FCC Test Report

(Part 27 – LTE B4/B7/B12/B17/B66/B71)

Report No.:	RFBHKI-WTW-P22030722-2
FCC ID:	NKRUMC-STD31BPN
Test Model:	UMC-STD31BPN
Received Date:	May 05, 2022
Test Date:	May 09 ~ May 17, 2022
Issued Date:	Jul. 19. 2022
Applicant:	Wistron NeWeb Corporation
Address:	20 Park Ave. II, Hsinchu Science Park,Hsinchu 308, Taiwan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location (1):	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number:	788550 / TW0003
Test Location (2):	No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
FCC Registration / Designation Number:	281270 / TW0032

Testing Laboratory
2021

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RFBHKI-WTW-P22030722-2	Original release	Jul. 19. 2022

1 Certificate of Conformity

Product:	Cellular module
Brand:	WNC
Test Model:	UMC-STD31BPN
Sample Status:	Engineering sample
Applicant:	Wistron NeWeb Corporation
Test Date:	May 09 ~ May 17, 2022
Standards:	FCC Part 27, Subpart C, H, L, M, N

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Celine Chou , **Date:** Jul. 19. 2022

Celine Chou / Senior Specialist

Approved by : Jeremy Lin , **Date:** Jul. 19. 2022

Jeremy Lin / Project Engineer

2 Summary of Test Results

For LTE Band 4, B66

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50 (d)	Equivalent Isotropically radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	Pass	Meet the requirement
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53 (h)	Out of Band Emission Measurements	Pass	Meet the requirement of limit.
27.50 (d)(5)	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53 (h)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53 (h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -30.21dB at 3465.00MHz.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

For LTE Band 7

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50 (h)(2)	Equivalent Isotropically radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	Pass	Meet the requirement
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53 (m)(4)(6)	Channel Edge / Out of Band Emission Measurements	Pass	Meet the requirement of limit.
--	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53 (m)(4)(6)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53 (m)(4)(6)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -9.72dB at 33.88MHz.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

For LTE Band 12, LTE Band 17, LTE Band 71

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50 (c)	Effective radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	Pass	Meet the requirement
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53 (g)	Out of Band Emission Measurements	Pass	Meet the requirement of limit.
--	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53 (g)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53 (g)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -23.51dB at 33.88MHz.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.00 dB
	30MHz ~ 200MHz	2.91 dB
	200MHz ~1000MHz	2.92 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	1.76 dB
	18GHz ~ 40GHz	1.77 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038B	MY60180018	Feb. 18, 2022	Feb. 17, 2023
Spectrum Analyzer KEYSIGHT	N9020B	MY60110462	Dec. 21, 2021	Dec. 20, 2022
BILOG Antenna SCHWARZBECK	VULB9168	9168-995	Oct. 28, 2021	Oct. 27, 2022
HORN Antenna RF SPIN	DRH18-E	210104A18E	Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9170	9170-995	Nov. 14, 2021	Nov. 13, 2022
Loop Antenna TESEQ	HLA 6121	45745	Jul. 21, 2021	Jul. 20, 2022
Preamplifier EMCI	EMC330N	980783	Jan. 17, 2022	Jan. 16, 2023
Preamplifier EMCI	EMC118A45SE	980810	Dec. 30, 2021	Dec. 29, 2022
Preamplifier EMCI	EMC184045SE	980787	Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMC104-SM-SM-(9000+2000+1000)	201230+ 201242+ 210101	Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMCCFD400-NM-NM-(9000+300+500)	201252+ 201250+ 201245	Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMC101G-KM-KM-(5000+3000+2000)	201259+201256+201253	Jan. 17, 2022	Jan. 16, 2023
Software BV CPS	ADT_Radiated_V7.6.15.9.5	NA	NA	NA
Turn Table Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208675	NA	NA
Antenna Tower KaiTuo	NA	NA	NA	NA
Antenna Tower Controller KaiTuo	KT-2000	NA	NA	NA
Temperature & Humidity Chamber TERCHY	HRM-120RF	931022	Jan. 03, 2022	Jan. 02, 2023
True RMS Clamp Meter Fluke	325	31130711WS	Jun. 02, 2021	Jun. 01, 2022
DC power supply Keysight	U8002A	MY56330015	NA	NA
Radio Communication Analyzer Anritsu	MT8821C	6272278310	Jun. 23, 2021	Jun. 22, 2022
Universal Radio Communication Tester R&S	CMU200	101095	Nov. 18, 2021	Nov. 17, 2022

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in WM Chamber 7.

3 General Information

3.1 General Description of EUT

Product	Cellular module	
Brand	WNC	
Test Model	UMC-STD31BPN	
Sample Status	Engineering sample	
Power Supply Rating	4.0Vdc	
Modulation Type	QPSK, 16QAM, 64QAM	
Operating Frequency	LTE Band 4 (Channel Bandwidth 1.4MHz)	1710.7MHz ~ 1754.3MHz
	LTE Band 4 (Channel Bandwidth 3MHz)	1711.5MHz ~ 1753.5MHz
	LTE Band 4 (Channel Bandwidth 5MHz)	1712.5MHz ~ 1752.5MHz
	LTE Band 4 (Channel Bandwidth 10MHz)	1715.0MHz ~ 1750.0MHz
	LTE Band 4 (Channel Bandwidth 15MHz)	1717.5MHz ~ 1747.5MHz
	LTE Band 4 (Channel Bandwidth 20MHz)	1720.0MHz ~ 1745.0MHz
	LTE Band 7 (Channel Bandwidth 5MHz)	2502.5MHz ~ 2567.5MHz
	LTE Band 7 (Channel Bandwidth 10MHz)	2505.0MHz ~ 2565.0MHz
	LTE Band 7 (Channel Bandwidth 15MHz)	2507.5MHz ~ 2562.5MHz
	LTE Band 7 (Channel Bandwidth 20MHz)	2510.0MHz ~ 2560.0MHz
	LTE Band 12 (Channel Bandwidth 1.4MHz)	699.7MHz ~ 715.3MHz
	LTE Band 12 (Channel Bandwidth 3MHz)	700.5MHz ~ 714.5MHz
	LTE Band 12 (Channel Bandwidth 5MHz)	701.5MHz ~ 713.5MHz
	LTE Band 12 (Channel Bandwidth 10MHz)	704.0MHz ~ 711.0MHz
	LTE Band 17 (Channel Bandwidth 5MHz)	706.5MHz ~ 713.5MHz
	LTE Band 17 (Channel Bandwidth 10MHz)	709.0MHz ~ 711.0MHz
	LTE Band 66 (Channel Bandwidth 1.4MHz)	1710.7MHz ~ 1779.3MHz
	LTE Band 66 (Channel Bandwidth 3MHz)	1711.5MHz ~ 1778.5MHz
	LTE Band 66 (Channel Bandwidth 5MHz)	1712.5MHz ~ 1777.5MHz
	LTE Band 66 (Channel Bandwidth 10MHz)	1715.0MHz ~ 1775.0MHz
	LTE Band 66 (Channel Bandwidth 15MHz)	1717.5MHz ~ 1772.5MHz
	LTE Band 66 (Channel Bandwidth 20MHz)	1720.0MHz ~ 1770.0MHz
	LTE Band 71 (Channel Bandwidth 5MHz)	665.5MHz ~ 695.5MHz
	LTE Band 71 (Channel Bandwidth 10MHz)	668.0MHz ~ 693.0MHz
	LTE Band 71 (Channel Bandwidth 15MHz)	670.5MHz ~ 690.5MHz
	LTE Band 71 (Channel Bandwidth 20MHz)	673.0MHz ~ 688.0MHz

