CERTIFICATION TEST REPORT

Report Number. : 12802195-E7V3

Applicant	:	MICROSOFT CORPORATION ONE MICROSOFT WAY REDMOND, WA 98052, U.S.A.
Model	:	1876
FCC ID	:	C3K1876
EUT Description	:	PORTABLE COMPUTING DEVICE
Test Standard(s)	:	FCC CFR47 PART 22H, 24E, 27, 90S AND 90R

Date Of Issue:
SEPTEMBER 16, 2019

Prepared by:
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Revision History

NVLAP TESTING

NVLAP Lab code: 200065-0

Rev.	Issue Date	Revisions	Revised By
V1	8/30/2019	Initial Review	---
V2	9/6/2019	Updated report to address TCB's questions	Tina Chu
V3	9/16/2019	Updated report to address TCB's questions	Tina Chu

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1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	MICROSOFT CORPORATION ONE MICROSOFT WAY REDMOND, WA 98052, U.S.A.
Model	1876
FCC ID	C3K1876
EUT Description	PORTABLE COMPUTING DEVICE
Serial Number	005767392553, 024266192753, 053697593153
Date Tested	JULY 01, 2019 to SEPTEMBER 06, 2019
Applicable Standards	FCC PART 22H, 24E, 27, 90S AND 90R
Test Results	COMPLIES

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

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 the U.S. government.

Approved & Released By:	Reviewed By:	Prepared By:
Francisco DeAnda Operation Leader UL Verification Services Inc.	Tina Chu Senior Project Handler UL Verification Services Inc.	Rolly Alegre Test Engineer UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.26:2015, FCC CFR 47 Part 2, Part 22H, Part 24E, Part 27, Part 90S, Part 90R, FCC KDB 971168 D01 v03r01/ D02 v02r01, KDB 412172 D01 v01r01. ANSI C63.26:2015.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, and 47658 Kato Road, Fremont, California, USA. 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	47658 Kato Road
☐ Chamber A	☐ Chamber D	☐ Chamber I
☐ Chamber B	☐ Chamber E	☒ Chamber J
☐ Chamber C	☐ Chamber F	☐ Chamber K
	☐ Chamber G	☐ Chamber L
	☐ Chamber H	☐ Chamber M

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers above are covered under Industry Canada company address and respective code: 2324A.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0

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

RADIATED EMISSIONS

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

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:
Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.
36.5 dBuV + 0 dB +10.1 dB+ 0 dB = 46.6 dBuV

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Radiated Disturbance, 9KHz to 30 MHz	2.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.88 dB
Radiated Disturbance,1000 to 18000 MHz	4.24 dB
Radiated Disturbance,18000 to 26000 MHz	4.37 dB
Radiated Disturbance,26000 to 40000 MHz	5.17 dB
Occupied Channel Bandwidth	±0.39 %
Temperature	±0.9 °C
Supply voltages	±0.45 %
Time	±0.02 %

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a portable computing device with 802.11 a/b/g/n/ac 2x2 WLAN, Bluetooth, Bluetooth LE, WCDMA and LTE radios.

5.2. MAXIMUM OUTPUT POWER

ERP/EIRP LIMIT

FCC: §2.1046, §22.913, §24.232, §27.50, §90.635, §90.541

EIRP/ERP TEST PROCEDURE

ANSI C63.26:2015
KDB 971168 D01 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.

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.

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

LTE BAND 2

Part 24 / RSS 133	
EIRP Limit (W)	2.00
Antenna Gain (dBi)	1.60

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	1850.7	1909.3	23.8	25.40	0.347	1081.9	1M08G7W
	16QAM			23.2	24.80	0.302	1091.5	1M09D7W
	64QAM			22.2	23.80	0.240	1076.3	1M08D7W
3.0	QPSK	1851.5	1908.5	23.8	25.40	0.347	2682.5	2M68G7W
	16QAM			23.0	24.60	0.288	2683.9	2M68D7W
	64QAM			22.3	23.90	0.245	2692.2	2M69D7W
5.0	QPSK	1852.5	1907.5	23.9	25.50	0.355	4492.3	4M49G7W
	16QAM			23.2	24.80	0.302	4494.2	4M49D7W
	64QAM			22.2	23.80	0.240	4505.7	4M51D7W
10.0	QPSK	1855.0	1905.0	23.9	25.50	0.355	8956.4	8M96G7W
	16QAM			23.0	24.60	0.288	8957.8	8M96D7W
	64QAM			22.2	23.80	0.240	8944.9	8M94D7W
15.0	QPSK	1857.5	1902.5	24.0	25.60	0.363	13405.7	13M4G7W
	16QAM			23.2	24.80	0.302	13386.5	13M4D7W
	64QAM			22.7	24.30	0.269	13361	13M4D7W
20.0	QPSK	1860.0	1900.0	23.9	25.50	0.355	17862	17M9G7W
	16QAM			23.5	25.10	0.324	17865.5	17M9D7W
	64QAM			22.5	24.10	0.257	17865.6	17M9D7W

LTE BAND 4

Part 27 / RSS 139	
EIRP Limit (W)	1.00
Antenna Gain (dBi)	1.60

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	1710.7	1754.3	24.0	25.60	0.363	1083.6	1M08G7W
	16QAM			23.3	24.90	0.309	1085.1	1M09D7W
	64QAM			22.8	24.40	0.275	1077.5	1M08D7W
3.0	QPSK	1711.5	1753.5	24.0	25.60	0.363	2685.3	2M69G7W
	16QAM			23.2	24.80	0.302	2682.4	2M68D7W
	64QAM			22.5	24.10	0.257	2694	2M69D7W
5.0	QPSK	1712.5	1752.5	24.1	25.70	0.372	4494.1	4M49G7W
	16QAM			23.4	25.00	0.316	4502.7	4M50D7W
	64QAM			22.6	24.20	0.263	4491.6	4M49D7W
10.0	QPSK	1715.0	1750.0	24.0	25.60	0.363	8944.7	8M94G7W
	16QAM			23.1	24.70	0.295	8944.2	8M94D7W
	64QAM			22.5	24.10	0.257	8959.8	8M96D7W
15.0	QPSK	1717.5	1747.5	24.1	25.70	0.372	13388.2	13M4G7W
	16QAM			23.5	25.10	0.324	13408.3	13M4D7W
	64QAM			22.9	24.50	0.282	13378.7	13M4D7W
20.0	QPSK	1720.0	1745.0	24.2	25.80	0.380	17850.4	17M9G7W
	16QAM			23.7	25.30	0.339	17879.5	17M9D7W
	64QAM			23.0	24.60	0.288	17849.9	17M8D7W

LTE BAND 5

Part 22H	
ERP Limit (W)	7.00
Antenna Gain (dBi)	-0.80

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	824.7	848.3	23.8	20.85	0.122	1083.3	1M08G7W
	16QAM			22.8	19.85	0.097	1087.6	1M09D7W
	64QAM			21.7	18.75	0.075	1074.9	1M07D7W
3.0	QPSK	825.5	847.5	23.9	20.95	0.124	2687.5	2M69G7W
	16QAM			22.8	19.85	0.097	2689.4	2M69D7W
	64QAM			21.6	18.65	0.073	2689.5	2M69D7W
5.0	QPSK	826.5	846.5	23.7	20.75	0.119	4482.8	4M48G7W
	16QAM			22.9	19.95	0.099	4497.2	4M50D7W
	64QAM			21.7	18.75	0.075	4487.7	4M49D7W
10.0	QPSK	829.0	844.0	23.9	20.95	0.124	8929.8	8M93G7W
	16QAM			22.9	19.95	0.099	8933.3	8M93D7W
	64QAM			21.7	18.75	0.075	8927.9	8M93D7W

LTE BAND 7

Part 27 / RSS 199	
EIRP Limit (W)	2.00
Antenna Gain (dBi)	0.10

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	2502.5	2567.5	24.1	24.20	0.263	4497.3	4M50G7W
	16QAM			23.5	23.60	0.229	4491.2	4M49D7W
	64QAM			22.3	22.40	0.174	4526.2	4M53D7W
10.0	QPSK	2505.0	2565.0	24.1	24.20	0.263	8980.2	8M98G7W
	16QAM			23.1	23.20	0.209	8949.8	8M95D7W
	64QAM			22.5	22.60	0.182	8948.5	8M95D7W
15.0	QPSK	2507.5	2562.5	24.3	24.40	0.275	13417.5	13M4G7W
	16QAM			23.6	23.70	0.234	13425.2	13M4D7W
	64QAM			22.9	23.00	0.200	13418.3	13M4D7W
20.0	QPSK	2510.0	2560.0	24.3	24.40	0.275	17861.5	17M9G7W
	16QAM			23.6	23.70	0.234	17903.5	17M9D7W
	64QAM			22.6	22.70	0.186	17901.8	17M9D7W

LTE BAND 12

Part 27 / RSS 130	
ERP Limit (W)	3.00
Antenna Gain (dBi)	-1.10

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	699.7	715.3	24.5	21.25	0.133	1085.1	1M09G7W
	16QAM			23.8	20.55	0.114	1088.1	1M09D7W
	64QAM			22.4	19.15	0.082	1079.1	1M08D7W
3.0	QPSK	700.5	714.5	24.5	21.25	0.133	2693.8	2M69G7W
	16QAM			23.7	20.45	0.111	2686.7	2M69D7W
	64QAM			22.3	19.05	0.080	2685.1	2M69D7W
5.0	QPSK	701.5	713.5	24.6	21.35	0.136	4489.8	4M49G7W
	16QAM			23.9	20.65	0.116	4488.1	4M49D7W
	64QAM			22.3	19.05	0.080	4491	4M49D7W
10.0	QPSK	704.0	711.0	24.5	21.25	0.133	8949.9	8M95G7W
	16QAM			23.8	20.55	0.114	8952	8M95D7W
	64QAM			22.4	19.15	0.082	8964.5	8M96D7W

LTE BAND 13

Part 27 / RSS 130	
ERP Limit (W)	3.00
Antenna Gain (dBi)	-1.00

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	779.5	784.5	23.7	20.55	0.114	4479.5	4M48G7W
	16QAM			23.2	20.05	0.101	4488.4	4M49D7W
	64QAM			22.1	18.95	0.079	4504.3	4M50D7W
10.0	QPSK	782.0	782.0	23.7	20.55	0.114	8952.1	8M95G7W
	16QAM			22.6	19.45	0.088	8931	8M93D7W
	64QAM			22.1	18.95	0.079	8930.5	8M93D7W

LTE BAND 14

Part 90R / RSS 140	
ERP Limit (W)	3.00
Antenna Gain (dBi)	-0.90

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	790.5	795.5	23.6	20.55	0.114	4467.5	4M47G7W
	16QAM			23.0	19.95	0.099	4488.1	4M49D7W
	64QAM			22.2	19.15	0.082	4490.4	4M49D7W
10.0	QPSK	793.0	793.0	23.5	20.45	0.111	8975.2	8M98G7W
	16QAM			22.5	19.45	0.088	8947.3	8M95D7W
	64QAM			22.1	19.05	0.080	8964.5	8M96D7W

