C2PC CERTIFICATION TEST REPORT

Report Number. : 11740661-E9V1

Applicant : SONY MOBILE COMMUNICATIONS INC.
4-12-3 HIGASHI-SHINAGAWA,
SHINAGAWA -KU,TOKYO, 140-0002, JAPAN

FCC ID : PY7-81775I

EUT Description : GSM/WCDMA/LTE Phone with BT,DTS/UNII a/b/g/n/ac, GPS & NFC

Test Standard(s) : FCC CFR47 PART 27 SUBPART L

Date Of Issue:

August 30, 2017

Prepared by:

UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538, U.S.A.
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	08/30/17	Initial Issue	D. Coronia

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TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 4
2. TEST METHODOLOGY 5
3. FACILITIES AND ACCREDITATION 5
4. CALIBRATION AND UNCERTAINTY 5
4.1. MEASURING INSTRUMENT CALIBRATION 5
4.2. SAMPLE CALCULATION 5
4.3. MEASUREMENT UNCERTAINTY 6
5. EQUIPMENT UNDER TEST 6
5.1. DESCRIPTION OF EUT 6
6. MAXIMUM OUTPUT POWER 7
6.1. MAXIMUM OUTPUT POWER (LTE) 7
7. DESCRIPTION OF AVAILABLE ANTENNAS 8
8. DESCRIPTION OF TEST SETUP 9
9. TEST AND MEASUREMENT EQUIPMENT 11
10. SUMMARY TABLE 12
11. RF POWER OUTPUT VERIFICATION 13
11.1. LTE OUTPUT POWER RESULT 14
12. RADIATED TEST RESULTS 27
12.1. FIELD STRENGTH OF SPURIOUS RADIATION 27
12.1.1. SPURIOUS RADIATION PLOTS 28
13. SETUP PHOTOS 31

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SONY MOBILE COMMUNICATIONS, INC.
4-12-3 HIGASHI-SHINAGAWA,
SHINAGAWA –KU, TOKYO, 140-0002, JAPAN

EUT DESCRIPTION: GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac, GPS & NFC

SERIAL NUMBER: QV7001QP0N, QV7001RA0N

DATE TESTED: August 30, 2017

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC 27L	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
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Prepared By:

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WiSE ENGINEER
UL VERIFICATION SERVICES INC

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-D, FCC CFR 47 Part 2, FCC KDB 971168 D01 v02r02 and Part 27

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(IC: 2324B-1)	☐ Chamber D(IC: 22541-1)
☐ Chamber B(IC: 2324B-2)	☐ Chamber E(IC: 22541-2)
☒ Chamber C(IC: 2324B-3)	☐ Chamber F(IC: 22541-3)
	☐ Chamber G(IC: 22541-4)
	☐ Chamber H(IC: 22541-5)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.
UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.
Chambers A through C are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-3, respectively. Chambers D through H are covered under Industry Canada company address code 22541 with site numbers 22541 -1 through 22541-5, respectively.

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:

EIRP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss(between the SG and substitution antenna) + Substitution Antenna Factor (dBi)

ERP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss(between the SG and substitution antenna)

(Path loss = Signal generator output – PSA reading with substitution antenna)

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4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Occupied Channel Bandwidth	±1.1 %
RF output power, conducted	±0.35 dB
Power Spectral Density, conducted	±0.39 dB
Unwanted Emissions, conducted	±2.9 dB
All emissions, radiated	±5.36 dB
Temperature	±0.9 °C
Humidity	±2.26% RH
Supply Voltages	±0.45 %
Time	±0.2 %

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

This EUT is a GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac, GPS & NFC.

The purpose of this C2PC:

Change in Antenna tuning parameter affecting LTE Band 4 and Band 66. This change do not affect SAR testing results as confirmed with preliminary testing and indicated in C2PC submittal documents for details. Therefore SAR Report is not required for the C2PC.

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6. MAXIMUM OUTPUT POWER

6.1. MAXIMUM OUTPUT POWER (LTE)

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

LTE Band 66

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted (Average)		EIRP (Average)	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE66	1710~1780	1.4MHz	QPSK	20.2	104.71	17.10	51.29
			16QAM	20.1	102.33	17.00	50.12
		3MHz	QPSK	20.3	107.15	17.20	52.48
			16QAM	20.1	102.33	17.00	50.12
		5MHz	QPSK	20.4	109.65	17.30	53.70
			16QAM	20.3	107.15	17.20	52.48
		10MHz	QPSK	20.3	107.15	17.20	52.48
			16QAM	20.2	104.71	17.10	51.29
		15MHz	QPSK	20.4	109.65	17.30	53.70
			16QAM	20.3	107.15	17.20	52.48
		20MHz	QPSK	20.5	112.20	17.40	54.95
			16QAM	20.3	107.15	17.20	52.48

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7. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna for the [List the bands supported] with a maximum peak gain as follow:

Frequency (MHz)	Peak Gain (dBi)
LTE Band 66, 1710~1780MHz	-3.1

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8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	SONY	1300-7137.1	4016W40310044	NA
Earphone	SONY	N/A	N/A	N/A

I/O CABLES (CONDUCTED SETUP)

I/O Cable List						
Cable No	**Port**	**# of Identical ports**	**Connector Type**	**Serial Type**	**Cable Length (m)**	**Remarks**
1	RF Out	1	Spectrum Analyzer	Shielded	None	NA
2	Antenna Port	1	EUT	Shielded	0.1m	NA
3	RF In/Out	1	Communication Test Set	Shielded	1m	NA

I/O CABLES (RADIATED SETUP)

I/O Cable List						
Cable No	**Port**	**# of Identical ports**	**Connector Type**	**Serial Type**	**Cable Length (m)**	**Remarks**
1	USB	1	AC Adapter	Un-shielded	1.2m	No
2	Jack	1	Headset	Shielded	1m	No
3	RF In/out	1	Communication Test Set	Un-shielded	2m	Yes

TEST SETUP

The EUT is continuously communicated to the call box during the tests.

