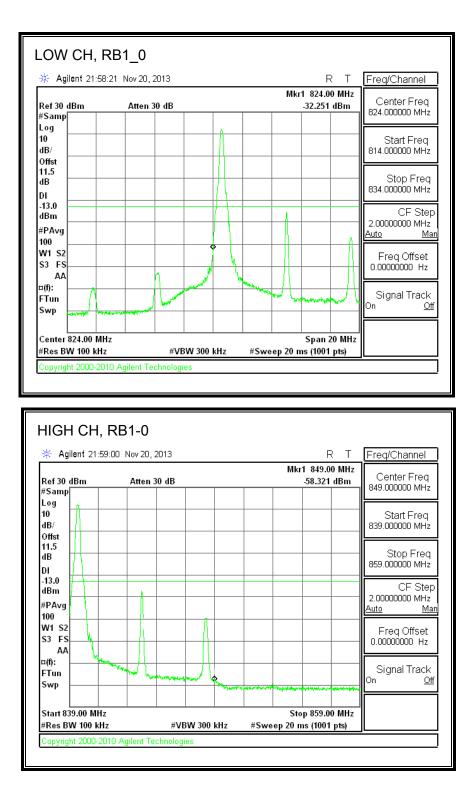




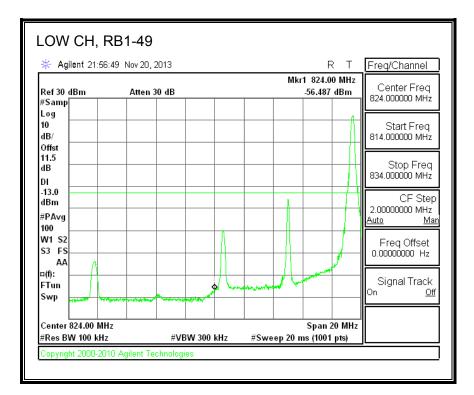
Page 141 of 241

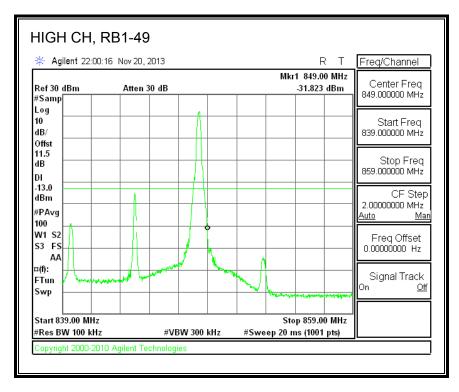
Band 5 (10MHz BANDWIDTH)

LTE QPSK

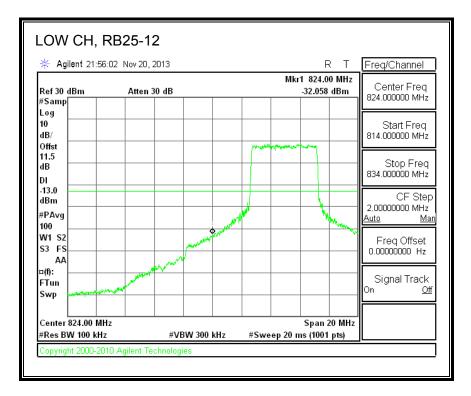


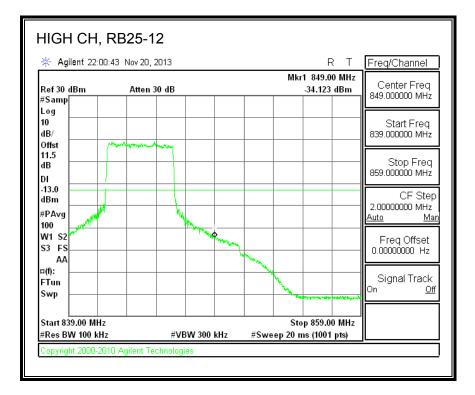
Page 142 of 241





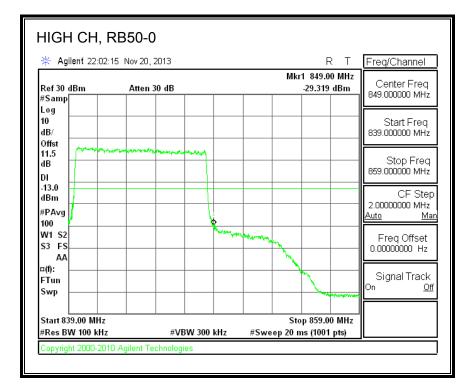
Page 143 of 241





Page 144 of 241

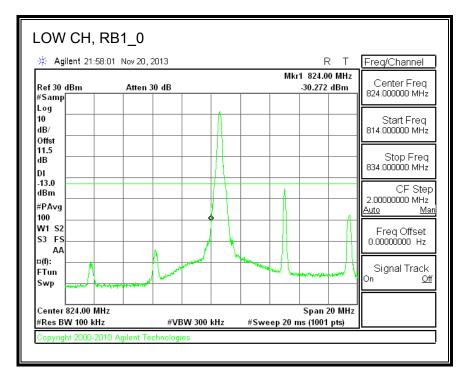
🔆 Agilent 21:54	:40 Nov 20, 2013		RT	Freq/Channel
Ref 30 dBm #Samp	Atten 30 dB		Mkr1 824.00 MHz -29.695 dBm	Center Freq 824.000000 MHz
Log 10 dB/				Start Freq 814.000000 MHz
11.5 dB		propherstransport	- Versen and Service and S	Stop Freq 834.000000 MHz
DI -13.0 dBm #PAvg				CF Step 2.0000000 MHz
100				<u>Auto Ma</u> Freq Offset 0.00000000 Hz
rtin Swp				Signal Track On <u>Off</u>
Center 824.00 MH #Res BW 100 kHz		300 kHz #Swee	Span 20 MHz p 20 ms (1001 pts)	

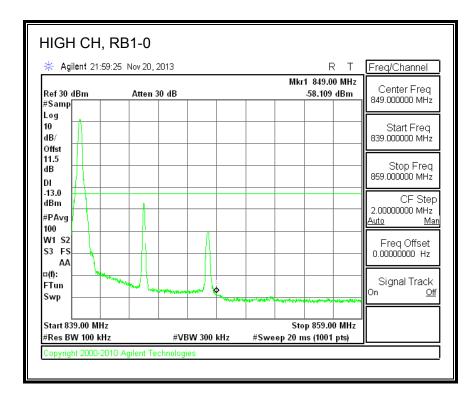


Page 145 of 241

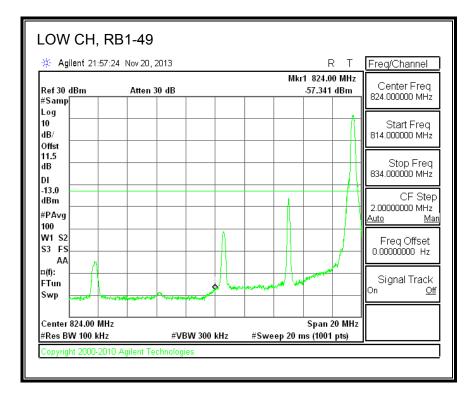
Band 5 (10MHz BANDWIDTH)

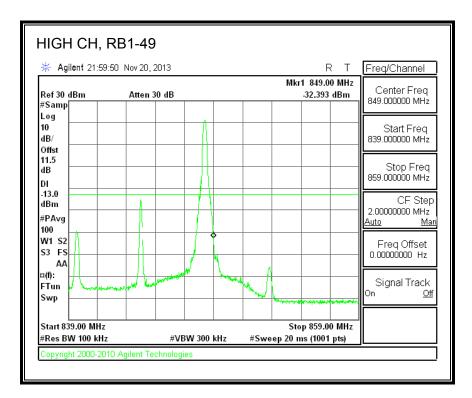
LTE 16QAM



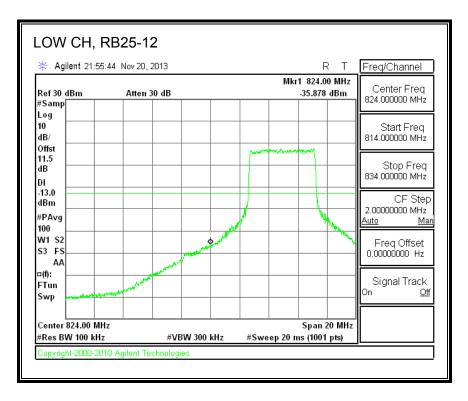


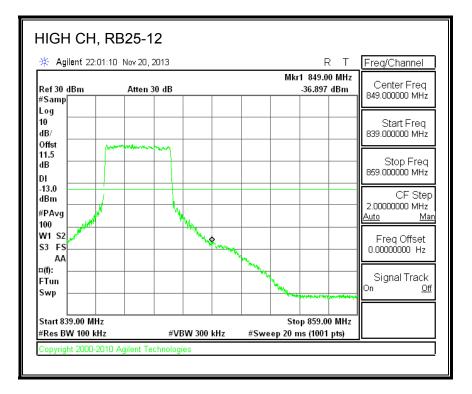
Page 146 of 241



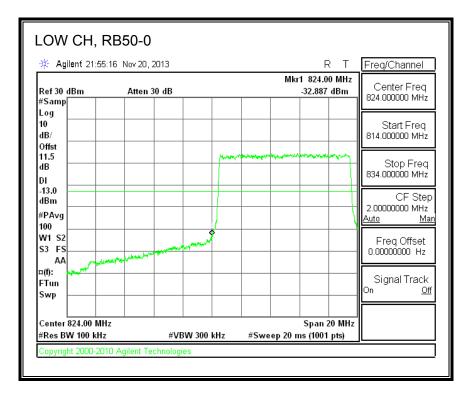


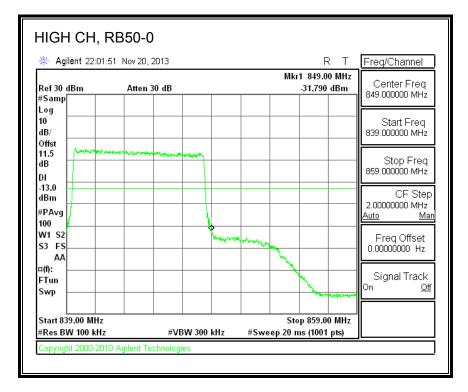
Page 147 of 241





Page 148 of 241





Page 149 of 241

8.3. OUT OF BAND EMISSIONS

<u>RULE PART(S)</u>

FCC: §2.1051, §22.901, §22.917 and §24.238.

<u>LIMITS</u>

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

TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

MODES TESTED

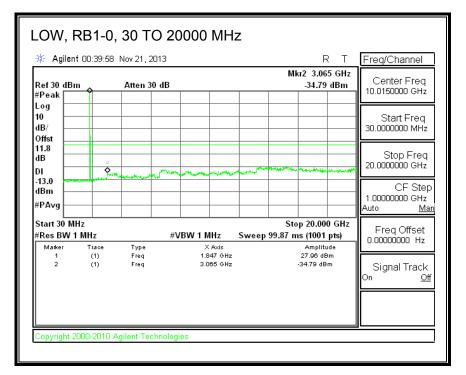
- Band 2
- Band 5

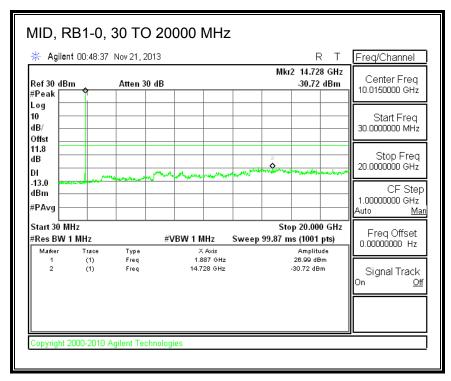
Page 150 of 241

8.3.1. LTE BAND 2

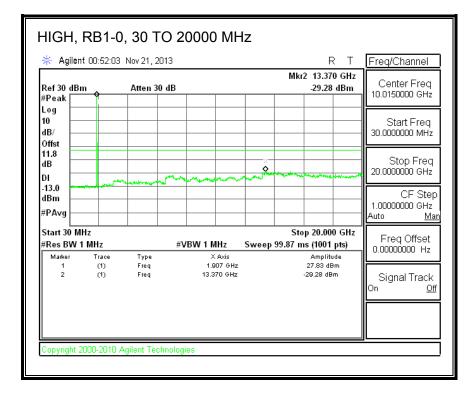
Band 2 (1.4 MHz BANDWIDTH)

LTE QPSK





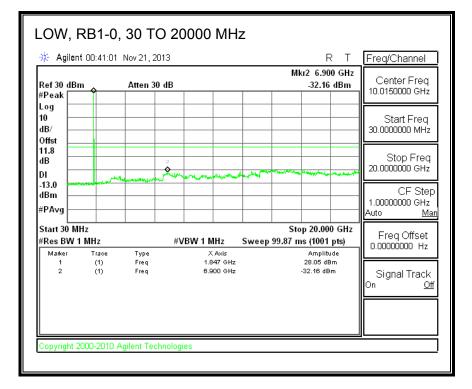
Page 151 of 241

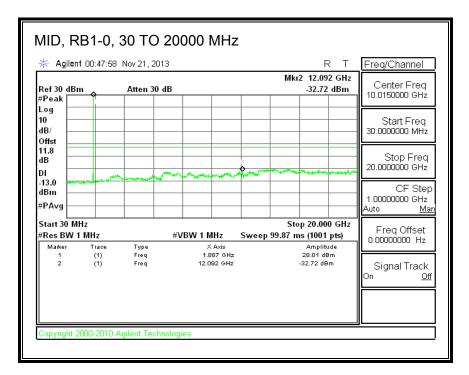


Page 152 of 241

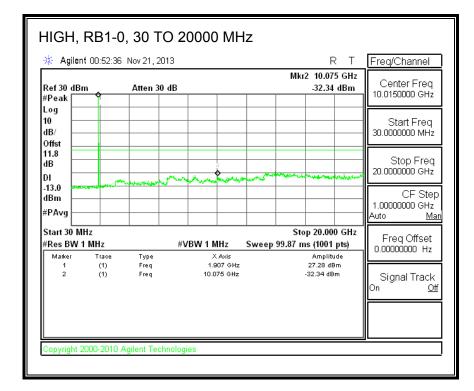
Band 2 (1.4 MHz BANDWIDTH)

LTE 16QAM





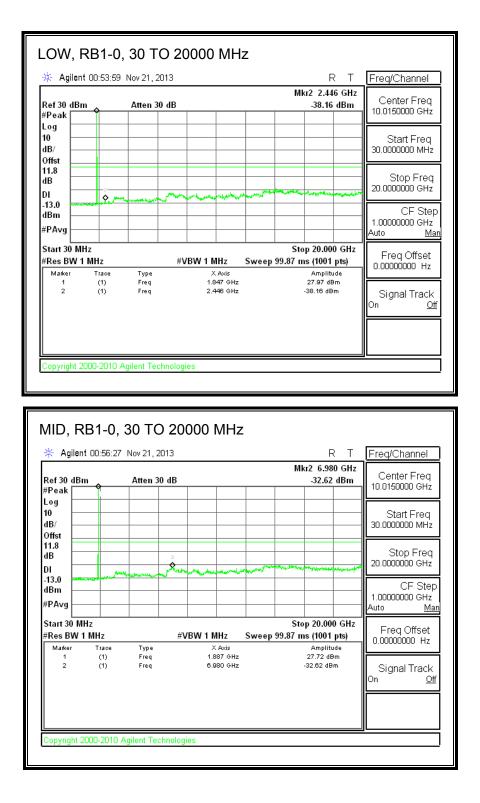
Page 153 of 241



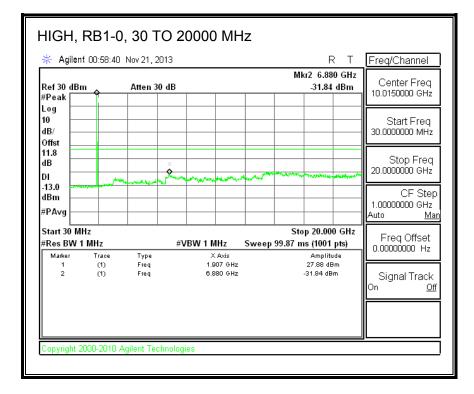
Page 154 of 241

Band 2 (3MHz BANDWIDTH)

LTE QPSK



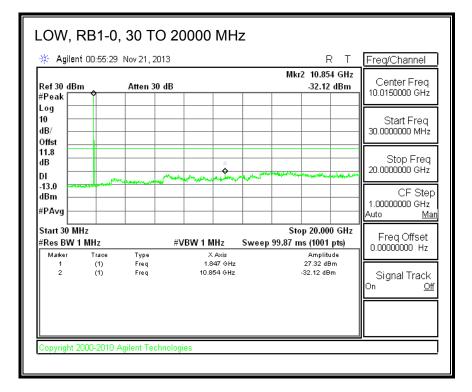
Page 155 of 241

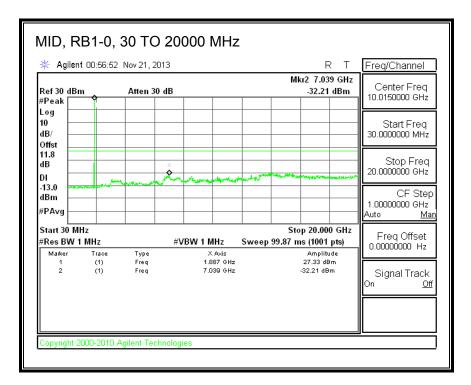


Page 156 of 241

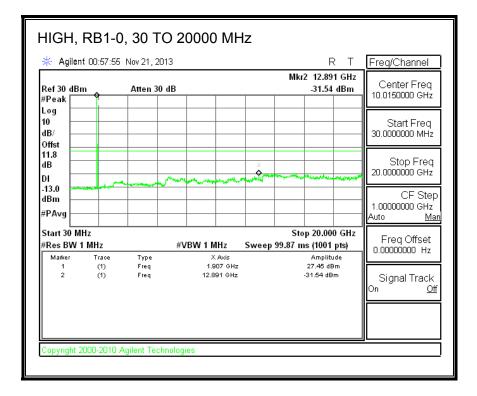
Band 2 (3MHz BANDWIDTH)

LTE 16QAM





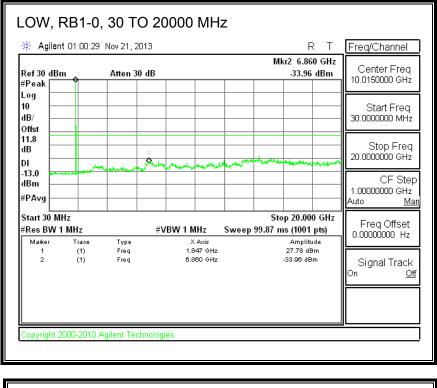
Page 157 of 241

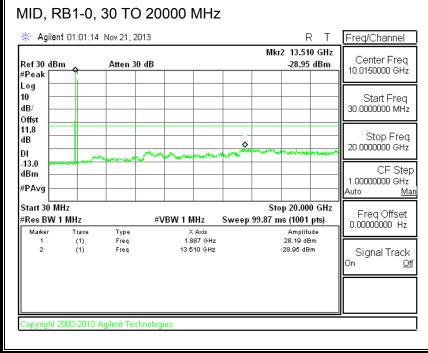


Page 158 of 241

Band 2 (5MHz BANDWIDTH)

LTE QPSK





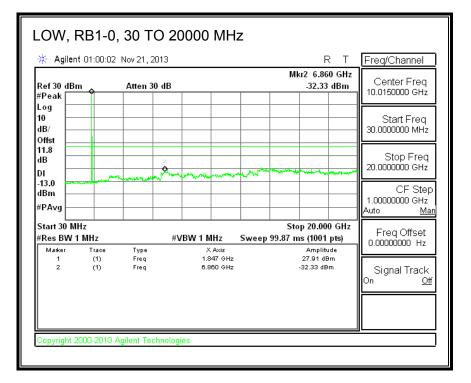
Page 159 of 241

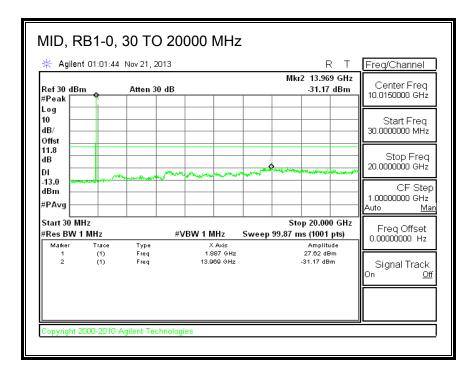
A Oglien	01.00.24	Nov 21, 201	10				g2 7.37		Freq/Cha	IIIIei
Ref30dBr #Peak	n or	Atten 30	dB				-33.69		Center 10.015000	
Log 10 dB/ Offst									Start 30.000000	
11.8 dB DI			2 		a construction		(The cale with the	ي. مارور ايو	Stop 20.000000	Freq 0 GHz
-13.0 ==== dBm ==== #PAvg ===		Manada and a salar and a s							Cl 1.0000000 Auto	F Step 0 GHz <u>Ma</u>
Start 30 M	Hz					Sto	p 20.00) GHz		
#Res BW 1	MHz		#VBW 1	MHz	Sweep	99.87 m	is (1001	pts)	Freq C 0.0000000	
Marker 1 2	Trace (1) (1)	Type Freq Freq		X Axis 1.907 GHz 7.379 GHz			Amplitu 27.11 dB -33.69 dB	m	Signal [®] On	

