RF TEST REPORT

Applicant	Shanghai Smawave Technology Co. ,Ltd
FCC ID	2AU8HMGM5607A
Product	LTE Module
Brand	Smawave
Model	MGM5607A
Report No.	R2001A0008-R2V1
Issue Date	March 4, 2020

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2018)/ FCC CFR 47 Part 25 (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*

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Summary of measurement results

No.	Test Case	Clause in FCC rules	Verdict
1	RF power output and Effective Radiated Power	25.149 (4) (iii)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	25.149 (4) (v)	PASS
4	Peak-to-Average Power Ratio	25.144 (7) (ii)	PASS
5	Frequency Stability	2.1055	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 / 25.202 (11) (fi)	PASS
7	Radiates Spurious Emission	2.1053	PASS
Date of Testing: January 6, 2020 ~ February 26, 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.: R2001A0008-R2V1) supersedes and replaces the previously issued report (Report No.: R2001A0008-R2). Please discard or destroy the previously issued report and dispose of it accordingly.

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
City:	Shanghai
Post code:	201201
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E-mail:	xukai@ta-shanghai.com

1. General Description of Equipment under Test

1.3. Applicant and Manufacturer Information

Applicant	Shanghai Smawave Technology Co. ,Ltd
Applicant address	3/F, Building 8, 1001 North Qinzhou Road，Xuhui District, Shanghai, China
Manufacturer	Shanghai Smawave Technology Co. ,Ltd
Manufacturer address	3/F, Building 8, 1001 North Qinzhou Road，Xuhui District, Shanghai, China

1.4. General information

EUT Description			
Model	MGM5607A		
IMEI	123456798213142		
Hardware Version	V1.0		
Software Version	MG56_V1.0.0		
Power Supply	External power supply		
Antenna Type	Internal Antenna		
Antenna Gain	3.18dBi		
Test Mode(s)	LTE Band 53;		
Test Modulation	(LTE)QPSK, 16QAM, 64QAM;		
LTE Category	6		
Maximum E.I.R.P	LTE Band 53:	25.29dBm	
Rated Power Supply Voltage	3.3V		
Extreme Voltage	Minimum: 3V	Maximum: 3.6V	
Extreme Temperature	Lowest: -40°C	Highest: +70°C	
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	LTE Band 53	2483.5 ~ 2495	2483.5 ~ 2495
Note: The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.			

2. Applied Standards

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

Test standards:
FCC CFR 47 Part 25 (2019)

ANSI C63.26 (2015)

Reference standard:

FCC CFR47 Part 2 (2018)

KDB 971168 D01 Power Meas License Digital Systems v03r01

3. Test Configuration

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 (X 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 LTE is set based on the maximum RF Output Power.

Test modes are chosen to be reported as the worst case configuration below for LTE Band 53:

Test items	Bandwidth (MHz)				Modulation			RB			Test Channel		
	1.4	3	5	10	QPSK	16QAM	64QAM	1	50%	100%	L	M	H
RF power output and Effective Isotropic Radiated power	O	O	O	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	O	O	O	O	O	O	O	-	-	O	O	O	O
Power Spectral Density	O	O	O	O	O	O	O	O	-	-	O	O	O
Band Edge Compliance	O	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	O	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	O	O	O	O	O	O	O	-	-	O	-	O	-
Conducted Spurious Emissions	O	O	O	O	O	-	-	O	-	-	O	O	O
Radiates Spurious Emission	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.												

4. Test Case Results

4.3. RF Power Output and Effective Radiated Power

Ambient condition

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

Methods of Measurement

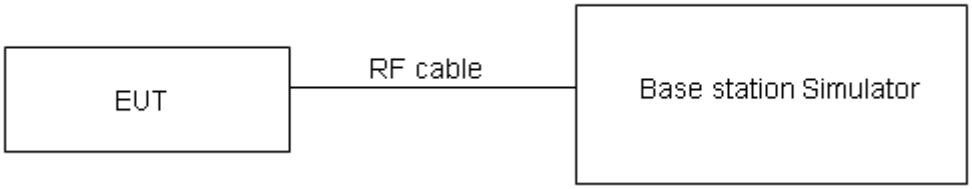
During the process of the testing, The EUT is controlled by the Base Station Simulator to ensure max power transmission and proper modulation.