		QPSK	16QAM	64QAM
Max. EIRP Power	LTE Band 4 (Channel Bandwidth 1.4MHz)	266.073mW (24.25dBm)	216.272mW (23.35dBm)	158.125mW (21.99dBm)
	LTE Band 4 (Channel Bandwidth 3MHz)	266.073mW (24.25dBm)	210.378mW (23.23dBm)	154.882mW (21.90dBm)
	LTE Band 4 (Channel Bandwidth 5MHz)	258.226mW (24.12dBm)	208.930mW (23.20dBm)	158.489mW (22.00dBm)
	LTE Band 4 (Channel Bandwidth 10MHz)	263.633mW (24.21dBm)	214.289mW (23.31dBm)	159.956mW (22.04dBm)
	LTE Band 4 (Channel Bandwidth 15MHz)	260.016mW (24.15dBm)	208.449mW (23.19dBm)	154.525mW (21.89dBm)
	LTE Band 4 (Channel Bandwidth 20MHz)	266.073mW (24.25dBm)	213.796mW (23.30dBm)	161.065mW (22.07dBm)
	LTE Band 7 (Channel Bandwidth 5MHz)	270.396mW (24.32dBm)	219.786mW (23.42dBm)	165.959mW (22.20dBm)
	LTE Band 7 (Channel Bandwidth 10MHz)	267.917mW (24.28dBm)	212.814mW (23.28dBm)	161.065mW (22.07dBm)
	LTE Band 7 (Channel Bandwidth 15MHz)	264.850mW (24.23dBm)	209.411mW (23.21dBm)	157.398mW (21.97dBm)
	LTE Band 7 (Channel Bandwidth 20MHz)	274.157mW (24.38dBm)	221.820mW (23.46dBm)	167.880mW (22.25dBm)
	LTE Band 66 (Channel Bandwidth 1.4MHz)	272.270mW (24.35dBm)	214.289mW (23.31dBm)	161.808mW (22.09dBm)
	LTE Band 66 (Channel Bandwidth 3MHz)	267.301mW (24.27dBm)	211.836mW (23.26dBm)	156.675mW (21.95dBm)
	LTE Band 66 (Channel Bandwidth 5MHz)	264.241mW (24.22dBm)	210.378mW (23.23dBm)	154.525mW (21.89dBm)
	LTE Band 66 (Channel Bandwidth 10MHz)	269.153mW (24.30dBm)	215.278mW (23.33dBm)	159.588mW (22.03dBm)
	LTE Band 66 (Channel Bandwidth 15MHz)	267.917mW (24.28dBm)	214.783mW (23.32dBm)	155.955mW (21.93dBm)
	LTE Band 66 (Channel Bandwidth 20MHz)	269.153mW (24.30dBm)	209.894mW (23.22dBm)	153.815mW (21.87dBm)

Max. ERP Power		QPSK	16QAM	64QAM
	LTE Band 12 (Channel Bandwidth 1.4MHz)	183.654mW (22.64dBm)	146.218mW (21.65dBm)	108.893mW (20.37dBm)
	LTE Band 12 (Channel Bandwidth 3MHz)	182.390mW (22.61dBm)	146.555mW (21.66dBm)	109.901mW (20.41dBm)
	LTE Band 12 (Channel Bandwidth 5MHz)	183.231mW (22.63dBm)	146.555mW (21.66dBm)	107.152mW (20.30dBm)
	LTE Band 12 (Channel Bandwidth 10MHz)	185.353mW (22.68dBm)	149.968mW (21.76dBm)	112.720mW (20.52dBm)
	LTE Band 17 (Channel Bandwidth 5MHz)	177.419mW (22.49dBm)	142.561mW (21.54dBm)	103.992mW (20.17dBm)
	LTE Band 17 (Channel Bandwidth 10MHz)	173.780mW (22.40dBm)	138.038mW (21.40dBm)	103.753mW (20.16dBm)
	LTE Band 71 (Channel Bandwidth 5MHz)	187.932mW (22.74dBm)	148.936mW (21.73dBm)	110.408mW (20.43dBm)
	LTE Band 71 (Channel Bandwidth 10MHz)	197.242mW (22.95dBm)	157.761mW (21.98dBm)	115.611mW (20.63dBm)
	LTE Band 71 (Channel Bandwidth 15MHz)	196.789mW (22.94dBm)	153.815mW (21.87dBm)	114.551mW (20.59dBm)
	LTE Band 71 (Channel Bandwidth 20MHz)	190.985mW (22.81dBm)	149.624mW (21.75dBm)	111.944mW (20.49dBm)
Emission Designator		QPSK	16QAM	64QAM
	LTE Band 4 (Channel Bandwidth 1.4MHz)	1M09G7D	1M09D7W	1M09D7W
	LTE Band 4 (Channel Bandwidth 3MHz)	2M69G7D	2M69D7W	2M69D7W
	LTE Band 4 (Channel Bandwidth 5MHz)	4M50G7D	4M49D7W	4M50D7W
	LTE Band 4 (Channel Bandwidth 10MHz)	8M98G7D	8M98D7W	8M98D7W
	LTE Band 4 (Channel Bandwidth 15MHz)	13M5G7D	13M5D7W	13M5D7W
	LTE Band 4 (Channel Bandwidth 20MHz)	18M0G7D	18M0D7W	18M0D7W
	LTE Band 7 (Channel Bandwidth 5MHz)	4M49G7D	4M49D7W	4M50D7W
	LTE Band 7 (Channel Bandwidth 10MHz)	8M98G7D	8M98D7W	8M98D7W
	LTE Band 7 (Channel Bandwidth 15MHz)	13M5G7D	13M5D7W	13M5D7W
	LTE Band 7 (Channel Bandwidth 20MHz)	18M0G7D	18M0D7W	18M0D7W
	LTE Band 12 (Channel Bandwidth 1.4MHz)	1M09G7D	1M09D7W	1M09D7W
	LTE Band 12 (Channel Bandwidth 3MHz)	2M69G7D	2M69D7W	2M69D7W
	LTE Band 12 (Channel Bandwidth 5MHz)	4M50G7D	4M50D7W	4M50D7W
	LTE Band 12 (Channel Bandwidth 10MHz)	9M01G7D	9M02D7W	9M02D7W
	LTE Band 17 (Channel Bandwidth 5MHz)	4M50G7D	4M50D7W	4M50D7W
	LTE Band 17 (Channel Bandwidth 10MHz)	8M96G7D	8M96D7W	8M96D7W
	LTE Band 66 (Channel Bandwidth 1.4MHz)	1M09G7D	1M09D7W	1M09D7W
	LTE Band 66 (Channel Bandwidth 3MHz)	2M69G7D	2M69D7W	2M69D7W
	LTE Band 66 (Channel Bandwidth 5MHz)	4M50G7D	4M50D7W	4M50D7W
	LTE Band 66 (Channel Bandwidth 10MHz)	8M98G7D	8M98D7W	8M99D7W
	LTE Band 66 (Channel Bandwidth 15MHz)	13M5G7D	13M5D7W	13M5D7W
	LTE Band 66 (Channel Bandwidth 20MHz)	18M0G7D	18M0D7W	18M0D7W

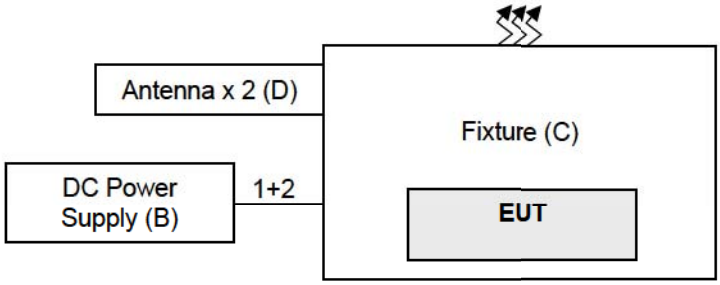
Emission Designator		QPSK	16QAM	64QAM
	LTE Band 71 (Channel Bandwidth 5MHz)	4M50G7D	4M50D7W	4M50D7W
	LTE Band 71 (Channel Bandwidth 10MHz)	8M99G7D	8M99D7W	8M99D7W
	LTE Band 71 (Channel Bandwidth 15MHz)	13M5G7D	13M5D7W	13M5D7W
	LTE Band 71 (Channel Bandwidth 20MHz)	18M0G7D	18M0D7W	18M0D7W
Antenna Type	Refer to note			
Antenna Connector	Refer to note			
Accessory Device	NA			
Cable Supplied	NA			

Note: The antenna information is listed as below. (For support unit only)

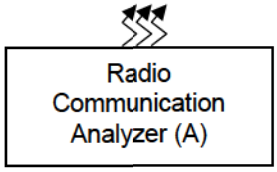
Type	Connector	Gain (dBi)											
		GSM 850	GSM 1900	LTE B2	LTE B4	LTE B5	LTE B7	LTE B12	LTE B17	LTE B25	LTE B26	LTE B66	LTE B71
Dipole	SMA	1.82	1.80	1.80	1.57	1.82	2.15	2.02	2.02	1.80	1.82	1.57	2.02

