RF TEST REPORT

Applicant	Xiaomi Communications Co., Ltd.
FCC ID	2AFZZC3LG
Product	Mobile Phone
Brand	Redmi
Model	M2006C3LG
Report No.	R2004A0237-R7V1
Issue Date	June 11, 2020

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2019)/ FCC CFR47 Part 27C (2019)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Performed by: Peng Tao	*Approved by: Kai Xu*

TA Technology (Shanghai) Co., Ltd.

No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000

TABLE OF CONTENT

1 Test Laboratory 4
1.1 Notes of the Test Report 4
1.2. Test facility 4
1.3 Testing Location 4
2 General Description of Equipment under Test 5
2.1 Applicant and Manufacturer Information 5
2.2 General information 5
3 Applied Standards 8
4 Test Configuration 9
5 Test Case Results 11
5.1 RF Power Output and Effective Isotropic Radiated Power 11
5.2 Occupied Bandwidth 24
5.3 Band Edge Compliance 48
5.4 Peak-to-Average Power Ratio (PAPR) 75
5.5 Frequency Stability 80
5.6 Spurious Emissions at Antenna Terminals 90
5.7 Radiates Spurious Emission 102
6 Main Test Instruments 110

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

Summary of Measurement Results

Number	Test Case	Clause in FCC rules	Verdict
1	RF Power Output and Effective Isotropic Radiated Power	2.1046 27.50(d)(4)/27.50(h)(2)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	27.53(h) /27.53(m)	PASS
4	Peak-to-Average Power Ratio	27.50(d)/KDB971168 D01(5.7)	PASS
5	Frequency Stability	2.1055 / 27.54	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 /27.53(h) /27.53(m)	PASS
7	Radiates Spurious Emission	2.1053 /27.53(h) /27.53(g) /27.53(m) /27.53(f) /27.53(c)	PASS
Date of Testing: April 28, 2020 ~ June 9, 2020			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard. All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

Note: This revised report (Report No.: R2004A0237-R7V1) supersedes and replaces the previously issued report (Report No.: R2004A0237-R7). Please discard or destroy the previously issued report and dispose of it accordingly.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

1.3 Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China
City:	Shanghai
Post code:	201201
Country:	P. R. China
Contact:	Xu Kai
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
Website:	http://www.ta-shanghai.com
E-mail:	xukai@ta-shanghai.com

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

2 General Description of Equipment under Test

2.1 Applicant and Manufacturer Information

Applicant	Xiaomi Communications Co., Ltd.
Applicant address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Manufacturer	Xiaomi Communications Co., Ltd.
Manufacturer address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

2.2 General information

EUT Description		
Model	M2006C3LG	
IMEI	IMEI 1:863234040033848 IMEI 2:863234040038441	
Hardware Version	P2	
Software Version	MIUI 12	
Power Supply	Battery/AC adapter	
Antenna Type	PIFA Antenna	
Antenna Gain	Frequency(MHz)	Gain (dBi)
	1710	-1.0
	1740	-0.5
	1770	-0.5
	2490	-1.1
	2520	-1.2
	2550	-0.8
	2580	-0.6
	2610	-1.1
	2640	-1.4
	2670	-1.52
Test Mode(s)	WCDMA Band IV; LTE Band 4; LTE Band 7, LTE Band 38, LTE Band 41;	
Test Modulation	(GSM)GMSK,8PSK; (WCDMA) BPSK, QPSK,16QAM; (LTE)QPSK 16QAM;	
HSDPA UE Category	24	
HSUPA UE Category	7	
LTE Category	4	
Maximum E.I.R.P./ E.R.P.	WCDMA Band IV:	22.28dBm
	LTE Band 4:	22.42dBm

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

	LTE Band 7:	22.57dBm	
	LTE Band 38:	dBm	
	LTE Band 41:	22.97dBm	
Rated Power Supply Voltage:	3.85V		
Extreme Voltage	Minimum: 3.6V Maximum: 4.4V		
Extreme Temperature	Lowest: 0°C Highest: +40°C		
Operating Frequency Range(s)	Mode	Tx (MHz)	Rx (MHz)
	WCDMA Band IV	1710 ~ 1755	2110 ~ 2155
	LTE Band 4	1710 ~ 1755	2110 ~ 2155
	LTE Band 7	2500 ~ 2570	2620 ~ 2690
	LTE Band 38	2570 ~ 2620	2570 ~ 2620
	LTE Band 41	2535 ~ 2655	2535 ~ 2655
EUT Accessory			
Battery	Manufacturer: Dongguan NVT Technology Co., Ltd Model: BN56 Power Rating: 3.85Vdc, 4900mAh Type: Li-ion, Y		
Adapter 1	Manufacturer: DONGGUAN AOHAI POWER TECHNOLOGY CO., LTD. Model: MDY-09-EQ Power Rating: I/P:100-240 Vac, 0.35 A, O/P: 5Vdc,2A		
Adapter 2	Manufacturer: Jiangsu Chenyang Electron Co., Ltd. Model: MDY-09-EQ Power Rating: I/P:100-240 Vac, 0.35 A, O/P: 5Vdc,2A		
USB Cable	Manufacturer: Shenzhen Dokocom Energy Technology Co., Ltd. Model: H52210 0.8 meter, non-shielded cable, with w/o ferrite core		
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant. 2. There is more than one Adapter, each one should be applied throughout the compliance test respectively, and however, only the worst case (Adapter 1) will be recorded in this report.			

Item	Configure 1	Configure 2
Software	The same	The same
Hardware	The same	The same
SIM card slot	The same	The same
Components on PCB	WIFI RF Connect	WIFI RF Connect Change to 0Ω resistance
Other	The same	The same
Note: Customer declaration, two configures is the same, except for Components on PCB. There		

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

are more than one Configure, each one should be applied throughout the compliance test respectively, however, only the worst case (Configure 1) will be recorded in this report.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

3 Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards:

FCC CFR47 Part 27C (2019)

ANSI C63.26 (2015)

Reference standard:

FCC CFR47 Part 2 (2019)

KDB 971168 D01 Power Meas License Digital Systems v03r01

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

4 Test Configuration

There is more than one SIM card slot, each one should be applied throughout the compliance test respectively, and however, only the worst case (SIM 1) will be recorded in this report

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (Z axis, horizontal polarization) and the worst case was recorded.

All mode and data rates and positions and RB size and modulations were investigated.
Subsequently, only the worst case emissions are reported.
The following testing in WCDMA/LTE is set based on the maximum RF Output Power.
The following testing in different Bandwidth is set to detailin the following table:
Test modes are chosen to be reported as the worst case configuration below for WCDMA Band IV:

Test items	**Modes/Modulation**
	WCDMA Band IV
RF Power Output and Effective Isotropic Radiated Power	RMC HSDPA/HSUPA DC-HSDPA/HSPA+
Occupied Bandwidth	RMC
Band Edge Compliance	RMC
Peak-to-Average Power Ratio	RMC
Frequency Stability	RMC
Spurious Emissions at Antenna Terminals	RMC
Radiates Spurious Emission	RMC

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

Test modes are chosen to be reported as the worst case configuration below for LTE Band 4/7/38/41:

Test items	Modes	Bandwidth (MHz)						Modulation		RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	50%	100%	L	M	H
RF Power Output and Effective Isotropic Radiated Power	LTE 4	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	LTE 7	-	-	O	O	O	O	O	O	O	O	O	O	O	O
	LTE 38	-	-	O	O	O	O	O	O	O	O	O	O	O	O
	LTE 41	-	-	O	O	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	LTE 4	O	O	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 7	-	-	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 38	-	-	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 41	-	-	O	O	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	LTE 4	O	O	O	O	O	O	O	O	O	-	O	O	-	O
	LTE 7	-	-	O	O	O	O	O	O	O	-	O	O	-	O
	LTE 38	-	-	O	O	O	O	O	O	O	-	O	O	-	O
	LTE 41	-	-	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	LTE 4	O	O	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 7	-	-	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 38	-	-	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 41	-	-	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	LTE 4	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	LTE 7	-	-	O	O	O	O	O	O	O	O	O	O	O	O
	LTE 38	-	-	O	O	O	O	O	O	O	O	O	O	O	O
	LTE 41	-	-	O	O	O	O	O	O	O	O	O	O	O	O
Spurious Emissions at Antenna Terminals	LTE 4	O	O	O	O	O	O	O	-	O	-	-	O	O	O
	LTE 7	-	-	O	O	O	O	O	-	O	-	-	O	O	O
	LTE 38	-	-	O	O	O	O	O	-	O	-	-	O	O	O
	LTE 41	-	-	O	O	O	O	O	-	O	-	-	O	O	O
Radiates Spurious Emission	LTE 4	O	-	O	-	-	O	O	-	O	-	-	-	O	-
	LTE 7	-	-	O	-	O	O	O	-	O	-	-	-	O	-
	LTE 38	-	-	O	-	-	-	O	-	O	-	-	-	O	-
	LTE 41	-	-	O	O	-	O	O	-	O	-	-	-	O	-
Note	1. The mark “O” means that this configuration is chosen for testing. 2. The mark “-” means that this configuration is not testing.														

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

5 Test Case Results

5.1 RF Power Output and Effective Isotropic Radiated Power

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

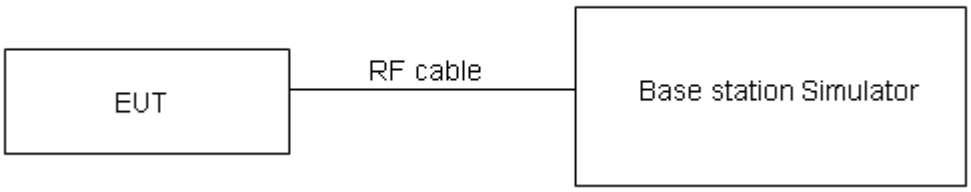
Methods of Measurement

During the process of the testing, The EUT is controlled by the Base Station Simulator to ensure max power transmission and proper modulation.

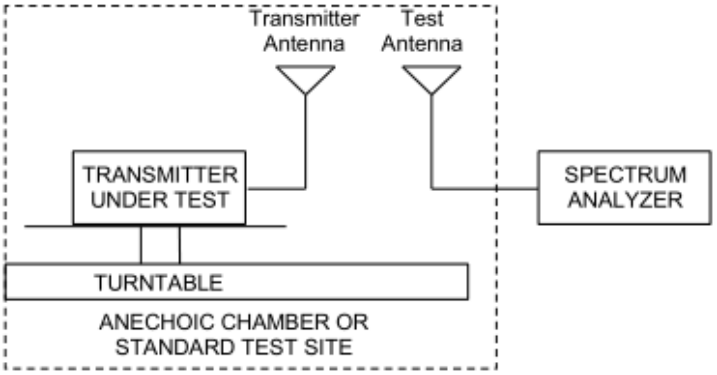
1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26 (2015).
a) Connect the equipment as illustrated. Mount the equipment with the manufacturer specified antenna in a vertical orientation on a manufacturer specified mounting surface located on a non-conducting rotating platform of a RF anechoic chamber (preferred) or a standard radiation site.
b) Key the transmitter, then rotate the EUT 360° azimuthally and record spectrum analyzer power level (LVL) measurements at angular increments that are sufficiently small to permit resolution of all peaks. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading at each angular increment. (Note: several batteries may be needed to offset the effect of battery voltage droop, which should not exceed 5% of the manufactured specified battery voltage during transmission).
c) Replace the transmitter under test with a vertically polarized half-wave dipole (or an antenna whose gain is known relative to an ideal half-wave dipole). The center of the antenna should be at the same location as the center of the antenna under test.
d) Connect the antenna to a signal generator with a known output power and record the path loss (in dB) as LOSS. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading.LOSS = Generator Output Power (dBm) – Analyzer reading (dBm)
e) Determine the effective radiated output power at each angular position from the readings in steps b) and d) using the following equation:ERP (dBm) = LVL (dBm) + LOSS (dB)
f) The maximum ERP is the maximum value determined in the preceding step.
g) When calculating ERP, in addition to knowing the antenna radiation and matching characteristics, it is necessary to know the loss values of all elements (e.g.transmission line attenuation, mismatches, filters, combiners) interposed between the point where transmitter output power is measured, and the point where power is applied to the antenna. ERP can then be calculated as follows:
EIRP (dBm) = Output Power (dBm) - Losses (dB) + Antenna Gain (dBi)
where:dBd refers to gain relative to an ideal dipole.
EIRP (dBm) = ERP (dBm) + 2.15 (dB.)
The RB allocation refers to section 5.1, using the maximum output power configuration.

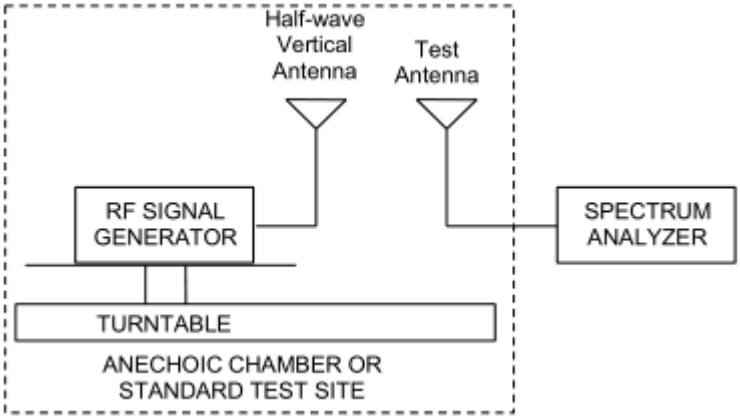
This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

Test Setup



The loss between RF output port of the EUT and the input port of the tester has been taken into consideration.





Note: Area side:2.4mX3.6m

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

Limits

No specific RF power output requirements in part 2.1046.

Rule Part 27.50(d) (4) specifies that “Fixed, mobile and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP”

Rule Part 27.50(h) (2) specifies that “Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.”

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

Part 27.50(d)(4)Limit	⩽ 1 W (30 dBm)
Part 27.50(h)(2) Limit	⩽ 2 W (33 dBm)

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor *k* = 2, *U*=0.4 dB for RF power output, *k* = 2, *U*= 1.19 dB for ERP/EIRP.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

Test Results

WCDMA Band IV		Conducted Power (dBm)			EIRP (dBm)		
		Channel 1312	Channel 1413	Channel 1513	Channel 1312	Channel 1413	Channel 1513
		1712.4 (MHz)	1732.6 (MHz)	1752.6 (MHz)	1712.4 (MHz)	1732.6 (MHz)	1752.6 (MHz)
RMC	12.2k	22.77	22.78	22.75	22.27	22.28	22.25
AMR	12.2k	22.67	22.69	22.62	22.17	22.19	22.12
HSDPA	Sub - Test 1	21.19	21.20	21.17	20.69	20.70	20.67
	Sub - Test 2	21.18	21.19	21.16	20.68	20.69	20.66
	Sub - Test 3	21.17	21.18	21.15	20.67	20.68	20.65
	Sub - Test 4	21.16	21.17	21.14	20.66	20.67	20.64
HSUPA	Sub - Test 1	19.65	19.66	19.63	19.15	19.16	19.13
	Sub - Test 2	19.64	19.65	19.62	19.14	19.15	19.12
	Sub - Test 3	20.62	20.64	20.61	20.12	20.14	20.11
	Sub - Test 4	19.61	19.63	19.60	19.11	19.13	19.10
	Sub - Test 5	20.60	20.62	20.59	20.10	20.12	20.09
DC-HSDPA	Sub - Test 1	21.11	21.14	21.09	20.61	20.64	20.59
	Sub - Test 2	21.10	21.13	21.08	20.60	20.63	20.58
	Sub - Test 3	21.18	21.12	21.09	20.68	20.62	20.59
	Sub - Test 4	21.17	21.11	21.08	20.67	20.61	20.58
HSPA+	16QAM	21.66	21.69	21.65	21.16	21.19	21.15

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 4				Conducted Power(dBm)			EIRP (dBm)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				19957/ 1710.7	20175/ 1732.5	20393/ 1754.3	19957/ 1710.7	20175/ 1732.5	20393/ 1754.3
1.4MHz	QPSK	1	0	22.51	22.57	22.49	22.01	22.07	21.99
		1	2	22.70	22.72	22.74	22.20	22.22	22.24
		1	5	22.46	22.40	22.44	21.96	21.90	21.94
		3	0	22.78	22.81	22.77	22.28	22.31	22.27
		3	2	22.71	22.92	22.89	22.21	22.42	22.39
		3	3	22.80	22.66	22.84	22.30	22.16	22.34
		6	0	21.88	21.89	21.80	21.38	21.39	21.30
	16QAM	1	0	22.03	21.85	21.90	21.53	21.35	21.40
		1	2	22.01	21.97	21.92	21.51	21.47	21.42
		1	5	21.88	21.88	21.90	21.38	21.38	21.40
		3	0	21.76	21.72	21.74	21.26	21.22	21.24
		3	2	21.79	21.72	21.75	21.29	21.22	21.25
		3	3	21.70	21.78	21.70	21.20	21.28	21.20
		6	0	20.82	20.82	20.84	20.32	20.32	20.34
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				19965/ 1711.5	20175/ 1732.5	20385/ 1753.5	19965/ 1711.5	20175/ 1732.5	20385/ 1753.5
3MHz	QPSK	1	0	22.53	22.61	22.52	22.03	22.11	22.02
		1	7	22.68	22.75	22.78	22.18	22.25	22.28
		1	14	22.49	22.45	22.48	21.99	21.95	21.98
		8	0	21.88	21.93	21.90	21.38	21.43	21.40
		8	4	21.83	22.02	22.01	21.33	21.52	21.51
		8	7	21.90	21.77	21.94	21.40	21.27	21.44
		15	0	21.88	21.93	21.83	21.38	21.43	21.33
	16QAM	1	0	22.06	21.87	21.93	21.56	21.37	21.43
		1	7	22.04	21.97	21.96	21.54	21.47	21.46
		1	14	21.90	21.92	21.93	21.40	21.42	21.43
		8	0	20.87	20.85	20.86	20.37	20.35	20.36
		8	4	20.90	20.85	20.87	20.40	20.35	20.37
		8	7	20.80	20.90	20.83	20.30	20.40	20.33
		15	0	20.85	20.86	20.87	20.35	20.36	20.37
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				19975/ 1712.5	20175/ 1732.5	20375/ 1752.5	19975/ 1712.5	20175/ 1732.5	20375/ 1752.5

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

5MHz	QPSK	1	0	22.50	22.59	22.48	22.00	22.09	21.98
		1	13	22.66	22.71	22.75	22.16	22.21	22.25
		1	24	22.46	22.40	22.44	21.96	21.90	21.94
		12	0	21.85	21.88	21.86	21.35	21.38	21.36
		12	6	21.81	21.98	21.96	21.31	21.48	21.46
		12	13	21.88	21.75	21.90	21.38	21.25	21.40
		25	0	21.88	21.92	21.81	21.38	21.42	21.31
	16QAM	1	0	22.03	21.83	21.90	21.53	21.33	21.40
		1	13	22.01	21.95	21.93	21.51	21.45	21.43
		1	24	21.87	21.90	21.89	21.37	21.40	21.39
		12	0	20.85	20.81	20.83	20.35	20.31	20.33
		12	6	20.87	20.80	20.83	20.37	20.30	20.33
		12	13	20.77	20.85	20.79	20.27	20.35	20.29
		25	0	20.83	20.82	20.82	20.33	20.32	20.32
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20000/ 1715	20175/ 1732.5	20350/ 1750	20000/ 1715	20175/ 1732.5	20350/ 1750
10MHz	QPSK	1	0	22.52	22.60	22.51	22.02	22.10	22.01
		1	25	22.69	22.76	22.79	22.19	22.26	22.29
		1	49	22.48	22.44	22.47	21.98	21.94	21.97
		25	0	21.88	21.93	21.90	21.38	21.43	21.40
		25	13	21.84	22.03	22.00	21.34	21.53	21.50
		25	25	21.90	21.79	21.95	21.40	21.29	21.45
		50	0	21.92	21.94	21.85	21.42	21.44	21.35
	16QAM	1	0	22.05	21.86	21.92	21.55	21.36	21.42
		1	25	22.04	21.99	21.96	21.54	21.49	21.46
		1	49	21.90	21.92	21.92	21.40	21.42	21.42
		25	0	20.88	20.86	20.87	20.38	20.36	20.37
		25	13	20.89	20.84	20.86	20.39	20.34	20.36
		25	25	20.80	20.90	20.83	20.30	20.40	20.33
		50	0	20.86	20.87	20.86	20.36	20.37	20.36
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20025/ 1717.5	20175/ 1732.5	20325/ 1747.5	20025/ 1717.5	20175/ 1732.5	20325/ 1747.5
15MHz	QPSK	1	0	22.51	22.56	22.49	22.01	22.06	21.99
		1	38	22.67	22.75	22.76	22.17	22.25	22.26
		1	74	22.45	22.39	22.43	21.95	21.89	21.93