Page 160 of 241

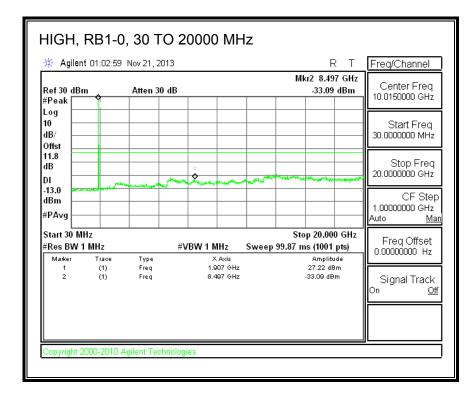
Band 2 (5MHz BANDWIDTH)

LTE 16QAM





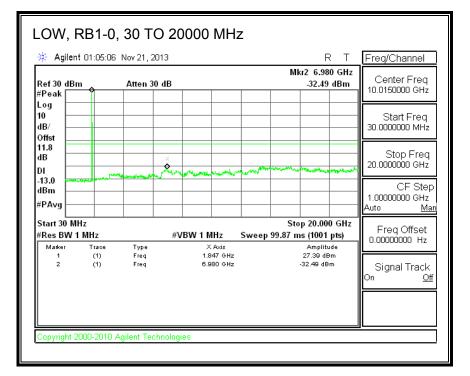
Page 161 of 241

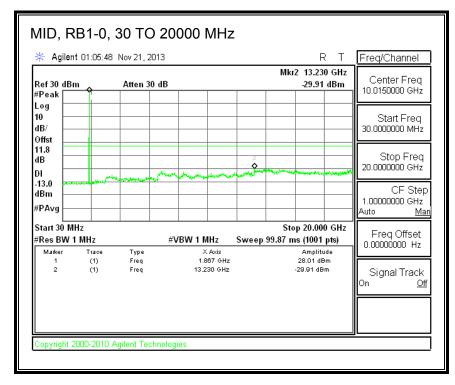


Page 162 of 241

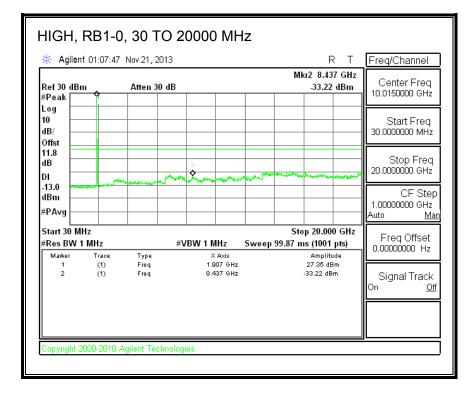
Band 2 (10MHz BANDWIDTH)

LTE QPSK





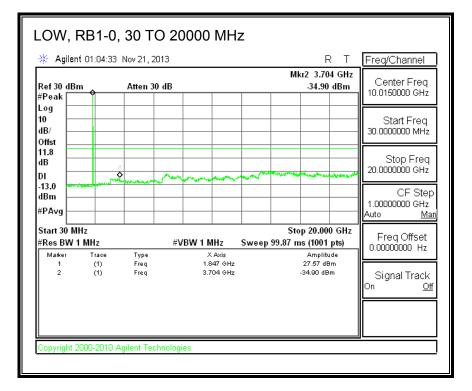
Page 163 of 241

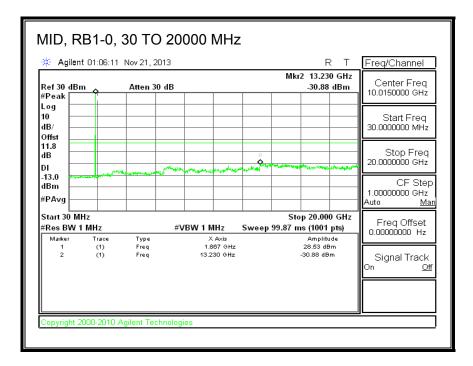


Page 164 of 241

Band 2 (10MHz BANDWIDTH)

LTE 16QAM





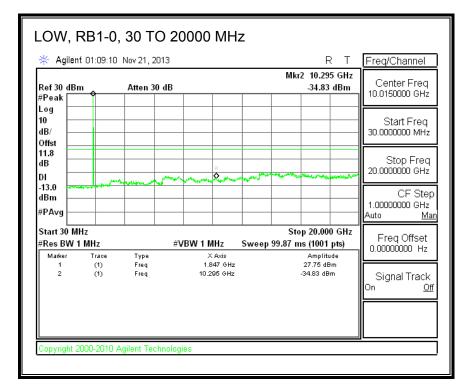
Page 165 of 241

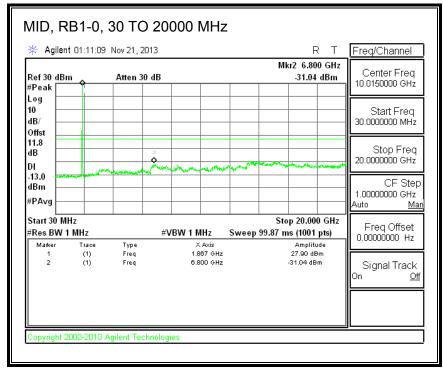
		Nov 21, 201			м	R kr2 8.477 6	<u> </u>	Freq/Channel
Ref30dBn #Peak	n 🔶	Atten 30	dB			-32.23 dE		Center Freq 10.0150000 GHz
Log							_ľ	Start Freq
dB/ — Offst								30.0000000 MHz
11.8 dB			2					Stop Freq
DI	New York Street	-	man the same	man water	warman and	and we that the state of the st	Malla JA	20.0000000 GHz
dBm							$-\ $	CF Step 1.0000000 GHz
#PAvg							<u> </u> }	Auto <u>Ma</u>
Start 30 Mi						op 20.000 G		Freg Offset
#Res BW 1 Marker	Trace	Туре	#VBW 1 N	IHZ SW	eep 99.87 n	Amplitude	<i>;</i>)	0.00000000 Hz
1	(1)	Freq		07 GHz		27.87 dBm	16	
2	(1)	Freq	8.4	177 GHz		-32.23 dBm		Signal Track On <u>Ot</u>
							ľ	

Page 166 of 241

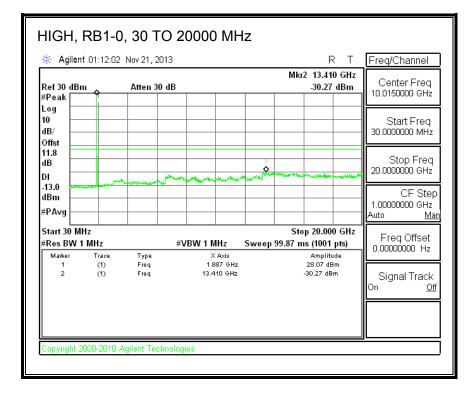
Band 2 (15MHz BANDWIDTH)

LTE QPSK





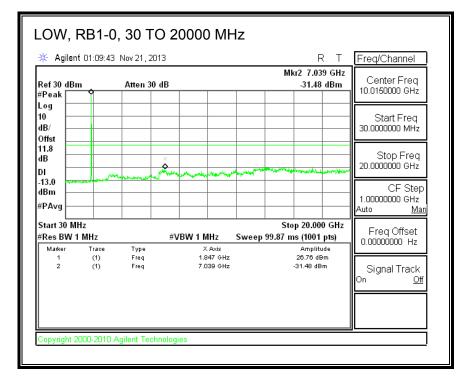
Page 167 of 241

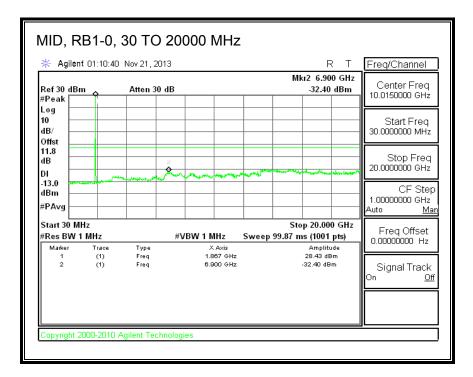


Page 168 of 241

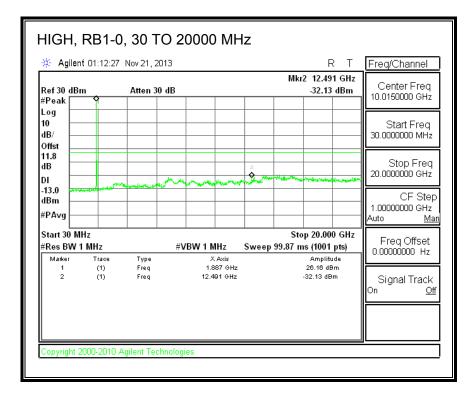
Band 2 (15MHz BANDWIDTH)

LTE 16QAM





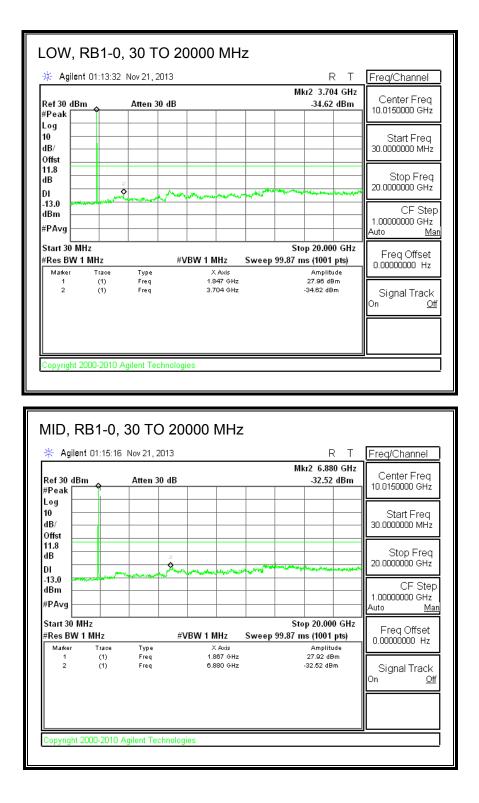
Page 169 of 241



Page 170 of 241

Band 2 (20MHz BANDWIDTH)

LTE QPSK



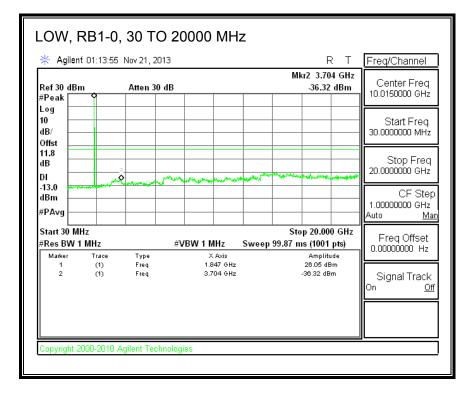
Page 171 of 241

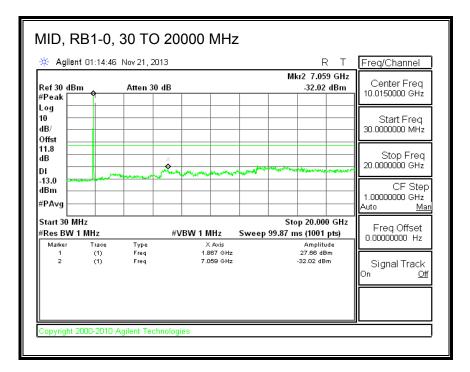
						Mk	ar2 7.02	0 GHz	Freq/Cha	
Ref30 dBn #Peak ∣	<mark>י</mark> م	Atten 30	dB				-31.47	dBm	Center 10.015000	
Log 10 —									Start	
dB/ Offst 11.8									30.000000	0 MHz
dB DI			2	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		ALL AND WALL			Stop 20.000000	Freq 0 GHz
-13.0	Town and so a	-		Carlor and the second					CI	= Step
#PAvg —									1.0000000 Auto	0 GHz <u>Ma</u>
Start 30 Mi	lz					Sto	p 20.00	0 GHz	Eroa C	feet
#Res BW 1			#VBW	/1MHz	Sweep	99.87 m	· ·	· ·	Freq C 0.0000000	
Marker 1	Trace (1)	Type Freg		X Axis 1.887 GHz			Amplitu 27.22 dE			
2	(i)	Freq		7.020 GHz			-31.47 dB		Signal [®] On	Track <u>Of</u>

Page 172 of 241

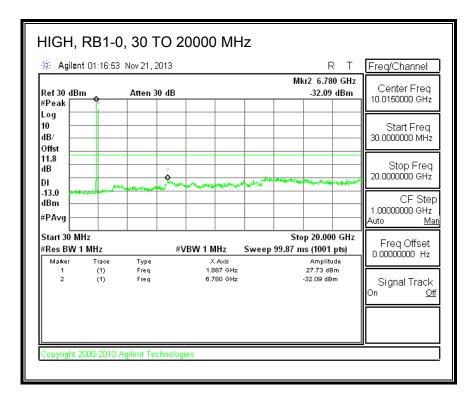
Band 2 (20MHz BANDWIDTH)

LTE 16QAM





Page 173 of 241

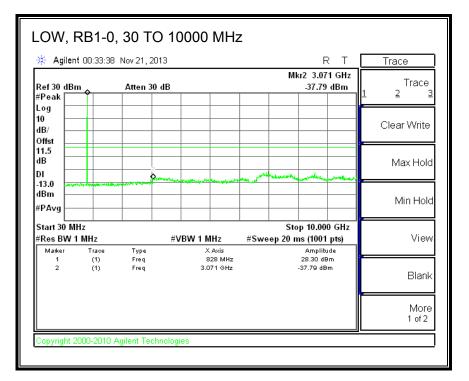


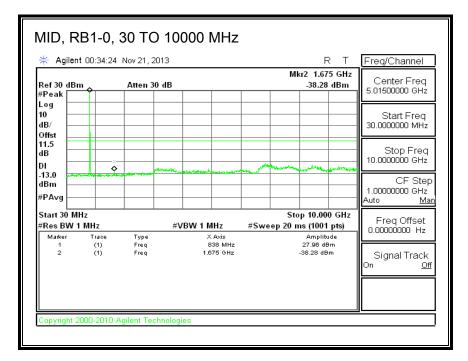
Page 174 of 241

8.3.2. LTE BAND 5

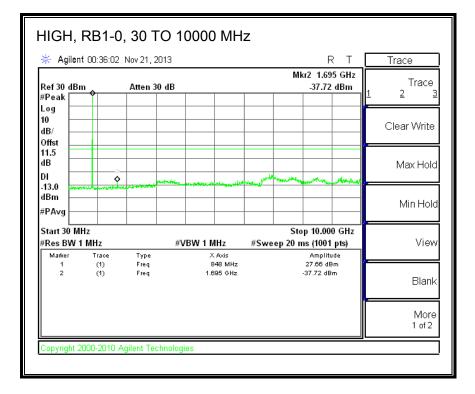
Band 5 (1.4 MHz BANDWIDTH)

LTE QPSK





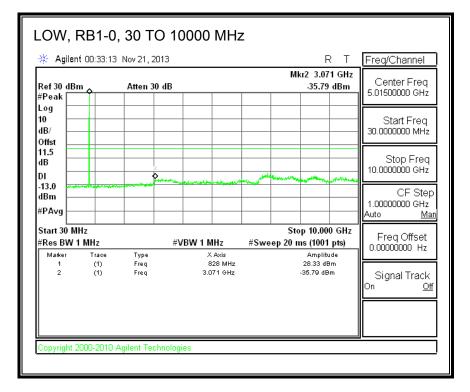
Page 175 of 241

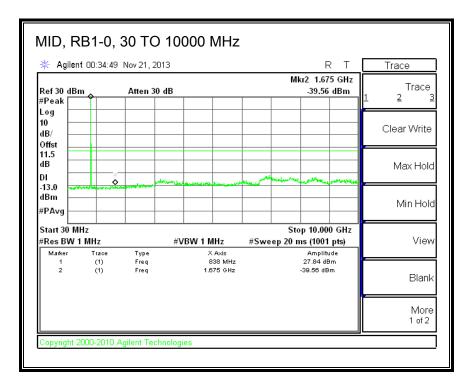


Page 176 of 241

Band 5 (1.4 MHz BANDWIDTH)

LTE 16QAM





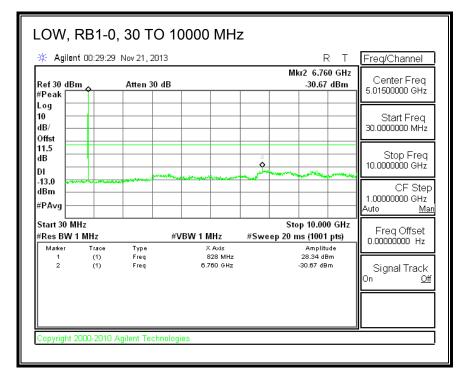
Page 177 of 241

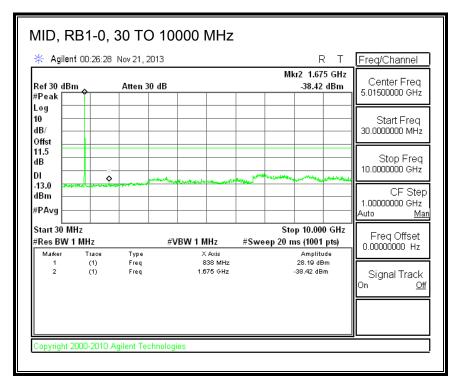
🔆 Agilent	00:35:46	Nov 21, 201	3				F	₹Т	Freq/Channel
Ref 30 dBm #Peak	•	Atten 30	dB			Mk	ur2 1.69 -36.92		Center Freq 5.01500000 GHz
Log 10 dB/ Offst									Start Freq 30.0000000 MHz
11.5 dB DI -13.0	2		ar and a local		and the state of t	and the second			
dBm #PAvg									CF Step 1.0000000 GHz Auto <u>Ma</u>
Start 30 MH: #Res BW 1 I	-		#VBW	1 MHz	#Swe	Sto ep 20 m	p 10.00 ns (1001		Freq Offset
Marker 1 2	Trace (1) (1)	Type Freq Freq		X Axis 848 MHz 1.695 GHz			Amplitu 27.75 dE -36.92 dB) m	Signal Track On <u>Of</u>
Copyright 20	00-2010 A	gilent Techr	nologies						

Page 178 of 241

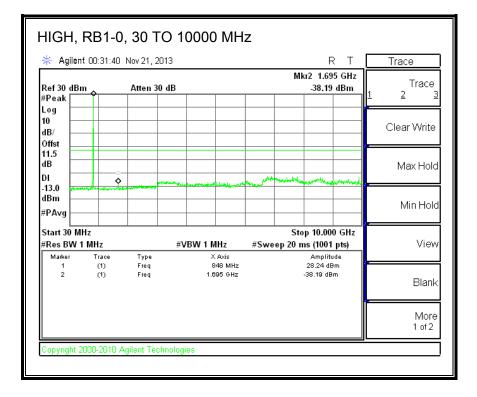
Band 5 (3MHz BANDWIDTH)

LTE QPSK





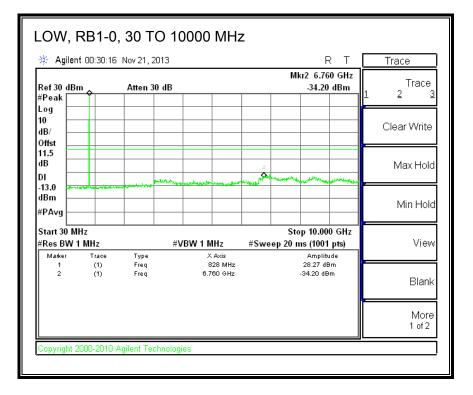
Page 179 of 241

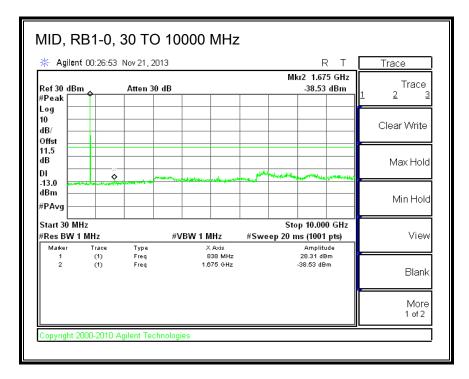


Page 180 of 241

Band 5 (3MHz BANDWIDTH)