* The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

3.2 Configuration of System under Test



Remote site



3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Radio Communication Analyzer	Anritsu	MT8821C	6272278310	NA	-
B.	DC Power Supply	JIN YIH Technology	SP3051	SP30512113422	NA	-
C.	Fixture	NA	NA	NA	NA	Provided by manufacturer
D.	Antenna x 2	WNC	RF21S00802A	NA	NA	Provided by manufacturer

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Power Cable	1	1.8	N	0	-
2.	DC Cable	1	0.12	N	0	-

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports. The worst case was found when positioned as the table below. Following channel(s) was (were) selected for the final test as listed below:

Band	Radiated Emission
LTE Band 4	X-plane
LTE Band 7	X-plane
LTE Band 12	X-plane
LTE Band 17	X-plane
LTE Band 66	X-plane
LTE Band 71	X-plane

LTE Band 4

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	RB #
-	EIRP	19957 to 20393	19957 (1710.7MHz), 20175 (1732.5MHz), 20393 (1754.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	1 Half Full
		19965 to 20385	19965 (1711.5MHz), 20175 (1732.5MHz), 20385 (1753.5MHz)	3MHz	QPSK / 16QAM / 64QAM	1 Half Full
		19975 to 20375	19975 (1712.5MHz), 20175 (1732.5MHz), 20375 (1752.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 Half Full
		20000 to 20350	20000 (1715.0MHz), 20175 (1732.5MHz), 20350 (1750.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1 Half Full
		20025 to 20325	20025 (1717.5MHz), 20175 (1732.5MHz), 20325 (1747.5MHz)	15MHz	QPSK / 16QAM / 64QAM	1 Half Full
		20050 to 20300	20050 (1720.0MHz), 20175 (1732.5MHz), 20300 (1745.0MHz)	20MHz	QPSK / 16QAM / 64QAM	1 Half Full
-	Modulation Characteristics	20050 to 20300	20175 (1732.5MHz)	20MHz	QPSK / 16QAM / 64QAM	Full
-	Frequency Stability	19957 to 20393	19957 (1710.7MHz), 20393 (1754.3MHz)	1.4MHz	QPSK	Full
		19965 to 20385	19965 (1711.5MHz), 20385 (1753.5MHz)	3MHz	QPSK	Full
		19975 to 20375	19975 (1712.5MHz), 20375 (1752.5MHz)	5MHz	QPSK	Full
		20000 to 20350	20000 (1715.0MHz), 20350 (1750.0MHz)	10MHz	QPSK	Full
		20025 to 20325	20025 (1717.5MHz), 20325 (1747.5MHz)	15MHz	QPSK	Full
		20050 to 20300	20050 (1720.0MHz), 20300 (1745.0MHz)	20MHz	QPSK	Full
-	Emission Bandwidth	19957 to 20393	19957 (1710.7MHz), 20175 (1732.5MHz), 20393 (1754.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	Full
		19965 to 20385	19965 (1711.5MHz), 20175 (1732.5MHz), 20385 (1753.5MHz)	3MHz	QPSK / 16QAM / 64QAM	Full
		19975 to 20375	19975 (1712.5MHz), 20175 (1732.5MHz), 20375 (1752.5MHz)	5MHz	QPSK / 16QAM / 64QAM	Full
		20000 to 20350	20000 (1715.0MHz), 20175 (1732.5MHz), 20350 (1750.0MHz)	10MHz	QPSK / 16QAM / 64QAM	Full
		20025 to 20325	20025 (1717.5MHz), 20175 (1732.5MHz), 20325 (1747.5MHz)	15MHz	QPSK / 16QAM / 64QAM	Full
		20050 to 20300	20050 (1720.0MHz), 20175 (1732.5MHz), 20300 (1745.0MHz)	20MHz	QPSK / 16QAM / 64QAM	Full

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	RB #
-	Band Edge	19957 to 20393	19957 (1710.7MHz), 20393 (1754.3MHz)	1.4MHz	QPSK	1 Half Full
		19965 to 20385	19965 (1711.5MHz), 20385 (1753.5MHz)	3MHz	QPSK	1 Half Full
		19975 to 20375	19975 (1712.5MHz), 20375 (1752.5MHz)	5MHz	QPSK	1 Half Full
		20000 to 20350	20000 (1715.0MHz), 20350 (1750.0MHz)	10MHz	QPSK	1 Half Full
		20025 to 20325	20025 (1717.5MHz), 20325 (1747.5MHz)	15MHz	QPSK	1 Half Full
		20050 to 20300	20050 (1720.0MHz), 20300 (1745.0MHz)	20MHz	QPSK	1 Half Full
-	Peak To Average Ratio	19957 to 20393	19957 (1710.7MHz), 20175 (1732.5MHz), 20393 (1754.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	1
		19965 to 20385	19965 (1711.5MHz), 20175 (1732.5MHz), 20385 (1753.5MHz)	3MHz	QPSK / 16QAM / 64QAM	1
		19975 to 20375	19975 (1712.5MHz), 20175 (1732.5MHz), 20375 (1752.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1
		20000 to 20350	20000 (1715.0MHz), 20175 (1732.5MHz), 20350 (1750.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1
		20025 to 20325	20025 (1717.5MHz), 20175 (1732.5MHz), 20325 (1747.5MHz)	15MHz	QPSK / 16QAM / 64QAM	1
		20050 to 20300	20050 (1720.0MHz), 20175 (1732.5MHz), 20300 (1745.0MHz)	20MHz	QPSK / 16QAM / 64QAM	1

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	RB #
-	Conducted Emission	19957 to 20393	19957 (1710.7MHz), 20175 (1732.5MHz), 20393 (1754.3MHz)	1.4MHz	QPSK	1
		19965 to 20385	19965 (1711.5MHz), 20175 (1732.5MHz), 20385 (1753.5MHz)	3MHz	QPSK	1
		19975 to 20375	19975 (1712.5MHz), 20175 (1732.5MHz), 20375 (1752.5MHz)	5MHz	QPSK	1
		20000 to 20350	20000 (1715.0MHz), 20175 (1732.5MHz), 20350 (1750.0MHz)	10MHz	QPSK	1
		20025 to 20325	20025 (1717.5MHz), 20175 (1732.5MHz), 20325 (1747.5MHz)	15MHz	QPSK	1
		20050 to 20300	20050 (1720.0MHz), 20175 (1732.5MHz), 20300 (1745.0MHz)	20MHz	QPSK	1
-	Radiated Emission	19957 to 20393	19957 (1710.7MHz), 20175 (1732.5MHz), 20393 (1754.3MHz)	1.4MHz	QPSK	1
		19975 to 20375	19975 (1712.5MHz), 20175 (1732.5MHz), 20375 (1752.5MHz)	5MHz	QPSK	1
		20050 to 20300	20050 (1720.0MHz), 20175 (1732.5MHz), 20300 (1745.0MHz)	20MHz	QPSK	1

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521-1 Section 6.6.3.1.4.1, choose the lowest, 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK, 16QAM and 64QAM, measured value of QPSK is higher than 16QAM, and 64QAM mode. Therefore, only Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM and 64QAM modes, the other test items were performed under worse mode according to the maximum output power.

LTE Band 7

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	RB #
-	EIRP	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 Half Full
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1 Half Full
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15MHz	QPSK / 16QAM / 64QAM	1 Half Full
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20MHz	QPSK / 16QAM / 64QAM	1 Half Full
-	Modulation Characteristics	20850 to 21350	21100 (2535.0MHz)	20MHz	QPSK / 16QAM / 64QAM	Full
-	Frequency Stability	20775 to 21425	20775 (2502.5MHz), 21425 (2567.5MHz)	5MHz	QPSK	Full
		20800 to 21400	20800 (2505.0MHz), 21400 (2565.0MHz)	10MHz	QPSK	Full
		20825 to 21375	20825 (2507.5MHz), 21375 (2562.5MHz)	15MHz	QPSK	Full
		20850 to 21350	20850 (2510.0MHz), 21350 (2560.0MHz)	20MHz	QPSK	Full
-	Emission Bandwidth	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5MHz	QPSK / 16QAM / 64QAM	Full
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10MHz	QPSK / 16QAM / 64QAM	Full
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15MHz	QPSK / 16QAM / 64QAM	Full
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20MHz	QPSK / 16QAM / 64QAM	Full
-	Out-of-Band Emissions	20775 to 21425	20775 (2502.5MHz), 21425 (2567.5MHz)	5MHz	QPSK	1 Half Full
		20800 to 21400	20800 (2505.0MHz), 21400 (2565.0MHz)	10MHz	QPSK	1 Half Full
		20825 to 21375	20825 (2507.5MHz), 21375 (2562.5MHz)	15MHz	QPSK	1 Half Full
		20850 to 21350	20850 (2510.0MHz), 21350 (2560.0MHz)	20MHz	QPSK	1 Half Full