LTE BAND 25

Part 24 / RSS 133	
EIRP Limit (W)	2.00
Antenna Gain (dBi)	1.60

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	1850.7	1914.3	23.6	25.20	0.331	1087.2	1M09G7W
	16QAM			22.9	24.50	0.282	1082.8	1M08D7W
	64QAM			22.0	23.60	0.229	1077.8	1M08D7W
3.0	QPSK	1851.5	1913.5	23.7	25.30	0.339	2680.4	2M68G7W
	16QAM			22.7	24.30	0.269	2686.5	2M69D7W
	64QAM			22.0	23.60	0.229	2684.9	2M68D7W
5.0	QPSK	1852.5	1912.5	23.7	25.30	0.339	4504.1	4M50G7W
	16QAM			22.8	24.40	0.275	4496.1	4M50D7W
	64QAM			22.0	23.60	0.229	4503.4	4M50D7W
10.0	QPSK	1855.0	1910.0	23.7	25.30	0.339	8984.3	8M98G7W
	16QAM			22.9	24.50	0.282	8966.4	8M97D7W
	64QAM			22.0	23.60	0.229	8944.1	8M94D7W
15.0	QPSK	1857.5	1907.5	23.9	25.50	0.355	13434.2	13M4G7W
	16QAM			23.0	24.60	0.288	13391.7	13M4D7W
	64QAM			22.0	23.60	0.229	13377.3	13M4D7W
20.0	QPSK	1860.0	1905.0	23.9	25.50	0.355	17819.3	17M8G7W
	16QAM			23.0	24.60	0.288	17884.6	17M9D7W
	64QAM			22.0	23.60	0.229	17848.8	17M8D7W

LTE BAND 26 (FCC Part 90S)

Part 90S	
ERP Limit (W)	100.00
Antenna Gain (dBi)	-0.60

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	814.7	823.3	23.6	20.85	0.122	1081.6	1M08G7W
	16QAM			22.9	20.15	0.104	1085.4	1M09D7W
	64QAM			22.0	19.25	0.084	1082	1M08D7W
3.0	QPSK	815.5	822.5	23.6	20.85	0.122	2684.4	2M68G7W
	16QAM			23.0	20.25	0.106	2682.3	2M68D7W
	64QAM			21.9	19.15	0.082	2687.1	2M69D7W
5.0	QPSK	816.5	821.5	23.6	20.85	0.122	4502.4	4M50G7W
	16QAM			23.1	20.35	0.108	4495.4	4M50D7W
	64QAM			22.0	19.25	0.084	4490	4M49D7W
10.0	QPSK	819.0	819.0	23.6	20.85	0.122	8963.4	8M96G7W
	16QAM			23.1	20.35	0.108	8934	8M93D7W
	64QAM			21.9	19.15	0.082	8938.3	8M94D7W

LTE BAND 26 (FCC Part 22)

Part 22	
ERP Limit (W)	7.00
Antenna Gain (dBi)	-0.60

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	824.7	848.3	23.8	21.05	0.127	1086.1	1M09G7W
	16QAM			22.9	20.15	0.104	1091.8	1M09D7W
	64QAM			21.5	18.75	0.075	1082.6	1M08D7W
3.0	QPSK	825.5	847.5	23.7	20.95	0.124	2688.9	2M69G7W
	16QAM			22.8	20.05	0.101	2688.9	2M69D7W
	64QAM			21.7	18.95	0.079	2684.9	2M68D7W
5.0	QPSK	826.5	846.5	23.8	21.05	0.127	4498.9	4M50G7W
	16QAM			23.0	20.25	0.106	4501.8	4M50D7W
	64QAM			21.6	18.85	0.077	4512.6	4M51D7W
10.0	QPSK	829.0	844.0	23.8	21.05	0.127	8945.7	8M95G7W
	16QAM			22.8	20.05	0.101	8965.9	8M97D7W
	64QAM			22.1	19.35	0.086	8919	8M92D7W
15.0	QPSK	831.5	841.5	23.9	21.15	0.130	13355.8	13M4G7W
	16QAM			23.3	20.55	0.114	13352.9	13M4D7W
	64QAM			22.1	19.35	0.086	13372.6	13M4D7W

LTE BAND 30

Part 27 / RSS 195	
EIRP Limit (W)	0.25
Antenna Gain (dBi)	0.20

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	2307.5	2312.5	23.0	23.20	0.209	4490.6	4M49G7W
	16QAM			22.3	22.50	0.178	4479.8	4M48D7W
	64QAM			21.4	21.60	0.145	4500.8	4M50D7W
10.0	QPSK	2310.0	2310.0	22.8	23.00	0.200	8980.7	8M98G7W
	16QAM			21.7	21.90	0.155	8985.3	8M99D7W
	64QAM			21.3	21.50	0.141	8959.6	8M96D7W

LTE BAND 41

Part 27	
EIRP Limit (W)	2.00
Antenna Gain (dBi)	0.10

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	2498.5	2687.5	24.5	24.60	0.288	4498.6	4M50G7W
	16QAM			23.5	23.60	0.229	4491.8	4M49D7W
	64QAM			22.1	22.20	0.166	4499.6	4M50D7W
10.0	QPSK	2501.0	2685.0	24.4	24.50	0.282	8964.1	8M96G7W
	16QAM			23.4	23.50	0.224	8962.4	8M96D7W
	64QAM			22.0	22.10	0.162	8920	8M92D7W
15.0	QPSK	2503.5	2682.5	24.5	24.60	0.288	13452	13M5G7W
	16QAM			23.5	23.60	0.229	13443	13M4D7W
	64QAM			22.3	22.40	0.174	13381.9	13M4D7W
20.0	QPSK	2506.0	2680.0	24.8	24.90	0.309	17897	17M9G7W
	16QAM			23.8	23.90	0.245	17897	17M9D7W
	64QAM			22.4	22.50	0.178	17869.8	17M9D7W

LTE BAND 66

Part 27 / RSS 139	
EIRP Limit (W)	1.00
Antenna Gain (dBi)	1.60

Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	1710.7	1779.3	24.1	25.70	0.372	1080.5	1M08G7W
	16QAM			23.3	24.90	0.309	1083.5	1M08D7W
	64QAM			22.4	24.00	0.251	1081.8	1M08D7W
3.0	QPSK	1711.5	1778.5	24.0	25.60	0.363	2682.6	2M68G7W
	16QAM			23.4	25.00	0.316	2678	2M68D7W
	64QAM			22.1	23.70	0.234	2684.9	2M68D7W
5.0	QPSK	1712.5	1777.5	24.1	25.70	0.372	4501.8	4M50G7W
	16QAM			23.6	25.20	0.331	4488.5	4M49D7W
	64QAM			22.3	23.90	0.245	4491.2	4M49D7W
10.0	QPSK	1715.0	1775.0	24.1	25.70	0.372	8964.7	8M96G7W
	16QAM			23.4	25.00	0.316	8954.4	8M95D7W
	64QAM			22.2	23.80	0.240	8962.7	8M96D7W
15.0	QPSK	1717.5	1772.5	24.3	25.90	0.389	13397.5	13M4G7W
	16QAM			23.7	25.30	0.339	13415.6	13M4D7W
	64QAM			22.7	24.30	0.269	13397.5	13M4D7W
20.0	QPSK	1720.0	1770.0	24.3	25.90	0.389	17880.5	17M9G7W
	16QAM			23.8	25.40	0.347	17861.4	17M9D7W
	64QAM			22.5	24.10	0.257	17899.9	17M9D7W

5.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version BSP 6300.

5.4. MAXIMUM ANTENNA GAIN

Please see table below:

LTE Bands	Antenna Peak Gain (dBi)
LTE Band 2, 1850 – 1910 MHz	1.6
LTE Band 4, 1710 – 1755 MHz	1.6
LTE Band 5, 824 – 849 MHz	-0.8
LTE Band 7, 2500 – 2570 MHz	0.1
LTE Band 12, 699 – 716 MHz	-1.1
LTE Band 13, 777 – 787 MHz	-1.0
LTE Band 14, 788 – 798 MHz	-0.9
LTE Band 25, 1850 – 1915 MHz	1.6
LTE Band 26, 814 – 849 MHz	-0.6
LTE Band 30, 2305 – 2315 MHz	0.2
LTE Band 41, 2496 – 2690 MHz	0.1
LTE Band 66, 1710 – 1780 MHz	1.6

5.5. WORST-CASE CONFIGURATION AND MODE

The EUT supports LTE Bands of:
Band 2, Band 4, Band 5, Band 7, Band 12, Band 13, Band 14, Band 25, Band 26, Band 30, Band 41, Band 66

The worst-case scenario for all measurements is based on the average conducted output power measurement investigation results. Output power measurements were measured on QPSK, 16QAM and 64QAM modulations. It was found that QPSK and 16QAM results were worst case. All testing was performed using QPSK and 16QAM modulations to represent the worst case.

The EUT was investigated in different orthogonal orientations X/Y/Z, and 45 degree angle when attached with the keyboard, with/without AC/DC adapter, cables and accessories. It was determined that 45 degree angle orientation when attached with the keyboard was the worst-case orientation for all 700/800/1900/2500MHz bands with AC/DC adapter, cables and accessories.