LTE 16QAM





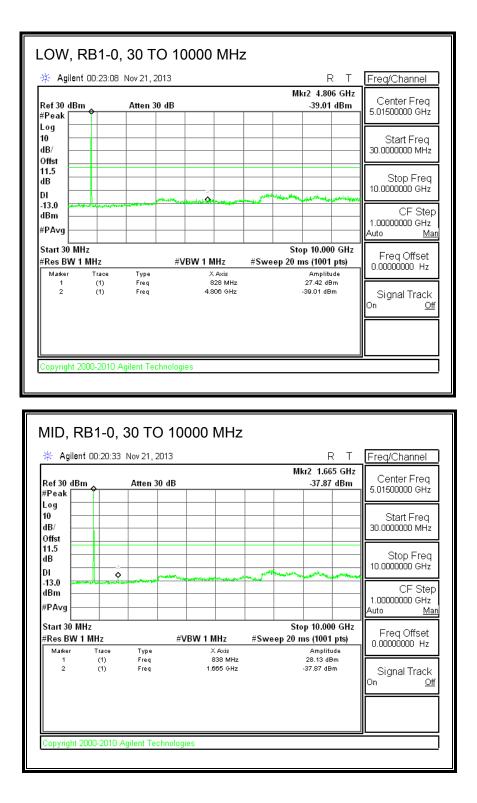
Page 181 of 241

					М	kr2 1.695 GH	z Conton Enter
Ref 30 dBr	n 🔈 👘	Atten 30 d	В			-38.38 dBm	Center Freq 5.01500000 GHz
#Peak	-						3.81366668 CHE
Log 10							Charle Enco
							Start Freq 30.000000 MHz
Offst							30.0000000 10112
11.5							
dB							Stop Freq
DI 🗌	•		Wel and the second	-	New March	wanter setting	10.000000 GHz
-13.0		and the second s	****\= <u>_</u> =********	and the second second second			CF Ster
dBm –							1.0000000 GHz
#PAvg —							Auto Ma
Start 30 M	Hz				Ste	op 10.000 GH:	7
#Res BW 1			#VBW 1 M	Hz	≠Sweep 20 r	•	Freq Offset
Marker	Trace	Туре	X	Axis		Amplitude	0.00000000 Hz
1	(1)	Freq	-	48 MHz		28.15 dBm	
2	(1)	Freq	1.6	95 GHz		-38.38 dBm	Signal Track
							On <u>Ot</u>

Page 182 of 241

Band 5 (5MHz BANDWIDTH)

LTE QPSK



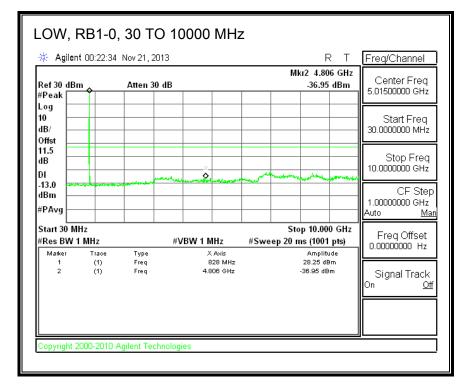
Page 183 of 241

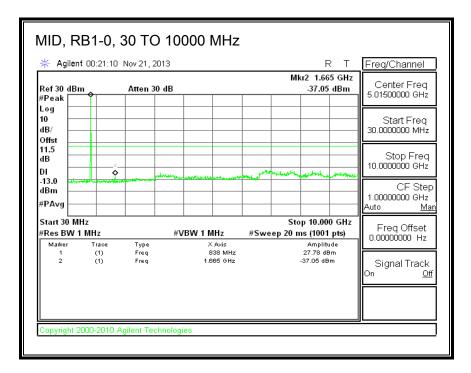
🔆 Agilen		Nov 21, 201			ML	R 1.376		Freq/Cha	
Ref30 dBn #Peak	<u>^</u>	Atten 30 d	IB			-39.74 (Center 5.0150000	
Log 10 dB/ Offst								Start 30.000000	
11.5 dB	2				And Mr.		Hiper	Stop 10.00000	Freq 0 GHz
-13.0								Cl 1.0000000 Auto	F Step 0 GHz <u>Ma</u>
Start 30 M	lz				Sto	р 10.000	GHz		
#Res BW 1	MHz		#VBW 1 MHz	#Swe	eep 20 m	ns (1001 p	ots)	Freq C	
Marker 1 2	Trace (1) (1)	Type Freq Freq	X Axis 848 MH 1.376 GH	-		Amplitud 28.37 dВr 39.74 dВm	n	Signal [®] On	
		Agilent Techr							

Page 184 of 241

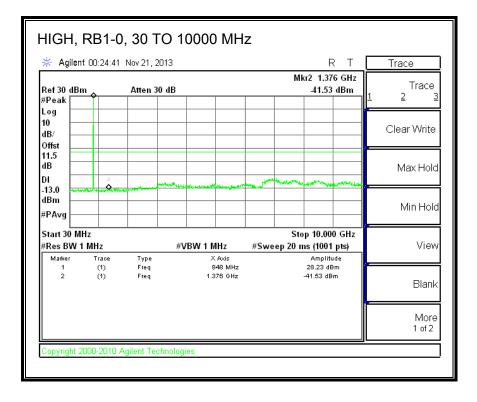
Band 5 (5MHz BANDWIDTH)

LTE 16QAM





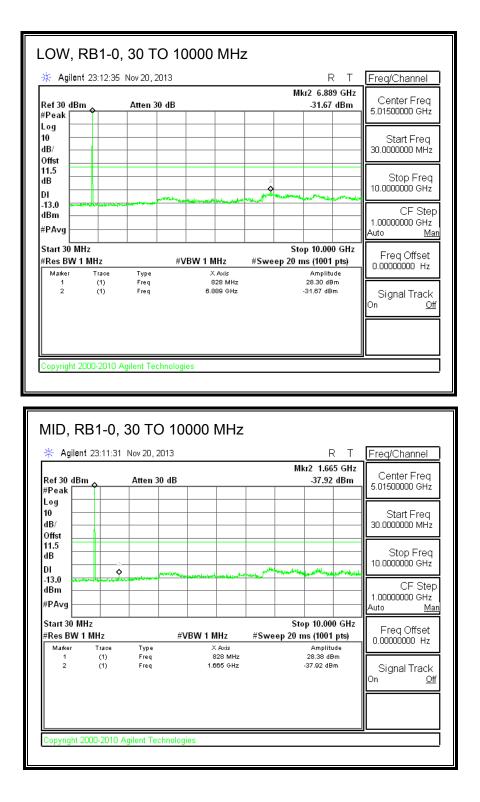
Page 185 of 241



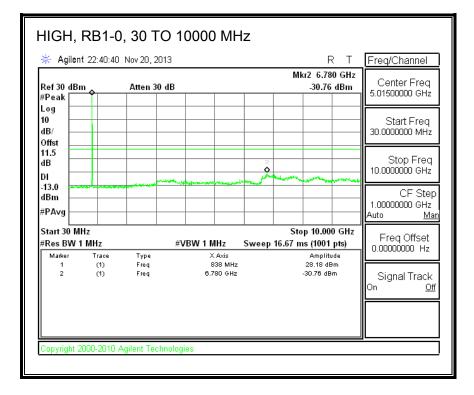
Page 186 of 241

Band 5 (10MHz BANDWIDTH)

LTE QPSK



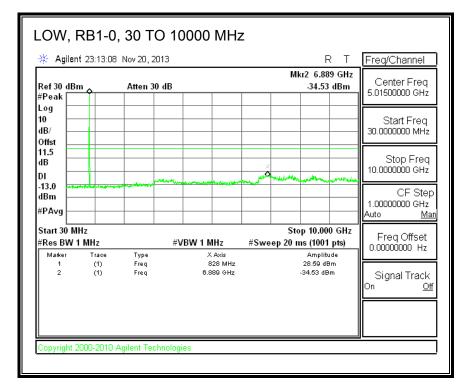
Page 187 of 241

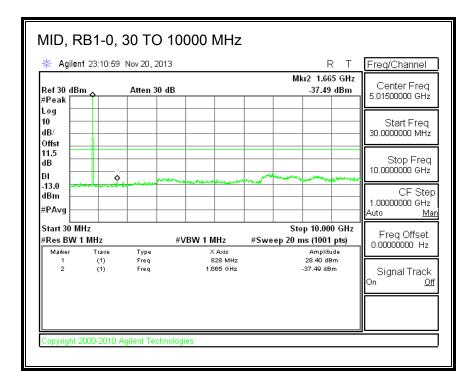


Page 188 of 241

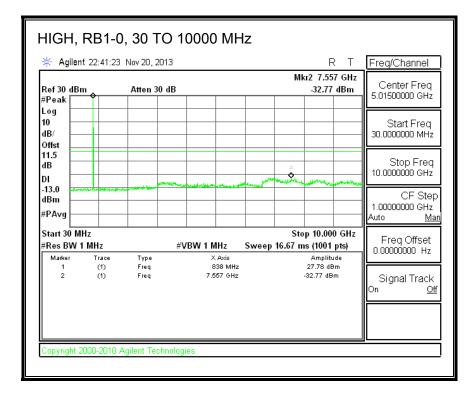
Band 5 (10MHz BANDWIDTH)

LTE 16QAM





Page 189 of 241



Page 190 of 241

8.4. FREQUENCY STABILITY

<u>RULE PART(S)</u>

FCC: §2.1055, §22.355 and §24.235

<u>LIMITS</u>

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = −30° to +50°C
- Voltage = Normal and ± 15%.

Frequency Stability vs Temperature:

The EUT is place inside a temperature chamber. The temperature is set to 20°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until +50°C is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

MODES TESTED

- LTE Band 2
- LTE Band 5

<u>RESULTS</u>

See the following pages.

Page 191 of 241

LTE BAND 2, QPSK – 1880.0 MHz

R	Reference Frequency: Mid Channel 1879.999977 MHz @ 20°C						
Limit: within	the authorized bloc			Hz			
Power Supply	Environment	Frequency Dev	viation Measureed wi	th Time Elapse			
(Vdc)	Temperature (*C)	(MHz)	Delta (ppm)	Limit (ppm)			
3.80	50	1879.999975	0.001	2.5			
3.80	40	1879.999976	0.000	2.5			
3.80	30	1879.999982	-0.002	2.5			
3.80	20	1879.999977	0	2.5			
3.80	10	1879.999977	0.000	2.5			
3.80	0	1879.999978	0.000	2.5			
3.80	-10	1879.999978	-0.001	2.5			
3.80	-20	1879.999980	-0.001	2.5			
3.80	-30	1879.999979	-0.001	2.5			
R	eference Frequency	: Mid Channel 187	9.999977 MHz @ 20%	C			
Limit: within	the authorized bloc	k or +- 2.5 ppm =	4700.000	Hz			
Power Supply	Environment	Frequency Dev	viation Measureed wi	th Time Elapse			
(Vdc)	Temperature (*C)	(MHz)	Delta (ppm)	Limit (ppm)			
3.80	20	1879.999977	0	2.5			
4.37	20	1879.999976	0.001	2.5			
3.23	20	1879.999979	-0.001	2.5			
End Voltage(3.05V)	20	1879.999979	-0.001	2.5			

LTE BAND 2, 16QAM - 1880.0 MHz

End Voltage(3.05V)

20

Reference Frequency: Mid Channel 1879.999971 MHz @ 20ºC						
	the authorized bloc			Hz		
Power Supply	Environment	Frequency Dev	viation Measureed wi	ith Time Elapse		
(Vdc)	Temperature (*C)	(MHz)	Delta (ppm)	Limit (ppm)		
3.80	50	1879.999972	0.000	2.5		
3.80	40	1879.999972	-0.001	2.5		
3.80	30	1879.999973	-0.001	2.5		
3.80	20	1879.999971	0	2.5		
3.80	10	1879.999974	-0.002	2.5		
3.80	0	1879.999976	-0.003	2.5		
3.80	-10	1879.999973	-0.001	2.5		
3.80	-20	1879.999980	-0.005	2.5		
3.80	-30	1879.999974	-0.002	2.5		
R	eference Frequency	: Mid Channel 187	9.999971 MHz @ 20%	C		
Limit: within	n the authorized bloc	ck or +- 2.5 ppm =	4700.000	Hz		
Power Supply	Environment	Frequency Dev	viation Measureed wi	ith Time Elapse		
(Vdc)	Temperature (*C)	(MHz)	Delta (ppm)	Limit (ppm)		
3.80	20	1879.999971	0	2.5		
4.37	20	1879.999974	-0.001	2.5		
3.23	20	1879.999973	-0.001	2.5		

1879.999973

-0.001

2.5

Page 192 of 241

2.5

LTE BAND 5 - 836.5 MHz QPSK

Reference Frequency: Mid Channel 836.500006 MHz @ 20°C						
Limit: within	the authorized bloc	k or +- 2.5 ppm =	2091.250	Hz		
Power Supply	Environment	Environment Frequency Deviation Measureed with Time E				
(Vdc)	Temperature (*C)	(MHz)	Delta (ppm)	Limit (ppm)		
3.80	50	836.500006	0.000	2.5		
3.80	40	836.500005	0.000	2.5		
3.80	30	836.500006	0.000	2.5		
3.80	20	836.500006	0	2.5		
3.80	10	836.500005	0.000	2.5		
3.80	0	836.500005	0.000	2.5		
3.80	-10	836.500005	0.000	2.5		
3.80	-20	836.500005	0.000	2.5		
3.80	-30	836.500006	0.000	2.5		
F	Reference Frequency	: Mid Channel 836	6.500006 MHz @ 20ºC	;		
Limit: within	the authorized bloc			Hz		
Power Supply	Environment	Frequency Dev	viation Measureed wi			
(Vdc)	Temperature (*C)	(MHz)	Delta (ppm)	Limit (ppm)		
3.80	20	836.500006	0	2.5		
4.37	20	836.500006	-0.001	2.5		
3.23	20	836.500005	0.000	2.5		

836.500005

0.000

LTE BAND 5 - 836.5 MHZ, 16QAM

20

End Voltage(3.05V)

Reference Frequency: Mid Channel 836.5000105 MHz @ 20ºC						
Limit: within	the authorized bloc	k or +- 2.5 ppm =	2091.250	Hz		
Power Supply	Environment	vironment Frequency Deviation Measureed with Time Elaps				
(Vdc)	Temperature (*C)	(MHz)	Delta (ppm)	Limit (ppm)		
3.80	50	836.5000109	0.000	2.5		
3.80	40	836.5000109	0.000	2.5		
3.80	30	836.5000108	0.000	2.5		
3.80	20	836.5000105	0	2.5		
3.80	10	836.5000124	-0.002	2.5		
3.80	0	836.5000118	-0.002	2.5		
3.80	-10	836.5000128	-0.003	2.5		
3.80	-20	836.5000098	0.001	2.5		
3.80	-30	836.5000062	0.005	2.5		
R	eference Frequency	: Mid Channel 836	.5000105 MHz @ 20%	C		
Limit: within	the authorized bloc	k or +- 2.5 ppm =	2091.250	Hz		
Power Supply	Environment	Frequency Dev	viation Measureed wi			
(Vdc)	Temperature (*C)	(MHz)	Delta (ppm)	Limit (ppm)		
3.80	20	836.5000105	0	2.5		
4.37	20	836.5000109	0.000	2.5		
3.23	20	836.5000105	0.000	2.5		
End Voltage(3.05V)	20	836.5000105	0.000	2.5		

Page 193 of 241

9. RADIATED TEST RESULTS

9.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913 and §24.232

LIMITS:

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232(c) - Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

In addition, when the transmitter power is measured in terms of average value, the peak-toaverage ratio of the power shall not exceed 13 dB.

TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.17 KDB 971168 v02r01 RF power output using broadband peak and average power meter method.

MODES TESTED

- LTE Band 2
- LTE Band 5

RESULTS

Page 194 of 241

BAND 2

EIRP LTE Band 2 (1.4 MHz BANDWIDTH)

	RB Offset/		EIRP	(Peak)
Mode	RB Size	f (MHz)	dBm	mW
1.4MHz Band		1850.7	28.59	722.77
QPSK	6/0	1880.0	29.22	835.60
QFSN		1909.3	28.02	633.87
1.4MHz Band 16QAM	6/0	1850.7	27.53	566.24
		1880.0	28.24	666.81
IUQAIVI		1909.3	26.98	498.88

EIRP LTE Band 2 (3MHz BANDWIDTH)

	RB Offset/		EIRP	(Peak)
Mode	RB Size	f (MHz)	dBm	mW
3.0MHz Band	15/0	1851.5	28.63	729.46
		1880.0	29.35	860.99
QPSK		1908.5	28.14	651.63
3.0MHz Band	15/0	1851.5	27.60	575.44
		1880.0	28.34	682.34
16QAM		1908.5	27.30	537.03

EIRP LTE Band 2 (5MHz BANDWIDTH)

	RB Offset/		EIRP	(Peak)
Mode	RB Size	f (MHz)	dBm	mW
5.0MHz Band		1852.5	29.43	877.00
	25/0	1880.0	29.48	887.16
QPSK		1907.5	29.13	818.46
5.0MHz Band 16QAM	25/0	1852.5	28.47	703.07
		1880.0	28.58	721.11
TOQAIVI		1907.5	28.14	651.63

EIRP LTE Band 2 (10MHz BANDWIDTH)

	RB Offset/		EIRP	(Peak)
Mode	RB Size	f (MHz)	dBm	mW
10.0MHz Band	50/0	1855.0	29.53	897.43
QPSK		1880.0	29.48	887.16
QF SN		1905.0	29.42	874.98
10.0MHz Band 16QAM	50/0	1855.0	28.63	729.46
		1880.0	28.78	755.09
TOQAIVI		1905.0	28.72	744.73

EIRP LTE Band 2 (15MHz BANDWIDTH)

	RB Offset/		EIRP	(Peak)
Mode	RB Size	f (MHz)	dBm	mW
15MHz Band		1857.5	29.43	877.00
QPSK	75/0	1880.0	29.48	887.16
QFSK		1902.5	29.22	835.60
15MHz Band 16QAM	75/0	1857.5	28.63	729.46
		1880.0	28.68	737.90
IUQAIVI		1902.5	28.42	695.02

EIRP LTE Band 2 (20MHz BANDWIDTH)

	RB Offset/		EIRP	(Peak)
Mode	RB Size	f (MHz)	dBm	mW
20MHz Band		1860.0	29.03	799.83
QPSK	100/0	1880.0	29.38	866.96
QFSN		1900.0	29.22	835.60
20MHz Band 16QAM	100/0	1860.0	28.43	696.63
		1880.0	28.68	737.90
TOQAM		1900.0	28.42	695.02

<u>BAND 5</u>

ERP LTE Band 5 (1.4 MHz BANDWIDTH)

	RB Offset/		ERP (A	verage)
Mode	RB Size	f (MHz)	dBm	mW
1.4MHz Band		824.7	22.98	198.61
QPSK	1/0	836.5	23.03	200.91
QFSK		848.3	22.83	191.87
1.4MHz Band		824.7	22.08	161.44
1.4MHZ Banu 16QAM	1/0	836.5	22.13	163.31
IUQAIVI		848.3	21.98	157.76

ERP LTE Band 5 (3MHz BANDWIDTH)

	RB Offset/		ERP (A	verage)
Mode	RB Size	f (MHz)	dBm	mW
3.0 MHZ BAND		825.5	23.08	203.24
QPSK	1/0	836.5	22.98	198.61
QFON		847.5	22.94	196.79
3.0 MHZ BAND		825.5	22.18	165.20
16QAM	1/0	836.5	22.08	161.44
TOQAIVI		847.5	22.03	159.59

ERP LTE Band 5 (5MHz BANDWIDTH)

	RB Offset/		ERP (A	verage)
Mode	RB Size	f (MHz)	dBm	mW
5MHz Band		826.5	23.08	203.24
QPSK	1/0	836.5	23.12	205.12
QFSN		846.5	23.03	200.91
5MHz Band		826.5	22.18	165.20
16QAM	1/0	836.5	22.20	165.96
IUQAIVI		846.5	22.11	162.55

ERP LTE Band 5 (10MHz BANDWIDTH)

	RB Offset/		ERP (A	verage)
Mode	RB Size	f (MHz)	dBm	mW
10.0 MHZ BAND		829.0	23.05	201.84
QPSK	1/0	836.5	22.92	195.88
QFON		844.0	23.00	199.53
10.0 MHZ BAND		829.0	22.13	163.31
16QAM	1/0	836.5	22.04	159.96
TOQAIVI		844.0	22.18	165.20

Page 197 of 241

9.1.1. LTE BAND 2

<u>PEAK</u>

EIRP LTE QPSK Band 2 (1.4 MHz BANDWIDTH)

ompany	:	Apple						
roject #:		13U16584						
ate:	8	1/8/2014						
est Engi	ineer:	M. Hua						
onfigura		EUT Only						
lode:			SK 1.4MHz BW					
	g: Horn T344 an ion: Horn T59 S		O SMA Cables and 12ft SMA Ca	ble				
						1		
f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
GHz Low Ch	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	Notes
GHz Low Ch 1.851	(dBm) 21.8	(H/V) V	(dB)	(dBi) 7.88	(dBm) 28.10	(dBm) 33.0	(dB) -4.9	Notes
GHz Low Ch	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	Notes
GHz Low Ch 1.851 1.851 Mid Ch	(dBm) 21.8 22.2	(H/V) V H	(dB) 1.53 1.53	(dBi) 7.88 7.88	(dBm) 28.10 28.59	(dBm) 33.0 33.0	(dB) 4.9 4.4	Notes
GHz Low Ch 1.851 1.851 Mid Ch 1.880	(dBm) 21.8 22.2 21.9	<u>(H/V)</u> V H	(dB) 1.53 1.53 1.53	(dBi) 7.88 7.88 7.88	(dBm) 28.10 28.59 28.20	(dBm) 33.0 33.0 33.0	(dB) 4.9 4.4 4.8	Notes
GHz Low Ch 1.851 1.851 Mid Ch	(dBm) 21.8 22.2	(H/V) V H	(dB) 1.53 1.53	(dBi) 7.88 7.88	(dBm) 28.10 28.59	(dBm) 33.0 33.0	(dB) 4.9 4.4	Notes
GHz Low Ch 1.851 1.851 Mid Ch 1.880 1.880	(dBm) 21.8 22.2 21.9	<u>(H/V)</u> V H	(dB) 1.53 1.53 1.53	(dBi) 7.88 7.88 7.88	(dBm) 28.10 28.59 28.20	(dBm) 33.0 33.0 33.0	(dB) 4.9 4.4 4.8	Notes
GHz Low Ch 1.851 1.851 Mid Ch 1.880	(dBm) 21.8 22.2 21.9	<u>(H/V)</u> V H	(dB) 1.53 1.53 1.53	(dBi) 7.88 7.88 7.88	(dBm) 28.10 28.59 28.20	(dBm) 33.0 33.0 33.0	(dB) 4.9 4.4 4.8	Notes