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	RB #
-	Peak to Average Ratio	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15MHz	QPSK / 16QAM / 64QAM	1
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20MHz	QPSK / 16QAM / 64QAM	1
-	Conducted Emission	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5MHz	QPSK	1
		20800 to 21400	20800 (2505.0MHz), 21100 (2535.0MHz), 21400 (2565.0MHz)	10MHz	QPSK	1
		20825 to 21375	20825 (2507.5MHz), 21100 (2535.0MHz), 21375 (2562.5MHz)	15MHz	QPSK	1
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20MHz	QPSK	1
-	Radiated Emission	20775 to 21425	20775 (2502.5MHz), 21100 (2535.0MHz), 21425 (2567.5MHz)	5MHz	QPSK	1
		20850 to 21350	20850 (2510.0MHz), 21100 (2535.0MHz), 21350 (2560.0MHz)	20MHz	QPSK	1

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521-1 Section 6.6.3.1.4.1, choose the 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK, 16QAM and 64QAM, measured value of QPSK is higher than 16QAM, and 64QAM mode. Therefore, only Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM and 64QAM modes, the other test items were performed under worse mode according to the maximum output power.

LTE Band 12

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	RB #
-	ERP	23017 to 23173	23017 (699.7MHz), 23095 (707.5MHz), 23173 (715.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	1 Half Full
		23025 to 23165	23025 (700.5MHz), 23095 (707.5MHz), 23165 (714.5MHz)	3MHz	QPSK / 16QAM / 64QAM	1 Half Full
		23035 to 23155	23035 (701.5MHz), 23095 (707.5MHz), 23155 (713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 Half Full
		23060 to 23130	23060 (704.0MHz), 23095 (707.5MHz), 23130 (711.0 MHz)	10MHz	QPSK / 16QAM / 64QAM	1 Half Full
-	Modulation Characteristics	23060 to 23130	23095 (707.5MHz)	10MHz	QPSK / 16QAM / 64QAM	Full
-	Frequency Stability	23017 to 23173	23017 (699.7MHz), 23173 (715.3MHz)	1.4MHz	QPSK	Full
		23025 to 23165	23025 (700.5MHz), 23165 (714.5MHz)	3MHz	QPSK	Full
		23035 to 23155	23035 (701.5MHz), 23155 (713.5MHz)	5MHz	QPSK	Full
		23060 to 23130	23060 (704.0MHz), 23130 (711.0MHz)	10MHz	QPSK	Full
-	Emission Bandwidth	23017 to 23173	23017 (699.7MHz), 23095 (707.5MHz), 23173 (715.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	Full
		23025 to 23165	23025 (700.5MHz), 23095 (707.5MHz), 23165 (714.5MHz)	3MHz	QPSK / 16QAM / 64QAM	Full
		23035 to 23155	23035 (701.5MHz), 23095 (707.5MHz), 23155 (713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	Full
		23060 to 23130	23060 (704.0MHz), 23095 (707.5MHz), 23130 (711.0MHz)	10MHz	QPSK / 16QAM / 64QAM	Full
-	Band Edge	23017 to 23173	23017 (699.7MHz), 23173 (715.3MHz)	1.4MHz	QPSK	1 Half Full
		23025 to 23165	23025 (700.5MHz), 23165 (714.5MHz)	3MHz	QPSK	1 Half Full
		23035 to 23155	23035 (701.5MHz), 23155 (713.5MHz)	5MHz	QPSK	1 Half Full
		23060 to 23130	23060 (704.0MHz), 23130 (711.0MHz)	10MHz	QPSK	1 Half Full

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	RB #
-	Peak to Average Ratio	23017 to 23173	23017 (699.7MHz), 23095 (707.5MHz), 23173 (715.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	1
		23025 to 23165	23025 (700.5MHz), 23095 (707.5MHz), 23165 (714.5MHz)	3MHz	QPSK / 16QAM / 64QAM	1
		23035 to 23155	23035 (701.5MHz), 23095 (707.5MHz), 23155 (713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1
		23060 to 23130	23060 (704.0MHz), 23095 (707.5MHz), 23130 (711.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1
-	Conducted Emission	23017 to 23173	23017 (699.7MHz), 23095 (707.5MHz), 23173 (715.3MHz)	1.4MHz	QPSK	1
		23025 to 23165	23025 (700.5MHz), 23095 (707.5MHz), 23165 (714.5MHz)	3MHz	QPSK	1
		23035 to 23155	23035 (701.5MHz), 23095 (707.5MHz), 23155 (713.5MHz)	5MHz	QPSK	1
		23060 to 23130	23060 (704.0MHz), 23095 (707.5MHz), 23130 (711.0MHz)	10MHz	QPSK	1
-	Radiated Emission	23017 to 23173	23017 (699.7MHz), 23095 (707.5MHz), 23173 (715.3MHz)	1.4MHz	QPSK	1
		23035 to 23155	23035 (701.5MHz), 23095 (707.5MHz), 23155 (713.5MHz)	5MHz	QPSK	1
		23060 to 23130	23060 (704.0MHz), 23095 (707.5MHz), 23130 (711.0MHz)	10MHz	QPSK	1

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521-1 Section 6.6.3.1.4.1, choose the lowest, 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK, 16QAM and 64QAM, measured value of QPSK is higher than 16QAM, and 64QAM mode. Therefore, only Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM and 64QAM modes, the other test items were performed under worse mode according to the maximum output power.

LTE Band 17

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	RB #
-	ERP	23755 to 23825	23755 (706.5MHz), 23790 (710.0MHz), 23825 (713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 Half Full
		23780 to 23800	23780 (709.0MHz), 23790 (710.0MHz), 23800 (711.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1 Half Full
-	Modulation Characteristics	23780 to 23800	23790 (710.0MHz)	10MHz	QPSK / 16QAM / 64QAM	Full
-	Frequency Stability	23755 to 23825	23755 (706.5MHz), 23825 (713.5MHz)	5MHz	QPSK	Full
		23780 to 23800	23780 (709.0MHz), 23800 (711.0MHz)	10MHz	QPSK	Full
-	Emission Bandwidth	23755 to 23825	23755 (706.5MHz), 23790 (710.0MHz), 23825 (713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	Full
		23780 to 23800	23780 (709.0MHz), 23790 (710.0MHz), 23800 (711.0MHz)	10MHz	QPSK / 16QAM / 64QAM	Full
-	Band Edge	23755 to 23825	23755 (706.5MHz), 23825 (713.5MHz)	5MHz	QPSK	1 Half Full
		23780 to 23800	23780 (709.0MHz), 23800 (711.0MHz)	10MHz	QPSK	1 Half Full
-	Peak to Average Ratio	23755 to 23825	23755 (706.5MHz), 23790 (710.0MHz), 23825 (713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1
		23780 to 23800	23780 (709.0MHz), 23790 (710.0MHz), 23800 (711.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1
-	Conducted Emission	23755 to 23825	23755 (706.5MHz), 23790 (710.0MHz), 23825 (713.5MHz)	5MHz	QPSK	1
		23780 to 23800	23780 (709.0MHz), 23790 (710.0MHz), 23800 (711.0MHz)	10MHz	QPSK	1
-	Radiated Emission	23755 to 23825	23755 (706.5MHz), 23790 (710.0MHz), 23825 (713.5MHz)	5MHz	QPSK	1
		23780 to 23800	23780 (709.0MHz), 23790 (710.0MHz), 23800 (711.0MHz)	10MHz	QPSK	1

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521-1 Section 6.6.3.1.4.1, choose the 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK, 16QAM and 64QAM, measured value of QPSK is higher than 16QAM, and 64QAM mode. Therefore, only Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM and 64QAM modes, the other test items were performed under worse mode according to the maximum output power.