For simultaneous transmission of any BT/BLE/WLAN (2.4GHz) and WWAN bands or WLAN 5GHz and WWAN bands, investigation has been performed and no noticeable new emission was found.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID/DoC
Keyboard	Microsoft	N/A	E2XEV2BB01A0004	DoC
AC/DC Adapter	Microsoft	1706	0C130J00DMN94	DoC
USB Type C to A adapter	Amazon Basics	Gen1	N/A	DoC
Flash Drive	SanDisk	SDCZ36-008G	N/A	DoC
USB Type C to audio aux jack adapter	Amazon Basics	N/A	N/A	DoC
Earphone	Sony	AG1100	N/A	DoC

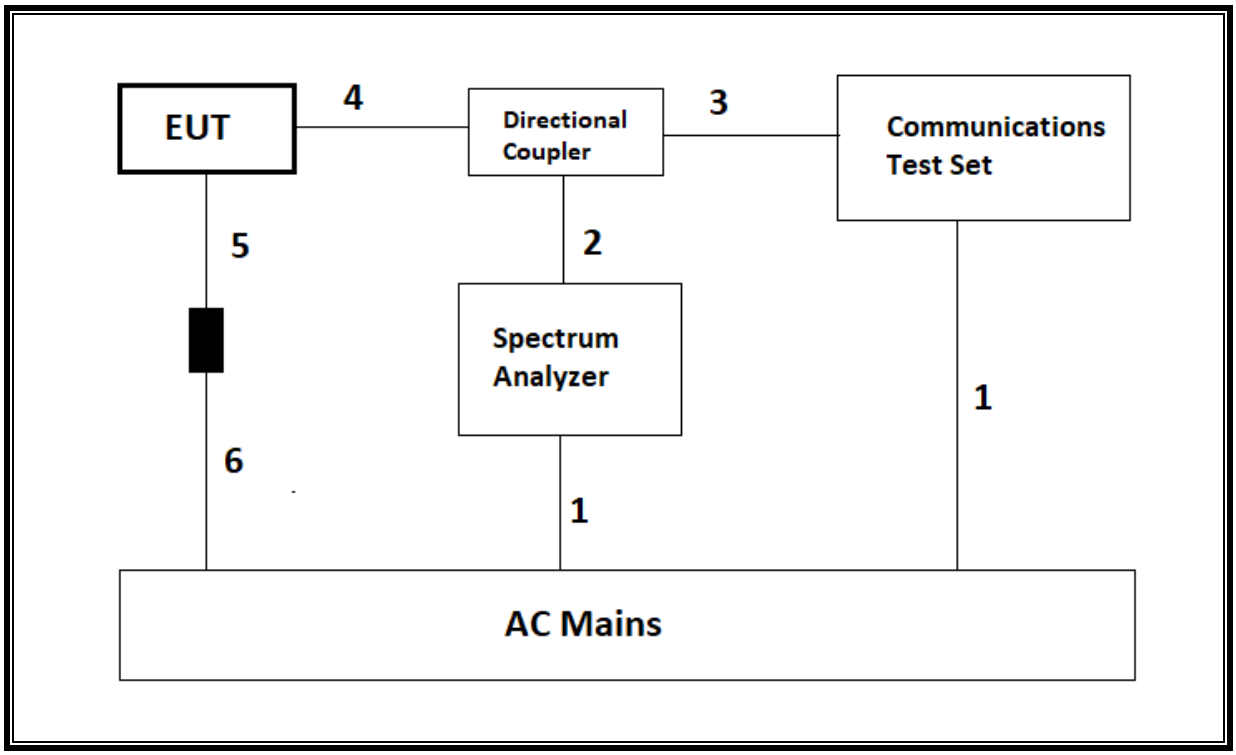
I/O CABLES (RF Conducted Test)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	3-prongs	Un-shielded	1.5	N/A
2	RF In/Out	1	Barrel	N/A	N/A	N/A
3	RF In/Out	1	SMA	Shielded	1	N/A
4	Antenna	1	SMA	Un-Shielded	0.2	N/A
5	DC	1	magnetic	Shielded	1.5	N/A
6	AC	1	2-prongs	Shielded	2	N/A

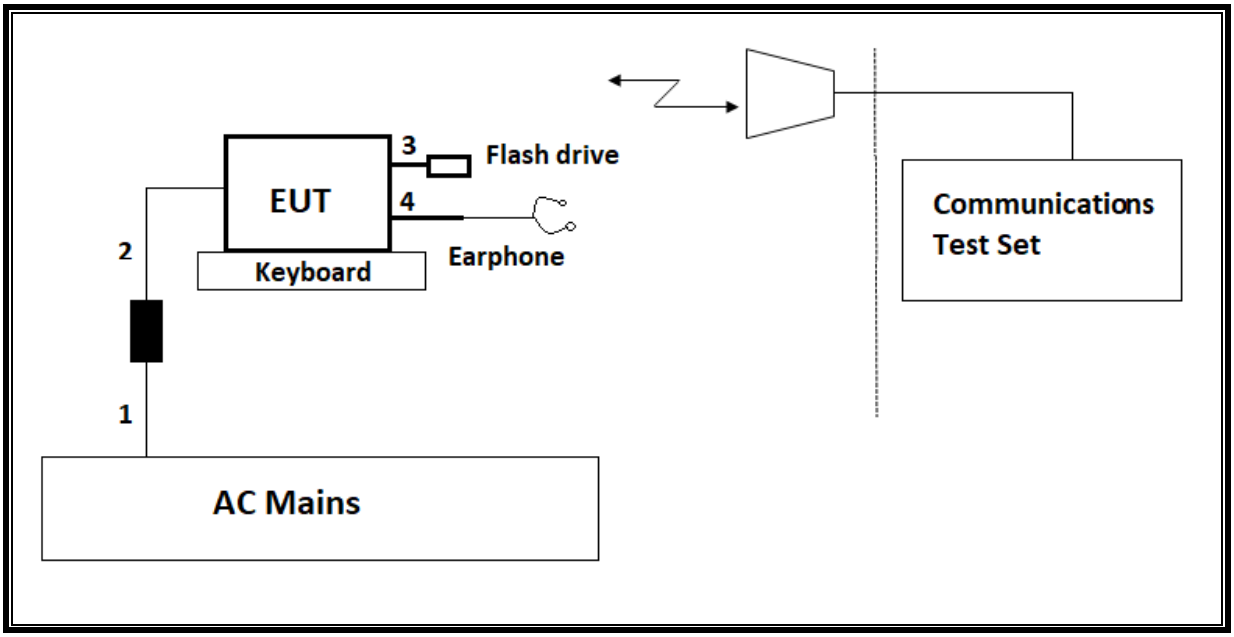
I/O CABLES (RF Radiated Test)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	2-prongs	Un-shielded	2	To AC mains
2	DC	1	magnetic	Shielded	1.5	to EUT
3	USB	1	USB type C to type A	Shielded	0.09	USB type C to A adapter to Flash drive
4	USB	1	USB type C to audio aux jack	Shielded	0.07	to earphone

CONDUCTED SETUP



RADIATED SETUP



6. 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**	**Asset**	**Cal Due**
Highpass Filter, 3GHz	Micro-Tronics	HPM17543	PRE0181635	5/28/2020
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM50114	T1852	7/31/2019
Highpass Filter, 1.2GHz	Micro-Tronics	HPM50108	PRE0182423	9/4/2019
Highpass Filter, 4GHz	Micro-Tronics	HPM13351	T1240	8/31/2019
Wideband Radio Communication Tester – Call Box	Rohde & Schwarz	CMW500	T953	2/18/2020
Wideband Radio Communication Tester – Call Box	Rohde & Schwarz	CMW500	T959	2/16/2020
Wideband Radio Communication Tester – Call Box	Rohde & Schwarz	CMW500	T957	2/14/2020
Wideband Radio Communication Tester – Call Box	Rohde & Schwarz	CMW500	T268	2/21/2020
Wideband Radio Communication Tester – Call Box	Rohde & Schwarz	CMW500	T703	2/20/2020
Spectrum Analyzer – PSA	Agilent (Keysight)	E440A	T200	1/28/2020
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight)	N9030A	T917	1/24/2020
Spectrum Analyzer – PXA	Agilent (Keysight)	N3090A	T1450	1/23/2020
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179377	2/15/2020
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	PRE0189055	4/20/2020
RF Filter Box, 1-18GHz	UL(IN HOUSE)	NSN	PRE0181597	5/28/2020
RF Amplifier	AMPLICAL	AMP1G18-35	T1571	*7/30/19
Temperature Chamber	Thermotron Industries	SE-600-10-10	T80	11/13/2019
Power Sensor	Agilent (Keysight)	N1921A	T1225	3/1/2020
Power Meter	Agilent (Keysight)	N1911A	T1264	1/31/2020
Power Sensor	Agilent (Keysight)	N1921A	T1226	2/6/2020
Power Meter	Agilent (Keysight)	N1911A	T1269	1/31/2020
Directional Coupler	KRYTAR	152610	T922	6/5/2020
DC power supply, 8 V @ 3 A or 15 V @ 2 A	Agilent / HP	E3610A	None	CNR
DC power supply 15V	Sprensen	XT15-4	T463	CNR
UL AUTOMATION SOFTWARE				
CLT Software	UL	UL RF	Ver 7.6, November 11, 2017	
Power Measurement Software	UL	UL RF	Ver 2.7, 2019	
Radiated test software	UL	UL RF	Ver 9.5 June 15, 2019	

NOTES:

*Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

7. RF OUTPUT POWER VERIFICATION

CONDUCTED OUTPUT POWER MEASUREMENT PROCEDURE

All LTE bands conducted average power is 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.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 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_{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
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 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	≤ 1
				> 55	≤ 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]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-
Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.					

MODES TESTED

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 14
- LTE Band 25
- LTE Band 26
- LTE Band 30
- LTE Band 41
- LTE Band 66

RESULTS

7.1. LTE BAND 2

ID:	19498 ER	Date:	9/6/19

OUTPUT POWER FOR LTE BAND 2 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				18607	18900	19193
				1850.7 MHz	1880.0 MHz	1909.3 MHz
1.4	QPSK	1	0	23.6	**23.8**	23.5
		1	2	23.7	23.8	23.6
		1	5	23.7	23.8	23.6
		3	0	23.6	23.7	23.5
		3	1	23.7	23.8	23.6
		3	2	23.7	23.8	23.6
		6	0	22.7	22.7	22.6
	16QAM	1	0	22.7	23.0	22.6
		1	2	22.7	23.2	22.7
		1	5	22.7	**23.2**	22.6
		3	0	22.7	22.8	22.7
		3	1	22.7	23.0	22.8
		3	2	22.7	23.0	22.8
		6	0	21.8	21.7	21.8
	64QAM	1	0	21.0	22.0	22.0
		1	2	21.3	**22.2**	22.0
		1	5	21.4	22.1	22.0
		3	0	21.1	22.0	21.7
		3	1	21.2	22.1	21.8
		3	2	21.2	22.1	21.8
		6	0	19.9	21.2	20.9

OUTPUT POWER FOR LTE BAND 2 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				18615	18900	19185
				1851.5 MHz	1880.0 MHz	1908.5 MHz
3.0	QPSK	1	0	23.6	23.7	23.6
		1	7	23.6	**23.8**	23.6
		1	14	23.6	23.8	23.7
		8	0	22.7	22.8	22.7
		8	4	22.7	22.9	22.7
		8	7	22.8	22.9	22.8
		15	0	22.7	22.8	22.7
	16QAM	1	0	22.7	22.6	23.0
		1	7	22.7	22.7	23.0
		1	14	22.6	22.7	**23.0**
		8	0	21.7	21.9	21.8
		8	4	21.8	21.9	21.8
		8	7	21.8	22.0	21.8
		15	0	21.7	21.9	21.8
	64QAM	1	0	20.9	22.2	21.9
		1	7	21.4	22.3	21.9
		1	14	21.9	**22.3**	22.0
		8	0	20.0	21.0	20.9
		8	4	20.3	21.1	21.0
		8	7	20.4	21.1	21.0
		15	0	20.4	20.9	20.9