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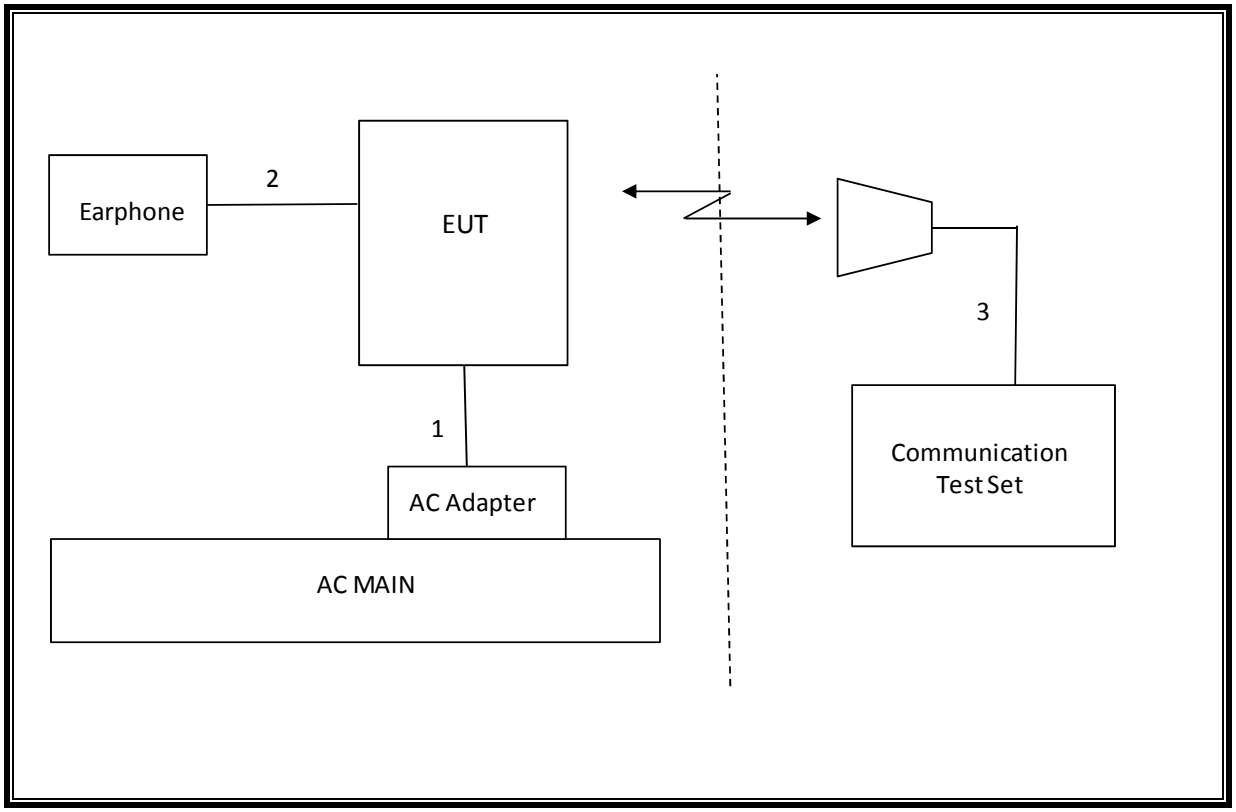
SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



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9. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List					
Description	**Manufacturer**	**Model**	**T Number**	**Cal Date**	**Cal Due**
Amplifier, 1 to 8 GHz	Miteq	AMF-4D-01000800-30-29P	1156	02/15/17	02/15/18
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	408	11/10/16	11/10/17
Highpass Filter, 2.7 GHz	Micro-Circuits	H2G518G6	T772	7/5/16	07/5/18
Highpass Filter, 1 GHz	Micro-Tronics	HPM18129	T889	2/21/17	02/21/18
Highpass Filter, 4GHz	Micro-Tronics	HPM13351	T1241	7/19/16	07/19/17
Amplifier, 1-18GHz	Miteq	AFS42-00101800-25-S-42	931	08/26/16	08/26/17
Amplifier, 10KHz to 1GHz, 32dB	Keysight	8447D	15	08/26/16	08/26/17
Antenna, Horn 1-18GHz	ETS Lindgren	3117	712	01/30/17	01/30/18
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	905	01/11/17	01/11/18
Antenna, Tuned Dipole 400~1000 MHz	ETS	3121C DB4	T273	6/08/17	6/08/18

Test Equipment List			
Description	**Manufacturer**	**Model**	**T Number**
Radiated Software	UL	UL EMC	Ver 9.5, June 24, 2015
Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015
CLT Software	UL	UL RF	Ver 1.0, Feb 2, 2015
Antenna Port Software	UL	UL RF	Ver 3.7, Nov 12, 2015

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10. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
2.1046	Conducted output power	N/A		Pass
24.232(c) 27.50(h)(2)	Equivalent Isotropic Radiated Power	33dBm	Radiated	Pass
22.917(a) 24.238(a) 27.53(g)	Radiated Spurious Emission	-13dBm		Pass

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11. RF POWER OUTPUT VERIFICATION

TEST PROCEDURE

ANSI C63.26:2015/ TIA / EIA 603-D Clause 2.2.17
KDB 971168 Section 5.6

ERP/EIRP = PMeas + GT – LC

where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);
PMeas = measured transmitter output power or PSD, in dBm or dBW;
GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);
LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.2

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

MODES TESTED

- **LTE Band 66**

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11.1. LTE OUTPUT POWER RESULT

LTE Band 4 Measured Results

LTE Band 4 (Frequency range: 1710-1755MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) and no testing is necessary due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth and same modulations.

64QAM Measured Results

Measured QPSK,16QAM & 64QAM Mode Output power and found that QPSK and 16QAM results was the worst case. All testing were performed using QPSK and 16QAM mode to represent the worst case mode.

Tested By	AJ Newcomer/ Vanessa Moestopo
Date	6/5-12/2017

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LTE Band 66

Antenna gain (dBi)		-3.10							
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
1.4	131979	1710.7	QPSK	1	0	20.1	17.0	33.0	-16.0
				1	3	20.1	17.0	33.0	-16.0
				1	5	20.1	17.0	33.0	-16.0
				3	0	20.2	17.1	33.0	-15.9
				3	1	20.2	17.1	33.0	-15.9
				3	3	20.2	17.1	33.0	-15.9
				6	0	20.1	17.0	33.0	-16.0
			16QAM	1	0	20.0	16.9	33.0	-16.1
				1	3	20.1	17.0	33.0	-16.0
				1	5	20.0	16.9	33.0	-16.1
				3	0	19.9	16.8	33.0	-16.2
				3	1	20.0	16.9	33.0	-16.1
				3	3	19.9	16.8	33.0	-16.2
				6	0	19.6	16.5	33.0	-16.5
			64QAM	1	0	19.3	16.2	33.0	-16.8
				1	3	19.4	16.3	33.0	-16.7
				1	5	19.3	16.2	33.0	-16.8
				3	0	19.1	16.0	33.0	-17.0
				3	1	19.2	16.1	33.0	-16.9
				3	3	19.1	16.0	33.0	-17.0
				6	0	19.1	16.0	33.0	-17.0
1.4	132322	1745.0	QPSK	1	0	20.0	16.9	33.0	-16.1
				1	3	20.0	16.9	33.0	-16.1
				1	5	20.0	16.9	33.0	-16.1
				3	0	20.0	16.9	33.0	-16.1
				3	1	20.0	16.9	33.0	-16.1
				3	3	20.0	16.9	33.0	-16.1
				6	0	20.0	16.9	33.0	-16.1
			16QAM	1	0	19.3	16.2	33.0	-16.8
				1	3	19.4	16.3	33.0	-16.7
				1	5	19.3	16.2	33.0	-16.8
				3	0	19.7	16.6	33.0	-16.4
				3	1	19.7	16.6	33.0	-16.4
				3	3	19.7	16.6	33.0	-16.4
				6	0	19.7	16.6	33.0	-16.4
			64QAM	1	0	18.8	15.7	33.0	-17.3
				1	3	18.9	15.8	33.0	-17.2
				1	5	18.8	15.7	33.0	-17.3
				3	0	18.7	15.6	33.0	-17.4
				3	1	18.8	15.7	33.0	-17.3
				3	3	18.7	15.6	33.0	-17.4
				6	0	18.7	15.6	33.0	-17.4