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

		36	0	21.86	21.89	21.87	21.36	21.39	21.37
		36	18	21.81	21.98	21.96	21.31	21.48	21.46
		36	39	21.87	21.76	21.91	21.37	21.26	21.41
		75	0	21.90	21.90	21.80	21.40	21.40	21.30
	16QAM	1	0	22.00	21.84	21.90	21.50	21.34	21.40
		1	38	22.02	21.96	21.94	21.52	21.46	21.44
		1	74	21.87	21.88	21.89	21.37	21.38	21.39
		36	0	20.85	20.84	20.84	20.35	20.34	20.34
		36	18	20.86	20.79	20.82	20.36	20.29	20.32
		36	39	20.78	20.86	20.80	20.28	20.36	20.30
		75	0	20.83	20.82	20.82	20.33	20.32	20.32
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20050/ 1720	20175/ 1732.5	20300/ 1745	20050/ 1720	20175/ 1732.5	20300/ 1745
20MHz	QPSK	1	0	22.48	22.52	22.46	21.98	22.02	21.96
		1	50	22.66	22.71	22.74	22.16	22.21	22.24
		1	99	22.43	22.38	22.40	21.93	21.88	21.90
		50	0	21.83	21.84	21.83	21.33	21.34	21.33
		50	25	21.79	21.94	21.93	21.29	21.44	21.43
		50	50	21.84	21.71	21.87	21.34	21.21	21.37
		100	0	21.87	21.85	21.76	21.37	21.35	21.26
	16QAM	1	0	21.88	21.80	21.85	21.38	21.30	21.35
		1	50	21.98	21.94	21.90	21.48	21.44	21.40
		1	99	21.85	21.85	21.87	21.35	21.35	21.37
		50	0	20.82	20.80	20.81	20.32	20.30	20.31
		50	25	20.83	20.77	20.79	20.33	20.27	20.29
		50	50	20.75	20.81	20.76	20.25	20.31	20.26
		100	0	20.81	20.78	20.79	20.31	20.28	20.29

LTE Band 7				Conducted Power(dBm)			EIRP (dBm)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20775/ 2502.5	21100/ 2535	21425/ 2567.5	20775/ 2502.5	21100/ 2535	21425/ 2567.5
5MHz	QPSK	1	0	21.78	22.26	21.97	21.38	21.86	21.57
		1	13	22.10	22.51	22.18	21.70	22.11	21.78
		1	24	21.84	22.20	21.80	21.44	21.80	21.40

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

		12	0	20.97	21.50	21.19	20.57	21.10	20.79
		12	6	21.17	21.60	21.12	20.77	21.20	20.72
		12	13	21.09	21.62	21.10	20.69	21.22	20.70
		25	0	21.13	21.56	21.09	20.73	21.16	20.69
	16QAM	1	0	21.34	21.09	21.25	20.94	20.69	20.85
		1	13	21.32	21.05	21.00	20.92	20.65	20.60
		1	24	21.07	21.23	20.98	20.67	20.83	20.58
		12	0	20.08	20.12	20.06	19.68	19.72	19.66
		12	6	20.29	20.09	20.19	19.89	19.69	19.79
		12	13	20.22	20.06	20.05	19.82	19.66	19.65
		25	0	20.06	20.12	20.10	19.66	19.72	19.70
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20800/ 2505	21100/ 2535	21400/ 2565	20800/ 2505	21100/ 2535	21400/ 2565
10MHz	QPSK	1	0	22.79	22.87	22.75	22.39	22.47	22.35
		1	25	22.92	22.97	22.84	22.52	22.57	22.44
		1	49	22.81	22.84	22.83	22.41	22.44	22.43
		25	0	21.99	22.09	22.10	21.59	21.69	21.70
		25	13	22.02	22.15	22.03	21.62	21.75	21.63
		25	25	21.94	22.14	22.01	21.54	21.74	21.61
		50	0	22.07	22.10	22.04	21.67	21.70	21.64
	16QAM	1	0	22.09	22.01	22.05	21.69	21.61	21.65
		1	25	21.89	22.04	22.12	21.49	21.64	21.72
		1	49	22.06	21.97	22.17	21.66	21.57	21.77
		25	0	21.05	21.13	20.96	20.65	20.73	20.56
		25	13	21.02	21.10	21.07	20.62	20.70	20.67
		25	25	20.99	21.03	20.92	20.59	20.63	20.52
		50	0	20.95	21.07	21.02	20.55	20.67	20.62
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20825/ 2507.5	21100/ 2535	21375/ 2562.5	20825/ 2507.5	21100/ 2535	21375/ 2562.5
15MHz	QPSK	1	0	21.79	22.23	21.98	21.39	21.83	21.58
		1	38	22.11	22.55	22.19	21.71	22.15	21.79
		1	74	21.83	22.19	21.79	21.43	21.79	21.39
		36	0	20.98	21.51	21.20	20.58	21.11	20.80
		36	18	21.17	21.60	21.12	20.77	21.20	20.72
		36	39	21.08	21.63	21.11	20.68	21.23	20.71

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

		75	0	21.15	21.54	21.08	20.75	21.14	20.68
	16QAM	1	0	21.31	21.10	21.25	20.91	20.70	20.85
		1	38	21.33	21.06	21.01	20.93	20.66	20.61
		1	74	21.07	21.21	20.98	20.67	20.81	20.58
		36	0	20.08	20.15	20.07	19.68	19.75	19.67
		36	18	20.28	20.08	20.18	19.88	19.68	19.78
		36	39	20.23	20.07	20.06	19.83	19.67	19.66
		75	0	20.06	20.12	20.10	19.66	19.72	19.70
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20850/ 2510	21100/ 2535	21350/ 2560	20850/ 2510	21100/ 2535	21350/ 2560
20MHz	QPSK	1	0	21.76	22.19	21.95	21.36	21.79	21.55
		1	50	22.10	22.51	22.17	21.70	22.11	21.77
		1	99	21.81	22.18	21.76	21.41	21.78	21.36
		50	0	20.95	21.46	21.16	20.55	21.06	20.76
		50	25	21.15	21.56	21.09	20.75	21.16	20.69
		50	50	21.05	21.58	21.07	20.65	21.18	20.67
		100	0	21.12	21.49	21.04	20.72	21.09	20.64
	16QAM	1	0	21.26	21.06	21.20	20.86	20.66	20.80
		1	50	21.29	21.04	20.97	20.89	20.64	20.57
		1	99	21.05	21.18	20.96	20.65	20.78	20.56
		50	0	20.05	20.11	20.04	19.65	19.71	19.64
		50	25	20.25	20.06	20.15	19.85	19.66	19.75
		50	50	20.20	20.02	20.02	19.80	19.62	19.62
		100	0	20.04	20.08	20.07	19.64	19.68	19.67

LTE Band 38				Conducted Power(dBm)			EIRP (dBm)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				37775/ 2572.5	38000/ 2595	38225/ 2617.5	37775/ 2572.5	38000/ 2595	38225/ 2617.5
5MHz	QPSK	1	0	21.80	21.75	21.61	21.20	21.15	21.01
		1	13	21.92	21.78	21.69	21.32	21.18	21.09
		1	24	21.85	21.70	21.61	21.25	21.10	21.01
		12	0	20.87	20.85	20.71	20.27	20.25	20.11
		12	6	20.84	20.90	20.71	20.24	20.30	20.11
		12	13	20.93	20.82	20.69	20.33	20.22	20.09
		25	0	20.89	20.86	20.74	20.29	20.26	20.14
	16QAM	1	0	21.00	21.07	20.97	20.40	20.47	20.37
		1	13	21.17	21.19	21.10	20.57	20.59	20.50

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

		1	24	21.05	21.03	21.00	20.45	20.43	20.40
		12	0	19.84	19.90	19.67	19.24	19.30	19.07
		12	6	19.85	19.88	19.68	19.25	19.28	19.08
		12	13	19.89	19.86	19.67	19.29	19.26	19.07
		25	0	19.88	19.86	19.79	19.28	19.26	19.19
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				37800/ 2575	38000/ 2595	38200/ 2615	37800/ 2575	38000/ 2595	38200/ 2615
10MHz	QPSK	1	0	21.93	21.96	21.72	21.33	21.36	21.12
		1	25	22.11	22.08	21.93	21.51	21.48	21.33
		1	49	22.00	21.88	21.74	21.40	21.28	21.14
		25	0	21.02	20.94	20.78	20.42	20.34	20.18
		25	13	21.00	20.95	20.78	20.40	20.35	20.18
		25	25	20.98	20.89	20.75	20.38	20.29	20.15
		50	0	21.06	20.95	20.78	20.46	20.35	20.18
	16QAM	1	0	21.28	21.00	20.64	20.68	20.40	20.04
		1	25	21.46	21.13	20.85	20.86	20.53	20.25
		1	49	21.35	20.90	20.63	20.75	20.30	20.03
		25	0	20.10	20.01	19.80	19.50	19.41	19.20
		25	13	20.09	20.01	19.79	19.49	19.41	19.19
		25	25	20.11	19.94	19.75	19.51	19.34	19.15
		50	0	20.03	19.94	19.82	19.43	19.34	19.22
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				37825/ 2577.5	38000/ 2595	38175/ 2612.5	37825/ 2577.5	38000/ 2595	38175/ 2612.5
15MHz	QPSK	1	0	21.92	21.95	21.66	21.32	21.35	21.06
		1	38	22.05	21.98	21.72	21.45	21.38	21.12
		1	74	21.95	21.86	21.64	21.35	21.26	21.04
		36	0	20.98	20.94	20.77	20.38	20.34	20.17
		36	18	21.00	20.94	20.78	20.40	20.34	20.18
		36	39	21.01	20.91	20.76	20.41	20.31	20.16
		75	0	21.01	20.92	20.79	20.41	20.32	20.19
	16QAM	1	0	20.91	20.95	21.02	20.31	20.35	20.42
		1	38	21.03	21.01	21.07	20.43	20.41	20.47
		1	74	20.93	20.84	21.00	20.33	20.24	20.40
		36	0	19.98	19.92	19.79	19.38	19.32	19.19
		36	18	19.99	19.94	19.78	19.39	19.34	19.18
		36	39	20.00	19.89	19.76	19.40	19.29	19.16
		75	0	19.98	19.89	19.79	19.38	19.29	19.19
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				37850/ 2580	38000/ 2595	38150/ 2610	37850/ 2580	38000/ 2595	38150/ 2610

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

20MHz	QPSK	1	0	21.65	21.75	21.56	21.05	21.15	20.96
		1	50	22.13	22.08	21.79	21.53	21.48	21.19
		1	99	21.73	21.64	21.53	21.13	21.04	20.93
		50	0	20.98	20.91	20.78	20.38	20.31	20.18
		50	25	20.99	20.96	20.80	20.39	20.36	20.20
		50	50	20.98	20.85	20.69	20.38	20.25	20.09
		100	0	20.96	20.87	20.76	20.36	20.27	20.16
	16QAM	1	0	20.87	20.71	20.25	20.27	20.11	19.65
		1	50	21.34	21.02	20.47	20.74	20.42	19.87
		1	99	20.99	20.61	20.20	20.39	20.01	19.60
		50	0	20.00	19.90	19.84	19.40	19.30	19.24
		50	25	20.00	19.95	19.85	19.40	19.35	19.25
		50	50	20.00	19.83	19.77	19.40	19.23	19.17
		100	0	19.96	19.91	19.78	19.36	19.31	19.18

LTE Band 41				Conducted Power(dBm)			EIRP (dBm)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				40065/ 2537.5	40640/ 2595	41215/ 2652.5	40065/ 2537.5	40640/ 2595	41215/ 2652.5
5MHz	QPSK	1	0	22.13	22.24	22.14	22.13	22.24	22.14
		1	13	22.45	22.55	22.58	22.45	22.55	22.58
		1	24	22.21	22.27	22.14	22.21	22.27	22.14
		12	0	21.28	21.55	21.42	21.28	21.55	21.42
		12	6	21.45	21.39	21.44	21.45	21.39	21.44
		12	13	21.44	21.45	21.45	21.44	21.45	21.45
		25	0	21.39	21.47	21.54	21.39	21.47	21.54
	16QAM	1	0	21.62	21.28	21.29	21.62	21.28	21.29
		1	13	21.60	21.59	21.58	21.60	21.59	21.58
		1	24	21.38	21.40	21.36	21.38	21.40	21.36
		12	0	20.34	20.31	20.30	20.34	20.31	20.30
		12	6	20.54	20.58	20.55	20.54	20.58	20.55
		12	13	20.57	20.24	20.39	20.57	20.24	20.39
		25	0	20.44	20.44	20.41	20.44	20.44	20.41
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				40090/ 2540	40640/ 2595	41190/ 2650	40090/ 2540	40640/ 2595	41190/ 2650
10MHz	QPSK	1	0	22.79	22.87	22.75	22.79	22.87	22.75
		1	25	22.92	22.97	22.84	22.92	22.97	22.84

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

		1	49	22.81	22.84	22.83	22.81	22.84	22.83
		25	0	21.99	22.09	22.10	21.99	22.09	22.10
		25	13	22.02	22.15	22.03	22.02	22.15	22.03
		25	25	21.94	22.14	22.01	21.94	22.14	22.01
		50	0	22.07	22.10	22.04	22.07	22.10	22.04
	16QAM	1	0	22.09	22.01	22.05	22.09	22.01	22.05
		1	25	21.89	22.04	22.12	21.89	22.04	22.12
		1	49	22.06	21.97	22.17	22.06	21.97	22.17
		25	0	21.05	21.13	20.96	21.05	21.13	20.96
		25	13	21.02	21.10	21.07	21.02	21.10	21.07
		25	25	20.99	21.03	20.92	20.99	21.03	20.92
		50	0	20.95	21.07	21.02	20.95	21.07	21.02
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				40115/ 2542.5	40640/ 2595	41165/ 2647.5	40115/ 2542.5	40640/ 2595	41165/ 2647.5
15MHz	QPSK	1	0	22.14	22.21	22.15	22.14	22.21	22.15
		1	38	22.46	22.59	22.59	22.46	22.59	22.59
		1	74	22.20	22.26	22.13	22.20	22.26	22.13
		36	0	21.29	21.56	21.43	21.29	21.56	21.43
		36	18	21.45	21.39	21.44	21.45	21.39	21.44
		36	39	21.43	21.46	21.46	21.43	21.46	21.46
		75	0	21.41	21.45	21.53	21.41	21.45	21.53
	16QAM	1	0	21.59	21.29	21.29	21.59	21.29	21.29
		1	38	21.61	21.60	21.59	21.61	21.60	21.59
		1	74	21.38	21.38	21.36	21.38	21.38	21.36
		36	0	20.34	20.34	20.31	20.34	20.34	20.31
		36	18	20.53	20.57	20.54	20.53	20.57	20.54
		36	39	20.58	20.25	20.40	20.58	20.25	20.40
		75	0	20.44	20.44	20.41	20.44	20.44	20.41
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				40140/ 2545	40640/ 2595	41140/ 2645	40140/ 2545	40640/ 2595	41140/ 2645
20MHz	QPSK	1	0	22.11	22.17	22.12	22.11	22.17	22.12
		1	50	22.45	22.55	22.57	22.45	22.55	22.57
		1	99	22.18	22.25	22.10	22.18	22.25	22.10
		50	0	21.26	21.51	21.39	21.26	21.51	21.39
		50	25	21.43	21.35	21.41	21.43	21.35	21.41

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

		50	50	21.40	21.41	21.42	21.40	21.41	21.42
		100	0	21.38	21.40	21.49	21.38	21.40	21.49
	16QAM	1	0	21.22	21.25	21.24	21.22	21.25	21.24
		1	50	21.57	21.58	21.55	21.57	21.58	21.55
		1	99	21.36	21.35	21.34	21.36	21.35	21.34
		50	0	20.31	20.30	20.28	20.31	20.30	20.28
		50	25	20.50	20.55	20.51	20.50	20.55	20.51
		50	50	20.55	20.20	20.36	20.55	20.20	20.36
		100	0	20.42	20.40	20.38	20.42	20.40	20.38

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

5.2 Occupied Bandwidth

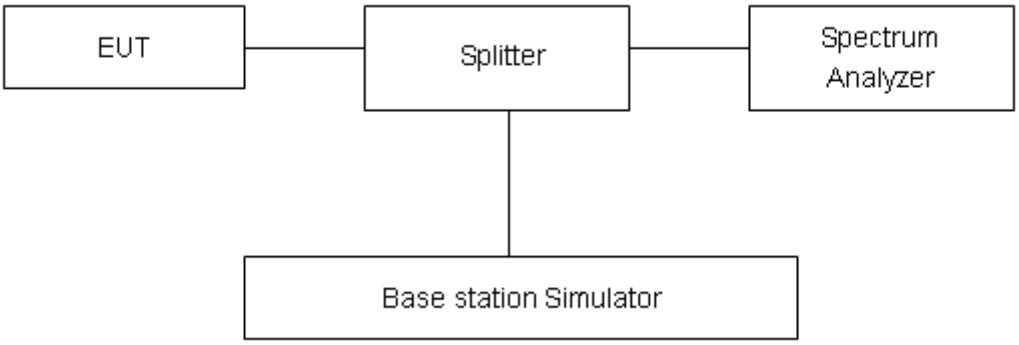
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.
RBW is set to 51 kHz, VBW is set to 160 kHz for WCDMA Band IV.
RBW is set to 51 kHz, VBW is set to 160 kHz for LTE Band 4 (1.4MHz).
RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 4 (3MHz).
RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 4/7/38/41 (5MHz).
RBW is set to 200 kHz, VBW is set to 620 kHz for LTE Band 7/38 (10MHz).
RBW is set to 300 kHz, VBW is set to 910 kHz for LTE Band 7/38 (15MHz).
RBW is set to 430 kHz, VBW is set to 1.2MHz for LTE Band 7/38 (20MHz).
RBW is set to 300 kHz, VBW is set to 1MHz for LTE Band 4/41 (10MHz/15MHz/20MHz).
99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U=624Hz.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

Test Result

Mode	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
WCDMA Band IV (RMC)	1312	1712.4	4.1766	4.662
	1413	1732.6	4.1623	4.676
	1513	1752.6	4.1735	4.664

LTE Band 4						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	19957	1710.7	1.0957	1.284
			20175	1732.5	1.0923	1.288
			20393	1754.3	1.0938	1.282
		3	19965	1711.5	2.7026	2.915
			20175	1732.5	2.6899	2.914
			20385	1753.5	2.6927	2.900
		5	19975	1712.5	4.5007	4.873
			20175	1732.5	4.5289	4.933
			20375	1752.5	4.5232	4.912
		10	20000	1715	8.9907	9.583
			20175	1732.5	8.9836	9.725
			20350	1750	8.9896	9.709
		15	20025	1717.5	13.488	14.5
			20175	1732.5	13.44	14.42
			20325	1747.5	13.492	14.6
		20	20050	1720	17.957	19.26
			20175	1732.5	17.949	19.24
			20300	1745	17.936	19.27
	16QAM	1.4	19957	1710.7	1.095	1.284
			20175	1732.5	1.0983	1.295
			20393	1754.3	1.0904	1.276
		3	19965	1711.5	2.6885	2.931
			20175	1732.5	2.6901	2.904
			20385	1753.5	2.6949	2.922
		5	19975	1712.5	4.5000	4.904
			20175	1732.5	4.5043	4.888
			20375	1752.5	4.5243	4.923
		10	20000	1715	8.9770	9.654

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

			20175	1732.5	8.9873	9.753
			20350	1750	9.0045	9.733
		15	20025	1717.5	13.483	14.58
			20175	1732.5	13.485	14.57
			20325	1747.5	13.51	14.53
		20	20050	1720	17.964	19.37
			20175	1732.5	17.931	19.41
			20300	1745	17.978	19.36

LTE Band 7						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	20775	2502.5	4.4963	4.883
			21100	2535	4.4984	4.907
			21425	2567.5	4.5015	4.886
		10	20800	2505	9.013	9.701
			21100	2535	8.9934	9.723
			21400	2565	9.0014	9.667
		15	20825	2507.5	13.454	14.97
			21100	2535	13.439	14.48
			21375	2562.5	13.485	14.49
		20	20850	2510	17.919	19.28
			21100	2535	17.979	19.20
			21350	2560	18.040	19.30
	16QAM	5	20775	2502.5	4.5035	4.923
			21100	2535	4.5019	4.917
			21425	2567.5	4.5039	4.908
		10	20800	2505	8.9641	9.709
			21100	2535	8.9809	9.740
			21400	2565	8.9978	9.662
		15	20825	2507.5	13.476	15.71
			21100	2535	13.447	14.31
			21375	2562.5	13.498	14.43
		20	20850	2510	17.926	19.29
			21100	2535	17.953	19.49
			21350	2560	17.953	19.32