The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI C63.26 (2015).

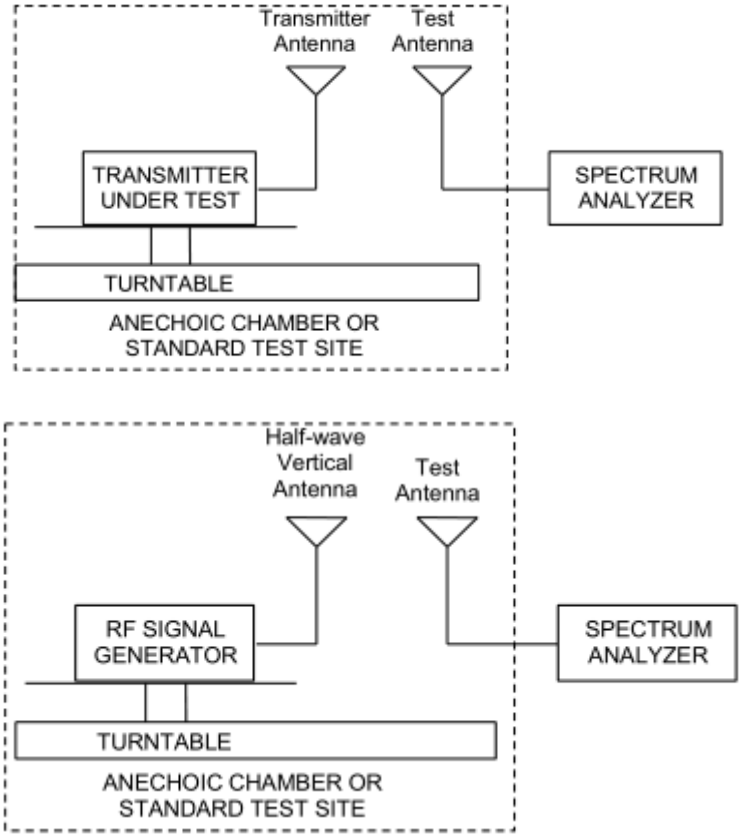
a) Connect the equipment as illustrated. Mount the equipment with the manufacturer specified antenna in a vertical orientation on a manufacturer specified mounting surface located on a non-conducting rotating platform of a RF anechoic chamber (preferred) or a standard radiation site.
b) Key the transmitter, 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.

Test Setup



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



Limits

The maximum transmit power is no more than 1 W with a peak EIRP of no more than 6 dBW;

power Limit	≤ 1 W (30 dBm)
peak EIRP Limit	≤ 6 dBW (36dBm)

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 EIRP.