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Antenna gain (dBi)		-3.10							
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
1.4	132665	1779.3	QPSK	1	0	19.9	16.8	33.0	-16.2
				1	3	19.9	16.8	33.0	-16.2
				1	5	19.9	16.8	33.0	-16.2
				3	0	19.9	16.8	33.0	-16.2
				3	1	20.0	16.9	33.0	-16.1
				3	3	19.9	16.8	33.0	-16.2
				6	0	19.9	16.8	33.0	-16.2
			16QAM	1	0	19.1	16.0	33.0	-17.0
				1	3	19.2	16.1	33.0	-16.9
				1	5	19.2	16.1	33.0	-16.9
				3	0	19.5	16.4	33.0	-16.6
				3	1	19.5	16.4	33.0	-16.6
				3	3	19.5	16.4	33.0	-16.6
				6	0	19.6	16.5	33.0	-16.5
			64QAM	1	0	18.5	15.4	33.0	-17.6
				1	3	18.5	15.4	33.0	-17.6
				1	5	18.5	15.4	33.0	-17.6
				3	0	18.5	15.4	33.0	-17.6
				3	1	18.5	15.4	33.0	-17.6
				3	3	18.5	15.4	33.0	-17.6
				6	0	18.5	15.4	33.0	-17.6

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Antenna gain (dBi)	-3.10

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3.0	131987	1711.5	QPSK	1	0	20.2	17.1	33.0	-15.9
				1	8	20.2	17.1	33.0	-15.9
				1	14	20.2	17.1	33.0	-15.9
				8	0	20.2	17.1	33.0	-15.9
				8	4	20.3	17.2	33.0	-15.8
				8	7	20.2	17.1	33.0	-15.9
				15	0	20.2	17.1	33.0	-15.9
			16QAM	1	0	20.1	17.0	33.0	-16.0
				1	8	20.1	17.0	33.0	-16.0
				1	14	20.1	17.0	33.0	-16.0
				8	0	19.8	16.7	33.0	-16.3
				8	4	19.9	16.8	33.0	-16.2
				8	7	19.8	16.7	33.0	-16.3
				15	0	19.8	16.7	33.0	-16.3
			64QAM	1	0	19.3	16.2	33.0	-16.8
				1	8	19.3	16.2	33.0	-16.8
				1	14	19.3	16.2	33.0	-16.8
				8	0	19.1	16.0	33.0	-17.0
				8	4	19.1	16.0	33.0	-17.0
				8	7	19.1	16.0	33.0	-17.0
				15	0	19.1	16.0	33.0	-17.0
3.0	132322	1745.0	QPSK	1	0	20.0	16.9	33.0	-16.1
				1	8	20.0	16.9	33.0	-16.1
				1	14	20.0	16.9	33.0	-16.1
				8	0	20.1	17.0	33.0	-16.0
				8	4	20.1	17.0	33.0	-16.0
				8	7	20.1	17.0	33.0	-16.0
				15	0	20.1	17.0	33.0	-16.0
			16QAM	1	0	19.5	16.4	33.0	-16.6
				1	8	19.5	16.4	33.0	-16.6
				1	14	19.5	16.4	33.0	-16.6
				8	0	19.7	16.6	33.0	-16.4
				8	4	19.7	16.6	33.0	-16.4
				8	7	19.6	16.5	33.0	-16.5
				15	0	19.7	16.6	33.0	-16.4
			64QAM	1	0	18.6	15.5	33.0	-17.5
				1	8	18.5	15.4	33.0	-17.6
				1	14	18.5	15.4	33.0	-17.6
				8	0	18.7	15.6	33.0	-17.4
				8	4	18.8	15.7	33.0	-17.3
				8	7	18.7	15.6	33.0	-17.4
				15	0	18.7	15.6	33.0	-17.4

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Antenna gain (dBi)	-3.10								
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
3.0	132657	1778.5	QPSK	1	0	20.0	16.9	33.0	-16.1
				1	8	19.9	16.8	33.0	-16.2
				1	14	19.9	16.8	33.0	-16.2
				8	0	20.0	16.9	33.0	-16.1
				8	4	20.0	16.9	33.0	-16.1
				8	7	20.0	16.9	33.0	-16.1
				15	0	20.0	16.9	33.0	-16.1
			16QAM	1	0	19.3	16.2	33.0	-16.8
				1	8	19.2	16.1	33.0	-16.9
				1	14	19.2	16.1	33.0	-16.9
				8	0	19.5	16.4	33.0	-16.6
				8	4	19.5	16.4	33.0	-16.6
				8	7	19.5	16.4	33.0	-16.6
				15	0	19.5	16.4	33.0	-16.6
			64QAM	1	0	18.5	15.4	33.0	-17.6
				1	8	18.5	15.4	33.0	-17.6
				1	14	18.5	15.4	33.0	-17.6
				8	0	18.5	15.4	33.0	-17.6
				8	4	18.5	15.4	33.0	-17.6
				8	7	18.5	15.4	33.0	-17.6
				15	0	18.5	15.4	33.0	-17.6

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Antenna gain (dBi)	-3.10

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5.0	131997	1712.5	QPSK	1	0	20.3	17.2	33.0	-15.8
				1	12	20.2	17.1	33.0	-15.9
				1	24	20.2	17.1	33.0	-15.9
				12	0	20.3	17.2	33.0	-15.8
				12	7	20.3	17.2	33.0	-15.8
				12	13	20.3	17.2	33.0	-15.8
				25	0	20.3	17.2	33.0	-15.8
			16QAM	1	0	20.4	17.3	33.0	-15.7
				1	12	20.4	17.3	33.0	-15.7
				1	24	20.4	17.3	33.0	-15.7
				12	0	19.9	16.8	33.0	-16.2
				12	7	19.9	16.8	33.0	-16.2
				12	13	19.9	16.8	33.0	-16.2
				25	0	19.9	16.8	33.0	-16.2
			64QAM	1	0	19.1	16.0	33.0	-17.0
				1	12	19.0	15.9	33.0	-17.1
				1	24	19.0	15.9	33.0	-17.1
				12	0	18.9	15.8	33.0	-17.2
				12	7	18.9	15.8	33.0	-17.2
				12	13	18.8	15.7	33.0	-17.3
				25	0	18.8	15.7	33.0	-17.3
5.0	132322	1745.0	QPSK	1	0	20.3	17.2	33.0	-15.8
				1	12	20.2	17.1	33.0	-15.9
				1	24	20.2	17.1	33.0	-15.9
				12	0	20.2	17.1	33.0	-15.9
				12	7	20.2	17.1	33.0	-15.9
				12	13	20.1	17.0	33.0	-16.0
				25	0	20.2	17.1	33.0	-15.9
			16QAM	1	0	19.7	16.6	33.0	-16.4
				1	2	19.6	16.5	33.0	-16.5
				1	5	19.6	16.5	33.0	-16.5
				3	0	19.7	16.6	33.0	-16.4
				3	1	19.7	16.6	33.0	-16.4
				3	2	19.7	16.6	33.0	-16.4
				6	0	19.7	16.6	33.0	-16.4
			64QAM	1	0	18.7	15.6	33.0	-17.4
				1	12	18.6	15.5	33.0	-17.5
				1	24	18.6	15.5	33.0	-17.5
				12	0	18.6	15.5	33.0	-17.5
				12	7	18.6	15.5	33.0	-17.5
				12	13	18.6	15.5	33.0	-17.5
				25	0	18.6	15.5	33.0	-17.5