OUTPUT POWER FOR LTE BAND 2 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				18625	18900	19175
				1852.5 MHz	1880.0 MHz	1907.5 MHz
5.0	QPSK	1	0	23.6	23.8	23.6
		1	12	23.7	**23.9**	23.7
		1	24	23.7	23.8	23.6
		12	0	22.7	22.8	22.7
		12	6	22.8	22.9	22.8
		12	11	22.8	22.8	22.8
		25	0	22.7	22.9	22.8
	16QAM	1	0	22.7	22.9	23.1
		1	12	22.8	23.0	**23.2**
		1	24	22.7	23.0	23.1
		12	0	21.8	21.9	21.8
		12	6	21.8	21.9	21.9
		12	11	21.8	21.9	21.9
		25	0	21.7	21.9	21.8
	64QAM	1	0	21.1	21.9	22.2
		1	12	22.0	22.0	**22.2**
		1	24	22.1	22.0	22.1
		12	0	20.4	21.0	20.8
		12	6	20.8	21.0	20.9
		12	11	20.9	21.0	20.9
		25	0	20.7	20.9	20.9

OUTPUT POWER FOR LTE BAND 2 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				18650	18900	19150
				1855.0 MHz	1880.0 MHz	1905.0 MHz
10.0	QPSK	1	0	23.6	23.8	23.7
		1	24	23.7	**23.9**	23.8
		1	49	23.7	23.8	23.7
		25	0	22.7	22.9	22.7
		25	12	22.7	22.9	22.7
		25	24	22.7	22.8	22.7
		50	0	22.7	22.8	22.7
	16QAM	1	0	22.5	22.6	23.0
		1	24	22.5	22.6	22.8
		1	49	22.6	22.6	**23.0**
		25	0	21.8	21.9	21.8
		25	12	21.8	21.9	21.8
		25	24	21.8	21.8	21.8
		50	0	21.7	21.8	21.7
	64QAM	1	0	21.1	22.2	22.1
		1	24	21.9	22.1	22.1
		1	49	21.9	**22.2**	22.0
		25	0	20.8	21.1	20.9
		25	12	21.0	21.1	21.0
		25	24	20.9	21.0	20.9
		50	0	20.8	21.0	20.9

OUTPUT POWER FOR LTE BAND 2 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				18675	18900	19125
				1857.5 MHz	1880.0 MHz	1902.5 MHz
15.0	QPSK	1	0	23.9	23.9	23.8
		1	37	23.9	23.7	23.8
		1	74	**24.0**	23.8	23.8
		36	0	22.8	23.0	22.8
		36	16	22.9	23.0	22.8
		36	35	22.9	23.0	22.9
		75	0	22.9	23.0	22.8
	16QAM	1	0	23.2	22.9	23.1
		1	37	23.0	22.9	22.9
		1	74	**23.2**	22.8	23.2
		36	0	21.8	22.0	21.8
		36	16	21.9	22.0	21.9
		36	35	21.9	22.0	21.9
		75	0	21.9	22.0	21.9
	64QAM	1	0	21.1	22.7	22.1
		1	37	22.1	**22.7**	22.1
		1	74	22.2	22.6	22.2
		36	0	21.0	21.1	21.0
		36	16	21.1	21.2	21.0
		36	35	21.1	21.1	21.1
		75	0	21.0	21.2	21.0

OUTPUT POWER FOR LTE BAND 2 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				18700	18900	19100
				1860.0 MHz	1880.0 MHz	1900.0 MHz
20.0	QPSK	1	0	23.8	**23.9**	23.9
		1	49	23.8	23.8	23.8
		1	99	23.9	23.8	23.8
		50	0	22.8	23.0	22.8
		50	24	22.8	23.0	22.9
		50	49	22.8	23.0	22.9
		100	0	22.8	23.0	22.9
	16QAM	1	0	23.1	23.5	23.2
		1	49	23.1	**23.5**	23.2
		1	99	23.2	23.5	23.2
		50	0	21.8	22.0	21.8
		50	24	21.8	22.0	21.9
		50	49	21.8	22.0	21.9
		100	0	21.8	22.0	21.8
	64QAM	1	0	21.5	22.4	22.4
		1	49	22.2	22.4	22.5
		1	99	22.3	22.1	**22.5**
		50	0	21.0	21.1	20.9
		50	24	21.0	21.2	21.0
		50	49	21.0	21.2	21.0
		100	0	21.0	21.1	21.0

7.2. LTE BAND 4

ID:	19498 ER	Date:	7/1/19

OUTPUT POWER FOR LTE BAND 4 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				19957	20175	20393
				1710.7 MHz	1732.5 MHz	1754.3 MHz
1.4	QPSK	1	0	**24.0**	23.8	23.7
		1	2	24.0	23.9	23.8
		1	5	23.9	23.9	23.8
		3	0	23.9	23.8	23.8
		3	1	24.0	23.8	23.8
		3	2	24.0	23.9	23.8
		6	0	23.0	22.8	22.8
	16QAM	1	0	23.0	22.8	23.1
		1	2	23.1	23.0	23.2
		1	5	23.0	23.0	23.1
		3	0	23.2	22.9	23.0
		3	1	23.3	22.9	23.0
		3	2	**23.3**	23.0	23.0
		6	0	22.2	22.0	21.7
	64QAM	1	0	22.6	22.1	22.1
		1	2	**22.8**	22.3	22.2
		1	5	22.6	22.2	22.2
		3	0	22.6	22.2	21.9
		3	1	22.7	22.3	22.0
		3	2	22.7	22.3	22.0
		6	0	21.3	21.4	21.1

OUTPUT POWER FOR LTE BAND 4 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				19965	20175	20385
				1711.5 MHz	1732.5 MHz	1753.5 MHz
3.0	QPSK	1	0	23.9	23.7	23.7
		1	7	**24.0**	23.9	23.8
		1	14	23.9	23.8	23.8
		8	0	23.0	22.8	22.7
		8	4	23.0	22.9	22.9
		8	7	23.1	22.9	22.9
		15	0	23.0	22.9	22.9
	16QAM	1	0	23.1	22.7	23.1
		1	7	23.1	22.8	**23.2**
		1	14	22.9	22.7	23.2
		8	0	22.1	22.0	21.8
		8	4	22.1	22.0	22.0
		8	7	22.1	22.1	22.0
		15	0	22.0	21.9	21.9
	64QAM	1	0	22.4	22.3	22.3
		1	7	**22.5**	22.3	22.3
		1	14	22.4	22.3	22.3
		8	0	21.4	21.0	21.1
		8	4	21.4	21.1	21.2
		8	7	21.4	21.2	21.2
		15	0	21.3	21.2	21.1

OUTPUT POWER FOR LTE BAND 4 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				19975	20175	20375
				1712.5 MHz	1732.5 MHz	1752.5 MHz
5.0	QPSK	1	0	24.1	23.9	23.8
		1	12	**24.1**	24.0	23.8
		1	24	23.9	23.9	23.7
		12	0	23.1	22.9	22.8
		12	6	23.1	23.0	22.9
		12	11	23.0	23.0	22.9
		25	0	23.0	22.9	22.9
	16QAM	1	0	23.1	23.0	**23.4**
		1	12	23.2	23.1	23.4
		1	24	23.0	23.0	23.3
		12	0	22.2	22.0	22.0
		12	6	22.2	22.1	22.0
		12	11	22.1	22.1	22.0
		25	0	22.0	22.0	22.0
	64QAM	1	0	**22.6**	22.1	22.4
		1	12	22.6	22.1	22.4
		1	24	22.4	22.1	22.3
		12	0	21.4	21.2	21.0
		12	6	21.5	21.2	21.0
		12	11	21.4	21.2	21.0
		25	0	21.3	21.1	21.0

OUTPUT POWER FOR LTE BAND 4 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				20000	20175	20350
				1715.0 MHz	1732.5 MHz	1750.0 MHz
10.0	QPSK	1	0	23.9	23.9	23.9
		1	24	**24.0**	23.9	23.9
		1	49	23.7	23.8	23.8
		25	0	23.0	23.0	22.9
		25	12	23.0	23.0	22.9
		25	24	22.9	22.9	22.8
		50	0	23.0	23.0	22.9
	16QAM	1	0	22.9	22.8	**23.1**
		1	24	22.8	22.9	23.1
		1	49	22.8	22.8	23.0
		25	0	22.2	22.0	22.0
		25	12	22.1	22.0	22.0
		25	24	22.0	22.0	21.9
		50	0	22.0	22.0	21.9
	64QAM	1	0	22.5	22.5	22.2
		1	24	22.5	**22.5**	22.3
		1	49	22.2	22.4	22.2
		25	0	21.4	21.3	21.2
		25	12	21.4	21.2	21.2
		25	24	21.3	21.2	21.1
		50	0	21.2	21.2	21.1

OUTPUT POWER FOR LTE BAND 4 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				20025	20175	20325
				1717.5 MHz	1732.5 MHz	1747.5 MHz
15.0	QPSK	1	0	**24.1**	24.1	23.9
		1	37	24.1	24.0	23.8
		1	74	24.1	24.1	23.9
		36	0	23.1	23.1	23.0
		36	16	23.1	23.1	23.0
		36	35	23.0	23.1	23.0
		75	0	23.1	23.1	23.0
	16QAM	1	0	23.4	23.0	**23.5**
		1	37	23.4	23.0	23.4
		1	74	23.4	23.0	23.4
		36	0	22.1	22.1	22.1
		36	16	22.1	22.1	22.1
		36	35	22.0	22.1	22.1
		75	0	22.1	22.1	22.0
	64QAM	1	0	**22.9**	22.6	22.4
		1	37	22.7	22.6	22.2
		1	74	22.8	22.6	22.3
		36	0	21.3	21.3	21.3
		36	16	21.3	21.4	21.3
		36	35	21.3	21.3	21.3
		75	0	21.3	21.3	21.2

OUTPUT POWER FOR LTE BAND 4 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				20050	20175	20300
				1720.0 MHz	1732.5 MHz	1745.0 MHz
20.0	QPSK	1	0	**24.2**	24.1	24.1
		1	49	24.0	24.0	24.0
		1	99	24.0	24.1	24.0
		50	0	23.1	23.1	23.1
		50	24	23.1	23.1	23.1
		50	49	23.0	23.1	23.0
		100	0	23.0	23.1	23.1
	16QAM	1	0	23.5	**23.7**	23.5
		1	49	23.4	23.6	23.5
		1	99	23.4	23.6	23.4
		50	0	22.1	22.2	22.1
		50	24	22.1	22.2	22.1
		50	49	22.1	22.1	22.1
		100	0	22.1	22.1	22.1
	64QAM	1	0	22.6	22.8	**23.0**
		1	49	22.4	22.7	22.9
		1	99	22.4	22.7	22.8
		50	0	21.4	21.4	21.3
		50	24	21.3	21.4	21.3
		50	49	21.3	21.4	21.3
		100	0	21.3	21.3	21.3