Page 198 of 241

1

REPORT NO: 13U16584-2A FCC ID: BCGA1476

EIRP LTE 16QAM Band 2 (1.4 MHz BANDWIDTH)

		-	emont Radiated	tion Measuremer Chamber D	nt			
Company:		Apple						
Project #:		13U16584						
Date:		1/8/2014						
Test Engi		M. Hua						
Configura		EUT Only						
Mode:		and the second	QAM 1.4MHz BW					
Test Equi Receiving	<u>pment:</u> j: Horn T344 an	d Chamber [) SMA Cables					
Substituti	on: Horn T59 S	ubstitution, a	and 12ft SMA Ca	ble				
+	SC reading	Ant Pol	Cable Loss	Antenna Gain	FIRP	limit	Delta	Notes
f GH7	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
GHz Low Ch	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	Notes
GHz								Notes
GHz Low Ch 1.851 1.851	(dBm) 20.8	(H/V) V	(dB)	(dBi) 7.88	(dBm) 27.15	(dBm) 33.0	(dB) -5.9	Notes
GHz Low Ch 1.851 1.851 Mid Ch	(dBm) 20.8 21.2	(H/V) V H	(dB) 1.53 1.53	(dBi) 7.88 7.88	(dBm) 27.15 27.53	(dBm) 33.0 33.0	(dB) -5.9 -5.5	Notes
GHz Low Ch 1.851 1.851 Mid Ch 1.880	(dBm) 20.8 21.2 20.8	(H/V) V H	(dB) 1.53 1.53 1.53	(dBi) 7.88 7.88 7.86	(dBm) 27.15 27.53 27.12	(dBm) 33.0 33.0 33.0	(dB) -5.9 -5.5 -5.9	Notes
GHz Low Ch 1.851 1.851 Mid Ch	(dBm) 20.8 21.2	(H/V) V H	(dB) 1.53 1.53	(dBi) 7.88 7.88	(dBm) 27.15 27.53	(dBm) 33.0 33.0	(dB) -5.9 -5.5	Notes
GHz Low Ch 1.851 1.851 Mid Ch 1.880 1.880	(dBm) 20.8 21.2 20.8	(H/V) V H	(dB) 1.53 1.53 1.53	(dBi) 7.88 7.88 7.86	(dBm) 27.15 27.53 27.12	(dBm) 33.0 33.0 33.0	(dB) -5.9 -5.5 -5.9	Notes
GHz Low Ch 1.851 1.851 Mid Ch 1.880	(dBm) 20.8 21.2 20.8	(H/V) V H	(dB) 1.53 1.53 1.53	(dBi) 7.88 7.88 7.86	(dBm) 27.15 27.53 27.12	(dBm) 33.0 33.0 33.0	(dB) -5.9 -5.5 -5.9	Notes

Page 199 of 241

EIRP LTE QPSK Band 2 (3MHz BANDWIDTH)

		-	emont Radiated	tion Measuremer I Chamber D	nt			
Company:		Apple						
Project #:		13U16584						
Date:		1/8/2014						
Test Engi		M. Hua						
Configura		EUT Only						
Mode:			SK 3MHz BW					
node:	0	LIE Band 2 QP	SK JIVINZ DVV					
	Horn T344 an		D SMA Cables and 12ft SMA Ca	ble				
f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
f GHz					EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
f GHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.852	SG reading (dBm) 22.0	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 7.88	(dBm) 28.33	(dBm) 33.0	(dB) -4.7	Notes
f GHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.852 1.852	SG reading (dBm) 22.0	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 7.88	(dBm) 28.33	(dBm) 33.0	(dB) -4.7	Notes
f GHz Low Ch 1.852 1.852 Mid Ch	SG reading (dBm) 22.0 22.3	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88 7.88	(dBm) 28.33 28.63	(dBm) 33.0 33.0	(dB) 4.7 4.4	Notes
f GHz Low Ch 1.852 1.852 Mid Ch 1.880	SG reading (dBm) 22.0 22.3 21.9	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 28.33 28.63 28.19	(dBm) 33.0 33.0 33.0	(dB) -4.7 -4.4 -4.8	Notes
f GHz Low Ch 1.852 1.852 Mid Ch	SG reading (dBm) 22.0 22.3	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88 7.88	(dBm) 28.33 28.63	(dBm) 33.0 33.0	(dB) 4.7 4.4	Notes
f GHz Low Ch 1.852 1.852 Mid Ch 1.880	SG reading (dBm) 22.0 22.3 21.9 23.0	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88 7.86 7.86	(dBm) 28.33 28.63 28.19 29.35	(dBm) 33.0 33.0 33.0 33.0 33.0	(dB) 4.7 4.4 4.8 -3.7	Notes
f GHz Low Ch 1.852 1.852 Mid Ch 1.880 1.880	SG reading (dBm) 22.0 22.3 21.9	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 28.33 28.63 28.19	(dBm) 33.0 33.0 33.0	(dB) -4.7 -4.4 -4.8	Notes

Page 200 of 241

EIRP LTE 16QAM Band 2 (3MHz BANDWIDTH)

			uency Substitu emont Radiated	tion Measuremen	nt			
				Chamber D				
Company:	,	Apple						
Project #:	1.	13U16584						
Date:	13	1/8/2014						
Test Engi	neer:	M. Hua						
Configura	tion:	EUT Only						
Mode:			QAM 3MHz BW					
	: Horn T344 an on: Horn T59 S			hla				
					EIDD	Limit	Delta	Notes
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
f GHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.852	SG reading (dBm) 21.0	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 7.88	(dBm) 27.36	(dBm) 33.0	(dB) -5.6	Notes
f GHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.852 1.852	SG reading (dBm) 21.0	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 7.88	(dBm) 27.36	(dBm) 33.0	(dB) -5.6	Notes
f GHz 1.852 1.852 Mid Ch	SG reading (dBm) 21.0 21.3	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88 7.88	(dBm) 27.36 27.60	(dBm) 33.0 33.0	(dB) -5.6 -5.4	Notes
f GHz Low Ch 1.852 1.852 Mid Ch 1.880	SG reading (dBm) 21.0 21.3 20.8	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 27.36 27.60 27.16	(dBm) 33.0 33.0 33.0	(dB) -5.6 -5.4 -5.8	Notes
f GHz 1.852 1.852 Mid Ch	SG reading (dBm) 21.0 21.3	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88 7.88	(dBm) 27.36 27.60	(dBm) 33.0 33.0	(dB) -5.6 -5.4	Notes
f GHz Low Ch 1.852 1.852 Mid Ch 1.880	SG reading (dBm) 21.0 21.3 20.8	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 27.36 27.60 27.16	(dBm) 33.0 33.0 33.0	(dB) -5.6 -5.4 -5.8	Notes
f GHz Low Ch 1.852 1.852 Mid Ch 1.880 1.880	SG reading (dBm) 21.0 21.3 20.8	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 27.36 27.60 27.16	(dBm) 33.0 33.0 33.0	(dB) -5.6 -5.4 -5.8	Notes

Page 201 of 241

1

REPORT NO: 13U16584-2A FCC ID: BCGA1476

EIRP LTE QPSK Band 2 (5MHz BANDWIDTH)

				tion Measuremer	it			
		UL Fre	emont Radiated	Chamber D				
Company:		Apple						
Project #:		13U16584						
Date:		1/8/2014						
Test Engi		M. Hua						
Configura		EUT Only						
Node:		LTE Band 2 QP	SK MH- BW					
noue.			SK SWI 12 DVV					
Foot Emul								
Test Equi		1 Ohambar 1	CHIL Call					
Receiving	: Horn 1344 an	d Chamber L	D SMA Cables					
	on: Horn T59 S	ubstitution, a	and 12ft SMA Ca	ble				
Substituti	on: Horn T59 S		and 12ft SMA Ca	ble				
		ubstitution, a	and 12ft SMA Ca Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
Substituti	on: Horn T59 S				EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Substituti f	on: Horn T59 S	Ant. Pol.	Cable Loss	Antenna Gain				Notes
f GHz	on: Horn T59 S	Ant. Pol.	Cable Loss	Antenna Gain				Notes
f GHz Low Ch	on: Horn T59 S SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.853 1.853	on: Horn T59 S SG reading (dBm) 23.1	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 7.88	(dBm) 29.40	(dBm) 33.0	(dB) -3.6	Notes
f GHz Low Ch 1.853 1.853 Mid Ch	on: Horn T59 S SG reading (dBm) 23.1 23.1	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88 7.88	(dBm) 29.40 29.43	(dBm) 33.0 33.0	(dB) -3.6 -3.6	Notes
f GHz Low Ch 1.853 1.853 Mid Ch 1.880	on: Horn T59 S SG reading (dBm) 23.1 23.1 22.6	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 29.40 29.43 28.91	(dBm) 33.0 33.0 33.0	(dB) -3.6 -3.6 -4.1	Notes
f GHz Low Ch 1.853 1.853 Mid Ch	on: Horn T59 S SG reading (dBm) 23.1 23.1	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88 7.88	(dBm) 29.40 29.43	(dBm) 33.0 33.0	(dB) -3.6 -3.6	Notes
f GHz Low Ch 1.853 1.853 Mid Ch 1.880 1.880	on: Horn T59 S SG reading (dBm) 23.1 23.1 22.6	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 29.40 29.43 28.91	(dBm) 33.0 33.0 33.0	(dB) -3.6 -3.6 -4.1	Notes
f GHz Low Ch 1.853 1.853 Mid Ch 1.880	on: Horn T59 S SG reading (dBm) 23.1 23.1 22.6	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 29.40 29.43 28.91	(dBm) 33.0 33.0 33.0	(dB) -3.6 -3.6 -4.1	Notes

Page 202 of 241

EIRP LTE 16QAM Band 2 (5MHz BANDWIDTH)

		-	emont Radiated	tion Measuremer	nt			
Company:		Apple						
Project #:		13U16584						
Date:		1/8/2014						
Test Engi		M. Hua						
Configura		EUT Only						
Node:	81	LTE Band 2 160	QAM 5MHz BW					
Test Equi Receiving	<u>pment:</u> j: Horn T344 an	d Chamber [O SMA Cables					
	on: Horn T59 S	ubstitution,	and 12ft SMA Ca	ble				
	on: Horn T59 S	Ant. Pol.	and 12ft SMA Ca Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
Substituti					EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Substituti f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain				Notes
f GHz	SG reading	Ant. Pol.	Cable Loss	Antenna Gain				Notes
f GHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.853 1.853	SG reading (dBm) 22.1	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 7.88	(dBm) 28.47	(dBm) 33.0	(dB) -4.5	Notes
f GHz Low Ch 1.853 1.853 Mid Ch	SG reading (dBm) 22.1 22.2	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88 7.88	(dBm) 28.47 28.53	(dBm) 33.0 33.0	(dB) -4.5 -4.5	Notes
f GHz Low Ch 1.853 1.853 Mid Ch 1.880	SG reading (dBm) 22.1 22.2 21.6	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 28.47 28.53 27.94	(dBm) 33.0 33.0 33.0	(dB) -4.5 -4.5 -5.1	Notes
f GHz Low Ch 1.853 1.853 Mid Ch	SG reading (dBm) 22.1 22.2	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88 7.88	(dBm) 28.47 28.53	(dBm) 33.0 33.0	(dB) -4.5 -4.5	Notes
f GHz Low Ch 1.853 1.853 Mid Ch 1.880 1.880	SG reading (dBm) 22.1 22.2 21.6	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 28.47 28.53 27.94	(dBm) 33.0 33.0 33.0	(dB) -4.5 -4.5 -5.1	Notes
f GHz Low Ch 1.853 1.853 Mid Ch 1.880	SG reading (dBm) 22.1 22.2 21.6	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 28.47 28.53 27.94	(dBm) 33.0 33.0 33.0	(dB) -4.5 -4.5 -5.1	Notes

Page 203 of 241

1

REPORT NO: 13U16584-2A FCC ID: BCGA1476

EIRP LTE QPSK Band 2 (10MHz BANDWIDTH)

		-	emont Radiated	tion Measuremer Chamber D	it			
Company:		Apple						
Project #:		13U16584						
Date:		1/7/2014						
Test Engi		M. Hua						
Configura		EUT Only						
Mode:			SK 10MHz BW					
	Horn T344 an		O SMA Cables and 12ft SMA Ca	ble		1		
f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
GHz Low Ch	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	Notes
GHz Low Ch 1.855	(dBm) 21.5	(H/V) V	(dB)	(dBi) 7.88	(dBm) 27.87	(dBm) 33.0	(dB) -5.1	Notes
GHz Low Ch	(dBm)	(H/V)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	Notes
GHz Low Ch 1.855 1.855	(dBm) 21.5	(H/V) V	(dB)	(dBi) 7.88	(dBm) 27.87	(dBm) 33.0	(dB) -5.1	Notes
GHz Low Ch 1.855	(dBm) 21.5	(H/V) V	(dB)	(dBi) 7.88	(dBm) 27.87	(dBm) 33.0	(dB) -5.1	Notes
GHz Low Ch 1.855 1.855 Mid Ch	(dBm) 21.5 23.2	(H/V) V H	(dB) 1.53 1.53	(dBi) 7.88 7.88	(dBm) 27.87 29.53	(dBm) 33.0 33.0	(dB) -5.1 -3.5	Notes
GHz Low Ch 1.855 1.855 Mid Ch 1.880 1.880	(dBm) 21.5 23.2 21.5	(H/V) V H	(dB) 1.53 1.53 1.53	(dBi) 7.88 7.88 7.88	(dBm) 27.87 29.53 27.82	(dBm) 33.0 33.0 33.0	(dB) -5.1 -3.5 -5.2	Notes
GHz Low Ch 1.855 1.855 Mid Ch 1.880	(dBm) 21.5 23.2 21.5	(H/V) V H	(dB) 1.53 1.53 1.53	(dBi) 7.88 7.88 7.88	(dBm) 27.87 29.53 27.82	(dBm) 33.0 33.0 33.0	(dB) -5.1 -3.5 -5.2	Notes

Page 204 of 241

EIRP LTE 16QAM Band 2 (10MHz BANDWIDTH)

		-	emont Radiated	tion Measuremer	nt			
Company:		Apple						
Project #:		13U16584						
Date:		1/7/2014						
Test Engi		M. Hua						
Configura		EUT Only						
Node:	81	LTE Band 2 160	QAM 10MHz BW					
Test Equi Receiving	<u>pment:</u> g: Horn T344 an							
	on: Horn T59 S	ubstitution, a	and 12ft SMA Ca	ble				
		Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
Substituti	on: Horn T59 S SG reading (dBm)				EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Substituti f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain				Notes
f GHz	SG reading	Ant. Pol.	Cable Loss	Antenna Gain				Notes
f GHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.855 1.855	SG reading (dBm) 20.7	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 7.88	(dBm) 27.07	(dBm) 33.0	(dB) -5.9	Notes
f GHz Low Ch 1.855 1.855 Mid Ch	SG reading (dBm) 20.7 22.3	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88 7.88	(dBm) 27.07 28.63	(dBm) 33.0 33.0	(dB) -5.9 -4.4	Notes
f GHz Low Ch 1.855 1.855 Mid Ch 1.880	SG reading (dBm) 20.7 22.3 20.8	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 27.07 28.63 27.12	(dBm) 33.0 33.0 33.0	(dB) -5.9 -4.4 -5.9	Notes
f GHz Low Ch 1.855 1.855 Mid Ch	SG reading (dBm) 20.7 22.3	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88 7.88	(dBm) 27.07 28.63	(dBm) 33.0 33.0	(dB) -5.9 -4.4	Notes
f GHz Low Ch 1.855 1.855 Mid Ch 1.880 1.880	SG reading (dBm) 20.7 22.3 20.8	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 27.07 28.63 27.12	(dBm) 33.0 33.0 33.0	(dB) -5.9 -4.4 -5.9	Notes
f GHz Low Ch 1.855 1.855 Mid Ch 1.880	SG reading (dBm) 20.7 22.3 20.8	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 27.07 28.63 27.12	(dBm) 33.0 33.0 33.0	(dB) -5.9 -4.4 -5.9	Notes

Page 205 of 241

EIRP LTE QPSK Band 2 (15MHz BANDWIDTH)

			emont Radiated	tion Measuremer	it			
Company:		Apple						
Project #:		13U16584						
Date:		1/8/2014						
		M. Hua						
Test Engi								
Configura		EUT Only						
Node:	11	TE Band 2 QF	SK 15MHz BW					
Test Equi Receiving	: Horn T344 an							
Substituti	on: Horn T59 S	ubstitution,	and 12ft SMA Ca	ble				
f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP (dBm)	Limit	Delta (dB)	Notes
f GHz					EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
f GHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz	SG reading	Ant. Pol.	Cable Loss	Antenna Gain				Notes
f GHz Low Ch 1.858	SG reading (dBm) 22.7	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 7.88	(dBm) 29.07	(dBm) 33.0	(dB) -3.9	Notes
f GHz 1.858 1.858 Mid Ch	SG reading (dBm) 22.7 23.1	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88 7.88	(dBm) 29.07	(dBm) 33.0 33.0	(dB) -3.9	Notes
f GHz Low Ch 1.858 1.858 Mid Ch 1.880	SG reading (dBm) 22.7 23.1 22.6	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 29.07 29.43 28.92	(dBm) 33.0 33.0 33.0	(dB) -3.9 -3.6 -4.1	Notes
f GHz 1.858 1.858 Mid Ch	SG reading (dBm) 22.7 23.1	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88 7.88	(dBm) 29.07 29.43	(dBm) 33.0 33.0	(dB) -3.9 -3.6	Notes
f GHz Low Ch 1.858 1.858 Mid Ch 1.880 1.880	SG reading (dBm) 22.7 23.1 22.6	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 29.07 29.43 28.92	(dBm) 33.0 33.0 33.0	(dB) -3.9 -3.6 -4.1	Notes
f GHz Low Ch 1.858 1.858 Mid Ch 1.880	SG reading (dBm) 22.7 23.1 22.6	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 29.07 29.43 28.92	(dBm) 33.0 33.0 33.0	(dB) -3.9 -3.6 -4.1	Notes

Page 206 of 241

EIRP LTE 16QAM Band 2 (15MHz BANDWIDTH)

		-	emont Radiated	tion Measuremer Chamber D	it			
Company:		Apple						
Project #:		13U16584						
Date:		1/8/2014						
Test Engi		M. Hua						
Configura		EUT Only						
Mode:			QAM 15MHz BW					
noue.		LIL Dand 2 10	2-W115W112 DV1					
Test Equi	oment:							
	: Horn T344 an	d Chamber [SMA Cables					
(ecelville	. nom 1544 an			NG.				
	on: Horn T59 S	ubstitution,	and 12tt SMA Ca	ble				
Substituti								
Substituti f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
f GHz					EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
f GHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.858	SG reading (dBm) 21.7	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 7.88	(dBm) 28.07	(dBm) 33.0	(dB) -4.9	Notes
f GHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.858 1.858	SG reading (dBm) 21.7	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 7.88	(dBm) 28.07	(dBm) 33.0	(dB) -4.9	Notes
f GHz Low Ch 1.858 1.858 Mid Ch	SG reading (dBm) 21.7 22.3	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88 7.88	(dBm) 28.07 28.63	(dBm) 33.0 33.0	(dB) -4.9 -4.4	Notes
f GHz Low Ch 1.858 1.858 Mid Ch 1.880	SG reading (dBm) 21.7 22.3 21.4	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 28.07 28.63 27.72	(dBm) 33.0 33.0 33.0	(dB) -4.9 -4.4 -5.3	Notes
f GHz Low Ch 1.858 1.858 Mid Ch	SG reading (dBm) 21.7 22.3	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88 7.88	(dBm) 28.07 28.63	(dBm) 33.0 33.0	(dB) -4.9 -4.4	Notes
f GHz Low Ch 1.858 1.858 Mid Ch 1.880 1.880	SG reading (dBm) 21.7 22.3 21.4	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 28.07 28.63 27.72	(dBm) 33.0 33.0 33.0	(dB) -4.9 -4.4 -5.3	Notes
f GHz Low Ch 1.858 1.858 Mid Ch 1.880	SG reading (dBm) 21.7 22.3 21.4	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 28.07 28.63 27.72	(dBm) 33.0 33.0 33.0	(dB) -4.9 -4.4 -5.3	Notes