LTE Band 66

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	RB #
-	EIRP	131979 to 132665	131979 (1710.7MHz), 132322 (1745.0MHz), 132665 (1779.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	1 Half Full
		131987 to 132657	131987 (1711.5MHz), 132322 (1745.0MHz), 132657 (1778.5MHz)	3MHz	QPSK / 16QAM / 64QAM	1 Half Full
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 Half Full
		132022 to 132622	132022 (1715.0MHz), 132322 (1745.0MHz), 132622 (1775.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1 Half Full
		132047 to 132597	132047 (1717.5MHz), 132322 (1745.0MHz), 132597 (1772.5MHz)	15MHz	QPSK / 16QAM / 64QAM	1 Half Full
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	QPSK / 16QAM / 64QAM	1 Half Full
-	Modulation Characteristics	132072 to 132572	132322 (1745.0MHz)	20MHz	QPSK / 16QAM / 64QAM	Full
-	Frequency Stability	131979 to 132665	131979 (1710.7MHz), 132665 (1779.3MHz)	1.4MHz	QPSK	Full
		131987 to 132657	131987 (1711.5MHz), 132657 (1778.5MHz)	3MHz	QPSK	Full
		131997 to 132647	131997 (1712.5MHz), 132647 (1777.5MHz)	5MHz	QPSK	Full
		132022 to 132622	132022 (1715.0MHz), 132622 (1775.0MHz)	10MHz	QPSK	Full
		132047 to 132597	132047 (1717.5MHz), 132597 (1772.5MHz)	15MHz	QPSK	Full
		132072 to 132572	132072 (1720.0MHz), 132572 (1770.0MHz)	20MHz	QPSK	Full
-	Emission Bandwidth	131979 to 132665	131979 (1710.7MHz), 132322 (1745.0MHz), 132665 (1779.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	Full
		131987 to 132657	131987 (1711.5MHz), 132322 (1745.0MHz), 132657 (1778.5MHz)	3MHz	QPSK / 16QAM / 64QAM	Full
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	QPSK / 16QAM / 64QAM	Full
		132022 to 132622	132022 (1715.0MHz), 132322 (1745.0MHz), 132622 (1775.0MHz)	10MHz	QPSK / 16QAM / 64QAM	Full
		132047 to 132597	132047 (1717.5MHz), 132322 (1745.0MHz), 132597 (1772.5MHz)	15MHz	QPSK / 16QAM / 64QAM	Full
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	QPSK / 16QAM / 64QAM	Full

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	RB #
-	Band Edge	131979 to 132665	131979 (1710.7MHz), 132665 (1779.3MHz)	1.4MHz	QPSK	1 Half Full
		131987 to 132657	131987 (1711.5MHz), 132657 (1778.5MHz)	3MHz	QPSK	1 Half Full
		131997 to 132647	131997 (1712.5MHz), 132647 (1777.5MHz)	5MHz	QPSK	1 Half Full
		132022 to 132622	132022 (1715.0MHz), 132622 (1775.0MHz)	10MHz	QPSK	1 Half Full
		132047 to 132597	132047 (1717.5MHz), 132597 (1772.5MHz)	15MHz	QPSK	1 Half Full
		132072 to 132572	132072 (1720.0MHz), 132572 (1770.0MHz)	20MHz	QPSK	1 Half Full
-	Peak to Average Ratio	131979 to 132665	131979 (1710.7MHz), 132322 (1745.0MHz), 132665 (1779.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	1
		131987 to 132657	131987 (1711.5MHz), 132322 (1745.0MHz), 132657 (1778.5MHz)	3MHz	QPSK / 16QAM / 64QAM	1
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1
		132022 to 132622	132022 (1715.0MHz), 132322 (1745.0MHz), 132622 (1775.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1
		132047 to 132597	132047 (1717.5MHz), 132322 (1745.0MHz), 132597 (1772.5MHz)	15MHz	QPSK / 16QAM / 64QAM	1
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	QPSK / 16QAM / 64QAM	1

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	RB #
-	Conducted Emission	131979 to 132665	131979 (1710.7MHz), 132322 (1745.0MHz), 132665 (1779.3MHz)	1.4MHz	QPSK	1
		131987 to 132657	131987 (1711.5MHz), 132322 (1745.0MHz), 132657 (1778.5MHz)	3MHz	QPSK	1
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	QPSK	1
		132022 to 132622	132022 (1715.0MHz), 132322 (1745.0MHz), 132622 (1775.0MHz)	10MHz	QPSK	1
		132047 to 132597	132047 (1717.5MHz), 132322 (1745.0MHz), 132597 (1772.5MHz)	15MHz	QPSK	1
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	QPSK	1
-	Radiated Emission	131979 to 132665	131979 (1710.7MHz), 132322 (1745.0MHz), 132665 (1779.3MHz)	1.4MHz	QPSK	1
		131997 to 132647	131997 (1712.5MHz), 132322 (1745.0MHz), 132647 (1777.5MHz)	5MHz	QPSK	1
		132072 to 132572	132072 (1720.0MHz), 132322 (1745.0MHz), 132572 (1770.0MHz)	20MHz	QPSK	1

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521-1 Section 6.6.3.1.4.1, choose the lowest, 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK, 16QAM and 64QAM, measured value of QPSK is higher than 16QAM, and 64QAM mode. Therefore, only Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM and 64QAM modes, the other test items were performed under worse mode according to the maximum output power.

LTE Band 71

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	RB #
-	ERP	133147 to 133447	133147 (665.5MHz), 133297 (680.5MHz), 133447 (695.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 Half Full
		133172 to 133422	133172 (668.0MHz), 133297 (680.5MHz), 133422 (693.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1 Half Full
		133197 to 133397	133197 (670.5MHz), 133297 (680.5MHz), 133397 (690.5MHz)	15MHz	QPSK / 16QAM / 64QAM	1 Half Full
		133222 to 133372	133222 (673.0MHz), 133297 (680.5MHz), 133372 (688.0MHz)	20MHz	QPSK / 16QAM / 64QAM	1 Half Full
-	Modulation Characteristics	133222 to 133372	133297 (680.5MHz)	20MHz	QPSK / 16QAM / 64QAM	Full
-	Frequency Stability	133147 to 133447	133147 (665.5MHz), 133447 (695.5MHz)	5MHz	QPSK	Full
		133172 to 133422	133172 (668.0MHz), 133422 (693.0MHz)	10MHz	QPSK	Full
		133197 to 133397	133197 (670.5MHz), 133397 (690.5MHz)	15MHz	QPSK	Full
		133222 to 133372	133222 (673.0MHz), 133372 (688.0MHz)	20MHz	QPSK	Full
-	Emission Bandwidth	133147 to 133447	133147 (665.5MHz), 133297 (680.5MHz), 133447 (695.5MHz)	5MHz	QPSK / 16QAM / 64QAM	Full
		133172 to 133422	133172 (668.0MHz), 133297 (680.5MHz), 133422 (693.0MHz)	10MHz	QPSK / 16QAM / 64QAM	Full
		133197 to 133397	133197 (670.5MHz), 133297 (680.5MHz), 133397 (690.5MHz)	15MHz	QPSK / 16QAM / 64QAM	Full
		133222 to 133372	133222 (673.0MHz), 133297 (680.5MHz), 133372 (688.0MHz)	20MHz	QPSK / 16QAM / 64QAM	Full
-	Band Edge	133147 to 133447	133147 (665.5MHz), 133447 (695.5MHz)	5MHz	QPSK	1 Half Full
		133172 to 133422	133172 (668.0MHz), 133422 (693.0MHz)	10MHz	QPSK	1 Half Full
		133197 to 133397	133197 (670.5MHz), 133397 (690.5MHz)	15MHz	QPSK	1 Half Full
		133222 to 133372	133222 (673.0MHz), 133372 (688.0MHz)	20MHz	QPSK	1 Half Full

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	RB #
-	Peak to Average Ratio	133147 to 133447	133147 (665.5MHz), 133297 (680.5MHz), 133447 (695.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1
		133172 to 133422	133172 (668.0MHz), 133297 (680.5MHz), 133422 (693.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1
		133197 to 133397	133197 (670.5MHz), 133297 (680.5MHz), 133397 (690.5MHz)	15MHz	QPSK / 16QAM / 64QAM	1
		133222 to 133372	133222 (673.0MHz), 133297 (680.5MHz), 133372 (688.0MHz)	20MHz	QPSK / 16QAM / 64QAM	1
-	Conducted Emission	133147 to 133447	133147 (665.5MHz), 133297 (680.5MHz), 133447 (695.5MHz)	5MHz	QPSK	1
		133172 to 133422	133172 (668.0MHz), 133297 (680.5MHz), 133422 (693.0MHz)	10MHz	QPSK	1
		133197 to 133397	133197 (670.5MHz), 133297 (680.5MHz), 133397 (690.5MHz)	15MHz	QPSK	1
		133222 to 133372	133222 (673.0MHz), 133297 (680.5MHz), 133372 (688.0MHz)	20MHz	QPSK	1
-	Radiated Emission	133147 to 133447	133147 (665.5MHz), 133297 (680.5MHz), 133447 (695.5MHz)	5MHz	QPSK	1
		133222 to 133372	133222 (673.0MHz), 133297 (680.5MHz), 133372 (688.0MHz)	20MHz	QPSK	1