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 38						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	37775	2572.5	4.4966	4.843
			38000	2595	4.5087	4.826
			38225	2617.5	4.5196	4.86
		10	37800	2575	9.0013	9.614
			38000	2595	8.9999	9.827
			38200	2615	8.9931	10.15
		15	37825	2577.5	13.434	14.63
			38000	2595	13.422	14.59
			38175	2612.5	13.457	14.88
		20	37850	2580	17.93	20.7
			38000	2595	17.925	19.61
			38150	2610	17.973	19.7
	16QAM	5	37775	2572.5	4.5032	4.85
			38000	2595	4.5052	4.854
			38225	2617.5	4.509	5.188
		10	37800	2575	8.9947	10.14
			38000	2595	8.9786	9.694
			38200	2615	8.9986	9.787
		15	37825	2577.5	13.529	14.8
			38000	2595	13.449	14.99
			38175	2612.5	13.484	14.5
		20	37850	2580	17.934	19.6
			38000	2595	17.937	19.76
			38150	2610	17.961	19.33

LTE Band 41						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	40065	2537.5	4.4996	5.02
			40640	2595	4.5198	5.189
			41215	2652.5	4.5071	5.046
		10	40090	2540	9.1438	13.27
			40640	2595	9.0986	11.88
			41190	2650	9.0666	10.1
		15	40115	2542.5	13.465	16.2
			40640	2595	13.44	15.76
			41165	2647.5	13.499	14.83

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

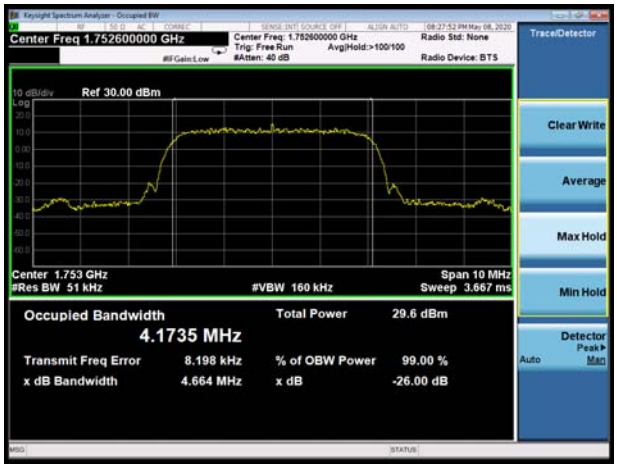
		20	40140	2545	17.931	22.2
			40640	2595	17.96	19.6
			41140	2645	17.903	19.77
	16QAM	5	40065	2537.5	4.5024	5.213
			40640	2595	4.4978	5.167
			41215	2652.5	4.5096	4.935
		10	40090	2540	9.0827	12.22
			40640	2595	9.0486	10.15
			41190	2650	9.0518	10.62
		15	40115	2542.5	13.569	17.24
			40640	2595	13.502	17.20
			41165	2647.5	13.526	16.24
		20	40140	2545	17.896	19.19
			40640	2595	17.896	19.67
			41140	2645	17.909	19.79