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Antenna gain (dBi)	-3.10

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
5.0	132647	1777.5	QPSK	1	0	20.0	16.9	33.0	-16.1
				1	12	19.9	16.8	33.0	-16.2
				1	24	19.9	16.8	33.0	-16.2
				12	0	20.0	16.9	33.0	-16.1
				12	7	20.0	16.9	33.0	-16.1
				12	13	20.0	16.9	33.0	-16.1
				25	0	20.0	16.9	33.0	-16.1
			16QAM	1	0	19.6	16.5	33.0	-16.5
				1	12	19.5	16.4	33.0	-16.6
				1	24	19.5	16.4	33.0	-16.6
				12	0	19.7	16.6	33.0	-16.4
				12	7	19.7	16.6	33.0	-16.4
				12	13	19.6	16.5	33.0	-16.5
				25	0	19.5	16.4	33.0	-16.6
			64QAM	1	0	18.3	15.2	33.0	-17.8
				1	12	18.5	15.4	33.0	-17.6
				1	24	18.5	15.4	33.0	-17.6
				12	0	18.5	15.4	33.0	-17.6
				12	7	18.5	15.4	33.0	-17.6
				12	13	18.5	15.4	33.0	-17.6
				25	0	18.5	15.4	33.0	-17.6

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Antenna gain (dBi)	-3.10								
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10.0	132022	1715.0	QPSK	1	0	20.3	17.2	33.0	-15.8
				1	25	20.2	17.1	33.0	-15.9
				1	49	20.2	17.1	33.0	-15.9
				25	0	20.3	17.2	33.0	-15.8
				25	12	20.3	17.2	33.0	-15.8
				25	25	20.3	17.2	33.0	-15.8
				50	0	20.3	17.2	33.0	-15.8
			16QAM	1	0	20.2	17.1	33.0	-15.9
				1	25	20.1	17.0	33.0	-16.0
				1	49	20.2	17.1	33.0	-15.9
				25	0	19.9	16.8	33.0	-16.2
				25	12	19.9	16.8	33.0	-16.2
				25	25	19.8	16.7	33.0	-16.3
				50	0	19.8	16.7	33.0	-16.3
			64QAM	1	0	19.2	16.1	33.0	-16.9
				1	25	19.1	16.0	33.0	-17.0
				1	49	19.1	16.0	33.0	-17.0
				25	0	18.8	15.7	33.0	-17.3
				25	12	18.8	15.7	33.0	-17.3
				25	25	18.8	15.7	33.0	-17.3
				50	0	18.8	15.7	33.0	-17.3
10.0	132322	1745.0	QPSK	1	0	20.0	16.9	33.0	-16.1
				1	25	20.0	16.9	33.0	-16.1
				1	49	20.0	16.9	33.0	-16.1
				25	0	20.2	17.1	33.0	-15.9
				25	12	20.2	17.1	33.0	-15.9
				25	25	20.1	17.0	33.0	-16.0
				50	0	20.1	17.0	33.0	-16.0
			16QAM	1	0	19.6	16.5	33.0	-16.5
				1	25	19.6	16.5	33.0	-16.5
				1	49	19.5	16.4	33.0	-16.6
				25	0	19.8	16.7	33.0	-16.3
				25	12	19.8	16.7	33.0	-16.3
				25	25	19.7	16.6	33.0	-16.4
				50	0	19.7	16.6	33.0	-16.4
			64QAM	1	0	18.6	15.5	33.0	-17.5
				1	25	18.6	15.5	33.0	-17.5
				1	49	18.5	15.4	33.0	-17.6
				25	0	18.5	15.4	33.0	-17.6
				25	12	18.5	15.4	33.0	-17.6
				25	25	18.6	15.5	33.0	-17.5
				50	0	18.5	15.4	33.0	-17.6

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Antenna gain (dBi)	-3.10

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
10.0	132622	1775.0	QPSK	1	0	20.2	17.1	33.0	-15.9
				1	25	20.0	16.9	33.0	-16.1
				1	49	20.0	16.9	33.0	-16.1
				25	0	20.2	17.1	33.0	-15.9
				25	12	20.1	17.0	33.0	-16.0
				25	25	20.0	16.9	33.0	-16.1
				50	0	20.1	17.0	33.0	-16.0
			16QAM	1	0	19.5	16.4	33.0	-16.6
				1	25	19.3	16.2	33.0	-16.8
				1	49	19.3	16.2	33.0	-16.8
				25	0	19.9	16.8	33.0	-16.2
				25	12	19.7	16.6	33.0	-16.4
				25	25	19.7	16.6	33.0	-16.4
				50	0	19.6	16.5	33.0	-16.5
			64QAM	1	0	18.6	15.5	33.0	-17.5
				1	25	18.3	15.2	33.0	-17.8
				1	49	18.5	15.4	33.0	-17.6
				25	0	18.5	15.4	33.0	-17.6
				25	12	18.5	15.4	33.0	-17.6
				25	25	18.5	15.4	33.0	-17.6
				50	0	18.5	15.4	33.0	-17.6

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Antenna gain (dBi)	-3.10								
Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
15.0	132047	1717.5	QPSK	1	0	20.4	17.3	33.0	-15.7
				1	37	20.2	17.1	33.0	-15.9
				1	74	20.2	17.1	33.0	-15.9
				36	0	20.3	17.2	33.0	-15.8
				36	20	20.2	17.1	33.0	-15.9
				36	39	20.3	17.2	33.0	-15.8
				75	0	20.2	17.1	33.0	-15.9
			16QAM	1	0	20.3	17.2	33.0	-15.8
				1	37	20.1	17.0	33.0	-16.0
				1	74	20.1	17.0	33.0	-16.0
				36	0	19.9	16.8	33.0	-16.2
				36	20	19.8	16.7	33.0	-16.3
				36	39	19.9	16.8	33.0	-16.2
				75	0	19.8	16.7	33.0	-16.3
			64QAM	1	0	19.3	16.2	33.0	-16.8
				1	37	19.0	15.9	33.0	-17.1
				1	74	19.1	16.0	33.0	-17.0
				36	0	18.9	15.8	33.0	-17.2
				36	20	18.8	15.7	33.0	-17.3
				36	39	18.9	15.8	33.0	-17.2
				75	0	18.8	15.7	33.0	-17.3
15.0	132322	1745.0	QPSK	1	0	20.1	17.0	33.0	-16.0
				1	37	19.9	16.8	33.0	-16.2
				1	74	19.9	16.8	33.0	-16.2
				36	0	20.0	16.9	33.0	-16.1
				36	20	20.1	17.0	33.0	-16.0
				36	39	20.1	17.0	33.0	-16.0
				75	0	20.1	17.0	33.0	-16.0
			16QAM	1	0	19.6	16.5	33.0	-16.5
				1	37	19.5	16.4	33.0	-16.6
				1	74	19.4	16.3	33.0	-16.7
				36	0	19.7	16.6	33.0	-16.4
				36	20	19.7	16.6	33.0	-16.4
				36	39	19.7	16.6	33.0	-16.4
				75	0	19.7	16.6	33.0	-16.4
			64QAM	1	0	19.0	15.9	33.0	-17.1
				1	37	18.9	15.8	33.0	-17.2
				1	74	18.8	15.7	33.0	-17.3
				36	0	18.7	15.6	33.0	-17.4
				36	20	18.8	15.7	33.0	-17.3
				36	39	18.7	15.6	33.0	-17.4
				75	0	18.7	15.6	33.0	-17.4