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521-1 Section 6.6.3.1.4.1, choose the 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK, 16QAM and 64QAM, measured value of QPSK is higher than 16QAM, and 64QAM mode. Therefore, only Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM and 64QAM modes, the other test items were performed under worse mode according to the maximum output power.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP / ERP	25deg. C, 60%RH	4.0Vdc	Noah Chang
Modulation Characteristics	25deg. C, 60%RH	4.0Vdc	Noah Chang
Frequency Stability	25deg. C, 60%RH	4.0Vdc	Noah Chang
Occupied Bandwidth	25deg. C, 60%RH	4.0Vdc	Noah Chang
Band Edge	25deg. C, 60%RH	4.0Vdc	Noah Chang
Peak To Average Ratio	25deg. C, 60%RH	4.0Vdc	Noah Chang
Conducted Emission	25deg. C, 60%RH	4.0Vdc	Noah Chang
Radiated Emission	23deg. C, 72%RH	4.0Vdc	Edison Lee

3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.5 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and References:

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 27

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

For LTE Band 4, LTE Band 66:
Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

For LTE Band 7:
Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

For LTE Band 12, LTE Band 17, LTE Band 71:
Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP.
Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

4.1.2 Test Procedures

Conducted Power Measurement:

The EUT was set up for the maximum power with LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Maximum EIRP / ERP

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$EIRP = P_{Meas} + G_T$

$ERP = P_{Meas} + G_T - 2.15$

where

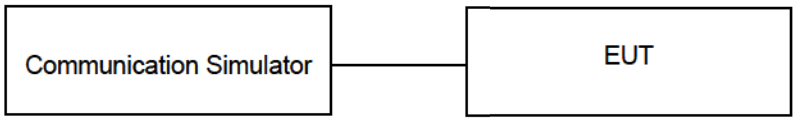
ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas}, e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

4.1.3 Test Setup

Conducted Power Measurement:



4.1.4 Test Results

Conducted Output Power (dBm)

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20050	20175	20300
		Frequency (MHz)		1720	1732.5	1745
20M	QPSK	1	0	22.42	22.42	22.57
		1	50	**22.68**	22.67	22.67
		1	99	22.33	22.26	22.42
		50	0	21.43	21.47	21.51
		50	25	21.50	**21.64**	21.63
		50	50	21.53	21.38	21.45
		100	0	**21.52**	21.39	21.39
20M	16QAM	1	0	21.45	21.37	21.65
		1	50	21.63	21.73	21.57
		1	99	21.26	21.24	21.50
		50	0	20.39	20.47	20.61
		50	25	20.42	20.72	20.56
		50	50	20.62	20.32	20.36
		100	0	20.60	20.45	20.39
20M	64QAM	1	0	20.24	20.03	20.34
		1	50	20.36	20.50	20.21
		1	99	19.88	19.98	20.30
		50	0	19.14	19.22	19.25
		50	25	19.15	19.49	19.16
		50	50	19.31	19.01	19.15
		100	0	19.33	19.21	19.01

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20025	20175	20325
		Frequency (MHz)		1717.5	1732.5	1747.5
15M	QPSK	1	0	22.52	22.28	22.57
		1	37	22.58	22.40	22.56
		1	74	22.41	22.20	22.21
		36	0	21.53	21.62	21.35
		36	19	21.65	21.47	21.43
		36	39	21.52	21.35	21.55
		75	0	21.59	21.59	21.45
15M	16QAM	1	0	21.50	21.29	21.58
		1	37	21.62	21.31	21.51
		1	74	21.37	21.25	21.17
		36	0	20.45	20.53	20.33
		36	19	20.57	20.40	20.53
		36	39	20.44	20.31	20.56
		75	0	20.66	20.53	20.38
15M	64QAM	1	0	20.30	19.97	20.32
		1	37	20.25	20.06	20.30
		1	74	20.15	20.02	19.85
		36	0	19.06	19.31	19.08
		36	19	19.22	19.15	19.27
		36	39	19.17	18.95	19.35
		75	0	19.34	19.26	19.11

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20000	20175	20350
		Frequency (MHz)		1715	1732.5	1750
10M	QPSK	1	0	22.38	22.35	22.54
		1	24	22.41	22.57	22.64
		1	49	22.35	22.18	22.43
		25	0	21.59	21.45	21.53
		25	12	21.47	21.38	21.52
		25	25	21.27	21.32	21.43
		50	0	21.41	21.65	21.63
10M	16QAM	1	0	21.40	21.45	21.55
		1	24	21.42	21.60	21.74
		1	49	21.36	21.09	21.36
		25	0	20.61	20.41	20.53
		25	12	20.51	20.39	20.61
		25	25	20.29	20.35	20.42
		50	0	20.41	20.55	20.59
10M	64QAM	1	0	20.02	20.17	20.25
		1	24	20.20	20.22	**20.47**
		1	49	20.10	19.73	20.14
		25	0	19.29	19.11	19.18
		25	12	19.24	19.07	19.25
		25	25	18.89	19.02	19.04
		50	0	19.19	19.20	19.24

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		19975	20175	20375
		Frequency (MHz)		1712.5	1732.5	1752.5
5M	QPSK	1	0	22.55	22.41	22.50
		1	12	22.51	22.51	22.55
		1	24	22.28	22.38	22.21
		12	0	21.63	21.33	21.58
		12	6	21.57	21.49	21.64
		12	13	21.41	21.32	21.45
		25	0	21.62	21.47	21.50
5M	16QAM	1	0	21.54	21.33	21.51
		1	12	21.60	21.46	21.63
		1	24	21.27	21.42	21.25
		12	0	20.63	20.29	20.61
		12	6	20.47	20.45	20.57
		12	13	20.43	20.25	20.38
		25	0	20.65	20.49	20.56
5M	64QAM	1	0	20.34	19.95	20.21
		1	12	20.35	20.09	**20.43**
		1	24	19.99	20.04	19.87
		12	0	19.29	19.01	19.31
		12	6	19.18	19.11	19.34
		12	13	19.18	18.91	19.02
		25	0	19.31	19.24	19.16

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		19965	20175	20385
		Frequency (MHz)		1711.5	1732.5	1753.5
3M	QPSK	1	0	22.35	22.45	22.38
		1	7	22.55	22.68	22.45
		1	14	22.20	22.42	22.35
		8	0	21.40	21.53	21.49
		8	3	21.46	21.61	21.47
		8	7	21.32	21.34	21.36
		15	0	21.43	21.57	21.42
3M	16QAM	1	0	21.32	21.37	21.29
		1	7	21.58	21.66	21.37
		1	14	21.11	21.41	21.45
		8	0	20.32	20.56	20.40
		8	3	20.55	20.56	20.42
		8	7	20.22	20.36	20.30
		15	0	20.48	20.60	20.45
3M	64QAM	1	0	19.95	20.16	19.98
		1	7	20.24	20.33	20.02
		1	14	19.78	20.08	20.19
		8	0	18.95	19.20	19.10
		8	3	19.19	19.34	19.04
		8	7	18.91	18.98	18.92
		15	0	19.14	19.38	19.12

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		19957	20175	20393
		Frequency (MHz)		1710.7	1732.5	1754.3
1.4M	QPSK	1	0	22.26	22.27	22.38
		1	2	22.65	22.40	22.68
		1	5	22.39	22.09	22.10
		3	0	22.51	22.62	22.63
		3	1	22.52	22.52	22.53
		3	3	22.47	22.21	22.26
		6	0	21.50	21.38	21.51
1.4M	16QAM	1	0	21.20	21.26	21.28
		1	2	21.64	21.38	21.78
		1	5	21.34	21.10	21.01
		3	0	21.53	21.68	21.57
		3	1	21.59	21.61	21.47
		3	3	21.39	21.30	21.31
		6	0	20.40	20.45	20.58
1.4M	64QAM	1	0	19.96	19.91	19.96
		1	2	20.33	20.13	**20.42**
		1	5	20.07	19.90	19.72
		3	0	20.15	20.36	20.32
		3	1	20.23	20.37	20.10
		3	3	20.09	20.03	20.10
		6	0	19.17	19.21	19.21