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

WCDMA Band IV CH-Low

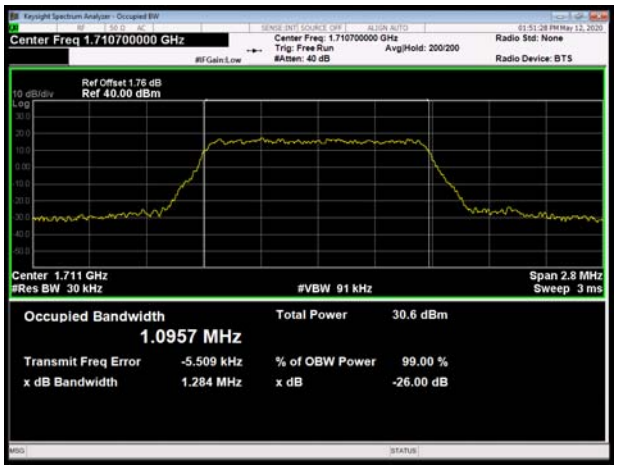
WCDMA Band IV CH Middle

WCDMA Band IV CH High

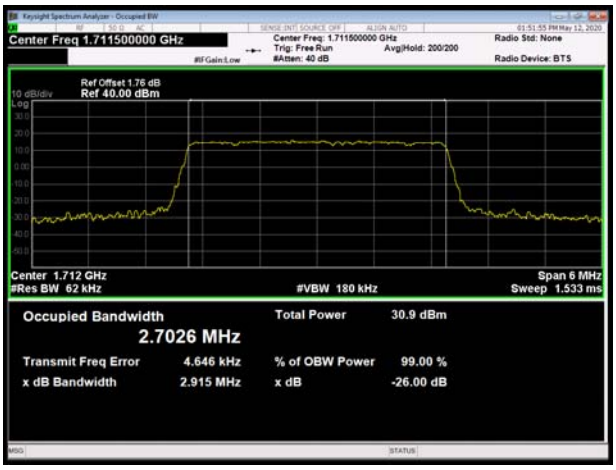


This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

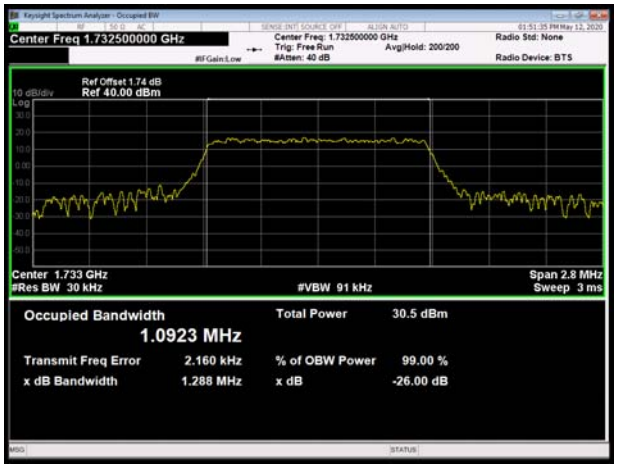
LTE Band 4 QPSK 1.4MHz CH-Low



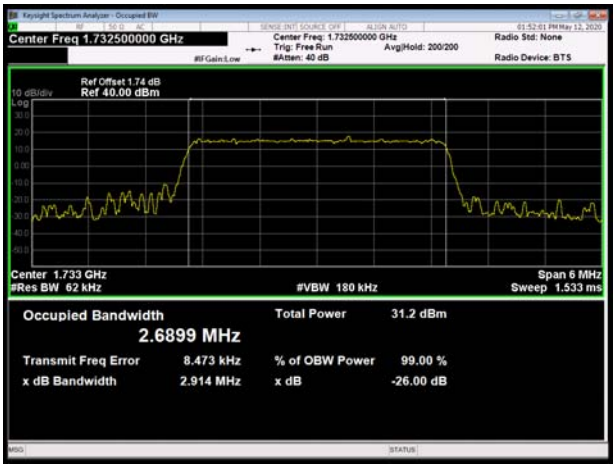
LTE Band 4 QPSK 3MHz CH-Low



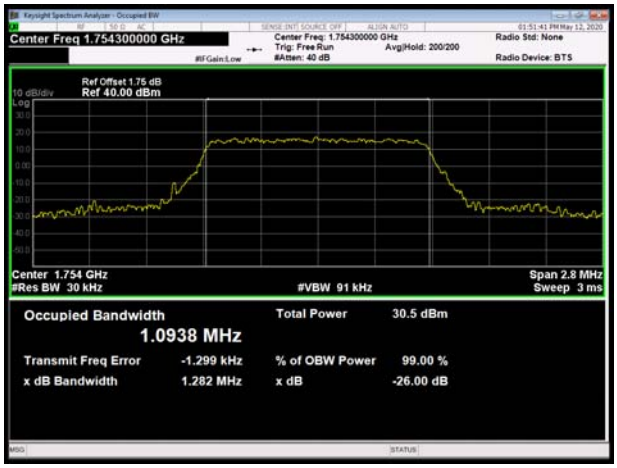
LTE Band 4 QPSK 1.4MHz CH-Middle



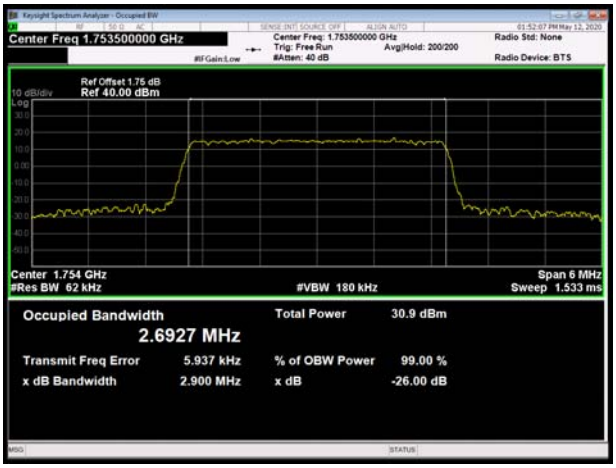
LTE Band 4 QPSK 3MHz CH-Middle



LTE Band 4 QPSK 1.4MHz CH-High

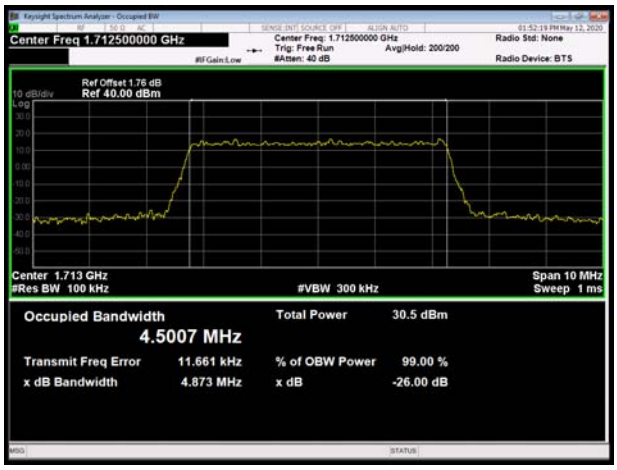


LTE Band 4 QPSK 3MHz CH-High

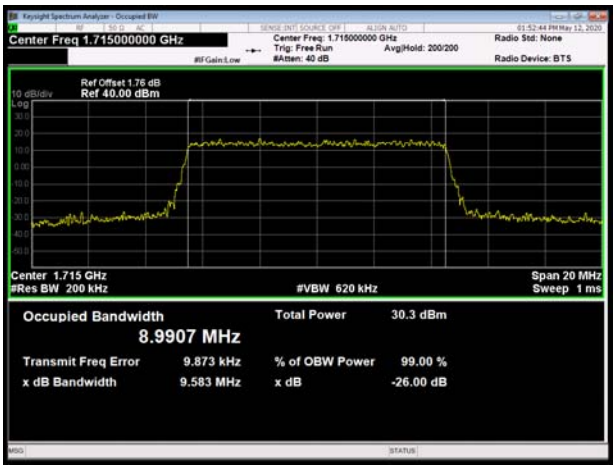


This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

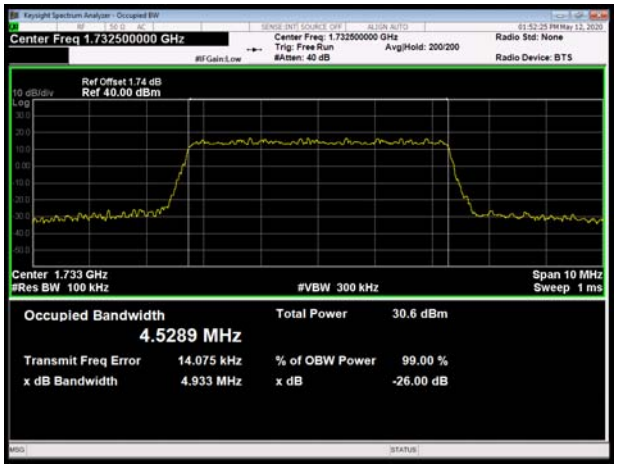
LTE Band 4 QPSK 5MHz CH-Low



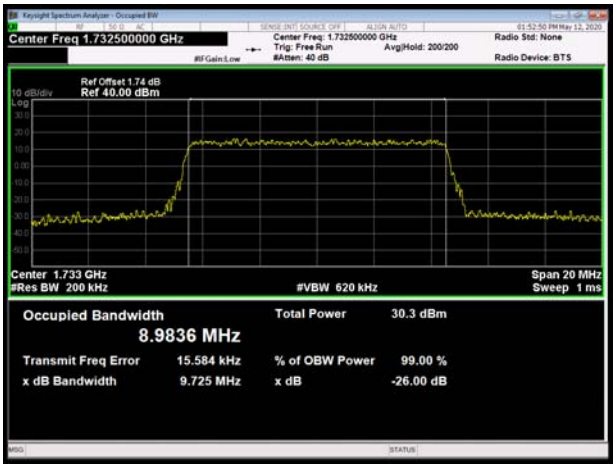
LTE Band 4 QPSK 10MHz CH-Low



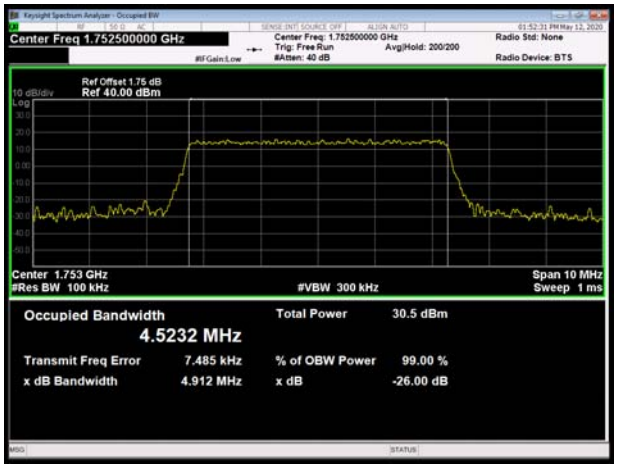
LTE Band 4 QPSK 5MHz CH-Middle



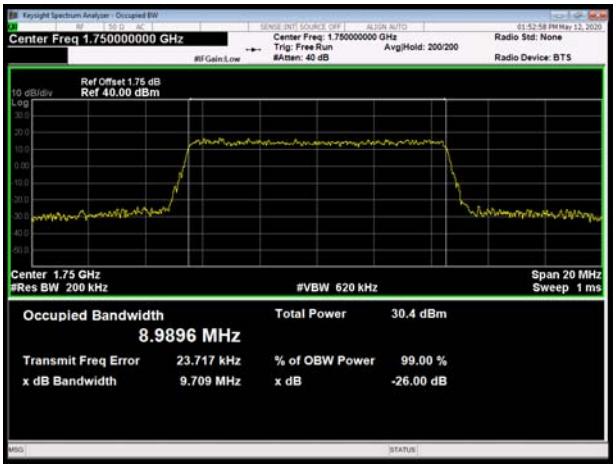
LTE Band 4 QPSK 10MHz CH-Middle



LTE Band 4 QPSK 5MHz CH-High

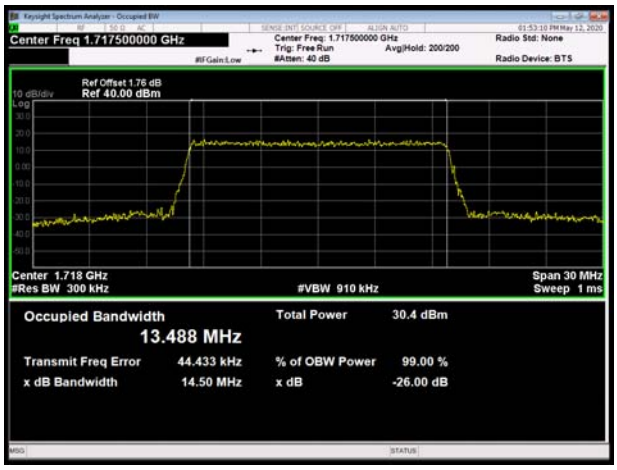


LTE Band 4 QPSK 10MHz CH-High

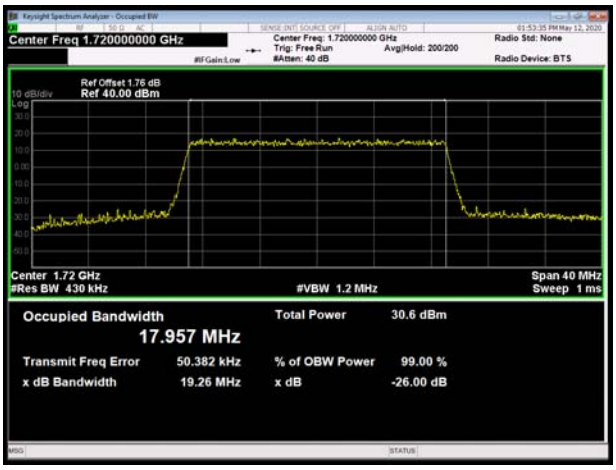


This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

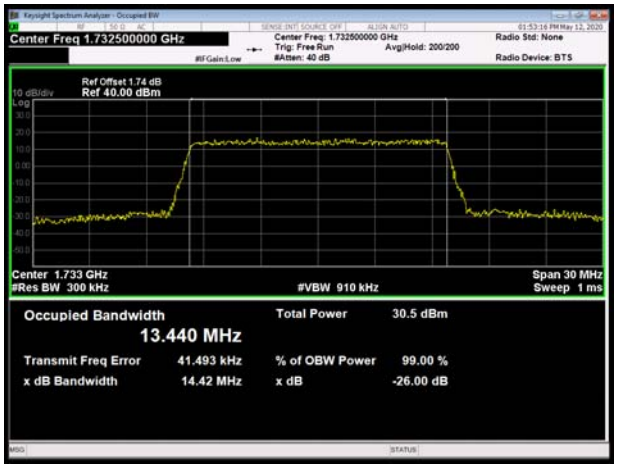
LTE Band 4 QPSK 15MHz CH-Low



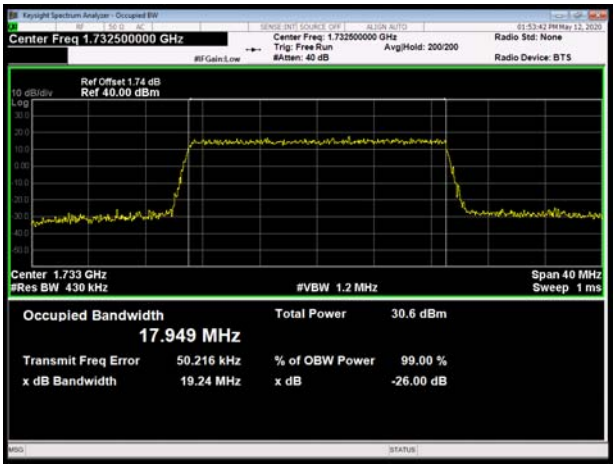
LTE Band 4 QPSK 20MHz CH-Low



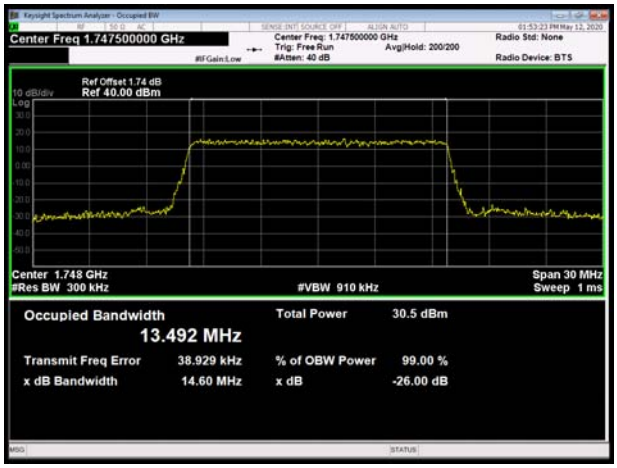
LTE Band 4 QPSK 15MHz CH-Middle



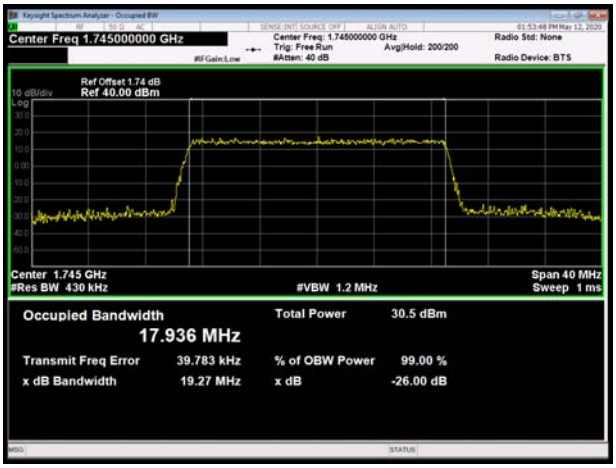
LTE Band 4 QPSK 20MHz CH-Middle



LTE Band 4 QPSK 15MHz CH-High

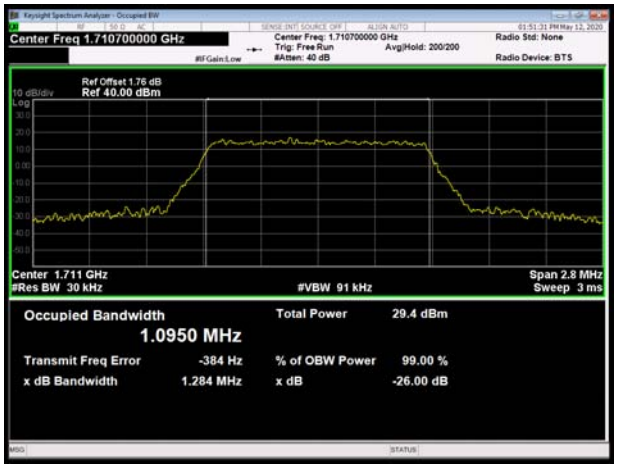


LTE Band 4 QPSK 20MHz CH-High

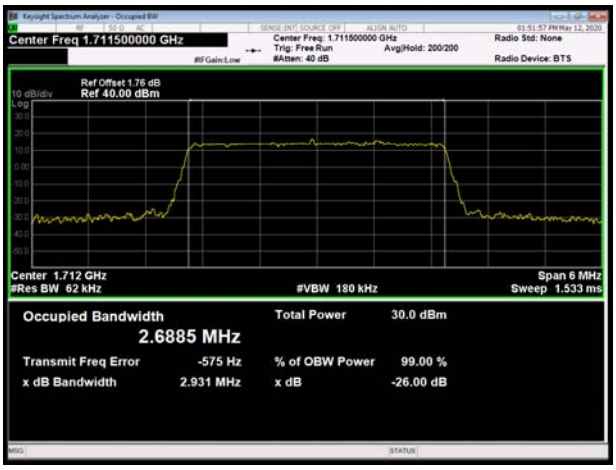


This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

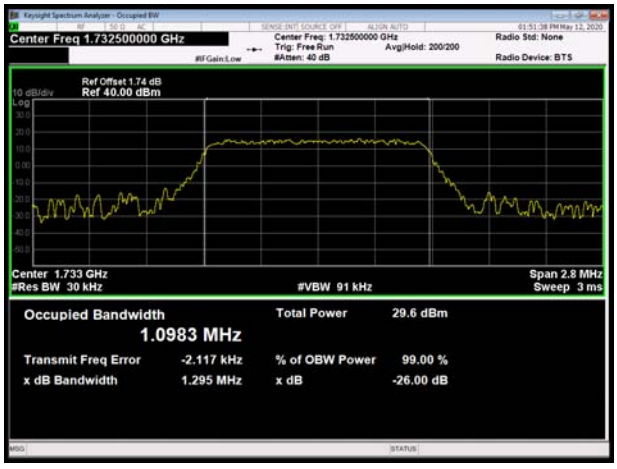
LTE Band 4 16QAM 1.4MHz CH-Low



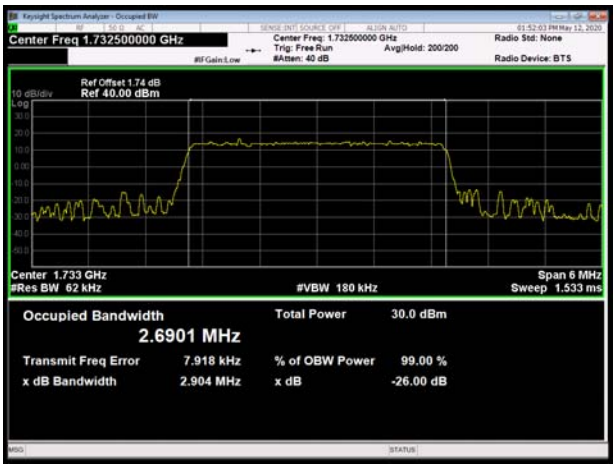
LTE Band 4 16QAM 3MHz CH-Low