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Antenna gain (dBi)	-3.10

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
15.0	132572	1772.5	QPSK	1	0	20.3	17.2	33.0	-15.8
				1	37	20.0	16.9	33.0	-16.1
				1	74	19.9	16.8	33.0	-16.2
				36	0	20.1	17.0	33.0	-16.0
				36	20	20.1	17.0	33.0	-16.0
				36	39	20.0	16.9	33.0	-16.1
				75	0	20.0	16.9	33.0	-16.1
			16QAM	1	0	19.9	16.8	33.0	-16.2
				1	37	19.6	16.5	33.0	-16.5
				1	74	19.4	16.3	33.0	-16.7
				36	0	19.5	16.4	33.0	-16.6
				36	20	19.7	16.6	33.0	-16.4
				36	39	19.5	16.4	33.0	-16.6
				75	0	19.5	16.4	33.0	-16.6
			64QAM	1	0	18.8	15.7	33.0	-17.3
				1	37	18.5	15.4	33.0	-17.6
				1	74	18.3	15.2	33.0	-17.8
				36	0	18.4	15.3	33.0	-17.7
				36	20	18.3	15.2	33.0	-17.8
				36	39	18.5	15.4	33.0	-17.6
				75	0	18.5	15.4	33.0	-17.6

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Antenna gain (dBi)	-3.10

Bandwidth	UL Channel	Frequency (MHz)	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
20.0	132072	1720.0	QPSK	1	0	20.3	17.2	33.0	-15.8
				1	49	20.2	17.1	33.0	-15.9
				1	99	20.2	17.1	33.0	-15.9
				50	0	20.3	17.2	33.0	-15.8
				50	24	20.3	17.2	33.0	-15.8
				50	50	20.2	17.1	33.0	-15.9
				100	0	20.3	17.2	33.0	-15.8
			16QAM	1	0	20.5	17.4	33.0	-15.6
				1	49	20.3	17.2	33.0	-15.8
				1	99	20.4	17.3	33.0	-15.7
				50	0	19.8	16.7	33.0	-16.3
				50	24	19.8	16.7	33.0	-16.3
				50	50	19.7	16.6	33.0	-16.4
				100	0	19.8	16.7	33.0	-16.3
			64QAM	1	0	19.4	16.3	33.0	-16.7
				1	49	19.1	16.0	33.0	-17.0
				1	99	19.2	16.1	33.0	-16.9
				50	0	19.1	16.0	33.0	-17.0
				50	24	19.1	16.0	33.0	-17.0
				50	50	19.0	15.9	33.0	-17.1
				100	0	19.0	15.9	33.0	-17.1
20.0	132322	1745.0	QPSK	1	0	20.4	17.3	33.0	-15.7
				1	49	20.1	17.0	33.0	-16.0
				1	99	20.0	16.9	33.0	-16.1
				50	0	20.3	17.2	33.0	-15.8
				50	24	20.2	17.1	33.0	-15.9
				50	50	20.1	17.0	33.0	-16.0
				100	0	20.2	17.1	33.0	-15.9
			16QAM	1	0	20.2	17.1	33.0	-15.9
				1	49	19.8	16.7	33.0	-16.3
				1	99	19.8	16.7	33.0	-16.3
				50	0	19.7	16.6	33.0	-16.4
				50	24	19.7	16.6	33.0	-16.4
				50	50	19.6	16.5	33.0	-16.5
				100	0	19.7	16.6	33.0	-16.4
			64QAM	1	0	19.0	15.9	33.0	-17.1
				1	49	18.9	15.8	33.0	-17.2
				1	99	18.7	15.6	33.0	-17.4
				50	0	18.8	15.7	33.0	-17.3
				50	24	18.7	15.6	33.0	-17.4
				50	50	18.5	15.4	33.0	-17.6
				100	0	18.7	15.6	33.0	-17.4

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Antenna gain (dBi)		-3.10							
Bandwidth	UL Channel	-1.5	Modulation	RB Size	RB Offset	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Limit (dBm)	Margin (dB)
20.0	132572	1770.0	QPSK	1	0	20.4	17.3	33.0	-15.7
				1	12	20.1	17.0	33.0	-16.0
				1	24	20.1	17.0	33.0	-16.0
				12	0	20.3	17.2	33.0	-15.8
				12	7	20.3	17.2	33.0	-15.8
				12	13	20.1	17.0	33.0	-16.0
				25	0	20.3	17.2	33.0	-15.8
			16QAM	1	0	20.2	17.1	33.0	-15.9
				1	12	19.8	16.7	33.0	-16.3
				1	24	19.8	16.7	33.0	-16.3
				12	0	19.9	16.8	33.0	-16.2
				12	7	19.8	16.7	33.0	-16.3
				12	13	19.6	16.5	33.0	-16.5
				25	0	19.8	16.7	33.0	-16.3
			64QAM	1	0	18.9	15.8	33.0	-17.2
				1	12	18.5	15.4	33.0	-17.6
				1	24	18.5	15.4	33.0	-17.6
				12	0	18.6	15.5	33.0	-17.5
				12	7	18.5	15.4	33.0	-17.6
				12	13	18.3	15.2	33.0	-17.8
				25	0	18.5	15.4	33.0	-17.6

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12. RADIATED TEST RESULTS

12.1. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053 and §27.53

FCC LIMIT

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

Part 27: (m)(4) (4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the Channel edge and 5 megahertz from the Channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the Channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the Channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on Channel BRS Channel 1 on the same terms and conditions as adjacent Channel BRS or EBS licensees.

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.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

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12.1.1. SPURIOUS RADIATION PLOTS

LTE Band 66

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 11740661 C2PC
Date: 8/30/2017
Test Engineer: 43574 JS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_QPSK Band 66 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1710.7MHz									
3421.40	-18.3	V	3.0	36.1	1.0	-53.3	-13.0	-40.3	
5132.10	-14.0	V	3.0	35.4	1.0	-48.4	-13.0	-35.4	
6842.80	-12.6	V	3.0	35.7	1.0	-47.2	-13.0	-34.2	
3421.40	-19.0	H	3.0	36.1	1.0	-54.0	-13.0	-41.0	
5132.10	-14.2	H	3.0	35.4	1.0	-48.6	-13.0	-35.6	
6842.80	-11.6	H	3.0	35.7	1.0	-46.2	-13.0	-33.2	
Mid Ch, 1745MHz									
3490.00	-18.7	V	3.0	36.0	1.0	-53.7	-13.0	-40.7	
5235.00	-14.1	V	3.0	35.4	1.0	-48.5	-13.0	-35.5	
6980.00	-12.7	V	3.0	35.7	1.0	-47.4	-13.0	-34.4	
3490.00	-18.1	H	3.0	36.0	1.0	-53.1	-13.0	-40.1	
5235.00	-14.3	H	3.0	35.4	1.0	-48.7	-13.0	-35.7	
6980.00	-11.9	H	3.0	35.7	1.0	-46.6	-13.0	-33.6	
High Ch, 1779.3MHz									
3558.60	-18.0	V	3.0	36.0	1.0	-53.0	-13.0	-40.0	
5337.90	-14.0	V	3.0	35.4	1.0	-48.5	-13.0	-35.5	
7117.20	-12.3	V	3.0	35.7	1.0	-47.0	-13.0	-34.0	
3558.60	-18.7	H	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5337.90	-13.7	H	3.0	35.4	1.0	-48.2	-13.0	-35.2	
7117.20	-11.6	H	3.0	35.7	1.0	-46.3	-13.0	-33.3	