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20850	21100	21350
		Frequency (MHz)		2510	2535	2560
20M	QPSK	1	0	22.14	22.06	21.94
		1	50	22.17	**22.23**	22.22
		1	99	21.83	21.89	21.85
		50	0	20.94	21.06	**21.22**
		50	25	20.95	21.08	20.95
		50	50	21.12	21.19	21.16
		100	0	21.04	**21.31**	21.18
20M	16QAM	1	0	21.15	21.15	20.90
		1	50	21.09	21.31	21.18
		1	99	20.91	20.83	20.87
		50	0	19.97	20.16	20.21
		50	25	19.90	20.01	19.89
		50	50	20.16	20.12	20.09
		100	0	20.05	20.39	20.08
20M	64QAM	1	0	19.76	19.92	19.52
		1	50	19.84	20.10	19.82
		1	99	19.57	19.48	19.49
		50	0	18.69	18.88	18.97
		50	25	18.65	18.67	18.64
		50	50	18.83	18.86	18.89
		100	0	18.65	19.17	18.75

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20825	21100	21375
		Frequency (MHz)		2507.5	2535	2562.5
15M	QPSK	1	0	21.95	21.94	21.89
		1	37	22.08	22.03	22.08
		1	74	21.78	21.99	21.75
		36	0	21.01	20.99	21.19
		36	19	21.17	21.03	21.13
		36	39	21.12	21.17	20.96
		75	0	21.21	21.30	21.26
15M	16QAM	1	0	20.87	21.04	20.88
		1	37	21.05	21.02	20.98
		1	74	20.69	21.06	20.81
		36	0	19.91	20.09	20.23
		36	19	20.17	20.11	20.22
		36	39	20.20	20.16	19.97
		75	0	20.13	20.30	20.33
15M	64QAM	1	0	19.61	19.64	19.67
		1	37	19.75	19.82	19.63
		1	74	19.48	19.75	19.61
		36	0	18.69	18.84	19.01
		36	19	18.96	18.86	18.93
		36	39	18.92	18.82	18.63
		75	0	18.73	19.01	19.04

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20800	21100	21400
		Frequency (MHz)		2505	2535	2565
10M	QPSK	1	0	21.89	21.97	22.09
		1	24	22.07	22.01	22.13
		1	49	22.01	21.96	21.81
		25	0	21.00	21.22	21.12
		25	12	21.07	20.94	21.18
		25	25	21.10	21.07	21.12
		50	0	21.15	21.16	21.24
10M	16QAM	1	0	20.91	21.01	21.05
		1	24	21.13	20.96	21.08
		1	49	21.02	20.94	20.89
		25	0	19.92	20.28	20.03
		25	12	20.16	19.99	20.17
		25	25	20.07	20.10	20.10
		50	0	20.15	20.20	20.26
10M	64QAM	1	0	19.60	19.62	19.79
		1	24	19.92	19.70	19.70
		1	49	19.65	19.65	19.62
		25	0	18.61	19.02	18.64
		25	12	18.77	18.61	18.93
		25	25	18.79	18.79	18.86
		50	0	18.88	18.86	18.95

LTE Band 7						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20775	21100	21425
		Frequency (MHz)		2502.5	2535	2567.5
5M	QPSK	1	0	22.11	22.17	22.01
		1	12	22.10	22.03	21.97
		1	24	21.94	21.98	21.99
		12	0	21.22	21.01	21.13
		12	6	21.05	20.94	20.96
		12	13	21.02	21.13	20.91
		25	0	21.20	21.18	21.31
5M	16QAM	1	0	21.06	21.27	21.07
		1	12	21.04	21.00	21.07
		1	24	20.91	20.90	21.04
		12	0	20.22	20.07	20.05
		12	6	20.07	19.87	20.04
		12	13	20.05	20.16	19.97
		25	0	20.22	20.26	20.33
5M	64QAM	1	0	19.85	20.05	19.80
		1	12	19.64	19.61	19.71
		1	24	19.63	19.56	19.67
		12	0	18.90	18.82	18.77
		12	6	18.83	18.50	18.71
		12	13	18.72	18.80	18.57
		25	0	18.94	18.95	19.13

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23060	23095	23130
		Frequency (MHz)		704	707.5	711
10M	QPSK	1	0	22.61	22.38	22.51
		1	24	22.74	22.63	**22.81**
		1	49	22.59	22.52	22.54
		25	0	21.66	21.81	21.89
		25	12	21.84	21.59	21.69
		25	25	21.71	21.78	**21.91**
		50	0	**21.92**	21.91	21.91
10M	16QAM	1	0	21.68	21.43	21.56
		1	24	21.76	21.61	21.89
		1	49	21.58	21.58	21.44
		25	0	20.59	20.74	20.94
		25	12	20.92	20.55	20.67
		25	25	20.67	20.75	20.84
		50	0	20.90	20.87	20.93
10M	64QAM	1	0	20.31	20.04	20.25
		1	24	20.48	20.41	20.65
		1	49	20.20	20.25	20.18
		25	0	19.19	19.37	19.59
		25	12	19.67	19.27	19.37
		25	25	19.45	19.51	19.49
		50	0	19.61	19.67	19.55

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23035	23095	23155
		Frequency (MHz)		701.5	707.5	713.5
5M	QPSK	1	0	22.66	22.65	22.49
		1	12	22.67	22.76	22.64
		1	24	22.75	22.51	22.64
		12	0	21.72	21.70	21.87
		12	6	21.78	21.56	21.71
		12	13	21.80	21.82	21.65
		25	0	21.92	21.65	21.67
5M	16QAM	1	0	21.66	21.59	21.43
		1	12	21.65	21.79	21.63
		1	24	21.66	21.51	21.70
		12	0	20.71	20.75	20.77
		12	6	20.87	20.60	20.67
		12	13	20.79	20.89	20.74
		25	0	20.88	20.60	20.61
5M	64QAM	1	0	20.37	20.30	20.10
		1	12	20.35	20.43	20.25
		1	24	20.31	20.22	20.31
		12	0	19.50	19.43	19.44
		12	6	19.48	19.37	19.29
		12	13	19.41	19.63	19.41
		25	0	19.59	19.31	19.23

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23025	23095	23165
		Frequency (MHz)		700.5	707.5	714.5
3M	QPSK	1	0	22.53	22.66	22.47
		1	7	22.74	22.70	22.67
		1	14	22.55	22.53	22.53
		8	0	21.73	21.94	21.85
		8	3	21.65	21.76	21.75
		8	7	21.84	21.74	21.74
		15	0	21.92	21.78	21.72
3M	16QAM	1	0	21.50	21.63	21.51
		1	7	21.79	21.61	21.59
		1	14	21.52	21.51	21.48
		8	0	20.76	20.90	20.82
		8	3	20.56	20.72	20.73
		8	7	20.78	20.83	20.77
		15	0	21.00	20.86	20.82
3M	64QAM	1	0	20.17	20.37	20.28
		1	7	20.54	20.35	20.32
		1	14	20.12	20.17	20.19
		8	0	19.55	19.58	19.51
		8	3	19.31	19.47	19.44
		8	7	19.38	19.62	19.44
		15	0	19.67	19.65	19.48

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23017	23095	23173
		Frequency (MHz)		699.7	707.5	715.3
1.4M	QPSK	1	0	22.37	22.42	22.67
		1	2	22.77	22.66	22.66
		1	5	22.68	22.51	22.55
		3	0	21.90	21.87	21.75
		3	1	21.58	21.72	21.78
		3	3	21.66	21.74	21.75
		6	0	21.78	21.73	21.71
1.4M	16QAM	1	0	21.44	21.33	21.57
		1	2	21.78	21.62	21.72
		1	5	21.59	21.48	21.58
		3	0	20.85	20.85	20.75
		3	1	20.62	20.70	20.83
		3	3	20.63	20.75	20.75
		6	0	20.84	20.63	20.81
1.4M	64QAM	1	0	20.18	20.03	20.35
		1	2	20.38	20.30	20.50
		1	5	20.25	20.22	20.19
		3	0	19.60	19.49	19.47
		3	1	19.41	19.36	19.61
		3	3	19.27	19.45	19.37
		6	0	19.57	19.32	19.44