Page 207 of 241

EIRP LTE QPSK Band 2 (20MHz BANDWIDTH)

			emont Radiated	tion Measuremen	nt			
Company:		Apple						
Project #:		13U16584						
Date:		1/8/2014						
		M. Hua						
Test Engi								
Configura		EUT Only						
Mode:	8	TE Band 2 QF	PSK 20MHz BW					
	g: Horn T344 an		D SMA Cables and 12ft SMA Ca	ble				
Jubstituti		abstitution, a		ibie				
f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
f GHz					EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
f GHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.860	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 7.88	(dBm) 28.07	(dBm) 33.0	(dB) -4.9	Notes
f GHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.860 1.860	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 7.88	(dBm) 28.07	(dBm) 33.0	(dB) -4.9	Notes
f GHz Low Ch 1.860	SG reading (dBm) 21.7 22.7	Ant. Pol. (H/V)	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88	(dBm) 28.07	(dBm) 33.0 33.0	(dB) -4.9 -4.0	Notes
f GHz Low Ch 1.860 1.860 Mid Ch	SG reading (dBm)	Ant. Pol. (H/V) V H	Cable Loss (dB)	Antenna Gain (dBi) 7.88 7.88	(dBm) 28.07 29.03	(dBm) 33.0	(dB) -4.9	Notes
f GHz Low Ch 1.860 1.860 Mid Ch 1.880	SG reading (dBm) 21.7 22.7 21.8	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 28.07 29.03 28.12	(dBm) 33.0 33.0 33.0	(dB) 4.9 4.0 4.9	Notes
f GHz Low Ch 1.860 1.860 Mid Ch 1.880 1.880 High Ch	SG reading (dBm) 21.7 22.7 21.8 23.1	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88 7.86 7.86	(dBm) 28.07 29.03 28.12 29.38	(dBm) 33.0 33.0 33.0 33.0 33.0	(dB) 4.9 4.0 4.9 -3.6	Notes
f GHz Low Ch 1.860 1.860 Mid Ch 1.880 1.880	SG reading (dBm) 21.7 22.7 21.8	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 28.07 29.03 28.12	(dBm) 33.0 33.0 33.0	(dB) 4.9 4.0 4.9	Notes

Page 208 of 241

EIRP LTE 16QAM Band 2 (20MHz BANDWIDTH)

				tion Measuremen	nt			
		UL Fre	emont Radiated	Chamber D				
Company:		Apple						
Project #:		13U16584						
Date:		1/8/2014						
Test Engi		M. Hua						
Configura		EUT Only						
Node:			AM 20MHz BW					
	Horn T344 an							
			and 12ft SMA Ca					
f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	EIRP	Limit	Delta	Notes
f GHz					EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
f GHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.860	SG reading (dBm) 21.0	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 7.88	(dBm)	(dBm) 33.0	(dB) -5.6	Notes
f GHz Low Ch	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	(dBm)	(dBm)	(dB)	Notes
f GHz Low Ch 1.860 1.860	SG reading (dBm) 21.0	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 7.88	(dBm)	(dBm) 33.0	(dB) -5.6	Notes
f GHz 1.860 1.860 Mid Ch	SG reading (dBm) 21.0 22.1	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53	Antenna Gain (dBi) 7.88 7.88	(dBm) 27.37 28.43	(dBm) 33.0 33.0	(dB) -5.6 -4.6	Notes
f GHz Low Ch 1.860 1.860	SG reading (dBm) 21.0	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi) 7.88	(dBm)	(dBm) 33.0	(dB) -5.6	Notes
f GHz Low Ch 1.860 1.860 Mid Ch 1.880	SG reading (dBm) 21.0 22.1 21.1	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 27.37 28.43 27.42	(dBm) 33.0 33.0 33.0	(dB) -5.6 -4.6 -5.6	Notes
f GHz Low Ch 1.860 1.860 Mid Ch 1.880 1.880 High Ch	SG reading (dBm) 21.0 22.1 21.1 22.4	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88 7.86 7.86 7.86	(dBm) 27.37 28.43 27.42 28.68	(dBm) 33.0 33.0 33.0 33.0 33.0	(dB) -5.6 -4.6 -5.6 -4.3	Notes
f GHz Low Ch 1.860 1.860 Mid Ch 1.880 1.880	SG reading (dBm) 21.0 22.1 21.1	Ant. Pol. (H/V) V H	Cable Loss (dB) 1.53 1.53 1.53	Antenna Gain (dBi) 7.88 7.88 7.88	(dBm) 27.37 28.43 27.42	(dBm) 33.0 33.0 33.0	(dB) -5.6 -4.6 -5.6	Notes

Page 209 of 241

9.1.2. LTE BAND 5

AVERAGE

ERP LTE QPSK Band 5 (1.4 MHz BANDWIDTH)

ompany		Apple						
roject #:		13U16584						
ate:		12/19/13						
est Engi	neer:	M. Hua						
onfigura		EUT Only						
ode:			PSK 1.4MHz BV	N				
eceiving	y: Sunol T407, on: Dipole S/N			Cable				
ubstituti f MHz		I: 00022117,	and 8ft SMA (Cable Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
eceiving ubstituti f MHz Low Ch	on: Dipole S/N SG reading (dBm)	Ant. Pol. (H/V)	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd)	(dBm)	(dBm)	(dB)	Notes
f MHz 6 824.70	on: Dipole S/N SG reading (dBm) 20.20	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 19.58	(dBm) 38.5	(dB) -18.9	Notes
eceiving ubstituti f MHz Low Ch	on: Dipole S/N SG reading (dBm)	Ant. Pol. (H/V)	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd)	(dBm)	(dBm)	(dB)	Notes
f MHz 6 824.70	on: Dipole S/N SG reading (dBm) 20.20	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 19.58	(dBm) 38.5	(dB) -18.9	Notes
f MHz Low Ch 824.70 824.70 Mid Ch 836.50	on: Dipole S/N SG reading (dBm) 20.20 23.60 19.11	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0 0.0	(dBm) 19.58 22.98 18.49	(dBm) 38.5 38.5 38.5	(dB) -18.9 -15.5 -20.0	Notes
f MHz Low Ch 824.70 824.70 Mid Ch	on: Dipole S/N SG reading (dBm) 20.20 23.60	I: 00022117, Ant. Pol. (H/V) V H	Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 19.58 22.98	(dBm) 38.5 38.5	(dB) -18.9 -15.5	Notes
eceiving ubstituti MHz Low Ch 824.70 824.70 Mid Ch 836.50 836.50	on: Dipole S/N SG reading (dBm) 20.20 23.60 19.11	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0 0.0	(dBm) 19.58 22.98 18.49	(dBm) 38.5 38.5 38.5	(dB) -18.9 -15.5 -20.0	Notes
f MHz Low Ch 824.70 824.70 Mid Ch 836.50	on: Dipole S/N SG reading (dBm) 20.20 23.60 19.11	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0 0.0	(dBm) 19.58 22.98 18.49	(dBm) 38.5 38.5 38.5	(dB) -18.9 -15.5 -20.0	Notes

Page 210 of 241

ERP LTE 16QAM Band 5 (1.4 MHz BANDWIDTH)

ompany		Apple						
roject #:		13U16584						
ate:		12/19/13						
est Eng		M. Hua						
configura								
lode:		EUT Only	6QAM 1.4MHz E	2144				
	g: Sunol T407,							
ubstitut f	ion: Dipole S/N SG reading	l: 00022117, Ant. Pol.	and 8ft SMA	Antenna Gain	ERP (dBm)	Limit	Margin (dB)	Notes
f MHz	ion: Dipole S/N	I: 00022117,	and 8ft SMA		ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
ubstitut f	ion: Dipole S/N SG reading	l: 00022117, Ant. Pol.	and 8ft SMA	Antenna Gain				Notes
f MHz Low Ch	ion: Dipole S/N SG reading (dBm)	Ant. Pol. (H/V)	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd)	(dBm)	(dBm)	(dB)	Notes
f MHz Low Ch 824.70 824.70	ion: Dipole S/N SG reading (dBm) 18.90	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 18.28	(dBm) 38.5	(dB) -20.2	Notes
f MHz Low Ch 824.70 824.70 Mid Ch	SG reading (dBm) 18.90 22.70	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 18.28 22.08	(dBm) 38.5 38.5	(dB) -20.2 -16.4	Notes
f MHz Low Ch 824.70 824.70 Mid Ch 836.50	SG reading (dBm) 18.90 22.70 17.92	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0 0.0	(dBm) 18.28 22.08 17.30	(dBm) 38.5 38.5 38.5 38.5	(dB) -20.2 -16.4 -21.1	Notes
f MHz Low Ch 824.70 824.70 Mid Ch	SG reading (dBm) 18.90 22.70	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 18.28 22.08	(dBm) 38.5 38.5	(dB) -20.2 -16.4	Notes
f MHz Low Ch 824.70 824.70 Mid Ch 836.50	SG reading (dBm) 18.90 22.70 17.92	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0 0.0	(dBm) 18.28 22.08 17.30	(dBm) 38.5 38.5 38.5 38.5	(dB) -20.2 -16.4 -21.1	Notes
f MHz Low Ch 824.70 824.70 Mid Ch 836.50 836.50	SG reading (dBm) 18.90 22.70 17.92	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0 0.0	(dBm) 18.28 22.08 17.30	(dBm) 38.5 38.5 38.5 38.5	(dB) -20.2 -16.4 -21.1	Notes

Page 211 of 241

ERP LTE QPSK Band 5 (3MHz BANDWIDTH)

		ULF	remont Radia	ated Chamber [J			
ompany		Apple						
roject #:		13U16584						
ate:		12/19/13						
est Engi	neer:	M. Hua						
onfigura	tion:	EUT Only						
lode:		LTE Band 5 G	PSK 3MHz BW					
eceiving	<u>pment:</u> g: Sunol T407, on: Dipole S/N			Cable				
ubstituti f MHz	: Sunol T407,	I: 00022117,	and 8ft SMA	Cable Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
eceiving ubstituti f MHz Low Ch	j: Sunol T407, on: Dipole S/N SG reading (dBm)	I: 00022117, Ant. Pol. (H/V)	and 8ft SMA Cable Loss (dB)	Antenna Gain (dBd)	(dBm)	(dBm)	(dB)	Notes
eceiving ubstituti f MHz Low Ch 825.50	: Sunol T407, on: Dipole S/N SG reading (dBm)	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 19.37	(dBm) 38.5	(dB) -19.1	Notes
eceiving ubstituti f MHz Low Ch	j: Sunol T407, on: Dipole S/N SG reading (dBm)	I: 00022117, Ant. Pol. (H/V)	and 8ft SMA Cable Loss (dB)	Antenna Gain (dBd)	(dBm)	(dBm)	(dB)	Notes
f MHz 825.50	: Sunol T407, on: Dipole S/N SG reading (dBm)	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 19.37	(dBm) 38.5	(dB) -19.1	Notes
f MHz Low Ch 825.50 825.50 Mid Ch 836.50	: Sunol T407, on: Dipole S/N SG reading (dBm)	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 19.37	(dBm) 38.5	(dB) -19.1 -15.4 -20.0	Notes
f MHz Low Ch 825.50 825.50 Mid Ch	: Sunol T407, on: Dipole S/N SG reading (dBm) 19.99 23.70	I: 00022117, Ant. Pol. (H/V) V H	Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 19.37 23.08	(dBm) 38.5 38.5	(dB) -19.1 -15.4	Notes
receiving ubstituti f MHz Low Ch 825.50 825.50 Mid Ch 836.50 836.50	: Sunol T407, on: Dipole S/N SG reading (dBm) 19.99 23.70 19.06	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0 0.0	(dBm) 19.37 23.08 18.44	(dBm) 38.5 38.5 38.5	(dB) -19.1 -15.4 -20.0	Notes
f MHz Low Ch 825.50 825.50 Mid Ch 836.50	: Sunol T407, on: Dipole S/N SG reading (dBm) 19.99 23.70 19.06	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0 0.0	(dBm) 19.37 23.08 18.44	(dBm) 38.5 38.5 38.5	(dB) -19.1 -15.4 -20.0	Notes

Page 212 of 241

ERP LTE 16QAM Band 5 (3MHz BANDWIDTH)

ompany		Apple						
roject #:		13U16584						
ate:		12/19/13						
est Engi		M. Hua						
onfigura		EUT Only						
lode:			6QAM 3MHz BV	V				
eceiving	<u>pment:</u> j: Sunol T407, on: Dipole S/N			Cable				
	: Sunol T407,	I: 00022117,	and 8ft SMA (Cable Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
eceiving ubstituti f	: Sunol T407, on: Dipole S/N SG reading	I: 00022117, Ant. Pol.	and 8ft SMA C	Antenna Gain		(dBm)		Notes
f MHz Low Ch 825.50	: Sunol T407, on: Dipole S/N SG reading (dBm)	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 18.26	(dBm) 38.5	(dB) -20.2	Notes
f MHz Low Ch	: Sunol T407, on: Dipole S/N SG reading (dBm)	I: 00022117, Ant. Pol. (H/V)	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd)	(dBm)	(dBm)	(dB)	Notes
f MHz Low Ch 825.50 825.50	: Sunol T407, on: Dipole S/N SG reading (dBm)	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 18.26	(dBm) 38.5	(dB) -20.2	Notes
f MHz 625.50	: Sunol T407, on: Dipole S/N SG reading (dBm)	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 18.26	(dBm) 38.5	(dB) -20.2	Notes
f MHz Low Ch 825.50 825.50 Mid Ch	: Sunol T407, on: Dipole S/N SG reading (dBm) 18.88 22.80	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 18.26 22.18	(dBm) 38.5 38.5	(dB) -20.2 -16.3	Notes
receiving ubstituti f MHz Low Ch 825.50 825.50 Mid Ch 836.50 836.50	: Sunol T407, on: Dipole S/N SG reading (dBm) 18.88 22.80 17.86	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 18.26 22.18 17.24	(dBm) 38.5 38.5 38.5	(dB) -20.2 -16.3 -21.2	Notes
f MHz Low Ch 825.50 825.50 Mid Ch 836.50	: Sunol T407, on: Dipole S/N SG reading (dBm) 18.88 22.80 17.86	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 18.26 22.18 17.24	(dBm) 38.5 38.5 38.5	(dB) -20.2 -16.3 -21.2	Notes

Page 213 of 241

ERP LTE QPSK Band 5 (5MHz BANDWIDTH)

ompany:		Apple						
roject #:		13U16584						
ate:		12/19/13						
est Engi		M. Hua						
onfigura		EUT Only						
ode:			PSK 5MHz BW					
	<u>pment:</u> j: Sunol T407, on: Dipole S/N			Cable				
eceiving	: Sunol T407,	I: 00022117,	and 8ft SMA	Cable Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
eceiving ubstituti f	: Sunol T407, on: Dipole S/N SG reading	l: 00022117, Ant. Pol.	and 8ft SMA	Antenna Gain		(dBm)	(dB)	Notes
eceiving ubstituti f MHz Low Ch 826.50	: Sunol T407, on: Dipole S/N SG reading (dBm) 20.25	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 19.63	(dBm) 38.5	(dB) -18.8	Notes
eceiving ubstituti f MHz Low Ch	: Sunol T407, on: Dipole S/N SG reading (dBm)	Ant. Pol. (H/V)	and 8ft SMA Cable Loss (dB)	Antenna Gain (dBd)	(dBm)	(dBm)	(dB)	Notes
f MHz Low Ch 826.50 826.50	: Sunol T407, on: Dipole S/N SG reading (dBm) 20.25	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 19.63	(dBm) 38.5	(dB) -18.8	Notes
eceiving ubstituti f MHz Low Ch 826.50	: Sunol T407, on: Dipole S/N SG reading (dBm) 20.25	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 19.63	(dBm) 38.5	(dB) -18.8	Notes
eceiving ubstituti f MHz Low Ch 826.50 826.50 Mid Ch	: Sunol T407, on: Dipole S/N SG reading (dBm) 20.25 23.70	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 19.63 23.08	(dBm) 38.5 38.5	(dB) -18.8 -15.4	Notes
eceiving ubstituti f MHz Low Ch 826.50 826.50 Mid Ch 836.50 836.50	: Sunol T407, on: Dipole S/N SG reading (dBm) 20.25 23.70 18.92	l: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0 0.0	(dBm) 19.63 23.08 18.30	(dBm) 38.5 38.5 38.5	(dB) -18.8 -15.4 -20.1	Notes
eceiving ubstituti f MHz Low Ch 826.50 826.50 Mid Ch 836.50	: Sunol T407, on: Dipole S/N SG reading (dBm) 20.25 23.70 18.92	l: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0 0.0	(dBm) 19.63 23.08 18.30	(dBm) 38.5 38.5 38.5	(dB) -18.8 -15.4 -20.1	Notes

Page 214 of 241

ERP LTE 16QAM Band 5 (5MHz BANDWIDTH)

ompany		Apple						
roject #:		13U16584						
ate:		12/19/13						
est Eng	neer:	M. Hua						
onfigura		EUT Only						
ode:			6QAM 5MHz BV	V				
eceivin	g: Sunol T407, on: Dipole S/N			Cable				
f MHz		I: 00022117,	and 8ft SMA	Cable Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
eceiving ubstitut f <u>MHz</u> Low Ch	on: Dipole S/N SG reading (dBm)	Ant. Pol. (H/V)	and 8ft SMA Cable Loss (dB)	Antenna Gain (dBd)	(dBm)	(dBm)	(dB)	Notes
eceiving ubstitut f MHz Low Ch 826.50	on: Dipole S/N SG reading (dBm) 19.10	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 18.48	(dBm) 38.5	(dB) -20.0	Notes
eceiving ubstitut f <u>MHz</u> Low Ch	on: Dipole S/N SG reading (dBm)	Ant. Pol. (H/V)	and 8ft SMA Cable Loss (dB)	Antenna Gain (dBd)	(dBm)	(dBm)	(dB)	Notes
eceiving ubstitut f MHz Low Ch 826.50	on: Dipole S/N SG reading (dBm) 19.10	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 18.48	(dBm) 38.5	(dB) -20.0	Notes
eceiving ubstitut f MHz Low Ch 826.50 826.50 Mid Ch 836.50	on: Dipole S/N SG reading (dBm) 19.10 22.80 17.66	l: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0 0.0	(dBm) 18.48 22.18 17.04	(dBm) 38.5 38.5 38.5	(dB) -20.0 -16.3 -21.4	Notes
eceiving ubstitut f MHz Low Ch 826.50 826.50 Mid Ch	on: Dipole S/N SG reading (dBm) 19.10 22.80	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 18.48 22.18	(dBm) 38.5 38.5	(dB) -20.0 -16.3	Notes
eceiving ubstitut f MHz Low Ch 826.50 826.50 Mid Ch 836.50 836.50	on: Dipole S/N SG reading (dBm) 19.10 22.80 17.66	l: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0 0.0	(dBm) 18.48 22.18 17.04	(dBm) 38.5 38.5 38.5	(dB) -20.0 -16.3 -21.4	Notes
eceiving ubstitut f MHz Low Ch 826.50 826.50 Mid Ch 836.50	on: Dipole S/N SG reading (dBm) 19.10 22.80 17.66	l: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0 0.0	(dBm) 18.48 22.18 17.04	(dBm) 38.5 38.5 38.5	(dB) -20.0 -16.3 -21.4	Notes

Page 215 of 241

ERP LTE QPSK Band 5 (10MHz BANDWIDTH)

ompany	:	Apple						
roject #		13U16584						
ate:		12/19/13						
est Eng	ineer:	M. Hua						
onfigura		EUT Only						
lode:			PSK 10MHz BV	V				
eceivin	g: Sunol T407, ion: Dipole S/N			Cable				
ubstitut f MHz	g: Sunol T407,	I: 00022117,	and 8ft SMA (Cable Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
eceiving ubstitut f <u>MHz</u> Low Ch	g: Sunol T407, ion: Dipole S/N SG reading (dBm)	Ant. Pol. (H/V)	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd)	(dBm)	(dBm)	(dB)	Notes
f MHz 829.00	g: Sunol T407, ion: Dipole S/N SG reading (dBm) 20.41	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 19.79	(dBm) 38.5	(dB) -18.7	Notes
eceiving ubstitut f <u>MHz</u> Low Ch	g: Sunol T407, ion: Dipole S/N SG reading (dBm)	Ant. Pol. (H/V)	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd)	(dBm)	(dBm)	(dB)	Notes
f MHz 829.00	g: Sunol T407, ion: Dipole S/N SG reading (dBm) 20.41	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA (Cable Loss (dB)	Antenna Gain (dBd) 0.0	(dBm) 19.79	(dBm) 38.5	(dB) -18.7	Notes
eceiving ubstitut f MHz Low Ch 829.00 829.00 Mid Ch 836.50	g: Sunol T407, ion: Dipole S/N SG reading (dBm) 20.41 23.67 19.03	l: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 19.79 23.05 18.41	(dBm) 38.5 38.5 38.5	(dB) -18.7 -15.4 -20.0	Notes
f MHz Low Ch 829.00 829.00 Mid Ch	g: Sunol T407, ion: Dipole S/N SG reading (dBm) 20.41 23.67	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 19.79 23.05	(dBm) 38.5 38.5	(dB) -18.7 -15.4	Notes
eceivin, ubstitut f MHz Low Ch 829.00 829.00 Mid Ch 836.50 836.50	g: Sunol T407, ion: Dipole S/N SG reading (dBm) 20.41 23.67 19.03	l: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 19.79 23.05 18.41	(dBm) 38.5 38.5 38.5	(dB) -18.7 -15.4 -20.0	Notes
eceiving ubstitut f MHz Low Ch 829.00 829.00 Mid Ch 836.50	g: Sunol T407, ion: Dipole S/N SG reading (dBm) 20.41 23.67 19.03	l: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 19.79 23.05 18.41	(dBm) 38.5 38.5 38.5	(dB) -18.7 -15.4 -20.0	Notes