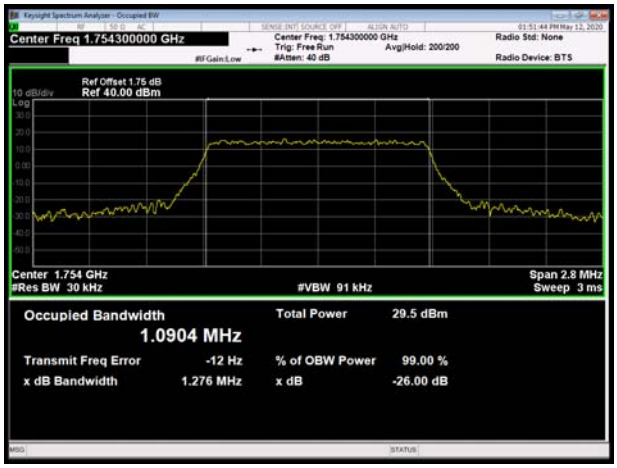
LTE Band 4 16QAM 1.4MHz CH-Middle



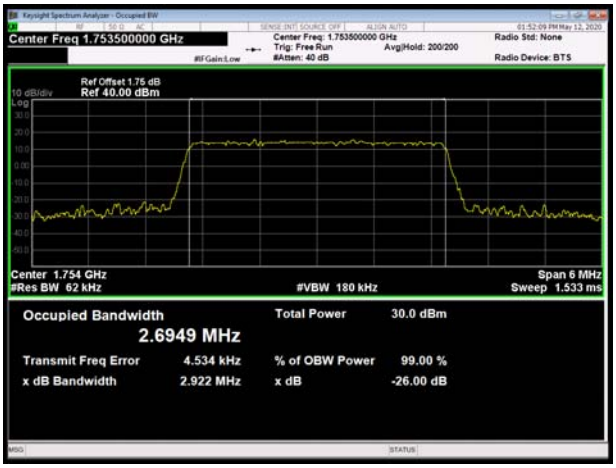
LTE Band 4 16QAM 3MHz CH-Middle



LTE Band 4 16QAM 1.4MHz CH-High

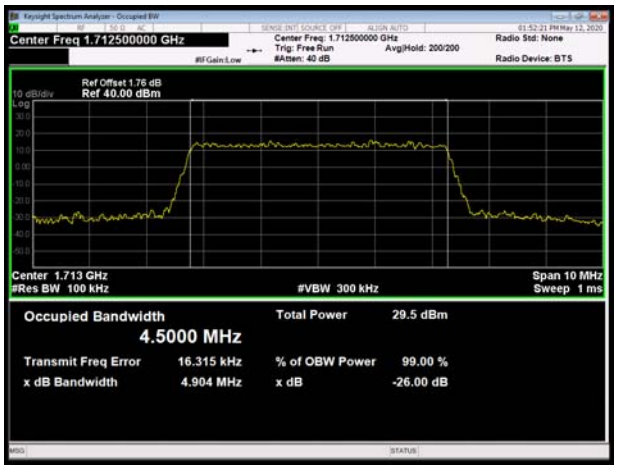


LTE Band 4 16QAM 3MHz CH-High

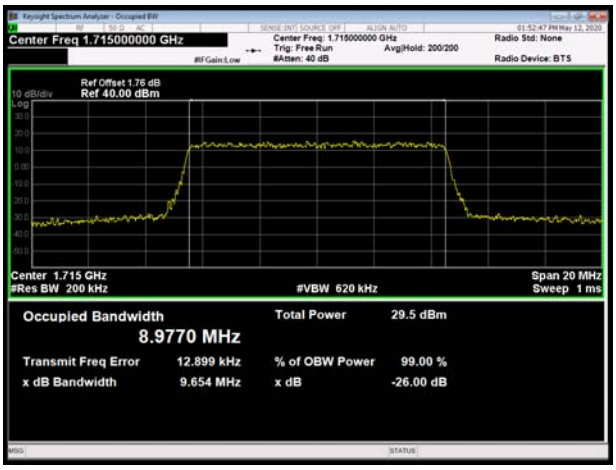


This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

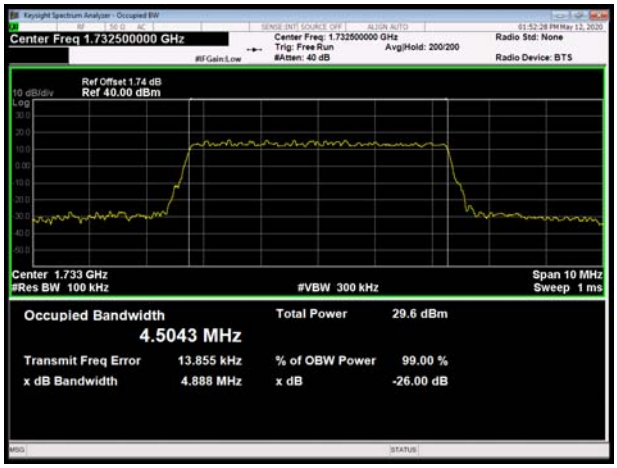
LTE Band 4 16QAM 5MHz CH-Low



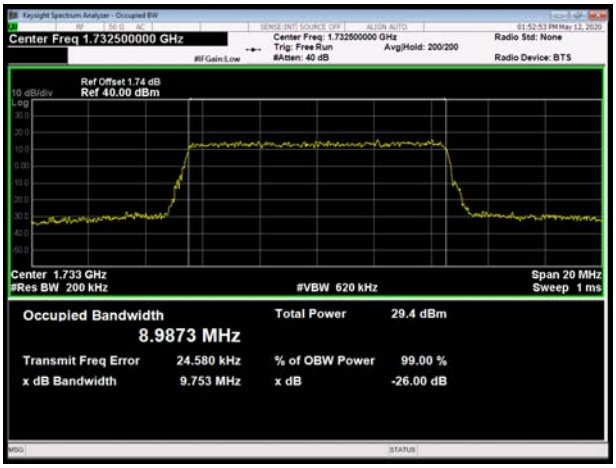
LTE Band 4 16QAM 10MHz CH-Low



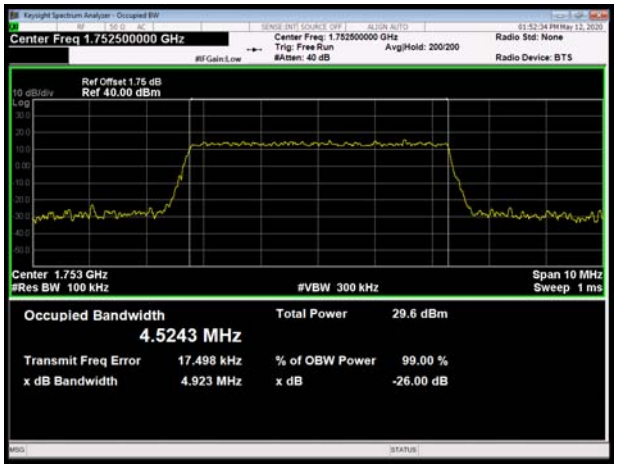
LTE Band 4 16QAM 5MHz CH-Middle



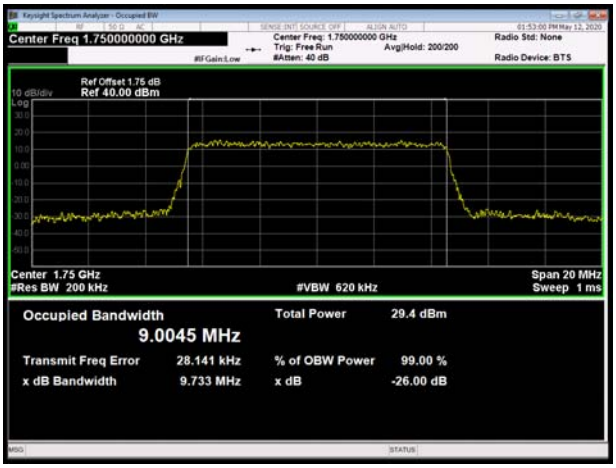
LTE Band 4 16QAM 10MHz CH-Middle



LTE Band 4 16QAM 5MHz CH-High

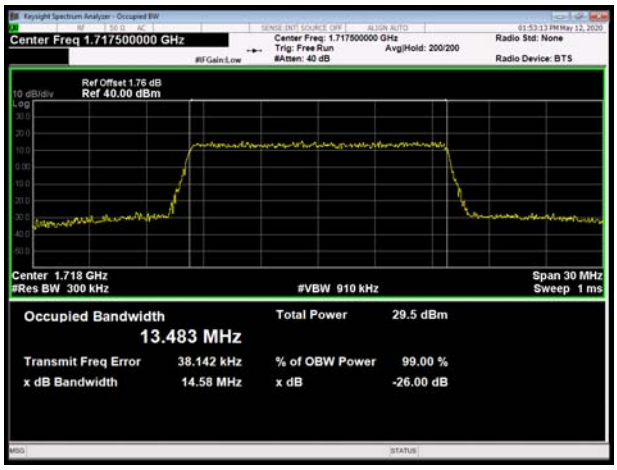


LTE Band 4 16QAM 10MHz CH-High

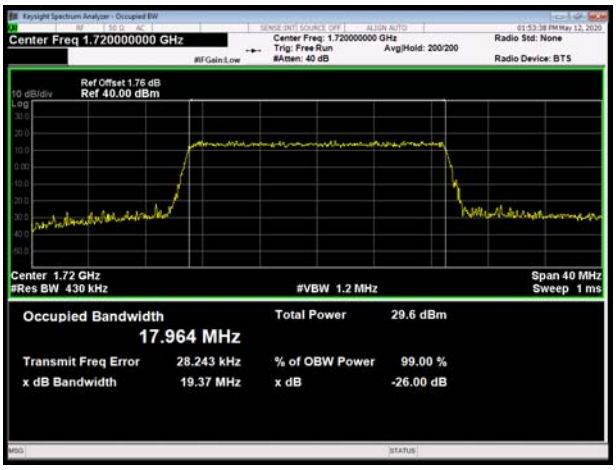


This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

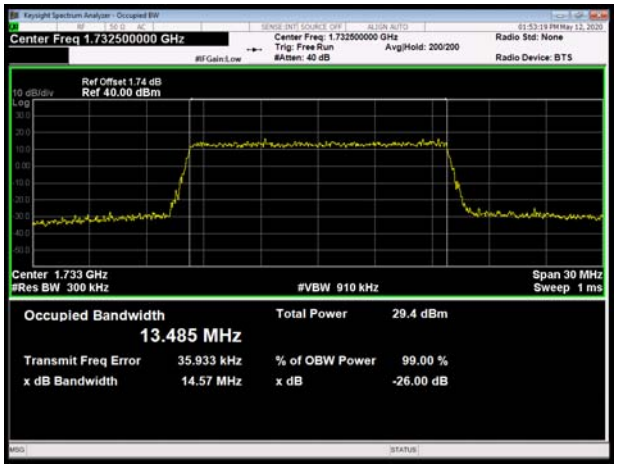
LTE Band 4 16QAM 15MHz CH-Low



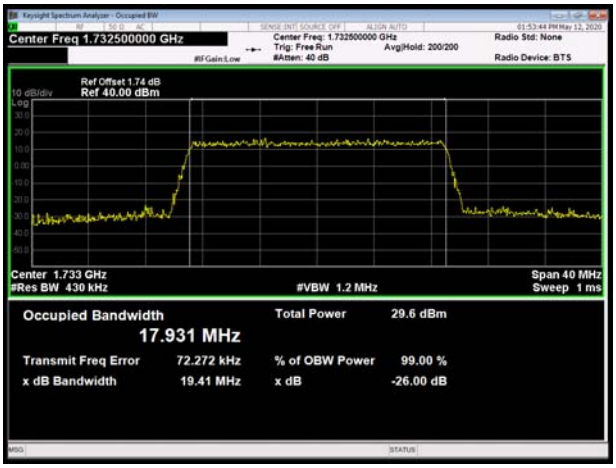
LTE Band 4 16QAM 20MHz CH-Low



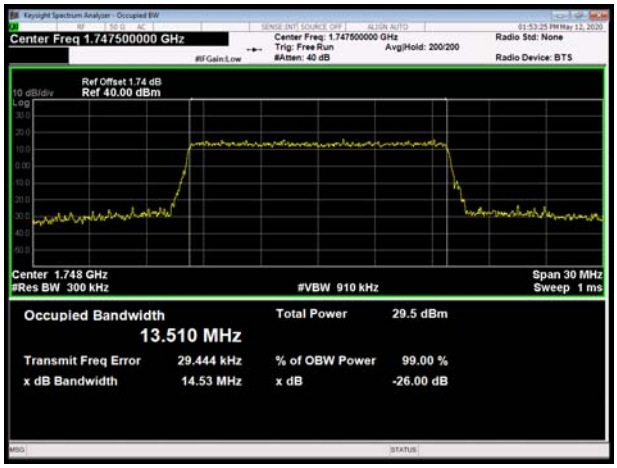
LTE Band 4 16QAM 15MHz CH-Middle



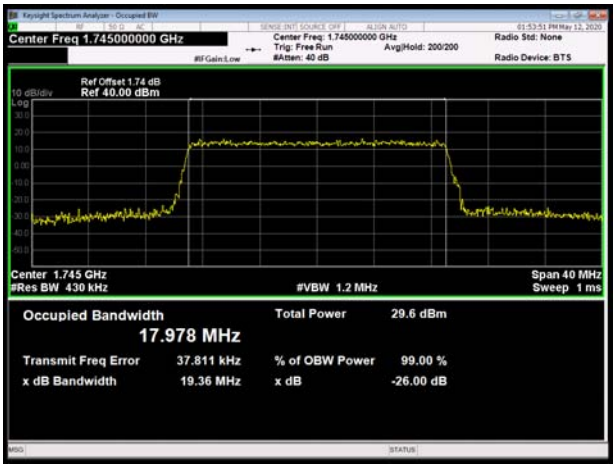
LTE Band 4 16QAM 20MHz CH-Middle



LTE Band 4 16QAM 15MHz CH-High

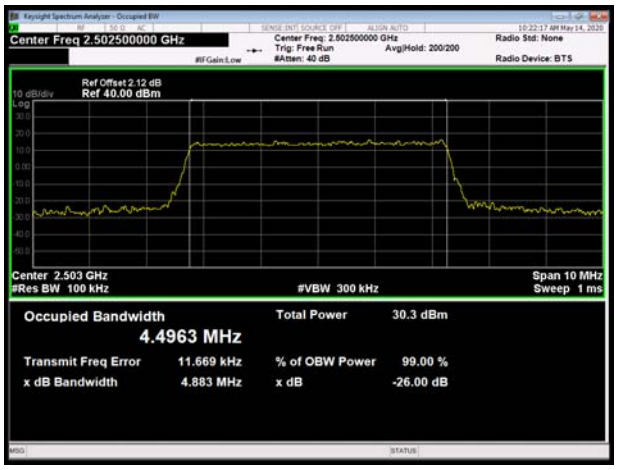


LTE Band 4 16QAM 20MHz CH-High

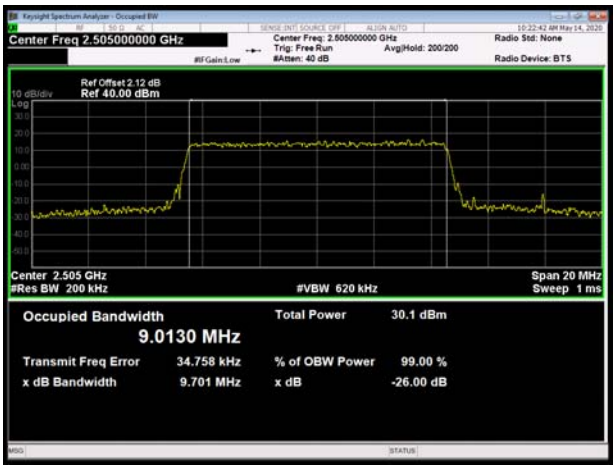


This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

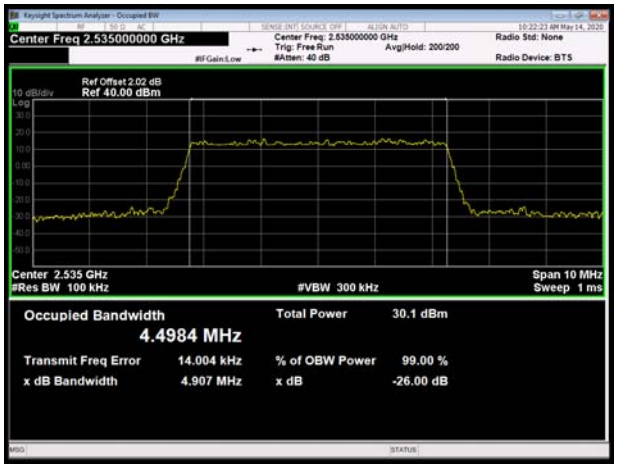
LTE Band 7 QPSK 5MHz CH-Low



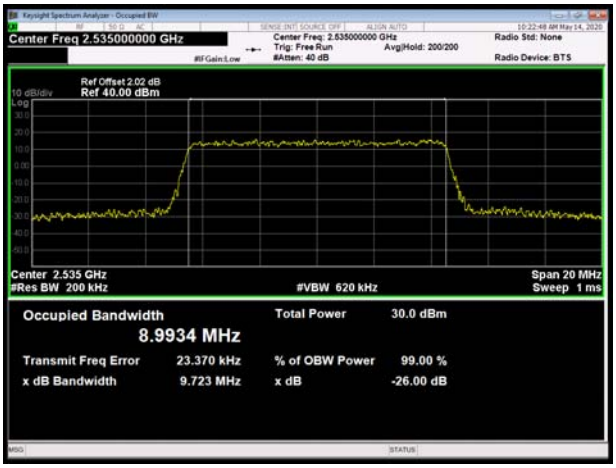
LTE Band 7 QPSK 10MHz CH-Low



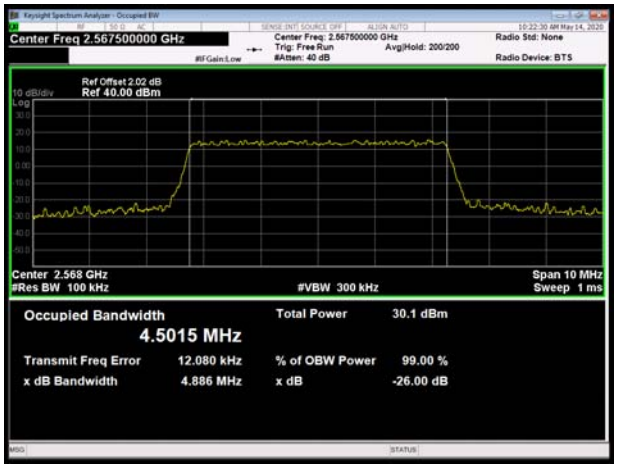
LTE Band 7 QPSK 5MHz CH-Middle



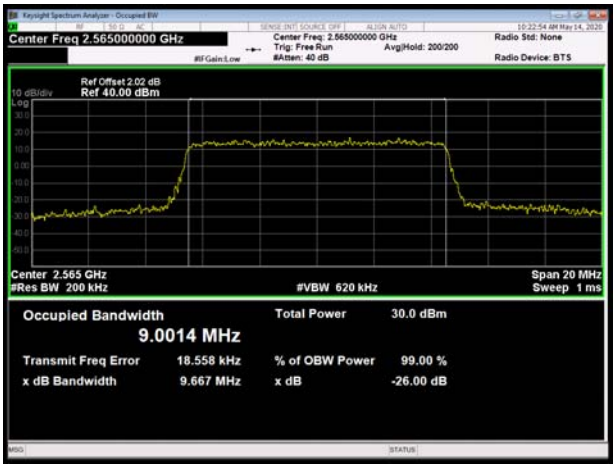
LTE Band 7 QPSK 10MHz CH-Middle



LTE Band 7 QPSK 5MHz CH-High

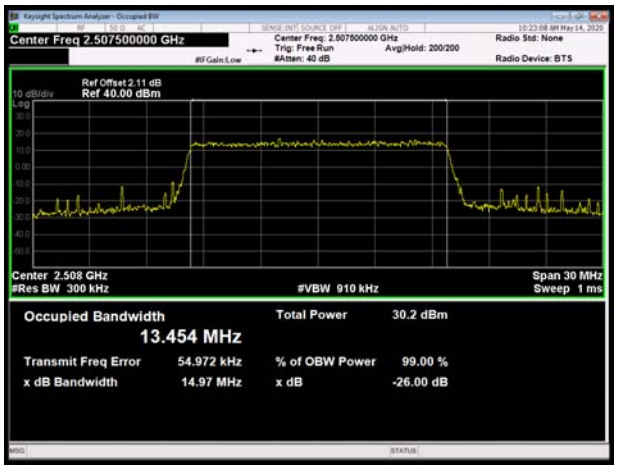


LTE Band 7 QPSK 10MHz CH-High



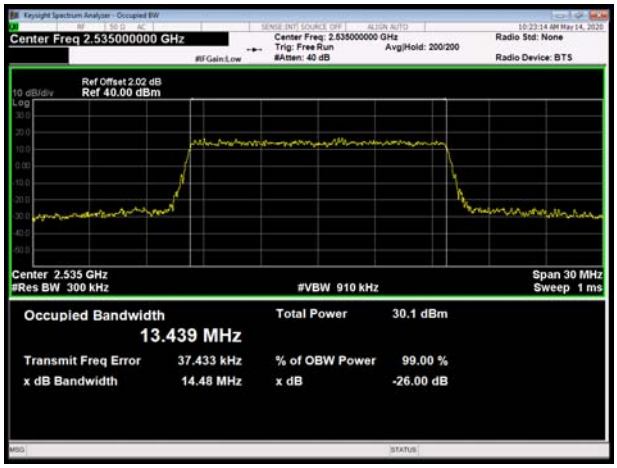
This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 7 QPSK 15MHz CH-Low