7.3. LTE BAND 5

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OUTPUT POWER FOR LTE BAND 5 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				20407	20525	20643
				824.7 MHz	836.5 MHz	848.3 MHz
1.4	QPSK	1	0	23.6	23.5	23.6
		1	2	23.6	23.6	**23.8**
		1	5	23.5	23.4	23.5
		3	0	23.7	23.3	23.3
		3	1	23.5	23.2	23.6
		3	2	23.5	23.4	23.5
		6	0	22.5	22.3	22.4
	16QAM	1	0	22.5	22.5	22.4
		1	2	22.2	22.5	22.8
		1	5	22.5	22.3	**22.8**
		3	0	22.8	22.3	22.7
		3	1	22.6	22.4	22.5
		3	2	22.4	22.4	22.5
		6	0	21.5	21.5	21.8
	64QAM	1	0	21.5	21.3	21.3
		1	2	**21.7**	21.5	21.5
		1	5	21.6	21.4	21.1
		3	0	21.4	21.2	21.1
		3	1	21.5	21.3	21.3
		3	2	21.5	21.4	21.2
		6	0	20.3	20.5	20.3

OUTPUT POWER FOR LTE BAND 5 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				20415	20525	20635
				825.5 MHz	836.5 MHz	847.5 MHz
3.0	QPSK	1	0	23.7	23.6	23.7
		1	7	23.8	23.7	23.8
		1	14	**23.9**	23.5	23.6
		8	0	22.3	22.3	22.3
		8	4	22.3	22.4	22.3
		8	7	22.5	22.4	22.5
		15	0	22.4	22.4	22.3
	16QAM	1	0	22.6	22.5	22.6
		1	7	22.7	**22.8**	22.4
		1	14	22.8	22.5	22.5
		8	0	21.8	21.6	21.7
		8	4	21.6	21.6	21.6
		8	7	21.4	21.8	21.6
		15	0	21.4	21.9	21.4
	64QAM	1	0	21.4	21.5	21.3
		1	7	21.4	21.5	21.4
		1	14	21.5	**21.6**	21.1
		8	0	20.1	20.3	20.3
		8	4	20.3	20.4	20.4
		8	7	20.3	20.5	20.5
		15	0	20.4	20.3	20.3

OUTPUT POWER FOR LTE BAND 5 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				20425	20525	20625
				826.5 MHz	836.5 MHz	846.5 MHz
5.0	QPSK	1	0	23.6	23.6	23.5
		1	12	23.6	23.5	23.4
		1	24	23.6	**23.7**	23.5
		12	0	22.4	22.3	22.2
		12	6	22.5	22.4	22.3
		12	11	22.4	22.4	22.4
		25	0	22.4	22.3	22.3
	16QAM	1	0	22.8	22.8	22.8
		1	12	22.7	**22.9**	22.6
		1	24	22.6	22.5	22.5
		12	0	21.6	21.4	21.6
		12	6	21.5	21.4	21.5
		12	11	21.5	21.4	21.8
		25	0	21.3	21.4	21.6
	64QAM	1	0	21.4	21.2	21.5
		1	12	21.5	21.3	**21.7**
		1	24	21.6	21.2	21.3
		12	0	20.3	20.3	20.2
		12	6	20.5	20.3	20.3
		12	11	20.5	20.4	20.3
		25	0	20.4	20.2	20.3

OUTPUT POWER FOR LTE BAND 5 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				20450	20525	20600
				829.0 MHz	836.5 MHz	844.0 MHz
10.0	QPSK	1	0	23.8	23.9	23.7
		1	24	23.7	23.7	23.4
		1	49	**23.9**	23.5	23.7
		25	0	22.4	22.4	22.3
		25	12	22.4	22.4	22.3
		25	24	22.2	22.4	22.1
		50	0	22.5	22.3	22.2
	16QAM	1	0	22.5	22.8	22.4
		1	24	22.4	22.8	22.8
		1	49	**22.9**	22.6	22.5
		25	0	21.3	21.4	21.4
		25	12	21.6	21.4	21.4
		25	24	21.4	21.2	21.3
		50	0	21.4	21.3	21.2
	64QAM	1	0	21.5	**21.7**	21.5
		1	24	21.5	21.7	21.4
		1	49	21.4	21.6	21.4
		25	0	20.4	20.4	20.4
		25	12	20.4	20.4	20.4
		25	24	20.3	20.3	20.3
		50	0	20.3	20.3	20.3

7.4. LTE BAND 7

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OUTPUT POWER FOR LTE BAND 7 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				20775	21100	21425
				2502.5 MHz	2535.0 MHz	2567.5 MHz
5.0	QPSK	1	0	**24.1**	23.8	23.8
		1	12	24.1	23.8	23.9
		1	24	24.1	23.7	24.0
		12	0	23.2	22.8	22.9
		12	6	23.1	22.8	23.0
		12	11	23.1	22.7	23.0
		25	0	23.1	22.7	23.0
	16QAM	1	0	23.3	22.9	23.4
		1	12	23.2	22.9	23.5
		1	24	23.2	22.8	**23.5**
		12	0	22.2	21.8	22.1
		12	6	22.2	21.9	22.2
		12	11	22.2	21.8	22.2
		25	0	22.0	21.7	22.0
	64QAM	1	0	22.1	21.9	22.3
		1	12	22.2	21.8	22.3
		1	24	**22.3**	21.7	22.2
		12	0	20.9	20.9	20.9
		12	6	21.1	20.9	21.0
		12	11	21.1	20.9	21.1
		25	0	21.0	20.8	21.0

OUTPUT POWER FOR LTE BAND 7 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				20800	21100	21400
				2505.0 MHz	2535.0 MHz	2565.0 MHz
10.0	QPSK	1	0	24.0	23.8	23.7
		1	24	24.1	23.7	23.8
		1	49	**24.1**	23.6	23.9
		25	0	23.0	22.7	22.8
		25	12	23.1	22.7	22.9
		25	24	23.0	22.6	22.9
		50	0	23.0	22.6	22.8
	16QAM	1	0	23.0	23.1	22.8
		1	24	23.0	**23.1**	22.9
		1	49	23.0	22.9	23.0
		25	0	22.1	21.8	21.9
		25	12	22.1	21.7	22.0
		25	24	22.1	21.7	22.0
		50	0	22.0	21.7	21.9
	64QAM	1	0	22.2	22.2	21.8
		1	24	22.2	22.2	22.1
		1	49	**22.5**	22.1	22.1
		25	0	21.0	20.9	20.6
		25	12	21.2	20.9	21.0
		25	24	21.2	20.8	21.0
		50	0	21.2	20.8	20.9

OUTPUT POWER FOR LTE BAND 7 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				20825	21100	21375
				2507.5 MHz	2535.0 MHz	2562.5 MHz
15.0	QPSK	1	0	**24.3**	23.9	23.8
		1	37	24.2	23.7	24.0
		1	74	24.3	23.6	24.1
		36	0	23.1	22.9	22.9
		36	16	23.2	22.8	22.9
		36	35	23.2	22.7	23.0
		75	0	23.2	22.7	22.9
	16QAM	1	0	**23.6**	22.7	23.1
		1	37	23.5	22.4	23.1
		1	74	23.6	22.5	23.4
		36	0	22.1	21.9	22.0
		36	16	22.2	21.8	22.0
		36	35	22.2	21.7	22.0
		75	0	22.2	21.8	22.0
	64QAM	1	0	22.5	22.4	21.8
		1	37	22.9	22.2	21.9
		1	74	**22.9**	22.1	22.1
		36	0	21.1	21.0	20.6
		36	16	21.3	21.0	20.9
		36	35	21.4	20.9	21.1
		75	0	21.3	20.9	20.8

OUTPUT POWER FOR LTE BAND 7 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				20850	21100	21350
				2510.0 MHz	2535.0 MHz	2560.0 MHz
20.0	QPSK	1	0	**24.3**	24.0	23.7
		1	49	24.2	23.8	23.8
		1	99	24.2	23.6	24.0
		50	0	23.1	22.9	22.8
		50	24	23.2	22.8	22.9
		50	49	23.2	22.7	22.9
		100	0	23.2	22.8	22.9
	16QAM	1	0	**23.6**	23.5	23.1
		1	49	23.6	23.3	23.2
		1	99	23.4	23.2	23.4
		50	0	22.1	21.9	21.8
		50	24	22.1	21.8	21.9
		50	49	22.2	21.7	21.9
		100	0	22.1	21.8	21.8
	64QAM	1	0	22.3	22.3	22.4
		1	49	22.6	22.2	22.2
		1	99	22.4	22.0	**22.6**
		50	0	21.2	21.0	20.7
		50	24	21.3	21.0	20.8
		50	49	21.3	20.9	20.9
		100	0	21.3	20.9	20.9

7.5. LTE BAND 12

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OUTPUT POWER FOR LTE BAND 12 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				23017	23095	23173
				699.7 MHz	707.5 MHz	715.3 MHz
1.4	QPSK	1	0	24.3	24.3	**24.5**
		1	2	24.4	24.4	24.4
		1	5	24.3	24.3	24.5
		3	0	24.3	24.3	24.4
		3	1	24.4	24.3	24.5
		3	2	24.4	24.4	24.4
		6	0	23.4	23.3	23.5
	16QAM	1	0	23.4	23.6	23.4
		1	2	23.5	23.7	23.5
		1	5	23.4	23.7	23.5
		3	0	23.4	23.4	23.6
		3	1	23.5	23.5	23.7
		3	2	23.5	23.6	**23.8**
		6	0	22.6	22.3	22.7
	64QAM	1	0	22.2	21.9	22.0
		1	2	**22.4**	22.1	22.1
		1	5	22.3	22.0	22.1
		3	0	22.2	21.9	21.8
		3	1	22.2	22.0	21.9
		3	2	22.2	22.1	21.9
		6	0	20.9	21.2	21.0

OUTPUT POWER FOR LTE BAND 12 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				23025	23095	23165
				700.5 MHz	707.5 MHz	714.5 MHz
3.0	QPSK	1	0	24.3	24.3	24.4
		1	7	24.4	24.4	**24.5**
		1	14	24.3	24.3	24.5
		8	0	23.5	23.4	23.5
		8	4	23.5	23.4	23.5
		8	7	23.5	23.5	23.6
		15	0	23.5	23.4	23.6
	16QAM	1	0	23.2	23.6	23.5
		1	7	23.3	**23.7**	23.6
		1	14	23.3	23.7	23.5
		8	0	22.6	22.5	22.6
		8	4	22.6	22.5	22.7
		8	7	22.6	22.6	22.7
		15	0	22.5	22.4	22.6
	64QAM	1	0	22.1	21.9	22.2
		1	7	22.3	22.0	22.1
		1	14	**22.3**	22.0	22.1
		8	0	21.0	21.0	21.0
		8	4	21.2	21.0	21.1
		8	7	21.1	21.1	21.1
		15	0	21.1	21.0	21.1