Page 216 of 241

ERP LTE 16QAM Band 5 (10MHz BANDWIDTH)

ompany		Apple						
roject #:		13U16584						
ate:		12/19/13						
est Engi		M. Hua						
onfigura		EUT Only						
lode:			6QAM 10MHz B	W				
eceiving	pment: j: Sunol T407, on: Dipole S/N			Cable				
	: Sunol T407,	I: 00022117,	and 8ft SMA	Cable Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
eceiving ubstitut f <u>MHz</u> Low Ch	: Sunol T407, on: Dipole S/N SG reading (dBm)	Ant. Pol. (H/V)	and 8ft SMA Cable Loss (dB)	Antenna Gain (dBd)	(dBm)	(dBm)	(dB)	Notes
eceiving ubstituti f MHz Low Ch 829.00	: Sunol T407, on: Dipole S/N SG reading (dBm)	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA Cable Loss (dB) 0.6	Antenna Gain (dBd) 0.0	(dBm) 18.68	(dBm) 38.5	(dB) -19.8	Notes
eceiving ubstitut f <u>MHz</u> Low Ch	: Sunol T407, on: Dipole S/N SG reading (dBm)	Ant. Pol. (H/V)	and 8ft SMA Cable Loss (dB)	Antenna Gain (dBd)	(dBm)	(dBm)	(dB)	Notes
eceiving ubstituti f MHz Low Ch 829.00 829.00	: Sunol T407, on: Dipole S/N SG reading (dBm)	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA Cable Loss (dB) 0.6	Antenna Gain (dBd) 0.0	(dBm) 18.68	(dBm) 38.5	(dB) -19.8	Notes
eceiving ubstituti f MHz Low Ch 829.00	: Sunol T407, on: Dipole S/N SG reading (dBm)	I: 00022117, Ant. Pol. (H/V) V	and 8ft SMA Cable Loss (dB) 0.6	Antenna Gain (dBd) 0.0	(dBm) 18.68	(dBm) 38.5	(dB) -19.8	Notes
eceiving ubstituti f MHz Low Ch 829.00 829.00 Mid Ch	: Sunol T407, on: Dipole S/N SG reading (dBm) 19.30 22.75	I: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6	Antenna Gain (dBd) 0.0 0.0	(dBm) 18.68 22.13	(dBm) 38.5 38.5	(dB) -19.8 -16.3	Notes
eceiving ubstituti f MHz Low Ch 829.00 829.00 Mid Ch 836.50 836.50	: Sunol T407, on: Dipole S/N SG reading (dBm) 19.30 22.75 17.84	l: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0 0.0	(dBm) 18.68 22.13 17.22	(dBm) 38.5 38.5 38.5	(dB) -19.8 -16.3 -21.2	Notes
eceiving ubstituti f MHz Low Ch 829.00 829.00 Mid Ch 836.50	: Sunol T407, on: Dipole S/N SG reading (dBm) 19.30 22.75 17.84	l: 00022117, Ant. Pol. (H/V) V H	and 8ft SMA (Cable Loss (dB) 0.6 0.6 0.6	Antenna Gain (dBd) 0.0 0.0 0.0	(dBm) 18.68 22.13 17.22	(dBm) 38.5 38.5 38.5	(dB) -19.8 -16.3 -21.2	Notes

Page 217 of 241

9.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917 and §24.238.

<u>LIMIT</u>

§22.917 (e) and §24.238 (a): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

MODES TESTED

- LTE Band 2
- LTE Band 5

RESULTS

Page 218 of 241

9.2.1. LTE BAND 2

QPSK Band 2 (1.4 MHz BANDWIDTH)

Company									
Project#		13U16584							
Date:		12/11/13							
Test Eng		R Zheng							
Configur Mode:		EUT only							
noue.	Chambe		2, 1.4MHz, QPS			Filter		Li	mit
31	n Chamber D		T145 8449	в 🗸	Fil	ter 1	-	Part 24	-
f	SC reading	Ant. Pol.	Distance	Broomp	Filter	EIRP	Limit	Delta	Notes
GHz	SG reading (dBm)	(H/V)	(m)	Preamp (dB)	(dB)	(dBm)	(dBm)	(dB)	Notes
_		(П/У)	(111)	(ub)	(ub)	(ubiii)	(ubiii)		
Low Ch, (* 3.702	-19.0	v	3.0	30.2	1.0	-48.2	-13.0	-35.2	
	-19.0	v	3.0	28.4	1.0	-48.2	-13.0	-35.2	
			3.0	and the second	1.0	-48.4	-13.0	-35.4	
		н							
3.702	-19.2	H		30.2					
5.553 3.702 5.553		H	3.0	28.4	1.0	-48.6	-13.0	-35.6	
3.702 5.553	-19.2								
3.702 5.553	-19.2 -21.2								
3.702 5.553 Mid Ch, (* 3.760	-19.2 -21.2 1880 MHz)	Н	3.0	28.4	1.0	48.6	-13.0	-35.6	
3.702 5.553 Mid Ch, (1	-19.2 -21.2 1880 MHz) -18.7	H	3.0	28.4	1.0	_48.6 _47.9	-13.0 -13.0	-35.6 -34.9	
3.702 5.553 Mid Ch, (1 3.760 5.640 3.760	-19.2 -21.2 1880 MHz) -18.7 -22.8	H V V	3.0 3.0 3.0	28.4 30.1 28.3	1.0 1.0 1.0	-48.6 -47.9 -50.1	-13.0 -13.0 -13.0	-35.6 -34.9 -37.1	
3.702 5.553 Mid Ch, (* 3.760 5.640 3.760 5.640	-19.2 -21.2 1880 MHz) -18.7 -22.8 -19.2 -21.6	H V V H	3.0 3.0 3.0 3.0 3.0	28.4 30.1 28.3 30.1	1.0 1.0 1.0 1.0	-48.6 -47.9 -50.1 -48.3	-13.0 -13.0 -13.0 -13.0	-35.6 -34.9 -37.1 -35.3	
3.702 5.553 Mid Ch, (* 3.760 5.640 3.760 5.640 High Ch, (-19.2 -21.2 1880 MHz) -18.7 -22.8 -19.2 -21.6 1909.3 MHz)	H V V H H	3.0 3.0 3.0 3.0 3.0	28.4 30.1 28.3 30.1 28.3	1.0 1.0 1.0 1.0 1.0	_48.6 _47.9 _50.1 _48.3 _48.9	-13.0 -13.0 -13.0 -13.0 -13.0	-35.6 -34.9 -37.1 -35.3 -35.9	
3.702 5.553 Mid Ch, (' 3.760 5.640 3.760 5.640 High Ch, (3.819	-19.2 -21.2 1880 MHz) -18.7 -22.8 -19.2 -21.6 1909.3 MHz) -19.1	H V H H V	3.0 3.0 3.0 3.0 3.0 3.0 3.0	28.4 30.1 28.3 30.1 28.3 30.1 30.1	1.0 1.0 1.0 1.0 1.0	48.6 47.9 -50.1 48.3 48.9 -48.2	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-35.6 -34.9 -37.1 -35.3 -35.9 -35.2	
3.702 5.553 Mid Ch, (' 3.760 5.640 3.760 5.640 High Ch, (3.819 5.728	-19.2 -21.2 [880 MHz] -18.7 -22.8 -19.2 -21.6 [909.3 MHz] -19.1 -22.6	H V H H V V	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	28.4 30.1 28.3 30.1 28.3 30.1 28.3 30.1 28.2	1.0 1.0 1.0 1.0 1.0 1.0 1.0	48.6 47.9 -50.1 48.3 48.9 -48.9 -48.2 49.8	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-35.6 -34.9 -37.1 -35.3 -35.9 	
3.702 5.553 Mid Ch, (' 3.760 5.640 3.760 5.640 High Ch, (3.819	-19.2 -21.2 1880 MHz) -18.7 -22.8 -19.2 -21.6 1909.3 MHz) -19.1	H V H H V	3.0 3.0 3.0 3.0 3.0 3.0 3.0	28.4 30.1 28.3 30.1 28.3 30.1 30.1	1.0 1.0 1.0 1.0 1.0	48.6 47.9 -50.1 48.3 48.9 -48.2	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-35.6 -34.9 -37.1 -35.3 -35.9 -35.2	

Page 219 of 241

16QAM Band 2 (1.4 MHz BANDWIDTH)

Company									
Project#		13U16584							
	•								
Date:		12/11/13							
Test Eng		R Zheng							
Configur		EUT only							
Mode:	Chambe		2, 1.4MHz, 16Q			Filter		Lii	mit
			T145 8449			ter 1		Part 24	
31	m Chamber D	-	1140 8449	B _		ter 1	•	Part 24	•
f	SG reading	Ant Pol	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
				(dB)	(dB)	(dBm)	(dBm)	(dB)	Notes
GHz	(dBm)	(H/V)							
GHz	(dBm) 1851 MHz)	(H/V)	(m)	(ub)	()			()	
	(dBm) 1851 MHz) -19.9	(H/V) V	3.0	30.2	1.0	-49.1	-13.0	-36.1	
Low Ch, (1	1851 MHz)		L						
Low Ch, (1 3.702 5.553	1851 MHz) -19.9	v	3.0	30.2	1.0	-49.1	-13.0	-36.1	
Low Ch, (1 3.702	1851 MHz) -19.9 -23.6	V	3.0 3.0	30.2 28.4	1.0 1.0	-49.1 -51.0	-13.0 -13.0	-36.1 -38.0	
Low Ch, (1 3.702 5.553 3.702 5.553	1851 MHz) -19.9 -23.6 -20.2 -22.2	V V H	3.0 3.0 3.0	30.2 28.4 30.2	1.0 1.0 1.0	-49.1 -51.0 -49.4	-13.0 -13.0 -13.0	-36.1 -38.0 -36.4	
Low Ch, (1 3.702 5.553 3.702 5.553	1851 MHz) -19.9 -23.6 -20.2	V V H	3.0 3.0 3.0	30.2 28.4 30.2	1.0 1.0 1.0	-49.1 -51.0 -49.4	-13.0 -13.0 -13.0	-36.1 -38.0 -36.4	
Low Ch, (1 3.702 5.553 3.702 5.553 Mid Ch, (1	1851 MHz) -19.9 -23.6 -20.2 -22.2 1880 MHz)	V V H H	3.0 3.0 3.0 3.0	30.2 28.4 30.2 28.4	1.0 1.0 1.0 1.0	-49.1 -51.0 -49.4 -49.6	-13.0 -13.0 -13.0 -13.0	-36.1 -38.0 -36.4 -36.6	
Low Ch, (1 3.702 5.553 3.702 5.553 Mid Ch, (1 3.760	1851 MHz) -19.9 -23.6 -20.2 -22.2 1880 MHz) -19.7	V V H H	3.0 3.0 3.0 3.0 3.0 3.0	30.2 28.4 30.2 28.4 30.1	1.0 1.0 1.0 1.0	-49.1 -51.0 -49.4 -49.6 -48.9	-13.0 -13.0 -13.0 -13.0 -13.0	36.1 38.0 36.4 36.6 35.9	
Low Ch, (1 3.702 5.553 3.702 5.553 Mid Ch, (1 3.760 5.640	1851 MHz) -19.9 -23.6 -20.2 -22.2 1880 MHz) -19.7 -23.8	V V H H V V	3.0 3.0 3.0 3.0 3.0 3.0 3.0	30.2 28.4 30.2 28.4 30.1 28.3	1.0 1.0 1.0 1.0 1.0	-49.1 -51.0 -49.4 -49.6 -48.9 -51.1	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	36.1 38.0 36.4 36.6 35.9 38.1	
Low Ch, (1 3.702 5.553 3.702 5.553 Mid Ch, (1 3.760 5.640 3.760 5.640	1851 MHz) -19.9 -23.6 -20.2 -22.2 1880 MHz) -19.7 -23.8 -20.2 -22.6	V V H H V V H	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	30.2 28.4 30.2 28.4 30.1 28.3 30.1	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	49.1 -51.0 49.4 -49.6 -51.1 -49.3	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	36.1 -38.0 -36.4 -36.6 	
Low Ch, (1 3.702 5.553 3.702 5.553 Mid Ch, (1 3.760 5.640 3.760 5.640 High Ch, (1	1851 MHz) -19.9 -23.6 -20.2 -22.2 1880 MHz) -19.7 -23.8 -20.2	V V H H V V H	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	30.2 28.4 30.2 28.4 30.1 28.3 30.1	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	49.1 -51.0 49.4 -49.6 -51.1 -49.3	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	36.1 -38.0 -36.4 -36.6 	
Low Ch, (1 3.702 5.553 3.702 5.553 Mid Ch, (1 3.760 5.640 3.760 5.640 High Ch, (3.819	1851 MHz) -19.9 -23.6 -20.2 -22.2 1880 MHz) -19.7 -23.8 -20.2 -22.6 1909.3 MHz)	V V H H V V V H H	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	30.2 28.4 30.2 28.4 30.1 28.3 30.1 28.3	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	49.1 -51.0 -49.4 -49.6 -48.9 -51.1 -49.3 -49.3 -49.9	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-36.1 -38.0 -36.4 -36.6 	
Low Ch, (1 3.702 5.553 3.702 5.553 Mid Ch, (1 3.760 5.640 3.760 5.640	1851 MHz) -19.9 -23.6 -20.2 -20.2 -22.2 1880 MHz) -19.7 -23.8 -20.2 -22.6 1909.3 MHz) -20.1	V V H H V V V H H H	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	30.2 28.4 30.2 28.4 30.1 28.3 30.1 28.3 30.1 30.1	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	49.1 -51.0 49.4 49.6 -51.1 49.3 49.9 -51.1 49.3 49.9	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	36.1 38.0 36.4 36.6 35.9 38.1 36.3 36.9 36.2	

Page 220 of 241

QPSK Band 2 (3MHz BANDWIDTH)

Company	r								
Project		13U16584							
	•								
Date:		12/11/13							
Test Eng		R Zheng							
Configur Mode:		EUT only							
ioue.	Chambe		2, 3MHz, QPSK Pre-an			Filter		Lir	nit
3	m Chamber D	-	T145 84498	3 -	Fil	ter 1	•	Part 24	•
f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
ow Ch, (1852 MHz)					1			
3.704	-19.1	V	3.0	30.2	1.0	-48.3	-13.0	-35.3	
5.556	-22.9	V	3.0	28.4	1.0	-50.2	-13.0	-37.2	
3.704	-19.7	H	3.0	30.2	1.0	-48.9	-13.0	-35.9	
5.556	-21.3	H	3.0	28.4	1.0	-48.7	-13.0	-35.7	
Mid Ch (1880 MHz)]			-			
	-18.8	V	3.0	30.1	1.0	-48.0	-13.0	-35.0	
3.760	-22.8	v	3.0	28.3	1.0	-50.1	-13.0	-37.1	
3.760 5.640	-19.3	Н	3.0	30.1	1.0	-48.4	-13.0	-35.4	
	-21.7	Н	3.0	28.3	1.0	-49.0	-13.0	-36.0	
5.640									
5.640 3.760 5.640									
5.640 3.760 5.640 High Ch, (1909 MHz)					7 10 1			
5.640 3.760 5.640 High Ch, (3.818	1909 MHz) -19.0	V	3.0	30.1	1.0	-48.1	-13.0	-35.1	
5.640 3.760 5.640 High Ch, (3.818 5.727	1909 MHz) -19.0 -22.8	V	3.0	28.2	1.0	-50.0	-13.0	-37.0	
5.640 3.760 5.640 High Ch, (3.818	1909 MHz) -19.0								

Page 221 of 241

16QAM Band 2 (3MHz BANDWIDTH)

Company	r								
Project#		13U16584							
Date:									
		12/11/13							
Test Eng		R Zheng							
Configur Mode:		EUT only							
	Chambe		2, 3MHz, 16QAN Pre-an			Filter		Lir	mit
31	m Chamber D	-	T145 8449	в	Fil	ter 1	-	Part 24	•
f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
	1852 MHz)								
Low Ch, (V	3.0	30.2	1.0	-49.3	-13.0	-36.3	
3.704	-20.1								
3.704 5.556	-23.9	V	3.0	28.4	1.0	-51.2	-13.0	-38.2	
3.704 5.556 3.704	-23.9 -20.7	V H	3.0 3.0	30.2	1.0	-49.9	-13.0	-36.9	
3.704 5.556 3.704	-23.9	V	3.0	and the second se	and the second se		and the second se	and the second se	
3.704 5.556 3.704 5.556	-23.9 -20.7	V H	3.0 3.0	30.2	1.0	-49.9	-13.0	-36.9	
3.704 5.556 3.704 5.556 Mid Ch, (3.760	-23.9 -20.7 -22.4 1880 MHz) -19.8	V H H	3.0 3.0 3.0 3.0	30.2 28.4 30.1	1.0 1.0 1.0	-49.9	-13.0 -13.0 -13.0	-36.9 -36.8 -36.0	
3.704 5.556 3.704 5.556 Mid Ch, (3.760 5.640	-23.9 -20.7 -22.4 1880 MHz) -19.8 -23.7	V H H V V	3.0 3.0 3.0 3.0 3.0 3.0	30.2 28.4 30.1 28.3	1.0 1.0 1.0 1.0	49.9 49.8 49.0 -51.0	-13.0 -13.0 -13.0 -13.0 -13.0	-36.9 -36.8 -36.0 -38.0	
3.704 5.556 3.704 5.556 Mid Ch, (3.760 5.640 3.760	-23.9 -20.7 -22.4 1880 MHz) -19.8 -23.7 -20.1	V H H V V	3.0 3.0 3.0 3.0 3.0 3.0 3.0	30.2 28.4 30.1 28.3 30.1	1.0 1.0 1.0 1.0 1.0 1.0	_49.9 _49.8 _49.0 _51.0 _49.2	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-36.9 -36.8 -36.0 -38.0 -36.2	
3.704 5.556 3.704 5.556 Mid Ch, (3.760 5.640 3.760	-23.9 -20.7 -22.4 1880 MHz) -19.8 -23.7	V H H V V	3.0 3.0 3.0 3.0 3.0 3.0	30.2 28.4 30.1 28.3	1.0 1.0 1.0 1.0	49.9 49.8 49.0 -51.0	-13.0 -13.0 -13.0 -13.0 -13.0	-36.9 -36.8 -36.0 -38.0	
3.704 5.556 3.704 5.556 Mid Ch, (3.760 5.640 3.760 5.640	-23.9 -20.7 -22.4 1880 MHz) -19.8 -23.7 -20.1	V H H V V	3.0 3.0 3.0 3.0 3.0 3.0 3.0	30.2 28.4 30.1 28.3 30.1	1.0 1.0 1.0 1.0 1.0 1.0	_49.9 _49.8 _49.0 _51.0 _49.2	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-36.9 -36.8 -36.0 -38.0 -36.2	
3.704 5.556 3.704 5.556 Mid Ch, (3.760 5.640 3.760 5.640	-23.9 -20.7 -22.4 1880 MHz) -19.8 -23.7 -20.1 -22.7	V H H V V	3.0 3.0 3.0 3.0 3.0 3.0 3.0	30.2 28.4 30.1 28.3 30.1	1.0 1.0 1.0 1.0 1.0 1.0	_49.9 _49.8 _49.0 _51.0 _49.2	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-36.9 -36.8 -36.0 -38.0 -36.2	
3.704 5.556 3.704 5.556 Mid Ch, (3.760 5.640 3.760 5.640 High Ch, (-23.9 -20.7 -22.4 1880 MHz) -19.8 -23.7 -20.1 -22.7 1909 MHz)	V H H V V H H	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	30.2 28.4 30.1 28.3 30.1 28.3	1.0 1.0 1.0 1.0 1.0 1.0 1.0	49.9 49.8 49.0 51.0 49.2 50.0	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-36.9 -36.8 -36.0 -38.0 -36.2 -37.0	
3.704 5.556 3.704 5.556 Mid Ch, (3.760 5.640 3.760 5.640 High Ch, (3.818	-23.9 -20.7 -22.4 1880 MHz) -19.8 -23.7 -20.1 -22.7 1909 MHz) -19.9	V H H V V H H V	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	30.2 28.4 30.1 28.3 30.1 28.3 30.1 30.1	1.0 1.0 1.0 1.0 1.0 1.0 1.0	49.9 49.8 49.0 -51.0 49.2 -50.0 49.0	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-36.9 -36.8 -36.0 -38.0 -36.2 -37.0 -36.0	

Page 222 of 241

QPSK Band 2 (5MHz BANDWIDTH)