LTE Band 17						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23780	23790	23800
		Frequency (MHz)		709	710	711
10M	QPSK	1	0	**22.47**	22.35	22.32
		1	24	22.53	22.49	22.43
		1	49	22.46	22.21	22.40
		25	0	21.46	21.55	21.35
		25	12	21.50	**21.60**	21.43
		25	25	21.25	21.35	21.39
		50	0	21.33	21.35	**21.37**
10M	16QAM	1	0	21.37	21.27	21.27
		1	24	21.53	21.50	21.51
		1	49	21.42	21.21	21.42
		25	0	20.49	20.65	20.33
		25	12	20.51	20.64	20.45
		25	25	20.19	20.36	20.40
		50	0	20.38	20.34	20.37
10M	64QAM	1	0	20.15	19.90	19.91
		1	24	20.19	20.29	20.24
		1	49	20.22	19.99	20.06
		25	0	19.17	19.44	19.03
		25	12	19.29	19.36	19.22
		25	25	18.84	19.02	19.06
		50	0	19.13	19.11	19.13

LTE Band 17						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23755	23790	23825
		Frequency (MHz)		706.5	710	713.5
5M	QPSK	1	0	22.38	22.40	22.47
		1	12	22.61	22.62	22.57
		1	24	22.41	22.34	22.40
		12	0	21.32	21.29	21.46
		12	6	21.47	21.39	21.48
		12	13	21.45	21.44	21.44
		25	0	21.25	21.29	21.31
5M	16QAM	1	0	21.47	21.39	21.43
		1	12	21.57	21.67	21.48
		1	24	21.32	21.27	21.41
		12	0	20.38	20.21	20.47
		12	6	20.45	20.30	20.47
		12	13	20.49	20.41	20.48
		25	0	20.23	20.32	20.35
5M	64QAM	1	0	20.12	20.08	20.09
		1	12	20.22	20.30	20.12
		1	24	20.02	19.98	20.11
		12	0	18.99	18.91	19.18
		12	6	19.08	19.06	19.17
		12	13	19.23	19.11	19.08
		25	0	18.94	18.94	18.99

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132072	132322	132572
		Frequency (MHz)		1720	1745	1770
20M	QPSK	1	0	22.30	22.23	22.19
		1	50	22.58	22.55	22.73
		1	99	22.30	22.30	22.21
		50	0	21.40	21.36	21.44
		50	25	21.32	21.40	21.30
		50	50	21.17	21.19	21.32
		100	0	21.23	21.17	21.43
20M	16QAM	1	0	21.39	21.16	21.21
		1	50	21.58	21.57	21.65
		1	99	21.35	21.35	21.25
		50	0	20.30	20.32	20.36
		50	25	20.39	20.48	20.30
		50	50	20.19	20.28	20.39
		100	0	20.24	20.18	20.36
20M	64QAM	1	0	20.05	19.91	19.86
		1	50	20.30	20.23	20.29
		1	99	20.05	20.13	20.02
		50	0	18.97	18.93	18.99
		50	25	19.10	19.09	19.02
		50	50	18.98	18.92	19.06
		100	0	18.85	18.92	18.97

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132047	132322	132597
		Frequency (MHz)		1717.5	1745	1772.5
15M	QPSK	1	0	22.10	22.37	22.08
		1	37	22.67	22.56	22.71
		1	74	22.33	22.31	22.22
		36	0	21.53	21.43	21.44
		36	19	21.37	21.48	21.50
		36	39	21.30	21.37	21.43
		75	0	21.46	21.19	21.23
15M	16QAM	1	0	21.05	21.29	21.11
		1	37	21.67	21.60	21.75
		1	74	21.29	21.40	21.26
		36	0	20.59	20.50	20.39
		36	19	20.37	20.47	20.49
		36	39	20.23	20.38	20.43
		75	0	20.49	20.16	20.28
15M	64QAM	1	0	19.75	19.98	19.83
		1	50	20.33	20.35	20.36
		1	99	20.04	20.14	19.87
		50	0	19.28	19.29	19.09
		50	25	19.09	19.14	19.27
		50	50	18.92	19.10	19.15
		100	0	19.27	18.93	19.01

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132022	132322	132622
		Frequency (MHz)		1715	1745	1775
10M	QPSK	1	0	22.30	22.31	22.25
		1	24	22.73	22.44	22.69
		1	49	22.36	22.28	22.33
		25	0	21.41	21.49	21.40
		25	12	21.33	21.37	21.48
		25	25	21.24	21.39	21.41
		50	0	21.32	21.41	21.28
10M	16QAM	1	0	21.20	21.21	21.20
		1	24	21.71	21.49	21.76
		1	49	21.36	21.20	21.38
		25	0	20.33	20.51	20.44
		25	12	20.37	20.40	20.47
		25	25	20.32	20.38	20.48
		50	0	20.37	20.46	20.33
10M	64QAM	1	0	19.93	19.85	19.93
		1	50	20.46	20.18	20.43
		1	99	20.04	19.83	20.04
		50	0	19.02	19.26	19.21
		50	25	18.98	19.15	19.19
		50	50	19.08	19.12	19.22
		100	0	19.02	19.09	18.96

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131997	132322	132647
		Frequency (MHz)		1712.5	1745	1777.5
5M	QPSK	1	0	22.15	22.33	22.14
		1	12	22.56	22.55	22.65
		1	24	22.34	22.23	22.32
		12	0	21.49	21.46	21.34
		12	6	21.24	21.34	21.51
		12	13	21.22	21.29	21.39
		25	0	21.24	21.23	21.37
5M	16QAM	1	0	21.08	21.23	21.12
		1	12	21.51	21.54	21.66
		1	24	21.31	21.28	21.30
		12	0	20.55	20.39	20.43
		12	6	20.20	20.35	20.57
		12	13	20.12	20.36	20.47
		25	0	20.18	20.28	20.36
5M	64QAM	1	0	19.78	19.91	19.83
		1	50	20.12	20.32	20.26
		1	99	19.93	19.90	19.99
		50	0	19.24	18.99	19.19
		50	25	18.81	19.13	19.18
		50	50	18.91	19.01	19.23
		100	0	18.90	19.02	19.01

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131987	132322	132657
		Frequency (MHz)		1711.5	1745	1778.5
3M	QPSK	1	0	22.12	22.11	22.13
		1	7	22.70	22.60	22.50
		1	14	22.19	22.35	22.15
		8	0	21.57	21.43	21.32
		8	3	21.36	21.24	21.28
		8	7	21.45	21.39	21.40
		15	0	21.20	21.19	21.41
3M	16QAM	1	0	21.06	21.18	21.17
		1	7	21.69	21.63	21.57
		1	14	21.17	21.42	21.23
		8	0	20.58	20.51	20.35
		8	3	20.29	20.17	20.37
		8	7	20.48	20.48	20.32
		15	0	20.26	20.23	20.36
3M	64QAM	1	0	19.85	19.88	19.81
		1	50	20.38	20.27	20.29
		1	99	19.86	20.08	20.02
		50	0	19.37	19.29	19.07
		50	25	19.04	18.95	19.14
		50	50	19.25	19.24	19.11
		100	0	18.89	18.91	19.11

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131979	132322	132665
		Frequency (MHz)		1710.7	1745	1779.3
1.4M	QPSK	1	0	22.17	22.16	22.41
		1	2	22.71	22.59	22.78
		1	5	22.42	22.32	22.20
		3	0	22.26	22.11	22.26
		3	1	22.40	22.38	22.44
		3	3	22.10	22.32	22.33
		6	0	21.34	21.37	21.50
1.4M	16QAM	1	0	21.25	21.21	21.50
		1	2	21.66	21.63	21.74
		1	5	21.43	21.26	21.26
		3	0	21.27	21.05	21.35
		3	1	21.42	21.35	21.51
		3	3	21.06	21.42	21.42
		6	0	20.41	20.27	20.47
1.4M	64QAM	1	0	19.98	19.93	20.12
		1	50	20.33	20.30	20.52
		1	99	20.03	19.91	19.99
		50	0	19.95	19.85	20.05
		50	25	20.13	20.04	20.28
		50	50	19.73	20.18	20.12
		100	0	19.12	18.99	19.25