OUTPUT POWER FOR LTE BAND 12 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				23035	23095	23155
				701.5 MHz	707.5 MHz	713.5 MHz
5.0	QPSK	1	0	24.3	24.3	24.5
		1	12	24.4	24.5	24.6
		1	24	24.3	24.4	**24.6**
		12	0	23.4	23.4	23.5
		12	6	23.5	23.5	23.6
		12	11	23.5	23.4	23.6
		25	0	23.5	23.4	23.6
	16QAM	1	0	23.8	23.4	23.6
		1	12	**23.9**	23.5	23.7
		1	24	23.9	23.4	23.7
		12	0	22.6	22.4	22.6
		12	6	22.7	22.5	22.7
		12	11	22.6	22.5	22.7
		25	0	22.5	22.3	22.6
	64QAM	1	0	22.1	22.1	22.0
		1	12	**22.3**	22.1	22.0
		1	24	22.3	22.2	21.9
		12	0	21.0	21.0	21.1
		12	6	21.0	21.1	21.1
		12	11	21.0	21.1	21.1
		25	0	21.0	21.0	21.0

OUTPUT POWER FOR LTE BAND 12 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				23060	23095	23130
				704.0 MHz	707.5 MHz	711.0 MHz
10.0	QPSK	1	0	24.2	24.4	24.4
		1	24	24.0	24.5	24.4
		1	49	24.2	24.4	**24.5**
		25	0	23.4	23.4	23.4
		25	12	23.4	23.4	23.5
		25	24	23.4	23.4	23.5
		50	0	23.4	23.4	23.4
	16QAM	1	0	23.3	23.8	23.5
		1	24	23.3	**23.8**	23.5
		1	49	23.2	23.8	23.5
		25	0	22.5	22.5	22.5
		25	12	22.5	22.4	22.6
		25	24	22.4	22.4	22.7
		50	0	22.4	22.5	22.5
	64QAM	1	0	22.3	22.1	22.1
		1	24	**22.4**	22.1	22.1
		1	49	22.3	22.2	22.1
		25	0	21.1	21.1	21.0
		25	12	21.1	21.0	21.1
		25	24	21.0	21.0	21.1
		50	0	21.0	21.0	21.0

7.6. LTE BAND 13

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OUTPUT POWER FOR LTE BAND 13 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				23205	23230	23255
				779.5 MHz	782.0 MHz	784.5 MHz
5.0	QPSK	1	0	23.6	23.6	23.7
		1	12	23.7	23.6	23.7
		1	24	**23.7**	23.5	23.6
		12	0	22.4	22.7	22.7
		12	6	22.8	22.8	22.8
		12	11	22.8	22.7	22.7
		25	0	22.8	22.7	22.7
	16QAM	1	0	22.7	23.1	22.8
		1	12	22.8	**23.2**	22.7
		1	24	22.9	23.0	22.6
		12	0	21.5	21.9	21.8
		12	6	21.9	21.9	21.8
		12	11	21.9	21.8	21.8
		25	0	21.9	21.8	21.7
	64QAM	1	0	20.4	21.2	22.0
		1	12	20.5	**22.1**	21.8
		1	24	21.8	21.9	22.0
		12	0	19.3	20.8	20.9
		12	6	19.7	20.8	20.9
		12	11	20.4	20.7	20.8
		25	0	19.9	20.8	20.8

OUTPUT POWER FOR LTE BAND 13 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				N/A	23230	N/A
				N/A	782.0 MHz	N/A
10.0	QPSK	1	0		23.5	
		1	24		**23.7**	
		1	49		23.6	
		25	0		22.8	
		25	12		22.8	
		25	24		22.8	
		50	0		22.7	
	16QAM	1	0		22.6	
		1	24		22.5	
		1	49		**22.6**	
		25	0		21.9	
		25	12		21.9	
		25	24		21.8	
		50	0		21.8	
	64QAM	1	0		20.7	
		1	24		**22.1**	
		1	49		21.9	
		25	0		20.1	
		25	12		21.0	
		25	24		21.0	
		50	0		20.5	

7.7. LTE BAND 14

ID:	19498 ER	Date:	7/2/19

OUTPUT POWER FOR LTE BAND 14 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				23305	23330	23355
				790.5 MHz	793.0 MHz	795.5 MHz
5.0	QPSK	1	0	23.5	23.5	23.5
		1	12	23.5	**23.6**	23.4
		1	24	23.5	23.5	23.4
		12	0	22.5	22.5	22.5
		12	6	22.6	22.5	22.6
		12	11	22.6	22.6	22.6
		25	0	22.6	22.5	22.5
	16QAM	1	0	22.5	22.5	22.9
		1	12	22.6	22.7	23.0
		1	24	22.6	22.6	**23.0**
		12	0	21.5	21.6	21.6
		12	6	21.7	21.7	21.7
		12	11	21.7	21.6	21.7
		25	0	21.5	21.6	21.6
	64QAM	1	0	21.7	22.1	22.0
		1	12	21.8	**22.2**	22.1
		1	24	21.9	22.2	22.1
		12	0	21.0	20.8	20.9
		12	6	21.0	20.9	21.0
		12	11	21.0	20.9	21.0
		25	0	20.9	20.8	20.9

OUTPUT POWER FOR LTE BAND 14 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				N/A	23330	N/A
				N/A	793.0 MHz	N/A
10.0	QPSK	1	0		**23.5**	
		1	24		23.2	
		1	49		23.3	
		25	0		22.6	
		25	12		22.5	
		25	24		22.5	
		50	0		22.5	
	16QAM	1	0		**22.5**	
		1	24		22.4	
		1	49		22.4	
		25	0		21.7	
		25	12		21.7	
		25	24		21.6	
		50	0		21.6	
	64QAM	1	0		**22.1**	
		1	24		22.1	
		1	49		21.9	
		25	0		21.0	
		25	12		21.0	
		25	24		20.9	
		50	0		20.9	

7.8. LTE BAND 25

ID:	19498 ER	Date:	7/1/19

OUTPUT POWER FOR LTE BAND 25 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				26047	26365	26683
				1850.7 MHz	1882.5 MHz	1914.3 MHz
1.4	QPSK	1	0	23.3	23.4	23.2
		1	2	23.6	23.5	23.3
		1	5	**23.6**	23.5	23.3
		3	0	23.5	23.3	23.2
		3	1	23.6	23.4	23.3
		3	2	23.6	23.5	23.3
		6	0	22.7	22.5	22.3
	16QAM	1	0	22.5	22.8	22.2
		1	2	22.7	**22.9**	22.3
		1	5	22.7	22.8	22.3
		3	0	22.6	22.5	22.3
		3	1	22.7	22.6	22.4
		3	2	22.7	22.6	22.4
		6	0	21.8	21.4	21.5
	64QAM	1	0	21.4	21.9	21.6
		1	2	21.6	**22.0**	21.6
		1	5	21.7	21.9	21.6
		3	0	21.4	21.8	21.4
		3	1	21.5	21.9	21.4
		3	2	21.5	22.0	21.5
		6	0	20.2	21.0	20.6

OUTPUT POWER FOR LTE BAND 25 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				26055	26365	26675
				1851.5 MHz	1882.5 MHz	1913.5 MHz
3.0	QPSK	1	0	23.5	23.4	23.2
		1	7	**23.7**	23.5	23.3
		1	14	23.6	23.5	23.3
		8	0	22.7	22.6	22.4
		8	4	22.8	22.6	22.5
		8	7	22.8	22.6	22.5
		15	0	22.8	22.5	22.4
	16QAM	1	0	22.6	22.2	22.5
		1	7	**22.7**	22.5	22.6
		1	14	22.6	22.4	22.7
		8	0	21.9	21.6	21.3
		8	4	22.0	21.7	21.4
		8	7	22.0	21.7	21.4
		15	0	21.7	21.5	21.4
	64QAM	1	0	21.1	22.0	21.8
		1	7	21.6	**22.0**	21.8
		1	14	**22.0**	**22.0**	21.7
		8	0	20.4	20.8	20.7
		8	4	20.6	20.9	20.8
		8	7	20.7	20.9	20.8
		15	0	20.6	20.9	20.6

OUTPUT POWER FOR LTE BAND 25 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				26065	26365	26665
				1852.5 MHz	1882.5 MHz	1912.5 MHz
5.0	QPSK	1	0	23.5	23.4	23.2
		1	12	**23.7**	23.5	23.3
		1	24	23.6	23.5	23.3
		12	0	22.7	22.5	22.3
		12	6	22.8	22.6	22.4
		12	11	22.8	22.7	22.4
		25	0	22.8	22.6	22.4
	16QAM	1	0	22.7	22.6	22.7
		1	12	22.8	22.7	22.8
		1	24	22.8	22.8	**22.8**
		12	0	21.8	21.6	21.5
		12	6	21.9	21.7	21.6
		12	11	21.9	21.7	21.6
		25	0	21.8	21.6	21.4
	64QAM	1	0	21.3	21.7	21.9
		1	12	**22.0**	21.9	21.9
		1	24	**22.0**	22.0	21.7
		12	0	20.5	20.9	20.6
		12	6	21.0	21.0	20.6
		12	11	21.0	21.0	20.6
		25	0	20.9	20.8	20.6

OUTPUT POWER FOR LTE BAND 25 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				26090	26365	26640
				1855.0 MHz	1882.5 MHz	1910.0 MHz
10.0	QPSK	1	0	23.6	23.4	23.3
		1	24	**23.7**	23.6	23.3
		1	49	23.6	23.5	23.3
		25	0	22.7	22.6	22.3
		25	12	22.8	22.6	22.4
		25	24	22.8	22.6	22.4
		50	0	22.7	22.6	22.3
	16QAM	1	0	22.5	22.9	22.2
		1	24	22.6	**22.9**	22.0
		1	49	22.5	22.8	22.1
		25	0	21.8	21.6	21.4
		25	12	21.8	21.6	21.4
		25	24	21.8	21.7	21.4
		50	0	21.7	21.6	21.3
	64QAM	1	0	21.2	**22.0**	21.6
		1	24	21.9	22.0	21.5
		1	49	**22.0**	**22.0**	21.6
		25	0	20.9	21.0	20.7
		25	12	21.0	20.9	20.7
		25	24	21.0	20.9	20.7
		50	0	21.0	20.9	20.6

OUTPUT POWER FOR LTE BAND 25 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				26115	26365	26615
				1857.5 MHz	1882.5 MHz	1907.5 MHz
15.0	QPSK	1	0	23.8	23.7	23.6
		1	37	**23.9**	23.6	23.5
		1	74	23.8	23.7	23.3
		36	0	22.8	22.7	22.5
		36	16	22.9	22.8	22.6
		36	35	22.9	22.8	22.6
		75	0	22.9	22.8	22.6
	16QAM	1	0	**23.0**	22.6	23.0
		1	37	23.0	22.5	22.7
		1	74	**23.0**	22.6	22.8
		36	0	21.8	21.7	21.5
		36	16	21.8	21.8	21.6
		36	35	21.9	21.8	21.6
		75	0	21.8	21.8	21.6
	64QAM	1	0	21.7	**22.0**	**22.0**
		1	37	**22.0**	21.9	21.8
		1	74	22.0	22.0	21.6
		36	0	21.0	21.0	20.9
		36	16	21.0	21.0	20.9
		36	35	21.0	21.0	20.9
		75	0	21.0	21.0	20.9