LTE B66 1.4MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 11740661 C2PC
Date: 8/30/2017
Test Engineer: 43574 JS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_16QAM Band 66 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1710.7MHz									
3421.40	-18.1	V	3.0	36.1	1.0	-53.2	-13.0	-40.2	
5132.10	-13.9	V	3.0	35.4	1.0	-48.3	-13.0	-35.3	
6842.80	-13.1	V	3.0	35.7	1.0	-47.8	-13.0	-34.8	
3421.40	-19.2	H	3.0	36.1	1.0	-54.2	-13.0	-41.2	
5132.10	-14.2	H	3.0	35.4	1.0	-48.7	-13.0	-35.7	
6842.80	-11.8	H	3.0	35.7	1.0	-46.4	-13.0	-33.4	
Mid Ch, 1745MHz									
3490.00	-18.4	V	3.0	36.0	1.0	-53.4	-13.0	-40.4	
5235.00	-13.6	V	3.0	35.4	1.0	-48.0	-13.0	-35.0	
6980.00	-13.1	V	3.0	35.7	1.0	-47.7	-13.0	-34.7	
3490.00	-18.6	H	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5235.00	-13.7	H	3.0	35.4	1.0	-48.1	-13.0	-35.1	
6980.00	-11.6	H	3.0	35.7	1.0	-46.3	-13.0	-33.3	
High Ch, 1779.3MHz									
3558.60	-18.3	V	3.0	36.0	1.0	-53.3	-13.0	-40.3	
5337.90	-14.2	V	3.0	35.4	1.0	-48.7	-13.0	-35.7	
7117.20	-12.4	V	3.0	35.7	1.0	-47.1	-13.0	-34.1	
3558.60	-18.7	H	3.0	36.0	1.0	-53.7	-13.0	-40.7	
5337.90	-14.0	H	3.0	35.4	1.0	-48.4	-13.0	-35.4	
7117.20	-11.4	H	3.0	35.7	1.0	-46.1	-13.0	-33.1	

LTE B66 1.4MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 11740661 C2PC
Date: 8/30/2017
Test Engineer: 43574 JS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_QPSK Band 66 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1711.5MHz									
3423.00	-18.6	V	3.0	36.1	1.0	-53.7	-13.0	-40.7	
5134.50	-13.9	V	3.0	35.4	1.0	-48.4	-13.0	-35.4	
6846.00	-13.5	V	3.0	35.7	1.0	-48.2	-13.0	-35.2	
3423.00	-18.8	H	3.0	36.1	1.0	-53.9	-13.0	-40.9	
5134.50	-14.0	H	3.0	35.4	1.0	-48.4	-13.0	-35.4	
6846.00	-12.5	H	3.0	35.7	1.0	-47.1	-13.0	-34.1	
Mid Ch, 1745MHz									
3490.00	-18.6	V	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5235.00	-14.0	V	3.0	35.4	1.0	-48.4	-13.0	-35.4	
6980.00	-13.4	V	3.0	35.7	1.0	-48.1	-13.0	-35.1	
3490.00	-18.8	H	3.0	36.0	1.0	-53.8	-13.0	-40.8	
5235.00	-13.9	H	3.0	35.4	1.0	-48.3	-13.0	-35.3	
6980.00	-12.3	H	3.0	35.7	1.0	-47.0	-13.0	-34.0	
High Ch, 1778.5MHz									
3557.00	-18.3	V	3.0	36.0	1.0	-53.3	-13.0	-40.3	
5335.50	-13.8	V	3.0	35.4	1.0	-48.2	-13.0	-35.2	
7114.00	-13.0	V	3.0	35.7	1.0	-47.7	-13.0	-34.7	
3557.00	-18.3	H	3.0	36.0	1.0	-53.2	-13.0	-40.2	
5335.50	-13.3	H	3.0	35.4	1.0	-47.7	-13.0	-34.7	
7114.00	-11.9	H	3.0	35.7	1.0	-46.6	-13.0	-33.6	

LTE B66 3MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 11740661 C2PC
Date: 8/30/2017
Test Engineer: 43574 JS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_16QAM Band 66 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1711.5MHz									
3423.00	-18.8	V	3.0	36.1	1.0	-53.8	-13.0	-40.8	
5134.50	-14.2	V	3.0	35.4	1.0	-48.6	-13.0	-35.6	
6846.00	-13.4	V	3.0	35.7	1.0	-48.0	-13.0	-35.0	
3423.00	-19.2	H	3.0	36.1	1.0	-54.2	-13.0	-41.2	
5134.50	-14.0	H	3.0	35.4	1.0	-48.4	-13.0	-35.4	
6846.00	-12.3	H	3.0	35.7	1.0	-47.0	-13.0	-34.0	
Mid Ch, 1745MHz									
3490.00	-18.5	V	3.0	36.0	1.0	-53.5	-13.0	-40.5	
5235.00	-13.6	V	3.0	35.4	1.0	-48.0	-13.0	-35.0	
6980.00	-13.9	V	3.0	35.7	1.0	-48.6	-13.0	-35.6	
3490.00	-19.0	H	3.0	36.0	1.0	-54.0	-13.0	-41.0	
5235.00	-14.2	H	3.0	35.4	1.0	-48.6	-13.0	-35.6	
6980.00	-12.3	H	3.0	35.7	1.0	-47.0	-13.0	-34.0	
High Ch, 1778.5MHz									
3557.00	-18.6	V	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5335.50	-14.1	V	3.0	35.4	1.0	-48.6	-13.0	-35.6	
7114.00	-13.0	V	3.0	35.7	1.0	-47.6	-13.0	-34.6	
3557.00	-18.5	H	3.0	36.0	1.0	-53.4	-13.0	-40.4	
5335.50	-13.5	H	3.0	35.4	1.0	-47.9	-13.0	-34.9	
7114.00	-12.1	H	3.0	35.7	1.0	-46.8	-13.0	-33.8	