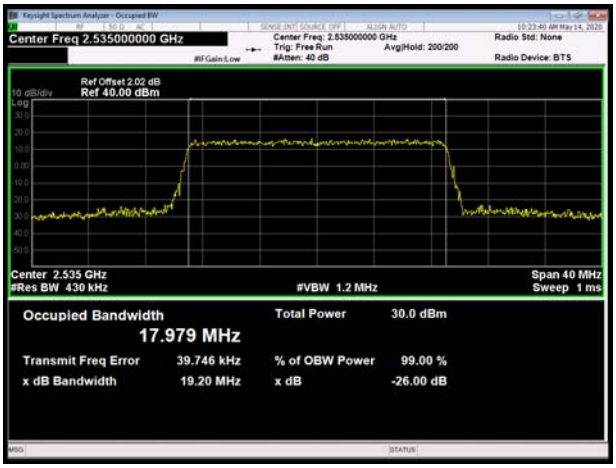


LTE Band 7 QPSK 20MHz CH-Low

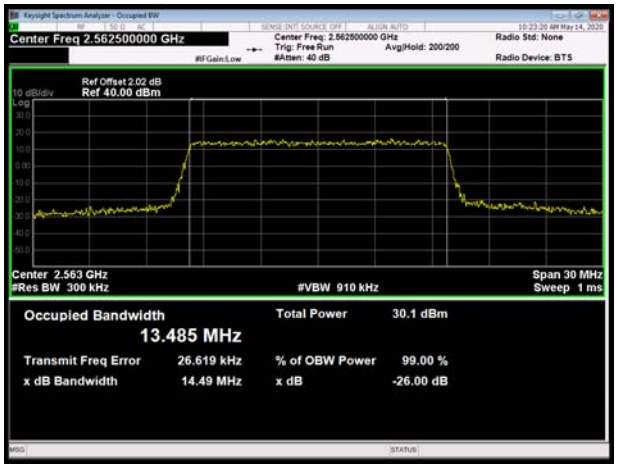
LTE Band 7 QPSK 15MHz CH-Middle



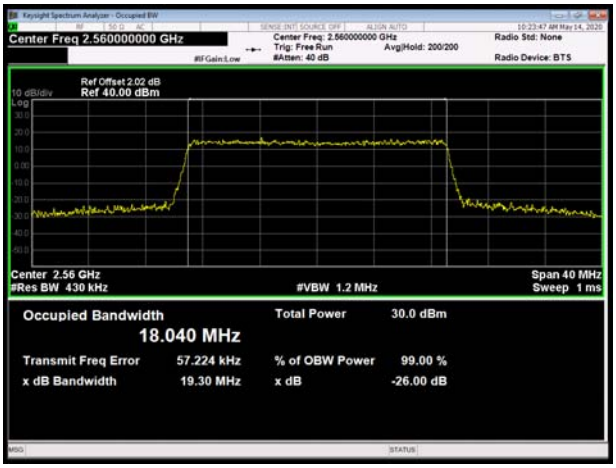
LTE Band 7 QPSK 20MHz CH-Middle



LTE Band 7 QPSK 15MHz CH-High

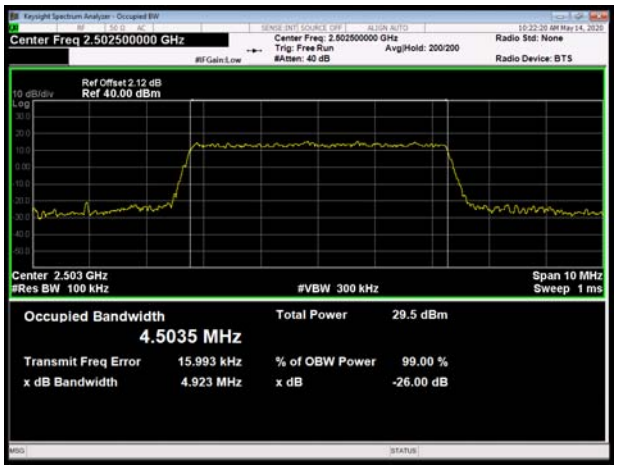


LTE Band 7 QPSK 20MHz CH-High

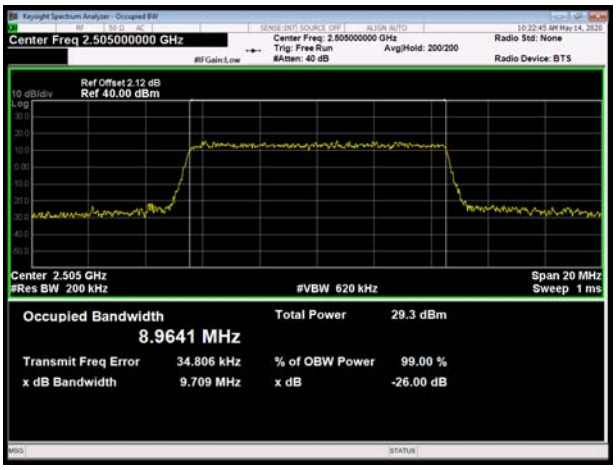


This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

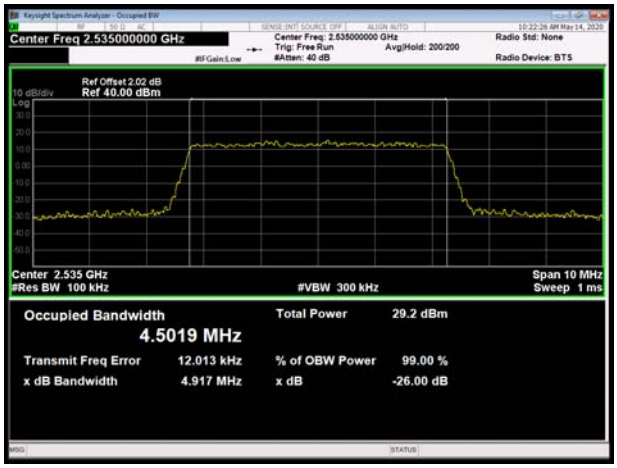
LTE Band 7 16QAM 5MHz CH-Low



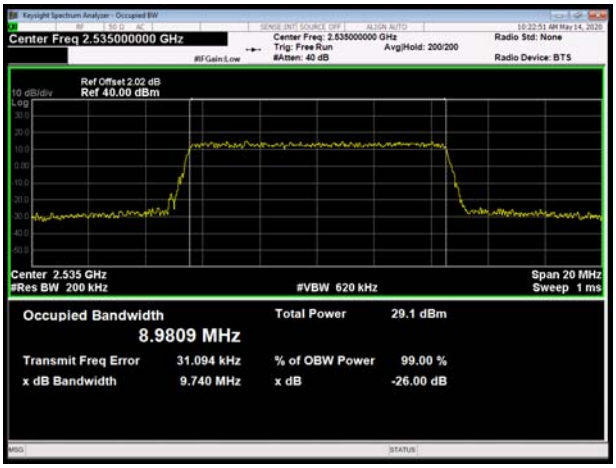
LTE Band 7 16QAM 10MHz CH-Low



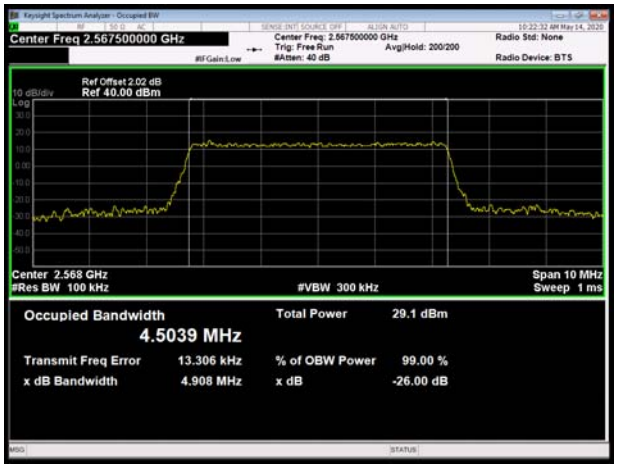
LTE Band 7 16QAM 5MHz CH-Middle



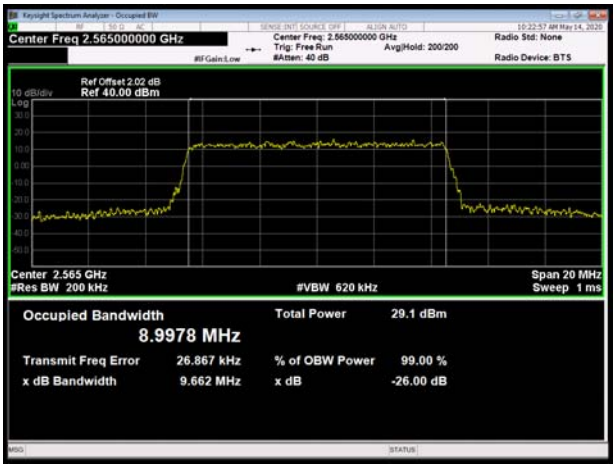
LTE Band 7 16QAM 10MHz CH-Middle



LTE Band 7 16QAM 5MHz CH-High

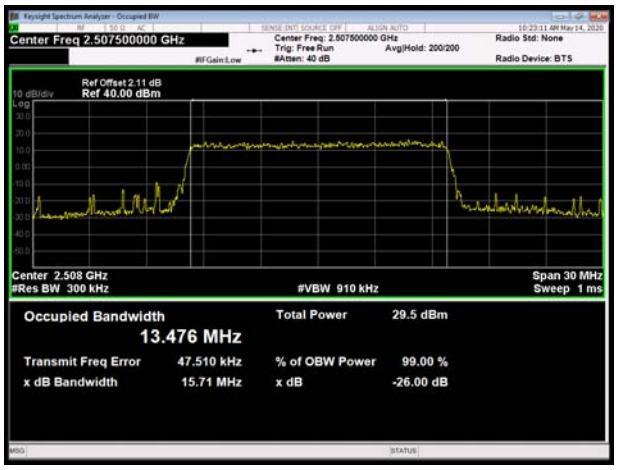


LTE Band 7 16QAM 10MHz CH-High

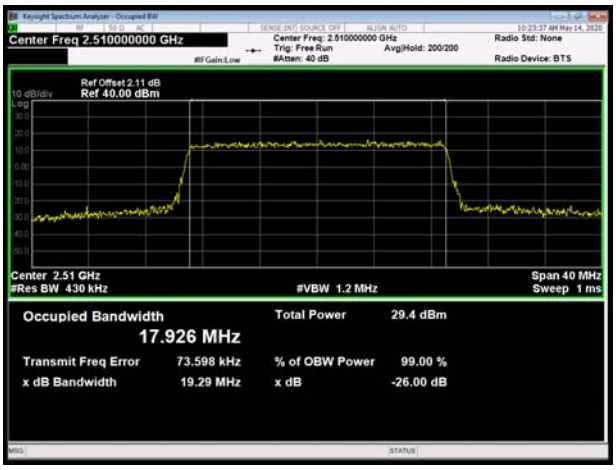


This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

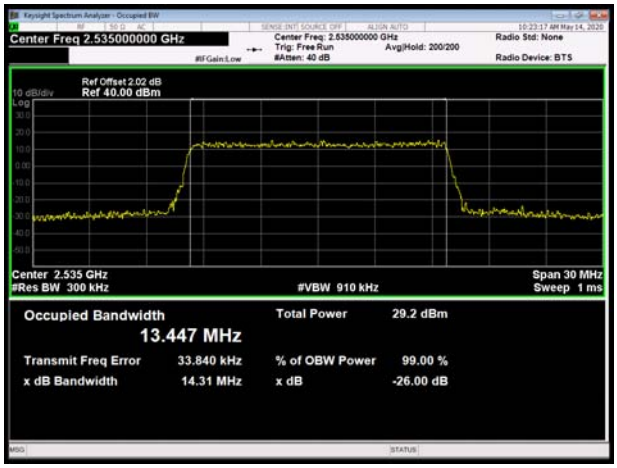
LTE Band 7 16QAM 15MHz CH-Low



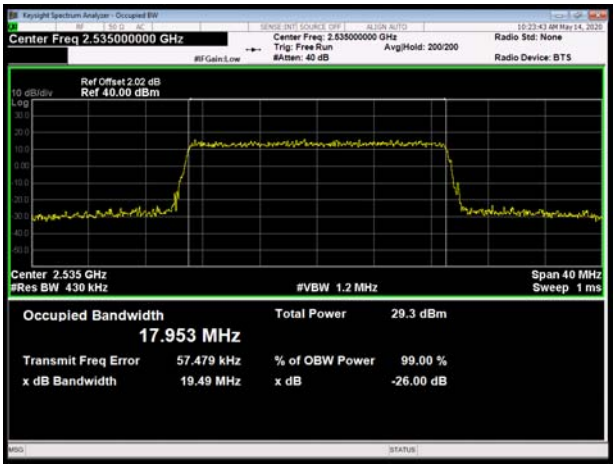
LTE Band 7 16QAM 20MHz CH-Low



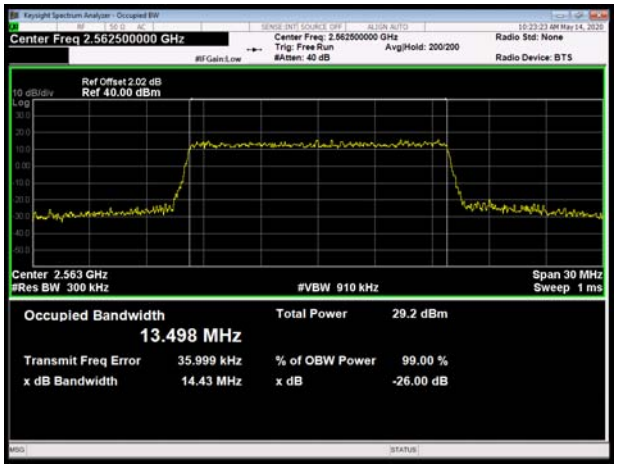
LTE Band 7 16QAM 15MHz CH-Middle



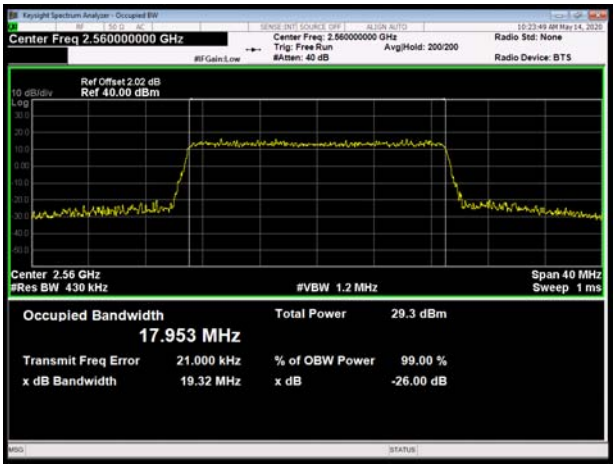
LTE Band 7 16QAM 20MHz CH-Middle



LTE Band 7 16QAM 15MHz CH-High

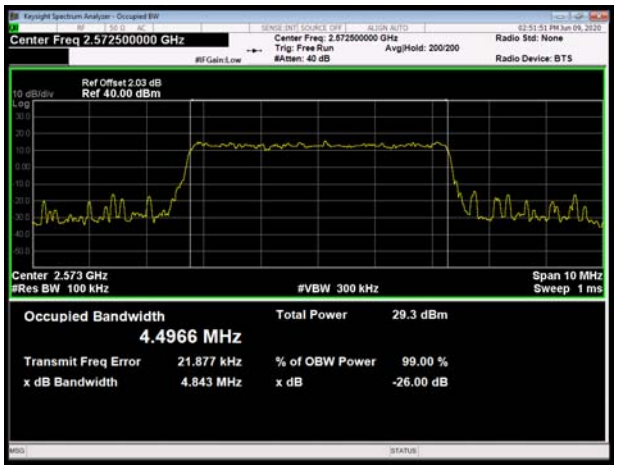


LTE Band 7 16QAM 20MHz CH-High

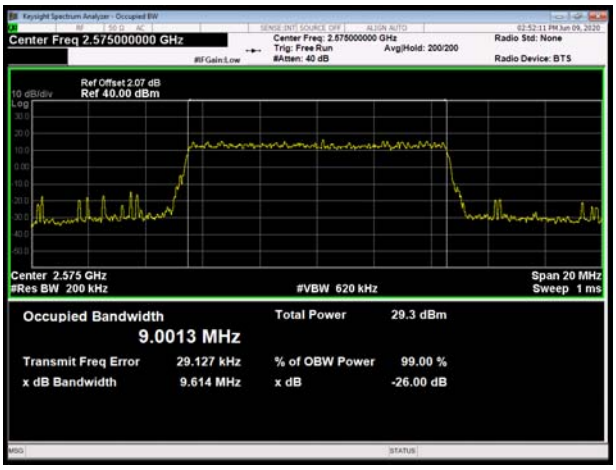


This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

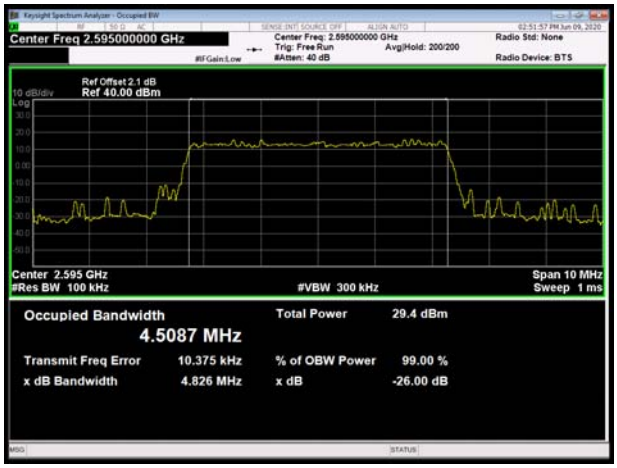
LTE Band 38 QPSK 5MHz CH-Low



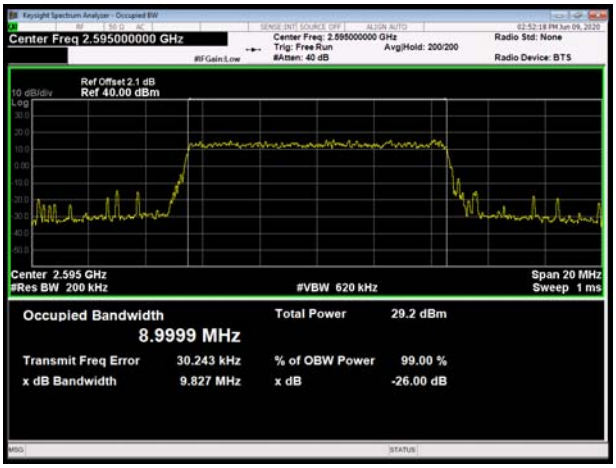
LTE Band 38 QPSK 10MHz CH-Low



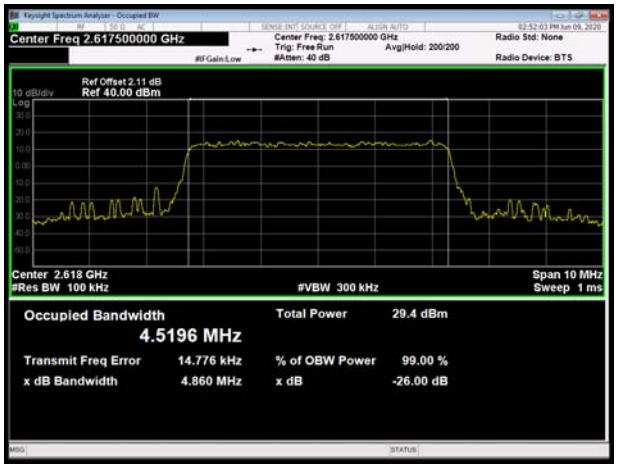
LTE Band 38 QPSK 5MHz CH-Middle



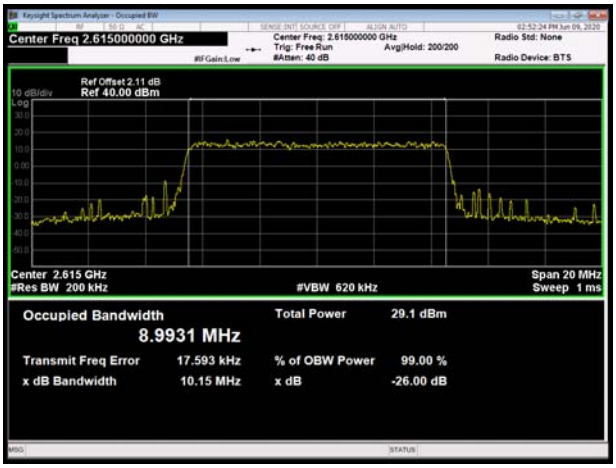
LTE Band 38 QPSK 10MHz CH-Middle



LTE Band 38 QPSK 5MHz CH-High

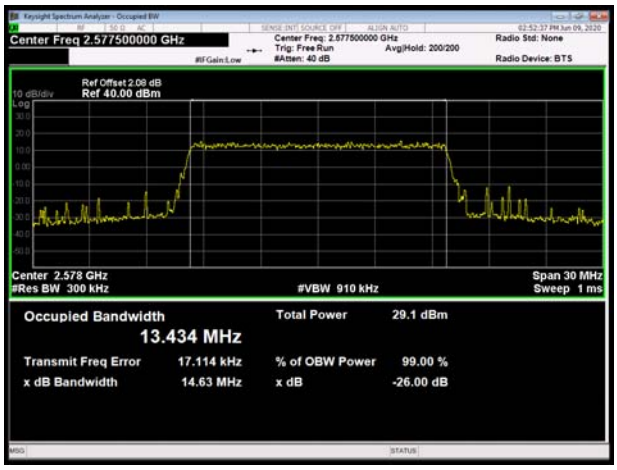


LTE Band 38 QPSK 10MHz CH-High

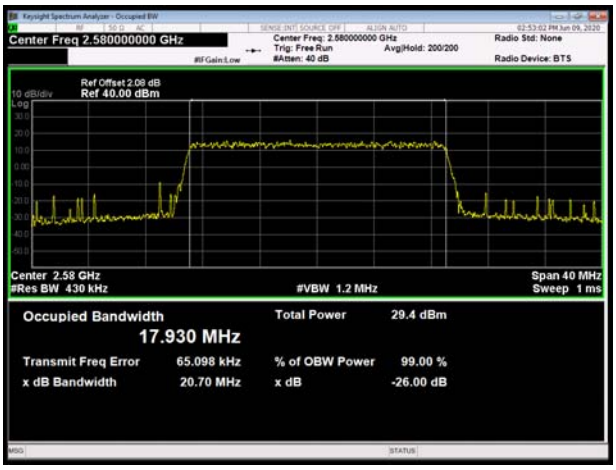


This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

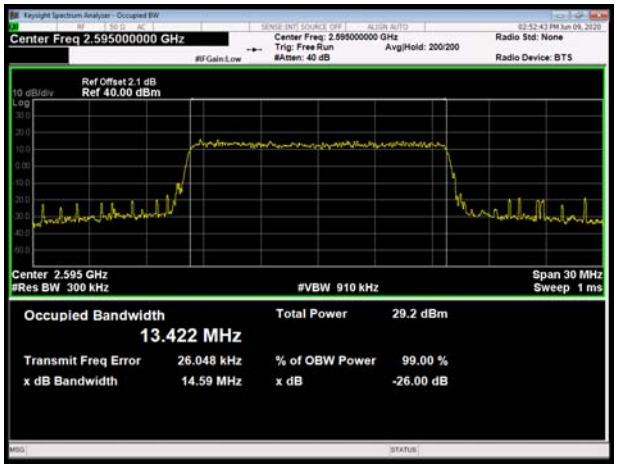
LTE Band 38 QPSK 15MHz CH-Low



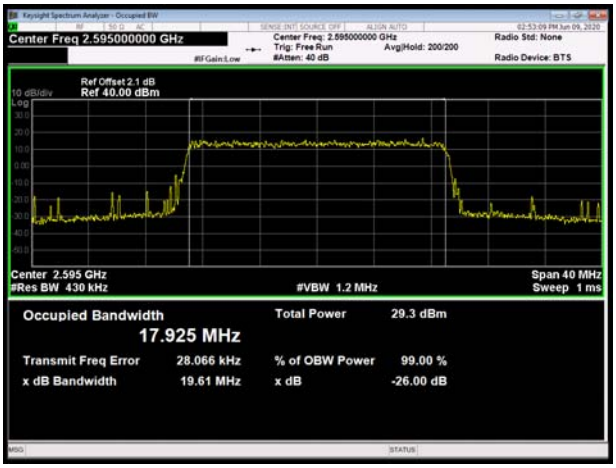
LTE Band 38 QPSK 20MHz CH-Low



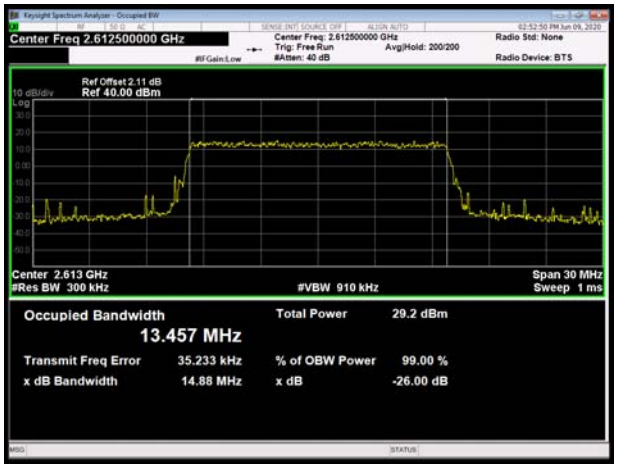
LTE Band 38 QPSK 15MHz CH-Middle



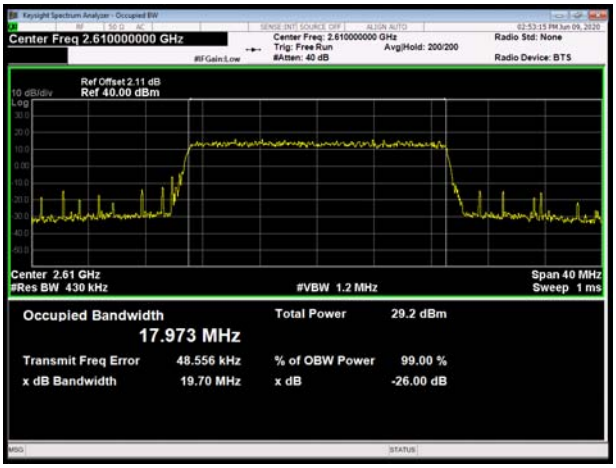
LTE Band 38 QPSK 20MHz CH-Middle



LTE Band 38 QPSK 15MHz CH-High

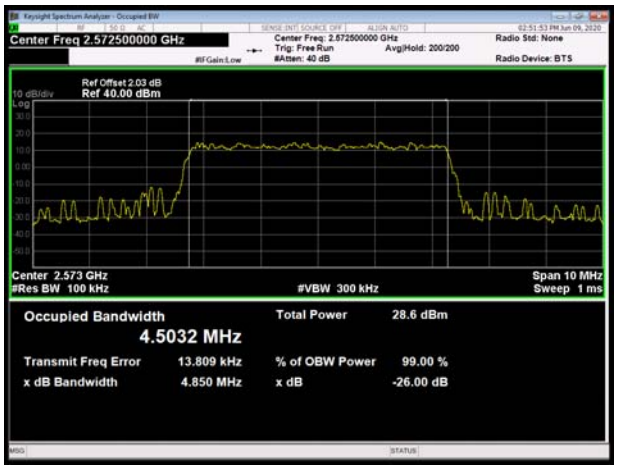


LTE Band 38 QPSK 20MHz CH-High

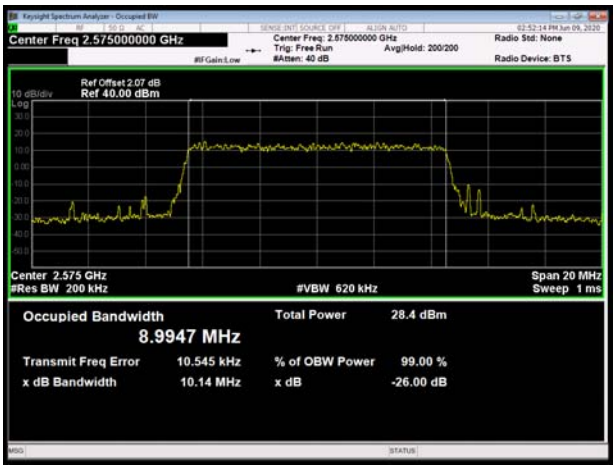


This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

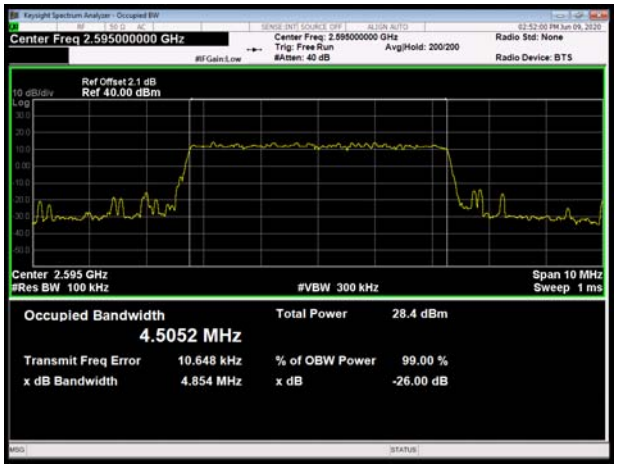
LTE Band 38 16QAM 5MHz CH-Low



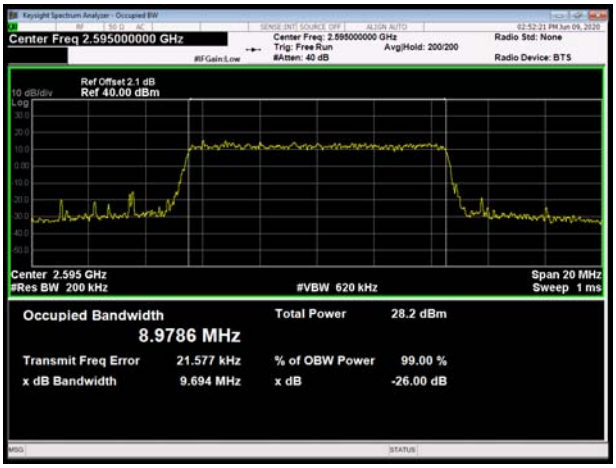
LTE Band 38 16QAM 10MHz CH-Low



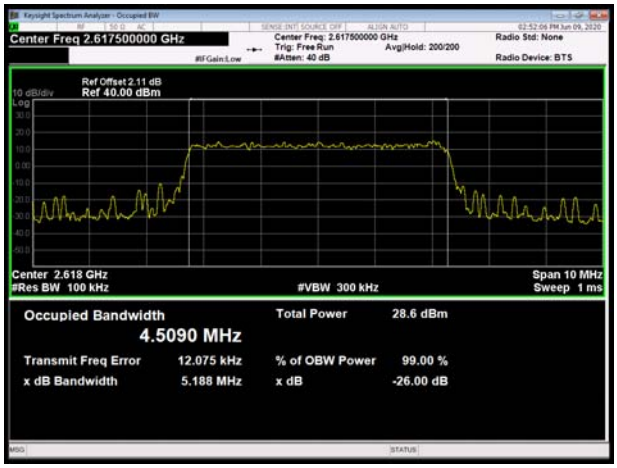
LTE Band 38 16QAM 5MHz CH-Middle



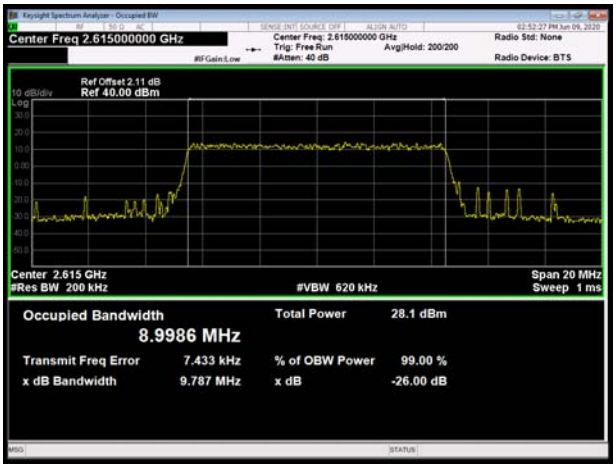
LTE Band 38 16QAM 10MHz CH-Middle



LTE Band 38 16QAM 5MHz CH-High

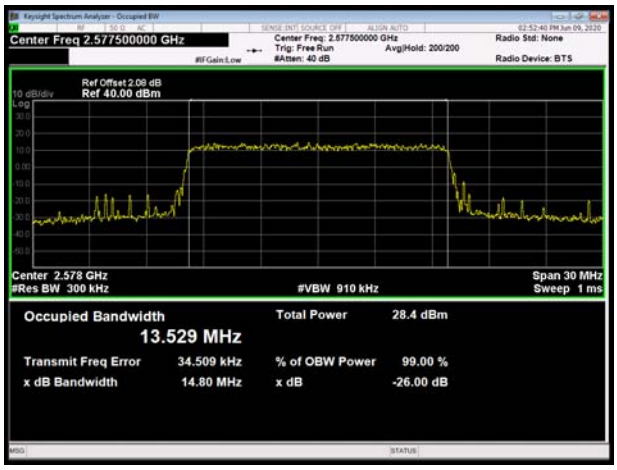


LTE Band 38 16QAM 10MHz CH-High

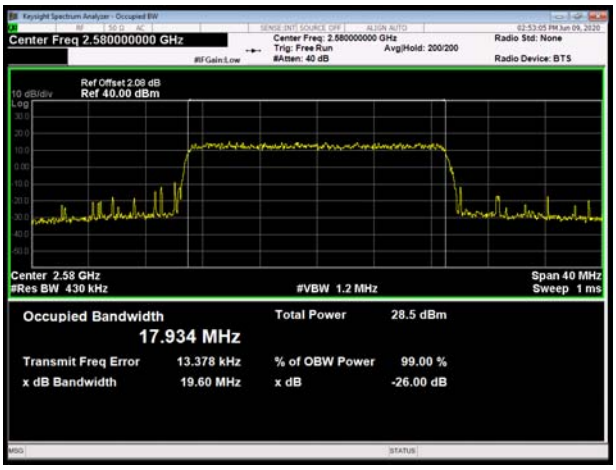


This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

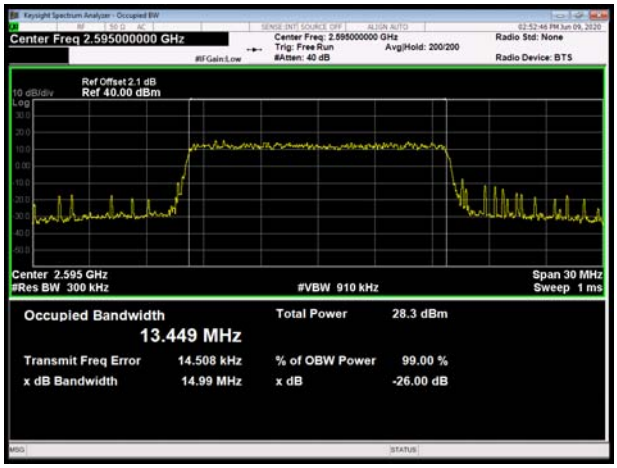
LTE Band 38 16QAM 15MHz CH-Low



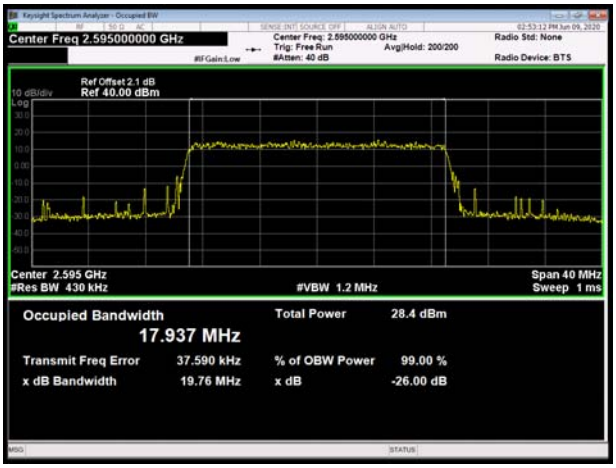
LTE Band 38 16QAM 20MHz CH-Low



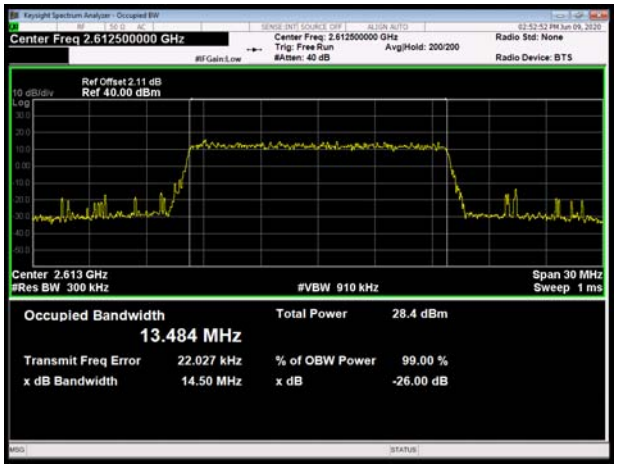
LTE Band 38 16QAM 15MHz CH-Middle



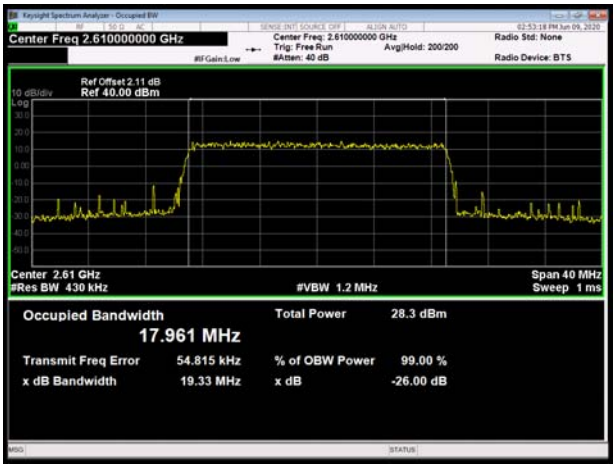
LTE Band 38 16QAM 20MHz CH-Middle



LTE Band 38 16QAM 15MHz CH-High



LTE Band 38 16QAM 20MHz CH-High



This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

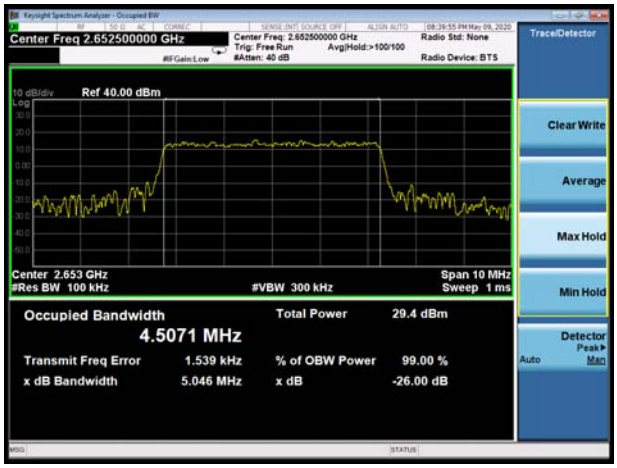
LTE Band 41 QPSK 5MHz CH-Low

LTE Band 41 QPSK 10MHz CH-Low

LTE Band 41 QPSK 5MHz CH-Middle

LTE Band 41 QPSK 10MHz CH-Middle

LTE Band 41 QPSK 5MHz CH-High



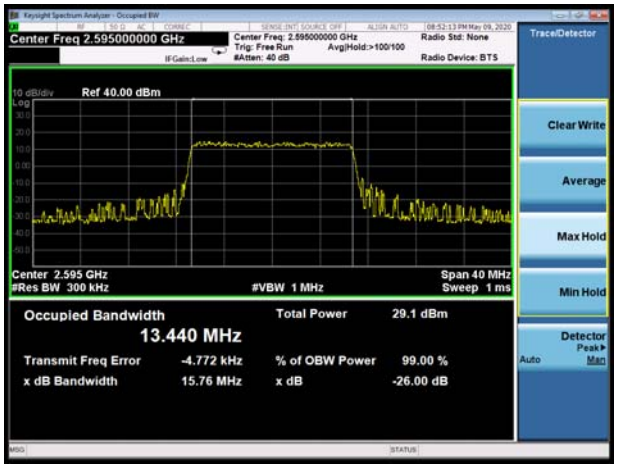
LTE Band 41 QPSK 10MHz CH-High

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 41 QPSK 15MHz CH-Low

LTE Band 41 QPSK 20MHz CH-Low

LTE Band 41 QPSK 15MHz CH-Middle



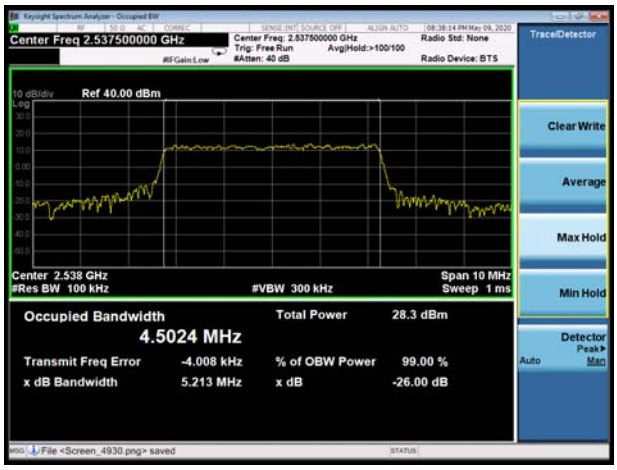
LTE Band 41 QPSK 20MHz CH-Middle

LTE Band 41 QPSK 15MHz CH-High

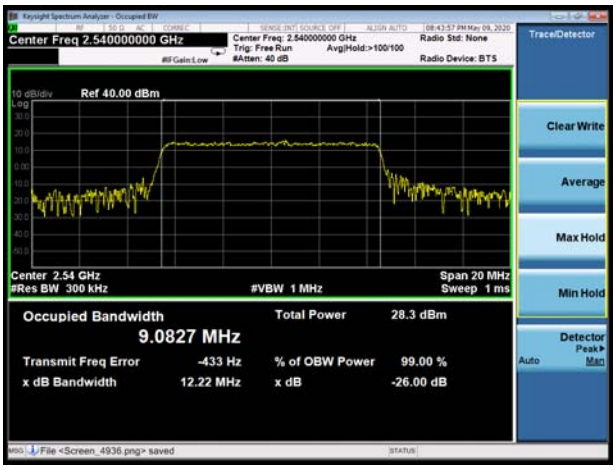
LTE Band 41 QPSK 20MHz CH-High

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

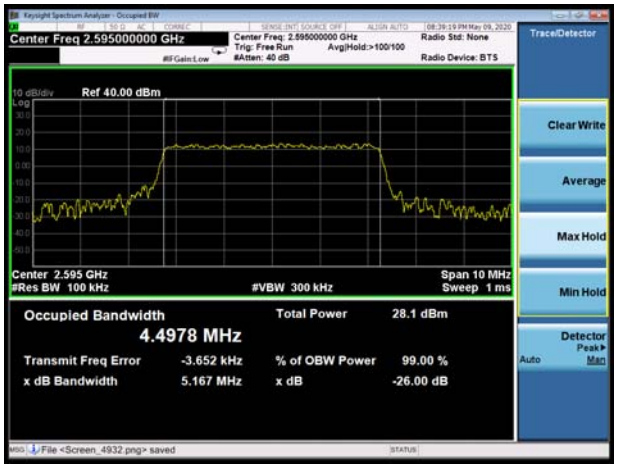
LTE Band 41 16QAM 5MHz CH-Low



LTE Band 41 16QAM 10MHz CH-Low



LTE Band 41 16QAM 5MHz CH-Middle



LTE Band 41 16QAM 10MHz CH-Middle