OUTPUT POWER FOR LTE BAND 25 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				26140	26365	26590
				1860.0 MHz	1882.5 MHz	1905.0 MHz
20.0	QPSK	1	0	**23.9**	23.7	23.6
		1	49	23.8	23.8	23.5
		1	99	23.7	23.8	23.4
		50	0	22.8	22.7	22.6
		50	24	22.8	22.8	22.6
		50	49	22.8	22.8	22.6
		100	0	22.8	22.7	22.6
	16QAM	1	0	**23.0**	**23.0**	23.0
		1	49	**23.0**	**23.0**	22.8
		1	99	**23.0**	**23.0**	22.8
		50	0	21.9	21.6	21.5
		50	24	21.8	21.8	21.5
		50	49	21.8	21.8	21.5
		100	0	21.8	21.7	21.5
	64QAM	1	0	21.9	21.8	**22.0**
		1	49	22.0	21.9	21.9
		1	99	21.8	21.8	21.8
		50	0	20.9	21.0	20.9
		50	24	21.0	21.0	20.8
		50	49	21.0	21.0	20.8
		100	0	21.0	21.0	20.8

7.9. LTE BAND 26 (FCC Part 90S)

ID:	19498 ER	Date:	7/17/19

OUTPUT POWER FOR LTE BAND 26 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				26697	26740	26783
				814.7 MHz	819.0 MHz	823.3 MHz
1.4	QPSK	1	0	23.5	23.4	**23.6**
		1	2	23.5	23.5	23.5
		1	5	23.4	23.4	23.5
		3	0	23.4	23.4	23.5
		3	1	23.5	23.5	23.6
		3	2	23.5	23.5	23.6
		6	0	22.5	22.5	22.6
	16QAM	1	0	22.6	22.5	22.8
		1	2	22.6	22.6	**22.9**
		1	5	22.6	22.5	22.9
		3	0	22.6	22.5	22.6
		3	1	22.7	22.6	22.8
		3	2	22.7	22.6	22.7
		6	0	21.7	21.7	21.6
	64QAM	1	0	21.6	21.9	21.1
		1	2	21.7	**22.0**	21.1
		1	5	21.7	21.8	21.0
		3	0	21.4	21.8	21.1
		3	1	21.5	21.8	21.1
		3	2	21.5	21.8	21.1
		6	0	20.6	20.5	20.3

OUTPUT POWER FOR LTE BAND 26 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				26705	26740	26775
				815.5 MHz	819.0 MHz	822.5 MHz
3.0	QPSK	1	0	23.4	23.4	23.4
		1	7	23.5	23.4	23.5
		1	14	23.4	23.5	**23.6**
		8	0	22.6	22.5	22.5
		8	4	22.7	22.6	22.6
		8	7	22.6	22.7	22.7
		15	0	22.6	22.6	22.6
	16QAM	1	0	22.5	22.3	22.8
		1	7	22.5	22.4	22.9
		1	14	22.5	22.4	**23.0**
		8	0	21.7	21.7	21.7
		8	4	21.7	21.7	21.7
		8	7	21.7	21.8	21.8
		15	0	21.6	21.6	21.7
	64QAM	1	0	21.8	**21.9**	21.4
		1	7	21.8	21.8	21.2
		1	14	21.9	21.6	21.1
		8	0	20.7	20.7	20.3
		8	4	20.7	20.7	20.2
		8	7	20.8	20.7	20.2
		15	0	20.8	20.6	20.2

OUTPUT POWER FOR LTE BAND 26 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				26715	26740	26765
				816.5 MHz	819.0 MHz	821.5 MHz
5.0	QPSK	1	0	23.5	23.6	23.4
		1	12	23.5	**23.6**	23.5
		1	24	23.5	23.5	23.5
		12	0	22.6	22.6	22.6
		12	6	22.6	22.6	22.6
		12	11	22.6	22.6	22.6
		25	0	22.6	22.6	22.6
	16QAM	1	0	22.6	22.6	23.0
		1	12	22.6	22.6	23.0
		1	24	22.7	22.6	**23.1**
		12	0	21.7	21.6	21.7
		12	6	21.7	21.7	21.8
		12	11	21.7	21.7	21.8
		25	0	21.6	21.6	21.7
	64QAM	1	0	21.8	21.6	21.9
		1	12	**22.0**	21.5	21.5
		1	24	21.7	21.1	21.2
		12	0	20.8	20.7	20.5
		12	6	20.8	20.6	20.3
		12	11	20.7	20.5	20.1
		25	0	20.7	20.5	20.3

OUTPUT POWER FOR LTE BAND 26 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				N/A	26740	N/A
				N/A	819.0 MHz	N/A
10.0	QPSK	1	0		**23.6**	
		1	24		23.3	
		1	49		23.5	
		25	0		22.6	
		25	12		22.6	
		25	24		22.6	
		50	0		22.6	
	16QAM	1	0		**23.1**	
		1	24		23.0	
		1	49		22.9	
		25	0		21.7	
		25	12		21.7	
		25	24		21.6	
		50	0		21.6	
	64QAM	1	0		**21.9**	
		1	24		21.7	
		1	49		21.0	
		25	0		20.8	
		25	12		20.6	
		25	24		20.3	
		50	0		20.4	

7.10. LTE BAND 26 (FCC Part 22)

ID:	19498 ER	Date:	7/18/19

OUTPUT POWER FOR LTE BAND 26 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				26797	26915	27033
				824.7 MHz	836.5 MHz	848.3 MHz
1.4	QPSK	1	0	23.6	23.6	23.2
		1	2	23.7	**23.8**	22.9
		1	5	23.6	23.6	22.5
		3	0	23.6	23.5	23.0
		3	1	23.7	23.6	22.9
		3	2	23.7	23.7	22.8
		6	0	22.7	22.7	21.9
	16QAM	1	0	22.6	22.7	22.5
		1	2	22.7	22.8	22.4
		1	5	22.7	22.6	21.6
		3	0	22.8	22.6	22.2
		3	1	**22.9**	22.6	22.0
		3	2	22.9	22.7	22.0
		6	0	21.9	21.8	21.1
	64QAM	1	0	21.2	**21.5**	20.3
		1	2	21.3	21.5	20.1
		1	5	21.1	21.2	19.8
		3	0	21.1	21.4	20.0
		3	1	21.2	21.5	19.9
		3	2	21.1	21.4	19.8
		6	0	19.8	20.6	19.0

OUTPUT POWER FOR LTE BAND 26 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				26805	26915	27025
				825.5 MHz	836.5 MHz	847.5 MHz
3.0	QPSK	1	0	23.6	23.6	23.5
		1	7	23.6	**23.7**	23.1
		1	14	23.6	23.6	22.4
		8	0	22.7	22.7	22.4
		8	4	22.8	22.7	22.2
		8	7	22.8	22.7	22.1
		15	0	22.8	22.7	22.1
	16QAM	1	0	22.7	22.5	**22.8**
		1	7	22.7	22.6	22.5
		1	14	22.7	22.5	21.8
		8	0	21.8	21.8	21.5
		8	4	21.9	21.8	21.3
		8	7	21.9	21.9	21.2
		15	0	21.8	21.7	21.2
	64QAM	1	0	21.0	**21.7**	20.8
		1	7	20.9	21.4	20.6
		1	14	20.8	21.1	19.9
		8	0	20.0	20.5	19.5
		8	4	20.0	20.4	19.4
		8	7	19.9	20.3	19.3
		15	0	19.9	20.4	19.2

OUTPUT POWER FOR LTE BAND 26 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				26815	26915	27015
				826.5 MHz	836.5 MHz	846.5 MHz
5.0	QPSK	1	0	23.7	23.8	23.2
		1	12	23.7	**23.8**	23.4
		1	24	23.7	23.6	22.5
		12	0	22.7	22.7	22.4
		12	6	22.8	22.8	22.5
		12	11	22.8	22.7	22.3
		25	0	22.8	22.7	22.3
	16QAM	1	0	22.8	22.9	22.7
		1	12	22.8	22.9	**23.0**
		1	24	22.8	22.7	22.0
		12	0	21.8	21.8	21.5
		12	6	21.9	21.8	21.6
		12	11	21.8	21.8	21.4
		25	0	21.7	21.7	21.3
	64QAM	1	0	21.2	**21.6**	20.5
		1	12	20.9	21.3	20.8
		1	24	21.0	20.6	20.0
		12	0	20.0	20.6	19.3
		12	6	19.9	20.5	19.4
		12	11	19.8	20.2	19.3
		25	0	19.8	20.3	19.2

OUTPUT POWER FOR LTE BAND 26 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				26840	26915	26990
				829.0 MHz	836.5 MHz	844.0 MHz
10.0	QPSK	1	0	23.8	**23.8**	23.3
		1	24	23.7	23.8	23.2
		1	49	23.7	23.1	22.7
		25	0	22.8	22.8	22.2
		25	12	22.8	22.8	22.3
		25	24	22.8	22.6	22.3
		50	0	22.8	22.8	22.2
	16QAM	1	0	**22.8**	22.8	22.6
		1	24	22.7	22.7	22.5
		1	49	22.7	22.0	22.1
		25	0	21.9	21.8	21.2
		25	12	21.9	21.8	21.4
		25	24	21.9	21.7	21.4
		50	0	21.8	21.8	21.3
	64QAM	1	0	21.1	**22.1**	20.5
		1	24	21.0	21.6	20.3
		1	49	21.8	20.5	20.1
		25	0	20.0	20.7	19.4
		25	12	20.1	20.4	19.4
		25	24	20.4	19.8	19.4
		50	0	20.1	20.2	19.3

OUTPUT POWER FOR LTE BAND 26 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				26865	26915	26965
				831.5 MHz	836.5 MHz	841.5 MHz
15.0	QPSK	1	0	23.9	23.9	**23.9**
		1	37	23.9	23.6	23.0
		1	74	23.7	23.3	22.8
		36	0	22.9	22.9	22.7
		36	16	22.9	22.9	22.3
		36	35	22.9	22.5	22.2
		75	0	22.9	22.9	22.5
	16QAM	1	0	23.2	**23.3**	22.8
		1	37	23.0	23.2	21.9
		1	74	23.0	22.6	21.8
		36	0	22.0	21.9	21.7
		36	16	22.0	21.9	21.3
		36	35	21.9	21.5	21.2
		75	0	22.0	21.9	21.5
	64QAM	1	0	21.5	21.6	21.7
		1	37	**22.1**	21.6	20.2
		1	74	21.3	20.5	20.2
		36	0	19.9	20.5	19.9
		36	16	20.4	20.3	19.4
		36	35	20.4	19.6	19.2
		75	0	20.1	20.0	19.5