LTE B66 3MHz 16QAM

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UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 11740661 C2PC
Date: 8/30/2017
Test Engineer: 43574 JS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_QPSK Band 66 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.5MHz									
3425.00	-18.9	V	3.0	36.1	1.0	-53.9	-13.0	-40.9	
5137.50	-14.3	V	3.0	35.4	1.0	-48.8	-13.0	-35.8	
6850.00	-13.7	V	3.0	35.7	1.0	-48.4	-13.0	-35.4	
3425.00	-19.3	H	3.0	36.1	1.0	-54.3	-13.0	-41.3	
5137.50	-14.3	H	3.0	35.4	1.0	-48.7	-13.0	-35.7	
6850.00	-12.9	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
Mid Ch, 1745MHz									
3490.00	-18.8	V	3.0	36.0	1.0	-53.8	-13.0	-40.8	
5235.00	-14.2	V	3.0	35.4	1.0	-48.7	-13.0	-35.7	
6980.00	-13.5	V	3.0	35.7	1.0	-48.2	-13.0	-35.2	
3490.00	-19.0	H	3.0	36.0	1.0	-54.0	-13.0	-41.0	
5235.00	-14.2	H	3.0	35.4	1.0	-48.7	-13.0	-35.7	
6980.00	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2	
High Ch, 1777.5MHz									
3555.00	-18.6	V	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5332.50	-14.1	V	3.0	35.4	1.0	-48.6	-13.0	-35.6	
7110.00	-13.3	V	3.0	35.7	1.0	-48.0	-13.0	-35.0	
3555.00	-18.9	H	3.0	36.0	1.0	-53.8	-13.0	-40.8	
5332.50	-14.3	H	3.0	35.4	1.0	-48.7	-13.0	-35.7	
7110.00	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2	

LTE B66 5MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 11740661 C2PC
Date: 8/30/2017
Test Engineer: 43574 JS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_16QAM Band 66 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.5MHz									
3425.00	-18.7	V	3.0	36.1	1.0	-53.7	-13.0	-40.7	
5137.50	-14.5	V	3.0	35.4	1.0	-48.9	-13.0	-35.9	
6850.00	-13.8	V	3.0	35.7	1.0	-48.5	-13.0	-35.5	
3425.00	-19.4	H	3.0	36.1	1.0	-54.5	-13.0	-41.5	
5137.50	-14.5	H	3.0	35.4	1.0	-48.9	-13.0	-35.9	
6850.00	-9.8	H	3.0	35.7	1.0	-44.5	-13.0	-31.5	
Mid Ch, 1745MHz									
3490.00	-17.9	V	3.0	36.0	1.0	-53.0	-13.0	-40.0	
5235.00	-14.4	V	3.0	35.4	1.0	-48.8	-13.0	-35.8	
6980.00	-13.7	V	3.0	35.7	1.0	-48.4	-13.0	-35.4	
3490.00	-18.8	H	3.0	36.0	1.0	-53.9	-13.0	-40.9	
5235.00	-14.5	H	3.0	35.4	1.0	-48.9	-13.0	-35.9	
6980.00	-12.7	H	3.0	35.7	1.0	-47.4	-13.0	-34.4	
High Ch, 1777.5MHz									
3555.00	-18.8	V	3.0	36.0	1.0	-53.8	-13.0	-40.8	
5332.50	-14.3	V	3.0	35.4	1.0	-48.7	-13.0	-35.7	
7110.00	-13.4	V	3.0	35.7	1.0	-48.1	-13.0	-35.1	
3555.00	-18.7	H	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5332.50	-14.5	H	3.0	35.4	1.0	-48.9	-13.0	-35.9	
7110.00	-9.7	H	3.0	35.7	1.0	-44.4	-13.0	-31.4	

LTE B66 5MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 11740661 C2PC
Date: 8/30/2017
Test Engineer: 43574 JS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_QPSK Band 66 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1715MHz									
3430.00	-18.5	V	3.0	36.1	1.0	-53.6	-13.0	-40.6	
5145.00	-14.4	V	3.0	35.4	1.0	-48.9	-13.0	-35.9	
6860.00	-10.9	V	3.0	35.7	1.0	-45.6	-13.0	-32.6	
3430.00	-18.9	H	3.0	36.1	1.0	-54.0	-13.0	-41.0	
5145.00	-14.8	H	3.0	35.4	1.0	-49.2	-13.0	-36.2	
6860.00	-12.7	H	3.0	35.7	1.0	-47.3	-13.0	-34.3	
Mid Ch, 1745MHz									
3490.00	-18.7	V	3.0	36.0	1.0	-53.8	-13.0	-40.8	
5235.00	-14.4	V	3.0	35.4	1.0	-48.8	-13.0	-35.8	
6980.00	-13.8	V	3.0	35.7	1.0	-48.5	-13.0	-35.5	
3490.00	-18.8	H	3.0	36.0	1.0	-53.9	-13.0	-40.9	
5235.00	-14.7	H	3.0	35.4	1.0	-49.1	-13.0	-36.1	
6980.00	-12.5	H	3.0	35.7	1.0	-47.2	-13.0	-34.2	
High Ch, 1775MHz									
3550.00	-18.6	V	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5325.00	-14.2	V	3.0	35.4	1.0	-48.7	-13.0	-35.7	
7100.00	-13.6	V	3.0	35.7	1.0	-48.3	-13.0	-35.3	
3550.00	-18.8	H	3.0	36.0	1.0	-53.7	-13.0	-40.7	
5325.00	-14.6	H	3.0	35.4	1.0	-49.0	-13.0	-36.0	
7100.00	-12.3	H	3.0	35.7	1.0	-47.0	-13.0	-34.0	

LTE B66 10MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 11740661 C2PC
Date: 8/30/2017
Test Engineer: 43574 JS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_16QAM Band 66 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1715MHz									
3430.00	-18.3	V	3.0	36.1	1.0	-53.3	-13.0	-40.3	
5145.00	-14.2	V	3.0	35.4	1.0	-48.7	-13.0	-35.7	
6860.00	-10.8	V	3.0	35.7	1.0	-45.5	-13.0	-32.5	
3430.00	-18.7	H	3.0	36.1	1.0	-53.8	-13.0	-40.8	
5145.00	-14.9	H	3.0	35.4	1.0	-49.3	-13.0	-36.3	
6860.00	-12.8	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
Mid Ch, 1745MHz									
3490.00	-18.7	V	3.0	36.0	1.0	-53.7	-13.0	-40.7	
5235.00	-14.0	V	3.0	35.4	1.0	-48.4	-13.0	-35.4	
6980.00	-13.3	V	3.0	35.7	1.0	-48.0	-13.0	-35.0	
3490.00	-18.7	H	3.0	36.0	1.0	-53.7	-13.0	-40.7	
5235.00	-13.8	H	3.0	35.4	1.0	-48.2	-13.0	-35.2	
6980.00	-12.4	H	3.0	35.7	1.0	-47.1	-13.0	-34.1	
High Ch, 1775MHz									
3550.00	-18.6	V	3.0	36.0	1.0	-53.5	-13.0	-40.5	
5325.00	-14.1	V	3.0	35.4	1.0	-48.5	-13.0	-35.5	
7100.00	-13.5	V	3.0	35.7	1.0	-48.2	-13.0	-35.2	
3550.00	-18.7	H	3.0	36.0	1.0	-53.7	-13.0	-40.7	
5325.00	-14.5	H	3.0	35.4	1.0	-49.0	-13.0	-36.0	
7100.00	-12.4	H	3.0	35.7	1.0	-47.1	-13.0	-34.1	