Company									
		13U16584							
Project#									
Date:		12/11/13							
Test Eng		R Zheng							
Configur	ation:	EUT only							
Mode:			2, 5MHz, QPSK			Filter			imit
Chamber			Pre-an	npiner	_	121220000			in in in its second sec
31	m Chamber D	-	T145 8449	в _	Fil	ter 1	-	Part 24	-
				_					
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
		(1.0.4)	(,	(ub)	(ub)	(ability	(abiii)	(40)	
	1853 MHz)					1	1 1		
Low Ch, (1853 MHz)	v	3.0	30.2	1.0	-48.2	-13.0	-35.2	
Low Ch, (* 3.706	1853 MHz) -19.0 -23.7	V V	3.0 3.0	30.2 28.4	1.0 1.0	48.2	-13.0 -13.0	-35.2 -38.0	
Low Ch, (-19.0								
Low Ch, (1 3.706 5.559	-19.0 -23.7	V	3.0	28.4	1.0	-51.0	-13.0	-38.0	
Low Ch, (* 3.706 5.559 3.706 5.559	-19.0 -23.7 -19.5	V H	3.0 3.0	28.4 30.2	1.0 1.0	-51.0 -48.7	-13.0 -13.0	-38.0 -35.7	
Low Ch, (* 3.706 5.559 3.706 5.559 Mid Ch, (* 3.760	-19.0 -23.7 -19.5 -21.4 1880 MHz) -19.4	V H H	3.0 3.0 3.0 3.0	28.4 30.2 28.4 30.1	1.0 1.0 1.0	-51.0 -48.7 -48.8 -48.6	-13.0 -13.0 -13.0 -13.0	-38.0 -35.7 -35.8 -35.6	
Low Ch, (* 3.706 5.559 3.706 5.559 Mid Ch, (* 3.760 5.640	-19.0 -23.7 -19.5 -21.4 1880 MHz) -19.4 -23.2	V H H V V	3.0 3.0 3.0 3.0 3.0 3.0	28.4 30.2 28.4 30.1 28.3	1.0 1.0 1.0 1.0	-51.0 -48.7 -48.8 -48.6 -50.5	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-38.0 -35.7 -35.8 -35.6 -37.5	
Low Ch, (* 3.706 5.559 3.706 5.559 Mid Ch, (* 3.760 5.640 3.760	-19.0 -23.7 -19.5 -21.4 1880 MHz) -19.4 -23.2 -19.6	V H H V V	3.0 3.0 3.0 3.0 3.0 3.0 3.0	28.4 30.2 28.4 30.1 28.3 30.1	1.0 1.0 1.0 1.0 1.0 1.0	-51.0 -48.7 -48.8 -48.6 -50.5 -48.7	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-38.0 -35.7 -35.8 -35.6 -37.5 -35.7	
Low Ch, (* 3.706 5.559 3.706 5.559 Mid Ch, (* 3.760 5.640	-19.0 -23.7 -19.5 -21.4 1880 MHz) -19.4 -23.2	V H H V V	3.0 3.0 3.0 3.0 3.0 3.0	28.4 30.2 28.4 30.1 28.3	1.0 1.0 1.0 1.0	-51.0 -48.7 -48.8 -48.6 -50.5	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-38.0 -35.7 -35.8 -35.6 -37.5	
Low Ch, (3.706 5.559 3.706 5.559 Mid Ch, (3.760 5.640 3.760 5.640	-19.0 -23.7 -19.5 -21.4 1880 MHz) -19.4 -23.2 -19.6	V H H V V	3.0 3.0 3.0 3.0 3.0 3.0 3.0	28.4 30.2 28.4 30.1 28.3 30.1	1.0 1.0 1.0 1.0 1.0 1.0	-51.0 -48.7 -48.8 -48.6 -50.5 -48.7	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-38.0 -35.7 -35.8 -35.6 -37.5 -35.7	
Low Ch, (3.706 5.559 3.706 5.559 Mid Ch, (3.760 5.640 3.760 5.640	- 19.0 - 23.7 - 19.5 - 21.4 1880 MHz) - 19.4 - 23.2 - 19.6 - 21.7	V H H V V	3.0 3.0 3.0 3.0 3.0 3.0 3.0	28.4 30.2 28.4 30.1 28.3 30.1	1.0 1.0 1.0 1.0 1.0 1.0	-51.0 -48.7 -48.8 -48.6 -50.5 -48.7	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-38.0 -35.7 -35.8 -35.6 -37.5 -35.7	
Low Ch, (' 3.706 5.559 3.706 5.559 Mid Ch, (' 3.760 5.640 3.760 5.640 High Ch, (- 19.0 - 23.7 - 19.5 - 21.4 - 19.4 - 19.4 - 23.2 - 19.6 - 21.7 - 19.0 - 21.7 - 19.0 - 21.7 - 19.0 - 21.7 - 19.0 - 21.7 - 19.0 - 21.7 - 19.5 - 21.4 - 23.7 - 19.5 - 21.4 - 23.7 - 19.5 - 21.4 - 23.7 - 19.5 - 21.4 - 23.7 - 19.5 - 21.4 - 23.2 - 19.6 - 21.7 - 19.4 - 23.2 - 19.6 - 21.7 - 19.6 - 21.7 - 19.4 - 23.2 - 19.6 - 21.7 - 19.6 - 21.7 - 19.6 - 21.7 - 19.6 - 21.7 - 19.6 - 21.7 - 21.7 - 21.6 - 21.7 - 21.6 - 21.7 - 21.7 - 21.7 - 21.7 - 21.7 - 21.6 - 21.7 - 21.7 - 21.7 - 21.6 - 21.7 - 21.7	V H H V V H H	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	28.4 30.2 28.4 30.1 28.3 30.1 28.3 28.3	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	-51.0 -48.7 -48.8 -48.6 -50.5 -48.7 -49.0	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-38.0 -35.7 -35.8 -35.6 -37.5 -35.7 -36.0	
Low Ch, (' 3.706 5.559 3.706 5.559 Mid Ch, (' 3.760 5.640 5.640 High Ch, (3.816	- 19.0 - 23.7 - 19.5 - 21.4 1880 MHz) - 19.4 - 23.2 - 19.6 - 21.7 1908 MHz) - 18.8	V H H V V H H V	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	28.4 30.2 28.4 30.1 28.3 30.1 28.3 30.1 30.1	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	-51.0 48.7 48.8 48.6 -50.5 48.7 49.0 -47.9	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-38.0 -35.7 -35.8 -35.6 -37.5 -35.7 -36.0 	

Page 223 of 241

16QAM Band 2 (5MHz BANDWIDTH)

Company	r								
		121140504							
Project#	с.	13U16584							
Date:		12/11/13							
Test Eng		R Zheng							
Configur		EUT only							
Mode:	Chambe		2, 5MHz, 16QAN			Filter		Lir	nit
3	m Chamber D		T145 84498	В 🗸	Fil	ter 1	-	Part 24	-
			,	_	1			1	_
f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
Low Ch. (1853 MHz)					1			
3.706	-19.9	v	3.0	30.2	1.0	-49.1	-13.0	-36.1	51.151
5.559	-24.7	V	3.0	28.4	1.0	-52.0	-13.0	-39.0	
3.706	-20.5	Н	3.0	30.2	1.0	-49.7	-13.0	-36.7	
5.559	-22.4	H	3.0	28.4	1.0	-49.8	-13.0	-36.8	
Mid Ch.(1880 MHz)					-			
3.760	-20.4	V	3.0	30.1	1.0	-49.6	-13.0	-36.6	
5.640	-24.2	v	3.0	28.3	1.0	-51.5	-13.0	-38.5	
3.760	-20.6	Н	3.0	30.1	1.0	-49.7	-13.0	-36.7	
5.640	-22.7	Н	3.0	28.3	1.0	-50.0	-13.0	-37.0	
High Ch /	1908 MHz)		-						
3.816	-19.8	V	3.0	30.1	1.0	-48.9	-13.0	-35.9	
5.724	-24.4	v	3.0	28.2	1.0	-51.6	-13.0	-38.6	
	-20.2	H	3.0	30.1	1.0	49.3	-13.0	-36.3	
	-22.5	н	3.0	28.2	1.0	49.7	-13.0	-36.7	
3.816									

Page 224 of 241

QPSK Band 2 (10MHz BANDWIDTH)

Company									
Project #		13U16584							
-									
Date:		12/11/13							
Test Eng		R Zheng							
Configur		EUT only							
Mode:	Chambe		2, 10MHz, QPSI			Filter		Lii	mit
3	m Chamber D		T145 84498	в 🗸	Fil	ter 1	-	Part 24	-
		Ant Dal	Distance	Dreamin	Filter	FIDD	Limite	Dalla	Nata
f GHz	SG reading (dBm)	(H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	1855 MHz)								
3.701	-18.8	V	3.0	30.2	1.0	-48.0	-13.0	-35.0	
5.551	-22.9	V	3.0	28.4	1.0	-50.3	-13.0	-37.3	
3.701	-19.7	Н	3.0	30.2	1.0	-48.9	-13.0	-35.9	
5.551	-21.6	H	3.0	28.4	1.0	-49.0	-13.0	-36.0	
Mid Ch.(1880 MHz)					-			
3.750	-18.7	V	3.0	30.2	1.0	-47.9	-13.0	-34.9	
5.625	-23.4	v	3.0	28.3	1.0	-50.7	-13.0	-37.7	
3.750	-19.5	Н	3.0	30.2	1.0	-48.6	-13.0	-35.6	
5.730	-20.7	Н	3.0	28.3	1.0	-48.0	-13.0	-35.0	
	1005 1111 1								
5.625	1905 MHZ)	v	3.0	30.1	1.0	-47.2	-13.0	-34.2	
5.625 High Ch, (3.0	28.2	1.0	-41.2	-13.0	-34.2	
5.625 High Ch, (3.801	-18.1	V	3.0		1.0	-49.5	-13.0	-36.0	
5.625 High Ch, (3.801 5.702	-18.1 -22.2	V	20		1.0	-49.0	-13.0		
5.625 High Ch, (3.801	-18.1	V H H	3.0	30.1	1.0	-48.5	-13.0	-35.5	

Page 225 of 241

16QAM Band 2 (10MHz BANDWIDTH)

Company									
Project#		101140504							
		13U16584							
Date:		12/11/13							
Test Eng		R Zheng							
Configur		EUT only							
Mode:	Chambe		2, 10MHz, 16QA			Filter		Lir	nit
31	m Chamber D		T145 8449	в 🗸	Fil	ter 1	-	Part 24	-
				_					
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	1855 MHz)	(****)	(,	()	()	1	(()	
3.701	-19.8	V	3.0	30.2	1.0	-49.0	-13.0	-36.0	
5.551	-23.9	V	3.0	28.4	1.0	-51.3	-13.0	-38.3	
3.701	-20.7	Н	3.0	30.2	1.0	-49.9	-13.0	-36.9	
5.551	-22.5	Н	3.0	28.4	1.0	-49.9	-13.0	-36.9	
Mid Ch (1880 MHz)		1						
3.750	-19.7	V	3.0	30.2	1.0	-48.9	-13.0	-35.9	
5.625	-24.4	V	3.0	28.3	1.0	-51.7	-13.0	-38.7	
3.750	-20.5	Н	3.0	30.2	1.0	-49.6	-13.0	-36.6	
5.625	-21.7	Н	3.0	28.3	1.0	-49.0	-13.0	-36.0	
High Ch /	1905 MHz)					-			
	-19.1	V	3.0	30.1	1.0	-48.2	-13.0	-35.2	
	-23.2	v	3.0	28.2	1.0	-40.2	-13.0	-37.5	
3.801	-20.9	H	3.0	30.1	1.0	-50.0	-13.0	-37.0	
3.801 5.702		н	3.0	28.2	1.0	49.5	-13.0	-36.5	
	-22.2								

Page 226 of 241

QPSK Band 2 (15MHz BANDWIDTH)

Company	r								
Project #		13U16584							
Date:		12/10/13							
Test Eng		R Zheng							
Configur		EUT only							
Mode:	Chambe		2, 15MHz, QPSF			Filter		Lir	nit
3	m Chamber D	-	T145 8449E	3 -	Fil	ter 1	•	Part 24	•
f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
Low Ch, (1858 MHz)							1	11. M
3.703	-18.5	v	3.0	30.2	1.0	.47.7	-13.0	-34.7	
5.554	-23.6	V	3.0	28.4	1.0	-51.0	-13.0	-38.0	
3.703	-20.2	Н	3.0	30.2	1.0	-49.4	-13.0	-36.4	
5.554	-21.2	H	3.0	28.4	1.0	-48.6	-13.0	-35.6	
	1880 MH)		 			-			
	1000 MITL	V	3.0	30.1	1.0	-48.6	-13.0	-35.6	
Mid Ch,(-19.4		3.0	28.3	1.0	-50.7	-13.0	-37.7	
Mid Ch,(3.760	-19.4	V						-36.2	
Mid Ch, (3.760 5.621 3.760		V H	3.0	30.1	1.0	-49.2	-13.0		
Mid Ch, (3.760 5.621 3.760	-23.4			30.1 28.3	1.0 1.0	-49.2 -48.2	-13.0 -13.0	-35.2	
Mid Ch, (3.760 5.621 3.760 5.621	-23.4 -20.1 -20.9	Н	3.0						
Mid Ch, (3.760 5.621 3.760 5.621 High Ch, (-23.4 -20.1 -20.9 1903 MHz)	H H	3.0 3.0	28.3	1.0	-48.2	-13.0	-35.2	
Mid Ch, (3.760 5.621 3.760 5.621 High Ch, (3.806	-23.4 -20.1 -20.9 1903 MHz) -19.7	H H V	3.0 3.0 3.0	28.3	1.0	_48.2 _48.8	-13.0	-35.2 -35.8	
Mid Ch, (3.760 5.621 3.760 5.621 High Ch, (3.806 5.709	-23.4 -20.1 -20.9 1903 MHz) -19.7 -23.2	H H V V	3.0 3.0 3.0 3.0	28.3 30.1 28.2	1.0 1.0 1.0	_48.2 _48.8 _50.4	-13.0 -13.0 -13.0	-35.2 -35.8 -37.4	
Mid Ch, (3.760 5.621 3.760 5.621 High Ch, (3.806	-23.4 -20.1 -20.9 1903 MHz) -19.7	H H V	3.0 3.0 3.0	28.3	1.0	_48.2 _48.8	-13.0	-35.2 -35.8	

Page 227 of 241

16QAM Band 2 (15MHz BANDWIDTH)

Company									
Project#		13U16584							
Date:		12/10/13							
Test Eng		R Zheng							
Configura		EUT only							
Mode:	Chambe		2, 15MHz, 16QA			Filter		Lir	mit
_	Chambe								
3r	n Chamber D	-	T145 8449	• _	Fi	ter 1	•	Part 24	-
		Ant Del	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
4						EINF		Dena	NOLES
f CH7	SG reading			•		(dDm)	(dDm)		
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
GHz Low Ch, (1	(dBm) 1858 MHz)	(H/V)	(m)	(dB)	(dB)				
GHz Low Ch, (1 3.703	(dBm) 1858 MHz) -19.5		(m) 3.0	(dB)	(dB)	48.7	-13.0	-35.7	
GHz Low Ch, (1 3.703 5.554	(dBm) 1858 MHz) -19.5 -24.6	(H/V) V	(m) 3.0 3.0	(dB) 30.2 28.4	(dB) 1.0 1.0	_48.7 52.0	-13.0 -13.0	-35.7 -39.0	
GHz Low Ch, (1 3.703	(dBm) 1858 MHz) -19.5	(H/V) V V	(m) 3.0	(dB)	(dB)	48.7	-13.0	-35.7	
GHz Low Ch, (1 3.703 5.554 3.703 5.554	(dBm) 1858 MHz) -19.5 -24.6 -21.2 -22.2	(H/V) V V H	(m) 3.0 3.0 3.0	(dB) 30.2 28.4 30.2	(dB) 1.0 1.0 1.0	-48.7 -52.0 -50.4	-13.0 -13.0 -13.0	-35.7 -39.0 -37.4	
GHz Low Ch, (1 3.703 5.554 3.703 5.554 Mid Ch, (1	(dBm) 1858 MHz) -19.5 -24.6 -21.2 -22.2 1880 MHz)	(H/V) V V H H	(m) 3.0 3.0 3.0 3.0	(dB) 30.2 28.4 30.2 28.4	(dB) 1.0 1.0 1.0 1.0	-48.7 -52.0 -50.4 -49.6	-13.0 -13.0 -13.0 -13.0	-35.7 -39.0 -37.4 -36.6	
GHz Low Ch, (1 3.703 5.554 3.703 5.554 Mid Ch, (1 3.760	(dBm) 1858 MHz) -19.5 -24.6 -21.2 -22.2 1880 MHz) -20.4	(H/V) V V H H	(m) 3.0 3.0 3.0 3.0 3.0	(dB) 30.2 28.4 30.2 28.4 30.2 28.4 30.1	(dB) 1.0 1.0 1.0 1.0 1.0	-48.7 -52.0 -50.4 -49.6 -49.6	-13.0 -13.0 -13.0 -13.0 -13.0	35.7 39.0 37.4 36.6 36.6	
GHz Low Ch, (1 3.703 5.554 3.703 5.554 Mid Ch, (1 3.760 5.621	(dBm) 1858 MHz) -19.5 -24.6 -21.2 -22.2 1880 MHz) -20.4 -24.4	(H/V) V H H V V V	(m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0	(dB) 30.2 28.4 30.2 28.4 30.1 28.3	(dB) 1.0 1.0 1.0 1.0 1.0 1.0	-48.7 -52.0 -50.4 -49.6 -49.6 -51.7	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-35.7 -39.0 -37.4 -36.6 -36.6 -38.7	
GHz Low Ch, (1 3.703 5.554 3.703 5.554 Mid Ch, (1 3.760 5.621 3.760	(dBm) 1858 MHz) -19.5 -24.6 -21.2 -22.2 1880 MHz) -20.4 -24.4 -24.4 -21.1	(H/V) V H H V V V H	(m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	(dB) 30.2 28.4 30.2 28.4 30.1 28.3 30.1	(dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	48.7 -52.0 -50.4 -49.6 -51.7 -50.2	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-35.7 -39.0 -37.4 -36.6 -36.6 -38.7 -37.2	
GHz Low Ch, (1 3.703 5.554 3.703 5.554 Mid Ch, (1 3.760 5.621	(dBm) 1858 MHz) -19.5 -24.6 -21.2 -22.2 1880 MHz) -20.4 -24.4	(H/V) V H H V V V	(m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0	(dB) 30.2 28.4 30.2 28.4 30.1 28.3	(dB) 1.0 1.0 1.0 1.0 1.0 1.0	-48.7 -52.0 -50.4 -49.6 -49.6 -51.7	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-35.7 -39.0 -37.4 -36.6 -36.6 -38.7	
GHz Low Ch, (1 3.703 5.554 3.703 5.554 Mid Ch, (1 3.760 5.621	(dBm) 1858 MHz) -19.5 -24.6 -21.2 -22.2 1880 MHz) -20.4 -24.4 -21.1 -21.9	(H/V) V H H V V V H	(m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	(dB) 30.2 28.4 30.2 28.4 30.1 28.3 30.1	(dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	48.7 -52.0 -50.4 -49.6 -51.7 -50.2	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-35.7 -39.0 -37.4 -36.6 -36.6 -38.7 -37.2	
GHz Low Ch, (1 3.703 5.554 3.703 5.554 Mid Ch, (1 3.760 5.621 3.760 5.621 High Ch, (1	(dBm) 1858 MHz) -19.5 -24.6 -21.2 -22.2 1880 MHz) -20.4 -24.4 -24.4 -21.1	(H/V) V H H V V V H	(m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	(dB) 30.2 28.4 30.2 28.4 30.1 28.3 30.1	(dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	48.7 -52.0 -50.4 -49.6 -51.7 -50.2	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-35.7 -39.0 -37.4 -36.6 -36.6 -38.7 -37.2	
GHz Low Ch, (1 3.703 5.554 3.703 5.554 Mid Ch, (1 3.760 5.621 3.760 5.621 High Ch, (1 3.806	(dBm) 1858 MHz) -19.5 -24.6 -21.2 -22.2 1880 MHz) -20.4 -24.4 -21.1 -21.9 1903 MHz)	(H/V) V H H V V V H H	(m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	(dB) 30.2 28.4 30.2 28.4 30.1 28.3 30.1 28.3	(dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	48.7 -52.0 -50.4 -49.6 -51.7 -50.2 -49.2	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	35.7 39.0 37.4 36.6 38.7 37.2 36.2	
GHz Low Ch, (1 3.703 5.554 3.703 5.554 Mid Ch, (1 3.760 5.621	(dBm) 1858 MHz) -19.5 -24.6 -21.2 -22.2 1880 MHz) -20.4 -24.4 -21.1 -21.9 1903 MHz) -20.7	(H/V) V H H V V V H H V V	(m) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	(dB) 30.2 28.4 30.2 28.4 30.1 28.3 30.1 28.3 30.1 28.3 30.1	(dB) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	48.7 -52.0 -50.4 -49.6 -51.7 -50.2 -49.2 -49.8	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	35.7 39.0 37.4 36.6 36.6 38.7 37.2 36.2 36.2 36.8	

Page 228 of 241

QPSK Band 2 (20MHz BANDWIDTH)