LTE Band 41 16QAM 5MHz CH-High

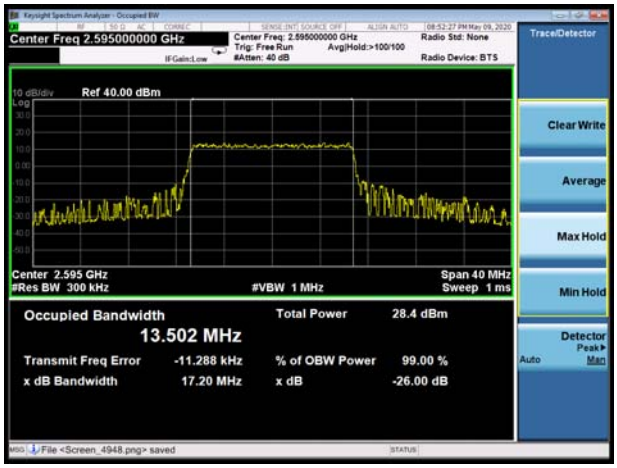
LTE Band 41 16QAM 10MHz CH-High

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 41 16QAM 15MHz CH-Low

LTE Band 41 16QAM 20MHz CH-Low

LTE Band 41 16QAM 15MHz CH-Middle



LTE Band 41 16QAM 20MHz CH-Middle

LTE Band 41 16QAM 15MHz CH-High

LTE Band 41 16QAM 20MHz CH-High

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

5.3 Band Edge Compliance

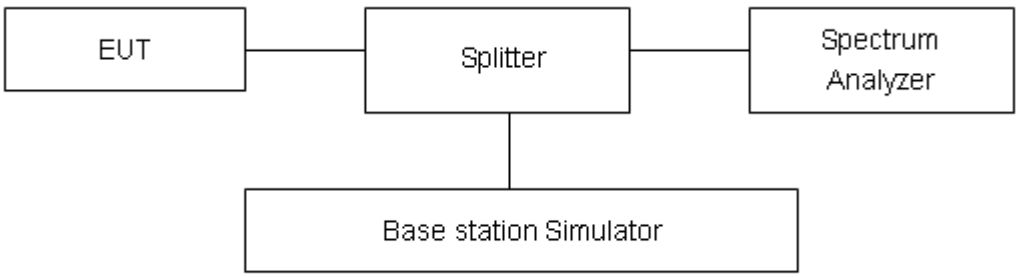
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured.
The testing follows KDB 971168 D01 v03r01 Section 6.0
The EUT was connected to spectrum analyzer and system simulator via a power divider.
The band edges of low and high channels for the highest RF powers were measured.
For LTE Band 41 Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
RBW is set to 51 kHz, VBW is set to 160 kHz for WCDMA Band IV.
RBW is set to 15 kHz, VBW is set to 43 kHz for LTE Band 4 (1.4MHz).
RBW is set to 30 kHz, VBW is set to 91 kHz for LTE Band 4 (3MHz).
RBW is set to 51 kHz, VBW is set to 150 kHz for LTE Band 4 (5MHz).
RBW is set to 50 kHz, VBW is set to 200 kHz for LTE Band 7/38/41 (5MHz)
RBW is set to 100 kHz, VBW is set to 300kHz for LTE Band 4/7/38/41 (10MHz).
RBW is set to 150 kHz, VBW is set to 470 kHz for LTE Band 4 (15MHz).
RBW is set to 200 kHz, VBW is set to 620 kHz for LTE Band 4 (20MHz)
RBW is set to 200 kHz, VBW is set to1MHz for LTE Band 7/38/41 (15MHz/20MHz).
on spectrum analyzer.
Set spectrum analyzer with RMS detector.
The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
Checked that all the results comply with the emission limit line.

Test Setup



Limits

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

Rule Part 27.53(h) specifies that " for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 $\log_{10}$ (P) dB"

Rule Part 27.53(m) (4)/ specifies that "for BRS and EBS stations. For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(4) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Example:

The limit line is derived from 43 + 10log (P) dB below the transmitter power P(Watts)

= P(W)- [43 + 10log(P)] (dB)

= [30 + 10log (P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor *k* = 1.96, *U*=0.684dB.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

Test Result

All the test traces in the plots shows the test results clearly.

WCDMA Band IV CH-Low	WCDMA Band IV CH-High

LTE Band 4 QPSK 1.4MHz CH-Low, 1 RB	LTE Band 4 QPSK 1.4MHz CH-High, 1 RB
LTE Band 4 QPSK 1.4MHz CH-Low, 100%RB	LTE Band 4 QPSK 1.4MHz CH-High, 100%RB

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

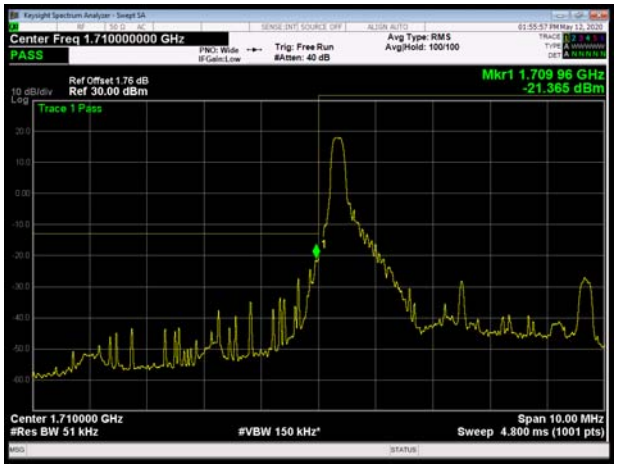
LTE Band 4 QPSK 3MHz CH-Low, 1 RB

LTE Band 4 QPSK 3MHz CH-High, 1 RB

LTE Band 4 QPSK 3MHz CH-Low, 100%RB

LTE Band 4 QPSK 3MHz CH-High, 100%RB

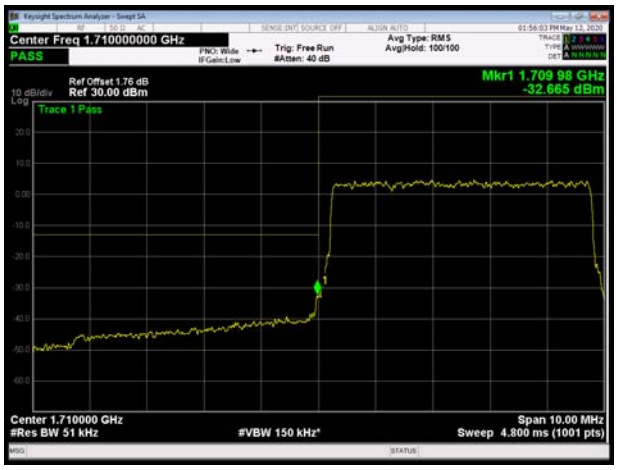
LTE Band 4 QPSK 5MHz CH-Low, 1 RB



LTE Band 4 QPSK 5MHz CH-High, 1 RB

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 4 QPSK 5MHz CH-Low, 100%RB



LTE Band 4 QPSK 5MHz CH-High, 100%RB

LTE Band 4 QPSK 10MHz CH-Low, 1 RB

LTE Band 4 QPSK 10MHz CH-High, 1 RB

LTE Band 4 QPSK 10MHz CH-Low, 100%RB

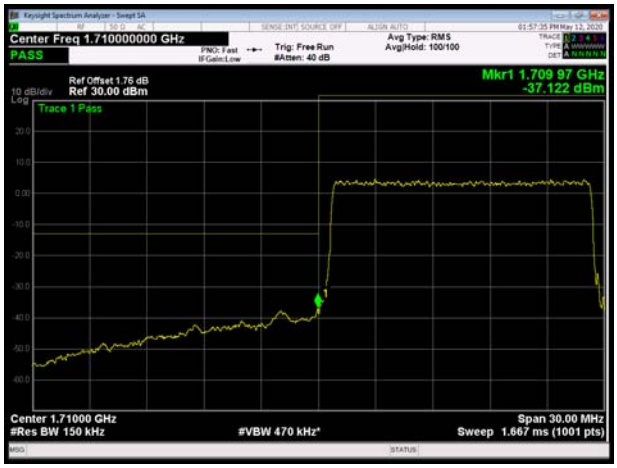
LTE Band 4 QPSK 10MHz CH-High, 100%RB

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 4 QPSK 15MHz CH-Low, 1 RB

LTE Band 4 QPSK 15MHz CH-High, 1 RB

LTE Band 4 QPSK 15MHz CH-Low, 100%RB



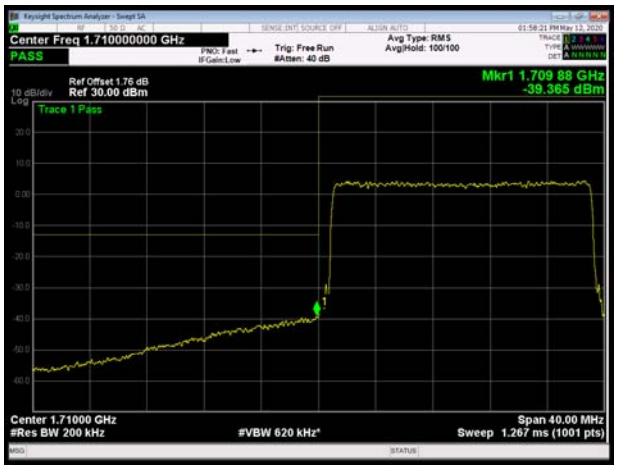
LTE Band 4 QPSK 15MHz CH-High, 100%RB

LTE Band 4 QPSK 20MHz CH-Low, 1 RB

LTE Band 4 QPSK 20MHz CH-High, 1 RB

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 4 QPSK 20MHz CH-Low, 100%RB



LTE Band 4 QPSK 20MHz CH-High, 100%RB

LTE Band 4 16QAM 1.4MHz CH-Low, 1 RB

LTE Band 4 16QAM 1.4MHz CH-High, 1 RB

LTE Band 4 16QAM 1.4MHz CH-Low, 100%RB

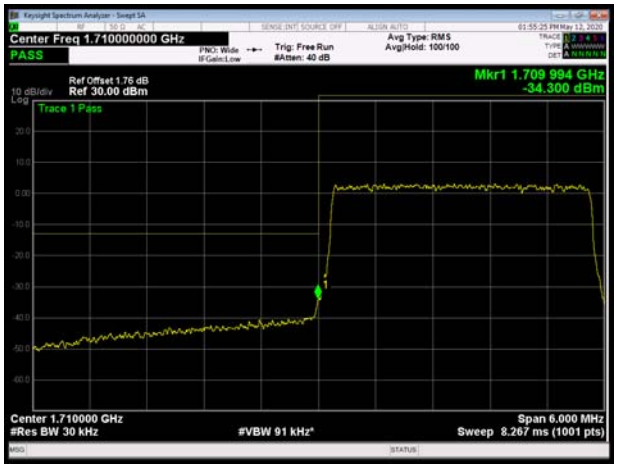
LTE Band 4 16QAM 1.4MHz CH-High, 100%RB

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 4 16QAM 3MHz CH-Low, 1 RB

LTE Band 4 16QAM 3MHz CH-High, 1 RB

LTE Band 4 16QAM 3MHz CH-Low, 100%RB



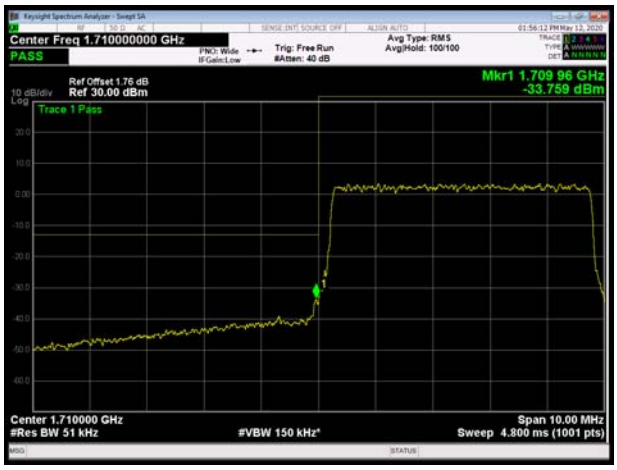
LTE Band 4 16QAM 3MHz CH-High, 100%RB

LTE Band 4 16QAM 5MHz CH-Low, 1 RB

LTE Band 4 16QAM 5MHz CH-High, 1 RB

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 4 16QAM 5MHz CH-Low, 100%RB