LTE B66 10MHz 16QAM

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 11740661 C2PC
Date: 8/30/2017
Test Engineer: 43574 JS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_QPSK Band 66 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1717.5MHz									
3435.00	-18.9	V	3.0	36.1	1.0	-54.0	-13.0	-41.0	
5152.50	-14.8	V	3.0	35.4	1.0	-49.3	-13.0	-36.3	
6870.00	-14.0	V	3.0	35.7	1.0	-48.7	-13.0	-35.7	
3435.00	-18.9	H	3.0	36.1	1.0	-54.0	-13.0	-41.0	
5152.50	-14.3	H	3.0	35.4	1.0	-48.7	-13.0	-35.7	
6870.00	-13.2	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	
Mid Ch, 1745MHz									
3490.00	-18.6	V	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5235.00	-14.9	V	3.0	35.4	1.0	-49.3	-13.0	-36.3	
6980.00	-13.4	V	3.0	35.7	1.0	-48.1	-13.0	-35.1	
3490.00	-18.6	H	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5235.00	-14.0	H	3.0	35.4	1.0	-48.4	-13.0	-35.4	
6980.00	-12.9	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
High Ch, 1772.5MHz									
3545.00	-18.5	V	3.0	36.0	1.0	-53.4	-13.0	-40.4	
5317.50	-13.8	V	3.0	35.4	1.0	-48.2	-13.0	-35.2	
7090.00	-11.7	V	3.0	35.7	1.0	-46.4	-13.0	-33.4	
3545.00	-18.5	H	3.0	36.0	1.0	-53.5	-13.0	-40.5	
5317.50	-14.0	H	3.0	35.4	1.0	-48.5	-13.0	-35.5	
7090.00	-10.9	H	3.0	35.7	1.0	-45.6	-13.0	-32.6	

LTE B66 15MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 11740661 C2PC
Date: 8/30/2017
Test Engineer: 43574 JS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_16QAM Band 66 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1717.5MHz									
3435.00	-19.2	V	3.0	36.1	1.0	-54.3	-13.0	-41.3	
5152.50	-15.1	V	3.0	35.4	1.0	-49.5	-13.0	-36.5	
6870.00	-14.3	V	3.0	35.7	1.0	-48.9	-13.0	-35.9	
3435.00	-19.0	H	3.0	36.1	1.0	-54.1	-13.0	-41.1	
5152.50	-14.5	H	3.0	35.4	1.0	-49.0	-13.0	-36.0	
6870.00	-13.1	H	3.0	35.7	1.0	-47.7	-13.0	-34.7	
Mid Ch, 1745MHz									
3490.00	-18.8	V	3.0	36.0	1.0	-53.8	-13.0	-40.8	
5235.00	-14.9	V	3.0	35.4	1.0	-49.3	-13.0	-36.3	
6980.00	-13.5	V	3.0	35.7	1.0	-48.2	-13.0	-35.2	
3490.00	-18.7	H	3.0	36.0	1.0	-53.7	-13.0	-40.7	
5235.00	-13.8	H	3.0	35.4	1.0	-48.2	-13.0	-35.2	
6980.00	-12.8	H	3.0	35.7	1.0	-47.5	-13.0	-34.5	
High Ch, 1772.5MHz									
3545.00	-18.7	V	3.0	36.0	1.0	-53.7	-13.0	-40.7	
5317.50	-14.2	V	3.0	35.4	1.0	-48.7	-13.0	-35.7	
7090.00	-12.0	V	3.0	35.7	1.0	-46.7	-13.0	-33.7	
3545.00	-18.6	H	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5317.50	-14.0	H	3.0	35.4	1.0	-48.4	-13.0	-35.4	
7090.00	-10.6	H	3.0	35.7	1.0	-45.3	-13.0	-32.3	

LTE B66 15MHz 16QAM

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

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UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 11740661 C2PC
Date: 8/30/2017
Test Engineer: 39703 KK
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_QPSK Band 66 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1720MHz									
3440.00	-20.8	V	3.0	36.0	1.0	-55.9	-13.0	-42.9	
5160.00	-17.0	V	3.0	35.4	1.0	-51.4	-13.0	-38.4	
6880.00	-15.4	V	3.0	35.7	1.0	-50.1	-13.0	-37.1	
3440.00	-21.8	H	3.0	36.0	1.0	-56.9	-13.0	-43.9	
5160.00	-16.6	H	3.0	35.4	1.0	-51.1	-13.0	-38.1	
6880.00	-14.9	H	3.0	35.7	1.0	-49.6	-13.0	-36.6	
Mid Ch, 1745MHz									
3490.00	-21.4	V	3.0	36.0	1.0	-56.4	-13.0	-43.4	
5235.00	-17.1	V	3.0	35.4	1.0	-51.5	-13.0	-38.5	
6980.00	-15.2	V	3.0	35.7	1.0	-49.9	-13.0	-36.9	
3490.00	-21.5	H	3.0	36.0	1.0	-56.6	-13.0	-43.6	
5235.00	-16.2	H	3.0	35.4	1.0	-50.7	-13.0	-37.7	
6980.00	-15.0	H	3.0	35.7	1.0	-49.7	-13.0	-36.7	
High Ch, 1770MHz									
3540.00	-21.7	V	3.0	36.0	1.0	-56.7	-13.0	-43.7	
5310.00	-16.7	V	3.0	35.4	1.0	-51.2	-13.0	-38.2	
7080.00	-15.3	V	3.0	35.7	1.0	-50.0	-13.0	-37.0	
3540.00	-21.8	H	3.0	36.0	1.0	-56.8	-13.0	-43.8	
5310.00	-17.1	H	3.0	35.4	1.0	-51.5	-13.0	-38.5	
7080.00	-14.0	H	3.0	35.7	1.0	-48.7	-13.0	-35.7	

LTE B66 20MHz QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 11740661 C2PC
Date: 8/30/2017
Test Engineer: 39703 KK
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_16QAM Band 66 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1720MHz									
3440.00	-21.1	V	3.0	36.0	1.0	-56.2	-13.0	-43.2	
5160.00	-15.7	V	3.0	35.4	1.0	-50.1	-13.0	-37.1	
6880.00	-14.3	V	3.0	35.7	1.0	-48.9	-13.0	-35.9	
3440.00	-22.5	H	3.0	36.0	1.0	-57.5	-13.0	-44.5	
5160.00	-15.9	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
6880.00	-11.7	H	3.0	35.7	1.0	-46.4	-13.0	-33.4	
Mid Ch, 1745MHz									
3490.00	-19.9	V	3.0	36.0	1.0	-54.9	-13.0	-41.9	
5235.00	-16.7	V	3.0	35.4	1.0	-51.1	-13.0	-38.1	
6980.00	-15.9	V	3.0	35.7	1.0	-50.5	-13.0	-37.5	
3490.00	-19.5	H	3.0	36.0	1.0	-54.6	-13.0	-41.6	
5235.00	-16.2	H	3.0	35.4	1.0	-50.6	-13.0	-37.6	
6980.00	-13.4	H	3.0	35.7	1.0	-48.1	-13.0	-35.1	
High Ch, 1770MHz									
3540.00	-18.8	V	3.0	36.0	1.0	-53.8	-13.0	-40.8	
5310.00	-16.4	V	3.0	35.4	1.0	-50.8	-13.0	-37.8	
7080.00	-14.6	V	3.0	35.7	1.0	-49.3	-13.0	-36.3	
3540.00	-20.4	H	3.0	36.0	1.0	-55.4	-13.0	-42.4	
5310.00	-16.7	H	3.0	35.4	1.0	-51.1	-13.0	-38.1	
7080.00	-14.3	H	3.0	35.7	1.0	-49.0	-13.0	-36.0	

LTE B66 20MHz 16QAM

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