Company	r								
		121140504							
Project#	с.	13U16584							
Date:		12/10/13							
Test Eng		R Zheng							
Configur	ation:	EUT only							
Node:	Chambe		2, 20MHz, QPSI			Filter		Lir	nit
_			T145 8449	-		ter 1		Part 24	
3	m Chamber D	•	1 45 6445	• •	""	ter i	•	Part 24	•
f	SG reading	Ant. Pol.	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
	1860 MHz)		L			L		_	
3.720	-19.9	v	3.0	30.2	1.0	-49.1	-13.0	-36.1	<u>91111</u>
5.580	-23.3	v	3.0	28.3	1.0	-50.7	-13.0	-37.7	
3.720	-19.9	Н	3.0	30.2	1.0	-49.1	-13.0	-36.1	
5.580	-21.6	H	3.0	28.3	1.0	-48.9	-13.0	-35.9	
	1880 MHz)		1			-			
3.760	-18.8	V	3.0	30.1	1.0	-48.0	-13.0	-35.0	
	-23.6	v	3.0	28.3	1.0	-50.9	-13.0	-37.9	
5.640	-19.3	Н	3.0	30.1	1.0	-48.4	-13.0	-35.4	
5.640 3.760	7 00 4	Н	3.0	28.3	1.0	-49.4	-13.0	-36.4	
5.640 3.760	-22.1					1	+		
5.640 3.760 5.640	-22.1 1900 MHz)						and the second second		
5.640 3.760 5.640		v	3.0	30.1	1.0	-47.9	-13.0	-34.9	
5.640 3.760 5.640 High Ch, (3.800 5.700	1900 MHz)	V V	3.0 3.0	30.1 28.2	1.0 1.0	-47.9 -51.4	-13.0	-34.9 -38.4	
5.640 3.760 5.640 High Ch, (3.800	1900 MHz) -18.8			and the second se					

Page 229 of 241

16QAM Band 2 (20MHz BANDWIDTH)

Company		101110501							
Project#		13U16584							
Date:		12/10/13							
Test Eng		R Zheng							
Configur Mode:		EUT only	2, 20MHz, 16QA						
noue.	Chambe		Pre-an	900 m		Filter		Lin	nit
3m Chamber D			T145 8449B -		Filter 1 🚽			Part 24	
f	SG reading	Ant Pol	Distance	Preamp	Filter	EIRP	Limit	Delta	Notes
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	Notes
Low Ch, (1860 MHz)							1	G.1.
3.720	-20.8	V	3.0	30.2	1.0	-50.0	-13.0	-37.0	
5.580	-24.3	V	3.0	28.3	1.0	-51.7	-13.0	-38.7	
3.720	-20.9	Н	3.0	30.2	1.0	-50.1	-13.0	-37.1	
5.580	-22.6	H	3.0	28.3	1.0	-49.9	-13.0	-36.9	
Mid Ch.(1880 MHz)					-			
3.760	-19.8	V	3.0	30.1	1.0	-49.0	-13.0	-36.0	
5.640	-24.6	V	3.0	28.3	1.0	-51.9	-13.0	-38.9	
3.760	-20.3	Н	3.0	30.1	1.0	-49.4	-13.0	-36.4	
5.640	-23.1	Н	3.0	28.3	1.0	-50.4	-13.0	-37.4	
High Ch (1900 MHz)								
3.800	-19.8	v	3.0	30.1	1.0	-48.9	-13.0	-35.9	
5.700	-25.1	v	3.0	28.2	1.0	-40.5	-13.0	-39.4	
3.800	-19.7	H	3.0	30.1	1.0	48.8	-13.0	-35.8	
	-22.6	H	3.0	28.2	1.0	49.9	-13.0	-36.9	
5.700				20.2	1.0		-13.0	-30.5	

Page 230 of 241

9.2.2. LTE BAND 5

QPSK Band 5 (1.4 MHz BANDWIDTH)

Company									
Project#		13U16584							
Date:									
		12/11/13							
Test Eng		R Zheng							
Configura		EUT only							
Mode:		TX, Band 5, 1.	4MHz, QPSK						
		1	Dra	an life a		Eilter		Lir	- it
Chamber			Pre-an	npiner		Filter			m
31	n Chamber D) -	T145 8449	в 🗸	Fil	ter 1	-	Part 22	-
									_
f	SG reading	Ant. Pol.	Distance	Preamp	Filter	ERP	Limit	Delta	Notes
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
Low Ch, (8	24.7MHz)								
1.649	-19.6	V	3.0	32.7	1.0	-51.3	-13.0	-38.3	0.00
2.474	-20.7	V	3.0	31.4	1.0	-51.1	-13.0	-38.1	
1.649	-23.2	Н	3.0	32.7	1.0	-54.9	-13.0	-41.9	
2.474	-22.8	Н	3.0	31.4	1.0	-53.2	-13.0	-40.2	
Mid Ch, (8	36.5MHz)					-			
1.673	-13.7	v	3.0	32.6	1.0	45.3	-13.0	-32.3	
2.510	-20.2	v	3.0	31.5	1.0	-50.7	-13.0	-37.7	
1.673	-23.3	H	3.0	32.6	1.0	-54.9	-13.0	-41.9	
2.510	-22.5	Н	3.0	31.5	1.0	-53.0	-13.0	-40.0	
High Ch, (348 3MHz)					-			
	-11.4	V	3.0	32.6	1.0	-42.9	-13.0	-29.9	
1.697	-21.1	v	3.0	31.4	1.0	-51.6	-13.0	-38.6	
		H	3.0	32.6	1.0	-54.4	-13.0	-41.4	
1.697 2.545 1.697	-22.9			31.4	1.0	-53.0	-13.0	-40.0	

Page 231 of 241

16QAM Band 5 (1.4 MHz BANDWIDTH)

Company	r									
Project#		13U16584								
Date:		12/11/13								
Test Eng		R Zheng								
Configur		EUT only								
Mode:		TX, Band 5, 1.	4MHz, 16QAM							
Chamber			Pre-ar	nplifer		Filter		Limit		
3m Chamber D 👻		•	T145 8449B -		Filter 1 🗸			Part 22		
f	SG reading	Ant. Pol.	Distance	Preamp	Filter	ERP	Limit	Delta	Notes	
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)		
	824.7MHz)	()	(,	()	()	((()		
1.649	-20.6	V	3.0	32.7	1.0	-52.3	-13.0	-39.3		
2.474	-21.7	V	3.0	31.4	1.0	-52.1	-13.0	-39.1		
1.649	-24.2	Н	3.0	32.7	1.0	-55.9	-13.0	-42.9		
2.474	-23.8	H	3.0	31.4	1.0	-54.2	-13.0	-41.2		
							ļ			
1.673	836.5MHz) -14.7	v	3.0	32.6	1.0	-46.3	-13.0	-33.3		
2.510	-14.7	v	3.0	31.5	1.0	-40.3	-13.0	-38.7		
1.673	-21.2	H	3.0	32.6	1.0	-51.7	-13.0	-30.7		
2.510	-23.5	H	3.0	31.5	1.0	-54.0	-13.0	41.0		
			0.0							
High Ch, (848.3MHz)									
1.697	-12.4	V	3.0	32.6	1.0	43.9	-13.0	-30.9		
O FAF	-22.1	V	3.0	31.4	1.0	-52.6	-13.0	-39.6		
2.545	-23.9	Н	3.0	32.6	1.0	-55.4	-13.0	42.4		
2.545 1.697	-23.6	Н	3.0	31.4	1.0	-54.0	-13.0	-41.0		

Page 232 of 241

QPSK Band 5 (3MHz BANDWIDTH)

Company										
		101140504								
Project#	c.	13U16584								
Date:		12/11/13								
Test Eng		R Zheng								
Configur	ation:	EUT only								
Mode:		TX, Band 5, 3M	MHZ, QPSK							
	Chambe	r	Pre-an	nplifer		Filter		Limit		
3m Chamber D 👻			T145 8449B 🗸		Filter 1 🗸			Part 22		
		Art Dal	Distance	Deserve	F 114	500	Lingth	Delfe	Neter	
f	SG reading		Distance	Preamp	Filter	ERP	Limit	Delta	Notes	
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)		
ow Ch. (825.5MHz)		L							
		v	3.0	32.7	1.0	47.3	-13.0	-34.3	AAA.3	
1.651	-15.6									
1.651 2.477	-20.6	V	3.0	31.4	1.0	-51.0	-13.0	-38.0		
1.651 2.477 1.651	-20.6 -23.8	Н	3.0	32.7	1.0	-55.5	-13.0	-42.5		
1.651 2.477	-20.6									
1.651 2.477 1.651 2.477	-20.6 -23.8 -22.0	Н	3.0	32.7	1.0	-55.5	-13.0	-42.5		
1.651 2.477 1.651 2.477 Mid Ch, (i	-20.6 -23.8 -22.0 836.5MHz)	H	3.0 3.0	32.7 31.4	1.0 1.0	-55.5 -52.4	-13.0 -13.0	-42.5 -39.4		
1.651 2.477 1.651 2.477 Mid Ch, (4 1.673	-20.6 -23.8 -22.0 836.5MHz) -11.7	H H V	3.0 3.0 3.0	32.7 31.4 32.6	1.0 1.0 1.0	-55.5 -52.4 -43.3	-13.0 -13.0 -13.0	-42.5 -39.4 -30.3		
1.651 2.477 1.651 2.477 Mid Ch, (4 1.673 2.510	-20.6 -23.8 -22.0 836.5MHz) -11.7 -20.4	H H V V	3.0 3.0 3.0 3.0 3.0	32.7 31.4 32.6 31.5	1.0 1.0 1.0 1.0	-55.5 -52.4 -43.3 -50.9	-13.0 -13.0 -13.0 -13.0	-42.5 -39.4 -30.3 -37.9		
1.651 2.477 1.651 2.477 Mid Ch, (4 1.673	-20.6 -23.8 -22.0 836.5MHz) -11.7	H H V	3.0 3.0 3.0	32.7 31.4 32.6	1.0 1.0 1.0	-55.5 -52.4 -43.3	-13.0 -13.0 -13.0	-42.5 -39.4 -30.3		
1.651 2.477 1.651 2.477 Mid Ch, (i 1.673 2.510 1.673	-20.6 -23.8 -22.0 836.5MHz) -11.7 -20.4 -20.2	H H V V H	3.0 3.0 3.0 3.0 3.0 3.0	32.7 31.4 32.6 31.5 32.6	1.0 1.0 1.0 1.0 1.0 1.0	-55.5 -52.4 -43.3 -50.9 -51.8	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-42.5 -39.4 -30.3 -37.9 -38.8		
1.651 2.477 1.651 2.477 Mid Ch, (i 1.673 2.510 1.673 2.510	-20.6 -23.8 -22.0 836.5MHz) -11.7 -20.4 -20.2	H H V V H	3.0 3.0 3.0 3.0 3.0 3.0	32.7 31.4 32.6 31.5 32.6	1.0 1.0 1.0 1.0 1.0 1.0	-55.5 -52.4 -43.3 -50.9 -51.8	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-42.5 -39.4 -30.3 -37.9 -38.8		
1.651 2.477 1.651 2.477 Mid Ch, (i 1.673 2.510 1.673 2.510	-20.6 -23.8 -22.0 836.5MHz) -11.7 -20.4 -20.2 -22.1	H H V V H H	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	32.7 31.4 32.6 31.5 32.6	1.0 1.0 1.0 1.0 1.0 1.0 1.0	-55.5 -52.4 -43.3 -50.9 -51.8	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	42.5 -39.4 -30.3 -37.9 -38.8 -39.6 -31.6		
1.651 2.477 1.651 2.477 Mid Ch, (i 1.673 2.510 1.673 2.510 High Ch, (1.694	-20.6 -23.8 -22.0 836.5MHz) -11.7 -20.4 -20.2 -22.1 847.5MHz)	H H V V H H	3.0 3.0 3.0 3.0 3.0 3.0 3.0	32.7 31.4 32.6 31.5 32.6 31.5 32.6 31.5	1.0 1.0 1.0 1.0 1.0 1.0	-55.5 -52.4 -43.3 -50.9 -51.8 -52.6	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	42.5 -39.4 -30.3 -37.9 -38.8 -39.6		
1.651 2.477 1.651 2.477 Mid Ch, (4 1.673 2.510 1.673 2.510 High Ch, (-20.6 -23.8 -22.0 836.5MHz) -11.7 -20.4 -20.2 -22.1 847.5MHz) -13.1	H H V V H H	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	32.7 31.4 32.6 31.5 32.6 31.5 32.6 31.5 32.6	1.0 1.0 1.0 1.0 1.0 1.0 1.0	-55.5 -52.4 -43.3 -50.9 -51.8 -52.6 -44.6	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	42.5 -39.4 -30.3 -37.9 -38.8 -39.6 -31.6		

Page 233 of 241

16QAM Band 5 (3MHz BANDWIDTH)

Company	<i>r</i>								
Project#		13U16584							
Date:	•								
		12/11/13							
Test Eng		R Zheng							
Configur		EUT only							
Mode:		TX, Band 5, 3M	MHz, 16QAM						
Chamber			Pre-an	nplifer		Filter		Lin	nit
3m Chamber D 👻		-	T145 8449	в 🚽	- Filter 1		-	Part 22	
f	SG reading	Ant. Pol.	Distance	Preamp	Filter	ERP	Limit	Delta	Notes
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
	825.5MHz)	()	(,	()	()	(((
1.651	-16.6	v	3.0	32.7	1.0	-48.3	-13.0	-35.3	
2.477	-21.6	V	3.0	31.4	1.0	-52.0	-13.0	-39.0	
1.651	-24.8	Н	3.0	32.7	1.0	-56.5	-13.0	-43.5	
2.477	-23.0	H	3.0	31.4	1.0	-53.4	-13.0	-40.4	
	020 6000-1								
	-12.7	v	3.0	32.6	1.0	-44.3	-13.0	-31.3	
		v	3.0	31.5	1.0	-44.3	-13.0	-38.9	
1.673	214				1.0	-52.8	-13.0	-39.8	
Mid Ch, (1.673 2.510 1.673	-21.4		30	32.6			-10.0		
1.673 2.510 1.673	-21.2	H	3.0	32.6				-40.6	
1.673 2.510 1.673			3.0 3.0	32.6 31.5	1.0	-53.6	-13.0	-40.6	
1.673 2.510 1.673 2.510	-21.2	H						-40.6	
1.673 2.510 1.673 2.510	-21.2 -23.1	H						-40.6	
1.673 2.510 1.673 2.510 High Ch, (1.695	-21.2 -23.1 847.5MHz)	H	3.0	31.5	1.0	-53.6	-13.0		
1.673 2.510 1.673 2.510 High Ch, (-21.2 -23.1 847.5MHz) -14.1	H H V	3.0	31.5 32.6	1.0	-53.6 -45.6	-13.0 -13.0	-32.6	

Page 234 of 241

QPSK Band 5 (5MHz BANDWIDTH)

Company	•								
Project#		13U16584							
Date:									
		12/11/13							
Test Eng		R.Zheng							
Configur		EUT only							
Mode:		TX, Band 5, 5M	MHZ, QPSK						
Chamber			Pre-an	nplifer		Filter		Lin	nit
3m Chamber D 🗸		•	T145 8449	в	← Filter 1		-	Part 22	•
f	SG reading	Ant. Pol.	Distance	Preamp	Filter	ERP	Limit	Delta	Notes
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
	326.5MHz)	()	(,	()	()	(((
1.649	-16.4	V	3.0	32.7	1.0	-48.1	-13.0	-35.1	
2.473	-20.1	V	3.0	31.4	1.0	-50.5	-13.0	-37.5	
1.649	-23.3	Н	3.0	32.7	1.0	-55.0	-13.0	-42.0	
2.473	-22.1	Н	3.0	31.4	1.0	-52.5	-13.0	-39.5	
	336.5MHz)		20	22.0	10	100	120	22.2	
1.668 2.503	-14.6 -20.5	V	3.0 3.0	32.6	1.0	-46.2	-13.0	-33.2 -38.0	
	-20.5	H	3.0	31.5	1.0	-51.0	-13.0 -13.0	-38.0	
	-10.9	H	3.0	31.5	1.0	-50.5	-13.0	-39.5	
1.668	-22.0		5.0	51.5	1.0	-32.3	-13.0	-33.5	
						-			
1.668 2.503	846.5MHz)			226	1.0	-43.3	-13.0	-30.3	
1.668 2.503	846.5MHz) -11.8	V	3.0	32.6			100	-37.4	
1.668 2.503 High Ch, (1.689		V V	3.0 3.0	32.6	1.0	-50.4	-13.0	-31.4	
1.668 2.503 High Ch, (-11.8				1.0 1.0	-50.4	-13.0	-37.0	

Page 235 of 241

16QAM Band 5 (5MHz BANDWIDTH)

Company	r								
Project#		13U16584							
Date:		12/11/13							
Test Eng		R.Zheng							
Configur		EUT only							
Mode:		TX, Band 5, 5M	MHz, 16QAM						
Chamber			Pre-ar	nplifer		Filter		Lir	nit
3m Chamber D 👻		-	T145 8449	145 8449B 🗸		ter 1	•	Part 22	
f	SG reading	Ant. Pol.	Distance	Preamp	Filter	ERP	Limit	Delta	Notes
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
Low Ch. (826.5MHz)				1				
1.649	-17.4	v	3.0	32.7	1.0	-49.1	-13.0	-36.1	0.45.3
2.473	-21.1	V	3.0	31.4	1.0	-51.5	-13.0	-38.5	
1.649	-24.3	Н	3.0	32.7	1.0	-56.0	-13.0	-43.0	
2.473	-23.1	H	3.0	31.4	1.0	-53.5	-13.0	-40.5	
Mid Ch /	B36.5MHz)						-		
1.668	-15.6	V	3.0	32.6	1.0	47.2	-13.0	-34.2	
2.503	-21.5	v	3.0	31.5	1.0	-52.0	-13.0	-39.0	
1.668	-19.9	H	3.0	32.6	1.0	-51.5	-13.0	-38.5	
2.503	-23.0	H	3.0	31.5	1.0	-53.5	-13.0	-40.5	
	846.5MHz)					-			
1.689	-12.8	V	3.0	32.6	1.0	-44.3	-13.0	-31.3	
2.533	-20.9	V	3.0	31.5	1.0	-51.4	-13.0	-38.4	
	-19.4	H	3.0	32.6	1.0	-51.0	-13.0	-38.0	
1.689 2.533	-23.2	Н	3.0	31.5	1.0	-53.7	-13.0	-40.7	

Page 236 of 241

QPSK Band 5 (10MHz BANDWIDTH)

Company	•								
Project#		13U16584							
Date:									
		12/11/13							
Test Eng		R.Zheng							
Configur		EUT only							
Mode:		TX, Band 5, 10	MHZ, QPSK						
Chamber			Pre-an	nplifer		Filter		Lir	nit
3m Chamber D 👻		•	T145 8449B 🗸		Filter 1 🗸			Part 22	
f	SG reading	Ant. Pol.	Distance	Preamp	Filter	ERP	Limit	Delta	Notes
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
Low Ch, (()	(,	()	()	(((
1.649	-14.1	v	3.0	32.7	1.0	45.8	-13.0	-32.8	
2.474	-20.5	V	3.0	31.4	1.0	-50.9	-13.0	-37.9	
1.649	-20.7	Н	3.0	32.7	1.0	-52.4	-13.0	-39.4	
2.474	-22.4	Н	3.0	31.4	1.0	-52.8	-13.0	-39.8	
	336.5MHz)		2.0		10	100	120		
1.664	-10.4	V	3.0	32.6	1.0	-42.0	-13.0	-29.0	
2 400	-19.3 -20.9		3.0	31.5	1.0	49.8	-13.0	-36.8 -39.5	
2.496	-20.9	H	3.0	32.6	1.0	-52.5	-13.0 -13.0	-39.5	
1.664	-21.1	п	3.0	31.5	1.0	-31.0	-13.0	-30.0	
						-			
1.664 2.496	844MHz)			1			-13.0	-38.7	
1.664	844MHz) -20.1	v	3.0	32.6	1.0	-51.7	-13.0		
1.664 2.496 High Ch, (1.680		V V	3.0 3.0	32.6 31.5	1.0 1.0	-51.7	-13.0	-37.4	
1.664 2.496 High Ch, (-20.1							-37.4 -43.1	

Page 237 of 241

16QAM Band 5 (10MHz BANDWIDTH)

Company	r								
Project#		13U16584							
Date:		12/11/13							
Test Eng		R.Zheng							
Configur	ation:	EUT only							
Mode:		TX, Band 5, 10	MHz, 16QAM						
Chamber			Pre-ar	nplifer		Filter		Lir	nit
3m Chamber D 👻		T145 8449	T145 8449B -		ter 1	•	Part 22		
	00 1		D: 4			-		D. 11	
f	SG reading		Distance	Preamp	Filter	ERP	Limit	Delta	Notes
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
Low Ch, (L			L			
1.649	-15.1	v	3.0	32.7	1.0	-46.8	-13.0	-33.8	X4.0
2.474	-21.5	v	3.0	31.4	1.0	-51.9	-13.0	-38.9	
1.649	-21.7	H	3.0	32.7	1.0	-53.4	-13.0	40.4	
2.474	-23.4	H	3.0	31.4	1.0	-53.8	-13.0	-40.8	
Hid Ch /	836.5MHz)								
1.664	-11.4	v	3.0	32.6	1.0	-43.0	-13.0	-30.0	
2.496	-20.3	V	3.0	31.5	1.0	-50.8	-13.0	-37.8	
1.664	-20.5	H	3.0	32.6	1.0	-53.5	-13.0	40.5	
2.496	-22.1	H	3.0	31.5	1.0	-52.6	-13.0	-39.6	
High Ch. (844MHz)		-				1		
1.680	-21.1	V	3.0	32.6	1.0	-52.7	-13.0	-39.7	
2.519	-20.9	V	3.0	31.5	1.0	-51.4	-13.0	-38.4	
2.319	-25.5	Н	3.0	32.6	1.0	-57.1	-13.0	-44.1	
1.680		Н	3.0	31.5	1.0	-53.3	-13.0	-40.3	

Page 238 of 241