7.11. LTE BAND 30

ID:	19498 ER	Date:	7/24/19

OUTPUT POWER FOR LTE BAND 30 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				27685	27710	27735
				2307.5 MHz	2310.0 MHz	2312.5 MHz
5.0	QPSK	1	0	22.9	**23.0**	22.8
		1	12	22.9	22.9	22.7
		1	24	22.9	22.7	22.6
		12	0	21.8	21.8	21.8
		12	6	21.9	21.8	21.8
		12	11	21.9	21.8	21.7
		25	0	21.8	21.8	21.8
	16QAM	1	0	21.9	22.0	22.3
		1	12	22.0	22.0	**22.3**
		1	24	21.9	21.8	22.1
		12	0	20.9	20.8	21.0
		12	6	20.9	20.9	21.0
		12	11	20.9	20.8	20.9
		25	0	20.8	20.8	20.8
	64QAM	1	0	21.0	21.3	21.3
		1	12	21.0	**21.4**	21.3
		1	24	21.0	21.2	21.1
		12	0	20.1	19.9	20.1
		12	6	20.1	20.0	20.1
		12	11	20.1	19.9	20.1
		25	0	20.0	19.9	20.1

OUTPUT POWER FOR LTE BAND 30 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				N/A	27710	N/A
				N/A	2310.0 MHz	N/A
10.0	QPSK	1	0		**22.8**	
		1	24		22.8	
		1	49		22.7	
		25	0		21.8	
		25	12		21.8	
		25	24		21.8	
		50	0		21.8	
	16QAM	1	0		**21.7**	
		1	24		21.5	
		1	49		21.6	
		25	0		20.9	
		25	12		20.9	
		25	24		20.8	
		50	0		20.8	
	64QAM	1	0		21.2	
		1	24		**21.3**	
		1	49		21.2	
		25	0		20.2	
		25	12		20.1	
		25	24		20.1	
		50	0		20.0	

7.12. LTE BAND 41

ID:	19498 ER	Date:	7/2/19

OUTPUT POWER FOR LTE BAND 41 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				39675	40620	41565
				2498.5 MHz	2593.0 MHz	2687.5 MHz
5.0	QPSK	1	0	24.2	24.4	24.3
		1	12	24.3	24.5	24.3
		1	24	24.1	**24.5**	24.3
		12	0	23.3	23.5	23.4
		12	6	23.4	23.5	23.4
		12	11	23.4	23.6	23.4
		25	0	23.4	23.5	23.3
	16QAM	1	0	23.2	23.4	23.4
		1	12	23.2	**23.5**	23.4
		1	24	23.2	23.5	23.4
		12	0	22.4	22.5	22.4
		12	6	22.4	22.4	22.4
		12	11	22.4	22.5	22.4
		25	0	22.4	22.5	22.3
	64QAM	1	0	21.5	22.1	21.8
		1	12	21.5	22.0	21.8
		1	24	21.5	**22.1**	21.9
		12	0	20.8	20.8	20.6
		12	6	20.9	20.8	20.6
		12	11	20.8	20.8	20.7
		25	0	20.9	20.7	20.6

OUTPUT POWER FOR LTE BAND 41 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				39700	40620	41540
				2501.0 MHz	2593.0 MHz	2685.0 MHz
10.0	QPSK	1	0	24.3	24.4	24.3
		1	24	24.2	**24.4**	24.2
		1	49	24.2	24.4	24.2
		25	0	23.3	23.5	23.4
		25	12	23.3	23.5	23.4
		25	24	23.3	23.5	23.3
		50	0	23.3	23.5	23.3
	16QAM	1	0	23.3	23.4	**23.4**
		1	24	23.1	23.4	23.3
		1	49	23.2	23.4	23.3
		25	0	22.4	22.5	22.4
		25	12	22.3	22.5	22.3
		25	24	22.3	22.5	22.3
		50	0	22.3	22.5	22.3
	64QAM	1	0	**22.0**	21.7	21.1
		1	24	21.9	21.6	21.2
		1	49	22.0	21.7	21.2
		25	0	20.8	20.6	20.7
		25	12	20.8	20.6	20.7
		25	24	20.8	20.6	20.7
		50	0	20.8	20.7	20.7

OUTPUT POWER FOR LTE BAND 41 (15.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				39725	40620	41515
				2503.5 MHz	2593.0 MHz	2682.5 MHz
15.0	QPSK	1	0	24.4	24.5	24.3
		1	37	24.1	24.3	24.2
		1	74	24.4	**24.5**	24.5
		36	0	23.4	23.6	23.4
		36	16	23.4	23.7	23.5
		36	35	23.5	23.7	23.5
		75	0	23.4	23.7	23.5
	16QAM	1	0	23.4	23.4	23.3
		1	37	23.2	23.3	23.1
		1	74	23.4	**23.5**	23.5
		36	0	22.4	22.5	22.4
		36	16	22.5	22.7	22.5
		36	35	22.5	22.6	22.5
		75	0	22.4	22.6	22.5
	64QAM	1	0	20.9	22.3	21.4
		1	37	21.2	22.2	21.3
		1	74	21.4	**22.3**	21.6
		36	0	21.0	20.9	20.7
		36	16	21.0	20.9	20.8
		36	35	21.0	21.0	20.8
		75	0	20.9	21.0	20.8

OUTPUT POWER FOR LTE BAND 41 (20.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				39750	40620	41490
				2506.0 MHz	2593.0 MHz	2680.0 MHz
20.0	QPSK	1	0	24.4	24.5	24.3
		1	49	24.3	**24.8**	24.4
		1	99	24.3	24.7	24.5
		50	0	23.4	23.5	23.4
		50	24	23.4	23.6	23.4
		50	49	23.4	23.6	23.5
		100	0	23.4	23.6	23.4
	16QAM	1	0	23.5	23.2	23.6
		1	49	23.5	23.4	23.7
		1	99	23.5	23.4	**23.8**
		50	0	22.4	22.5	22.4
		50	24	22.4	22.6	22.5
		50	49	22.4	22.6	22.5
		100	0	22.4	22.6	22.4
	64QAM	1	0	21.0	21.8	21.8
		1	49	**22.4**	21.6	21.9
		1	99	22.3	21.9	22.0
		50	0	21.0	20.9	20.7
		50	24	21.0	20.9	20.8
		50	49	21.0	21.0	20.8
		100	0	20.9	20.9	20.8

7.13. LTE BAND 66

ID:	19498 ER	Date:	7/1/19

OUTPUT POWER FOR LTE BAND 66 (1.4 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				131979	132322	132665
				1710.7 MHz	1745.0 MHz	1779.3 MHz
1.4	QPSK	1	0	24.0	23.9	23.9
		1	2	**24.1**	24.0	24.0
		1	5	24.0	23.9	23.9
		3	0	24.0	23.9	23.9
		3	1	24.1	24.0	24.0
		3	2	24.1	24.0	24.0
		6	0	23.1	23.0	23.0
	16QAM	1	0	23.1	23.3	23.0
		1	2	23.2	**23.3**	23.0
		1	5	23.1	23.3	23.0
		3	0	23.1	23.1	23.1
		3	1	23.1	23.2	23.2
		3	2	23.1	23.2	23.2
		6	0	22.3	21.9	22.2
	64QAM	1	0	22.0	22.3	21.7
		1	2	22.1	**22.4**	21.7
		1	5	21.9	22.2	21.5
		3	0	21.7	22.2	21.6
		3	1	21.8	22.2	21.7
		3	2	21.8	22.2	21.6
		6	0	21.0	20.9	20.9

OUTPUT POWER FOR LTE BAND 66 (3.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				131987	132322	132657
				1711.5 MHz	1745.0 MHz	1778.5 MHz
3.0	QPSK	1	0	24.0	23.9	24.0
		1	7	**24.0**	24.0	24.0
		1	14	24.0	23.9	24.0
		8	0	23.2	23.0	23.0
		8	4	23.2	23.1	23.0
		8	7	23.2	23.1	23.1
		15	0	23.2	23.0	23.1
	16QAM	1	0	23.1	22.9	23.3
		1	7	23.1	22.9	**23.4**
		1	14	23.1	22.8	23.4
		8	0	22.2	22.2	22.1
		8	4	22.2	22.2	22.1
		8	7	22.3	22.2	22.1
		15	0	22.1	22.1	22.0
	64QAM	1	0	22.0	**22.1**	22.1
		1	7	22.0	22.1	22.0
		1	14	21.9	22.0	21.7
		8	0	21.0	20.9	20.9
		8	4	21.0	21.0	21.0
		8	7	21.0	21.0	20.9
		15	0	21.0	21.0	20.8

OUTPUT POWER FOR LTE BAND 66 (5.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				131997	132322	132647
				1712.5 MHz	1745.0 MHz	1777.5 MHz
5.0	QPSK	1	0	24.1	24.1	23.9
		1	12	**24.1**	24.1	24.0
		1	24	24.0	24.1	24.1
		12	0	23.2	23.0	23.0
		12	6	23.2	23.1	23.1
		12	11	23.2	23.1	23.1
		25	0	23.2	23.0	23.1
	16QAM	1	0	23.2	23.1	23.5
		1	12	23.2	23.2	23.6
		1	24	23.2	23.2	**23.6**
		12	0	22.3	22.1	22.1
		12	6	22.3	22.2	22.2
		12	11	22.2	22.2	22.3
		25	0	22.1	22.1	22.1
	64QAM	1	0	21.9	22.2	22.1
		1	12	21.8	**22.3**	22.1
		1	24	21.8	22.2	21.7
		12	0	21.0	20.9	20.9
		12	6	21.0	20.9	20.9
		12	11	20.9	20.9	21.0
		25	0	20.9	20.9	20.9

OUTPUT POWER FOR LTE BAND 66 (10.0 MHz)

Bandwidth (MHz)	Modulation	RB Allocation	RB Offset	Conducted Average (dBm)		
				132022	132322	132622
				1715.0 MHz	1745.0 MHz	1775.0 MHz
10.0	QPSK	1	0	24.0	24.0	23.9
		1	24	24.0	24.0	**24.1**
		1	49	24.0	24.0	24.0
		25	0	23.1	23.0	23.1
		25	12	23.1	23.0	23.0
		25	24	23.0	23.0	23.0
		50	0	23.1	23.0	23.0
	16QAM	1	0	23.0	22.9	23.4
		1	24	22.8	22.9	**23.4**
		1	49	23.0	22.9	23.4
		25	0	22.2	22.1	22.1
		25	12	22.2	22.0	22.1
		25	24	22.1	22.0	22.1
		50	0	22.1	22.0	22.1
	64QAM	1	0	22.0	22.2	22.2
		1	24	22.0	22.2	**22.2**
		1	49	22.0	22.0	21.9
		25	0	21.0	21.1	21.0
		25	12	20.9	21.1	20.9
		25	24	20.9	21.0	20.9
		50	0	20.9	21.0	20.9