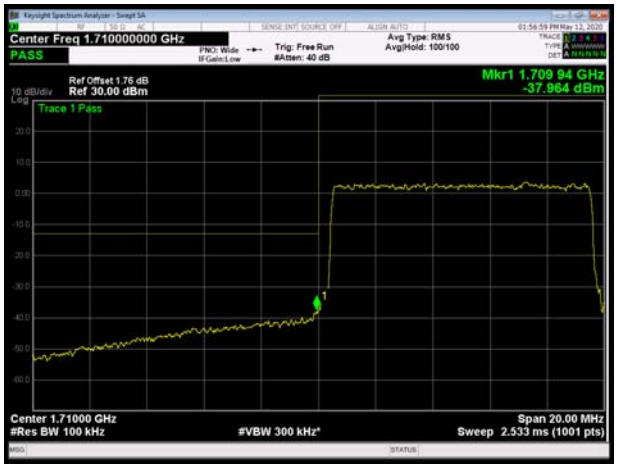


LTE Band 4 16QAM 5MHz CH-High, 100%RB

LTE Band 4 16QAM 10MHz CH-Low, 1 RB

LTE Band 4 16QAM 10MHz CH-High, 1 RB

LTE Band 4 16QAM 10MHz CH-Low, 100%RB

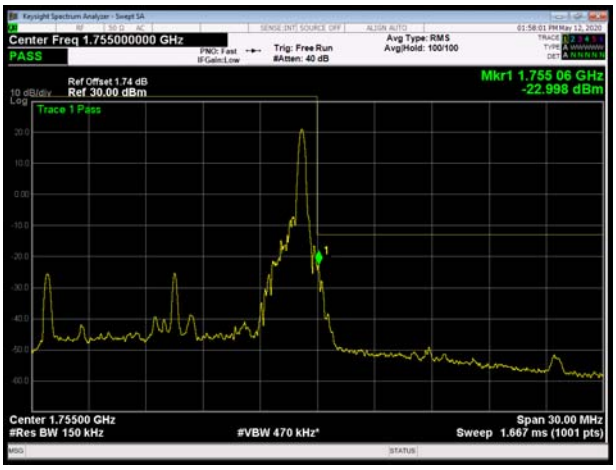


LTE Band 4 16QAM 10MHz CH-High, 100%RB

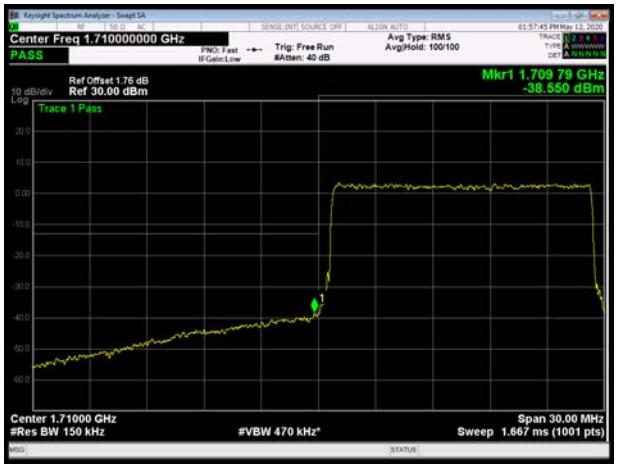
This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 4 16QAM 15MHz CH-Low, 1 RB

LTE Band 4 16QAM 15MHz CH-High, 1 RB



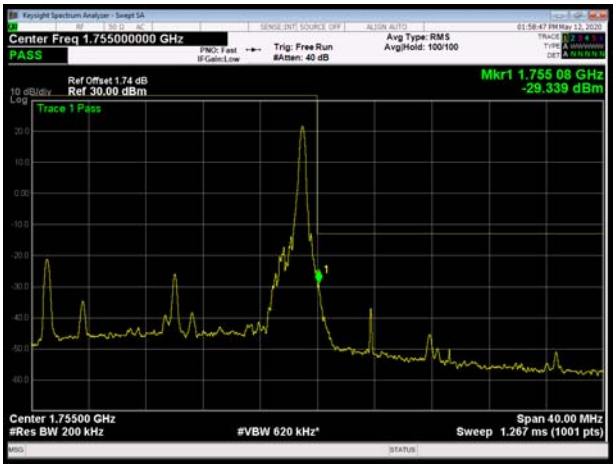
LTE Band 4 16QAM 15MHz CH-Low, 100%RB



LTE Band 4 16QAM 15MHz CH-High, 100%RB

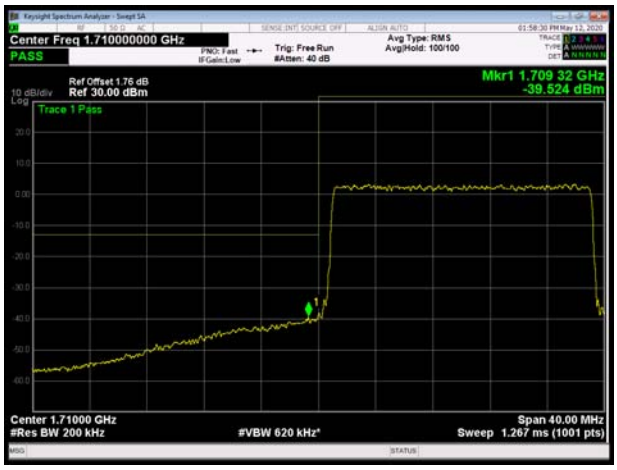
LTE Band 4 16QAM 20MHz CH-Low, 1 RB

LTE Band 4 16QAM 20MHz CH-High, 1 RB



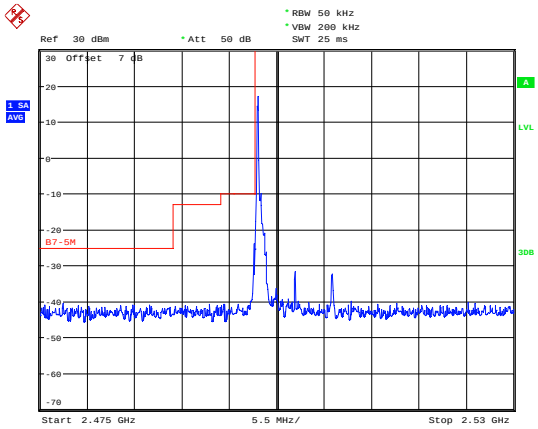
This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 4 16QAM 20MHz CH-Low, 100%RB



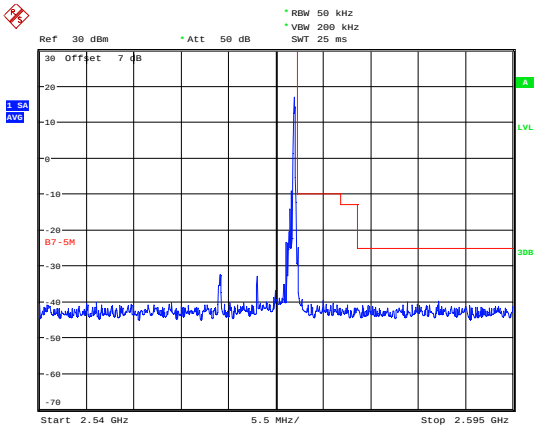
LTE Band 4 16QAM 20MHz CH-High, 100%RB

LTE Band 7 QPSK 5MHz CH-Low, 1 RB



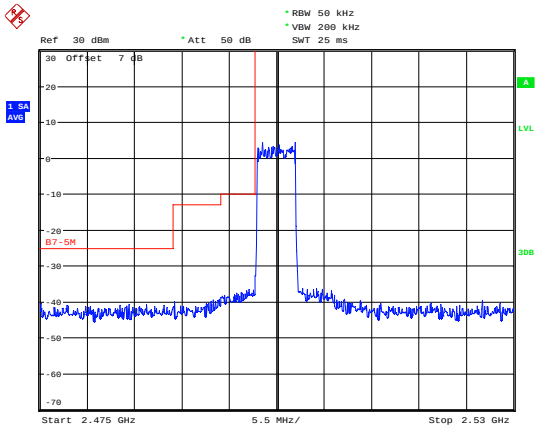
Date: 9.MAY.2020 19:54:16

LTE Band 7 QPSK 5MHz CH-High, 1 RB



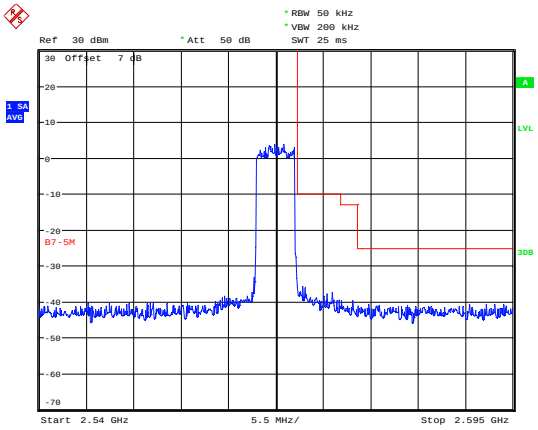
Date: 9.MAY.2020 19:56:50

LTE Band 7 QPSK 5MHz CH-Low, 100%RB



Date: 9.MAY.2020 19:55:09

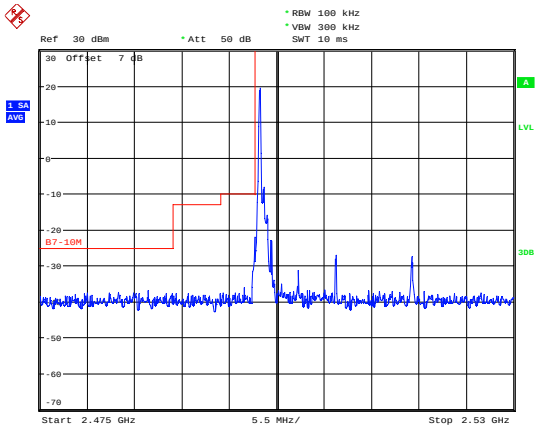
LTE Band 7 QPSK 5MHz CH-High, 100%RB



Date: 9.MAY.2020 19:57:01

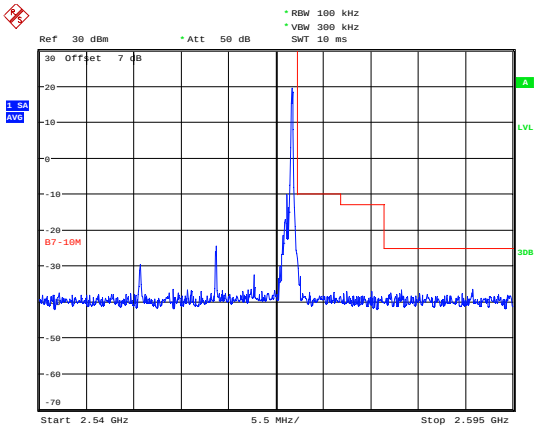
This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 7 QPSK 10MHz CH-Low, 1 RB



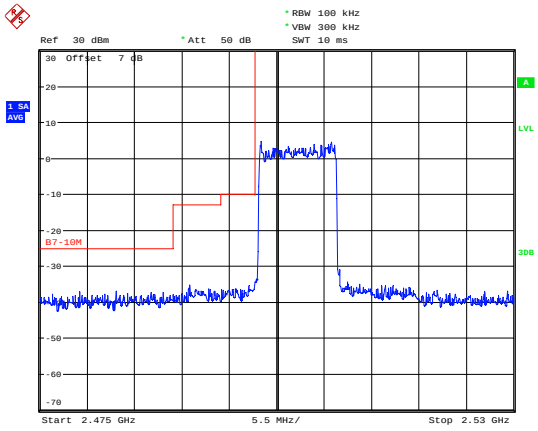
Date: 9.MAY.2020 19:58:58

LTE Band 7 QPSK 10MHz CH-High, 1 RB



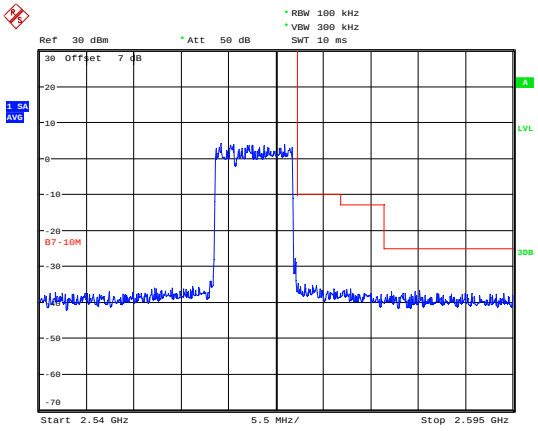
Date: 9.MAY.2020 20:01:06

LTE Band 7 QPSK 10MHz CH-Low, 100%RB



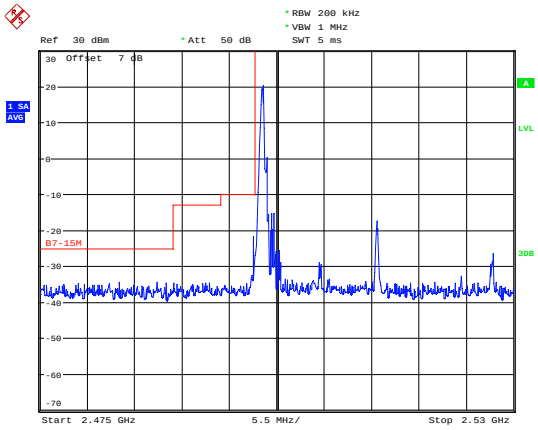
Date: 9.MAY.2020 19:59:10

LTE Band 7 QPSK 10MHz CH-High, 100%RB



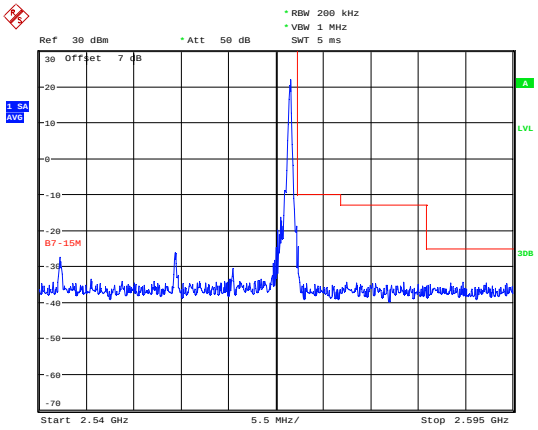
Date: 9.MAY.2020 20:01:19

LTE Band 7 QPSK 15MHz CH-Low, 1 RB



Date: 9.MAY.2020 20:03:10

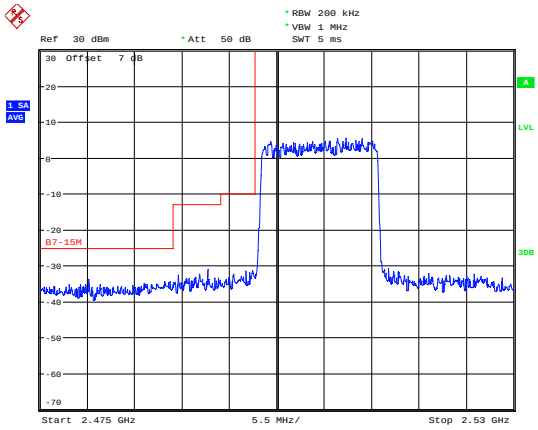
LTE Band 7 QPSK 15MHz CH-High, 1 RB



Date: 9.MAY.2020 20:05:02

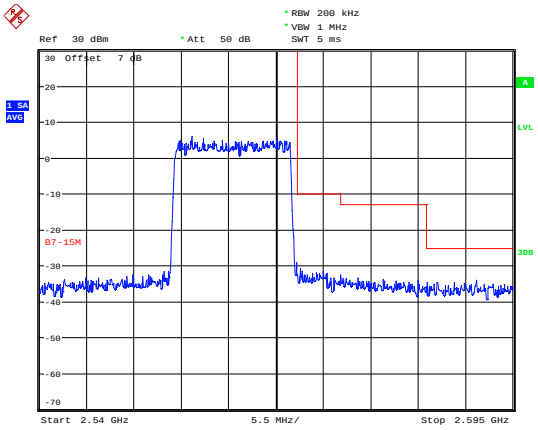
This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 7 QPSK 15MHz CH-Low, 100%RB



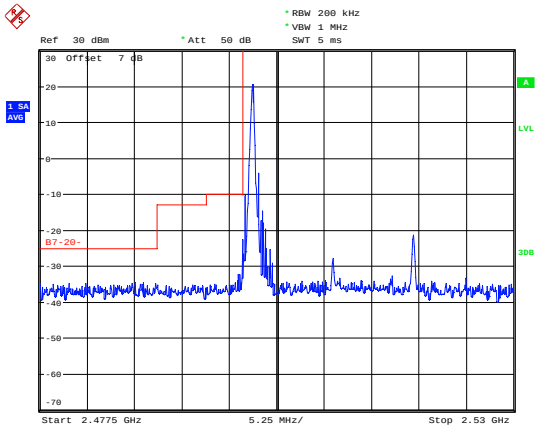
Date: 9.MAY.2020 20:03:22

LTE Band 7 QPSK 15MHz CH-High, 100%RB



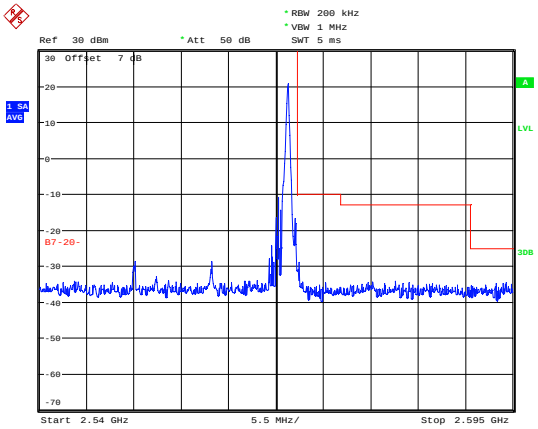
Date: 9.MAY.2020 20:05:15

LTE Band 7 QPSK 20MHz CH-Low, 1 RB



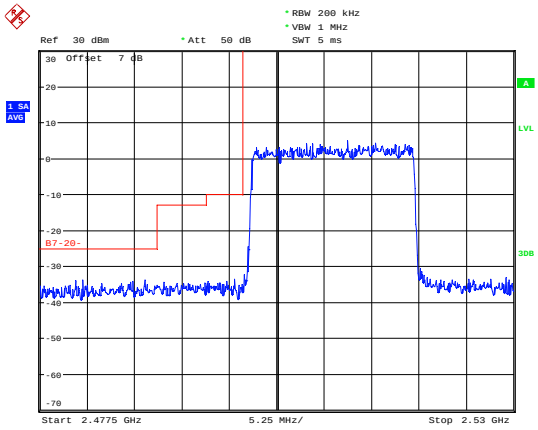
Date: 9.MAY.2020 20:06:58

LTE Band 7 QPSK 20MHz CH-High, 1 RB



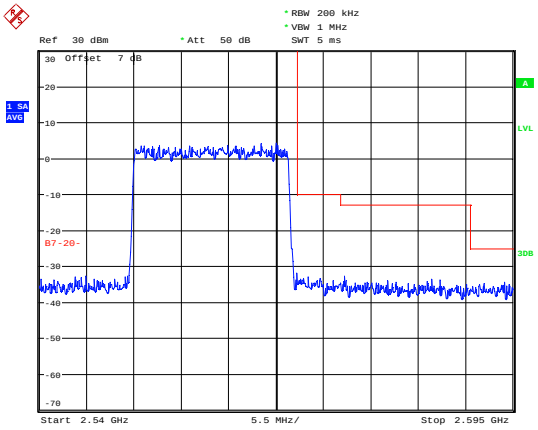
Date: 9.MAY.2020 20:08:24

LTE Band 7 QPSK 20MHz CH-Low, 100%RB



Date: 9.MAY.2020 20:07:10

LTE Band 7 QPSK 20MHz CH-High, 100%RB



Date: 9.MAY.2020 20:08:34

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.