Test Results

LTE Band53					
Bandwidth	Modulation	Channel	RB Configuration	Conducted Power(dBm)	EIRP(dBm)
1.4M	QPSK	60147	1RB#0	21.53	24.71
1.4M	QPSK	60147	1RB#2	21.82	25.00
1.4M	QPSK	60147	1RB#5	21.75	24.93
1.4M	QPSK	60147	3RB#0	20.61	23.79
1.4M	QPSK	60147	3RB#2	20.66	23.84
1.4M	QPSK	60147	3RB#3	20.86	24.04
1.4M	QPSK	60147	6RB#0	20.67	23.85
1.4M	QPSK	60197	1RB#0	21.57	24.75
1.4M	QPSK	60197	1RB#2	21.88	25.06
1.4M	QPSK	60197	1RB#5	21.69	24.87
1.4M	QPSK	60197	3RB#0	20.61	23.79
1.4M	QPSK	60197	3RB#2	20.76	23.94
1.4M	QPSK	60197	3RB#3	20.84	24.02
1.4M	QPSK	60197	6RB#0	20.86	24.04
1.4M	QPSK	60248	1RB#0	21.54	24.72
1.4M	QPSK	60248	1RB#2	21.79	24.97
1.4M	QPSK	60248	1RB#5	21.80	24.98
1.4M	QPSK	60248	3RB#0	20.70	23.88
1.4M	QPSK	60248	3RB#2	20.81	23.99
1.4M	QPSK	60248	3RB#3	20.90	24.08
1.4M	QPSK	60248	6RB#0	20.86	24.04
1.4M	16QAM	60147	1RB#0	21.51	24.69
1.4M	16QAM	60147	1RB#2	21.82	25.00
1.4M	16QAM	60147	1RB#5	21.65	24.83
1.4M	16QAM	60147	3RB#0	20.56	23.74
1.4M	16QAM	60147	3RB#2	20.72	23.90
1.4M	16QAM	60147	3RB#3	20.83	24.01
1.4M	16QAM	60147	6RB#0	20.70	23.88
1.4M	16QAM	60197	1RB#0	21.71	24.89
1.4M	16QAM	60197	1RB#2	21.99	25.17
1.4M	16QAM	60197	1RB#5	21.83	25.01
1.4M	16QAM	60197	3RB#0	20.71	23.89
1.4M	16QAM	60197	3RB#2	20.86	24.04
1.4M	16QAM	60197	3RB#3	21.01	24.19
1.4M	16QAM	60197	6RB#0	20.99	24.17
1.4M	16QAM	60248	1RB#0	21.33	24.51
1.4M	16QAM	60248	1RB#2	21.67	24.85

1.4M	16QAM	60248	1RB#5	21.67	24.85
1.4M	16QAM	60248	3RB#0	20.60	23.78
1.4M	16QAM	60248	3RB#2	20.66	23.84
1.4M	16QAM	60248	3RB#3	20.75	23.93
1.4M	16QAM	60248	6RB#0	20.79	23.97
1.4M	64QAM	60147	1RB#0	20.65	23.83
1.4M	64QAM	60147	1RB#2	20.86	24.04
1.4M	64QAM	60147	1RB#5	20.88	24.06
1.4M	64QAM	60147	3RB#0	19.74	22.92
1.4M	64QAM	60147	3RB#2	19.78	22.96
1.4M	64QAM	60147	3RB#3	19.92	23.10
1.4M	64QAM	60147	6RB#0	19.81	22.99
1.4M	64QAM	60197	1RB#0	20.74	23.92
1.4M	64QAM	60197	1RB#2	21.04	24.22
1.4M	64QAM	60197	1RB#5	20.93	24.11
1.4M	64QAM	60197	3RB#0	19.81	22.99
1.4M	64QAM	60197	3RB#2	19.76	22.94
1.4M	64QAM	60197	3RB#3	19.94	23.12
1.4M	64QAM	60197	6RB#0	20.02	23.20
1.4M	64QAM	60248	1RB#0	20.62	23.80
1.4M	64QAM	60248	1RB#2	20.93	24.11
1.4M	64QAM	60248	1RB#5	21.05	24.23
1.4M	64QAM	60248	3RB#0	19.88	23.06
1.4M	64QAM	60248	3RB#2	19.89	23.07
1.4M	64QAM	60248	3RB#3	19.94	23.12
1.4M	64QAM	60248	6RB#0	20.01	23.19
3M	QPSK	60155	1RB#0	21.55	24.73
3M	QPSK	60155	1RB#7	21.85	25.03
3M	QPSK	60155	1RB#14	21.78	24.96
3M	QPSK	60155	8RB#0	20.69	23.87
3M	QPSK	60155	8RB#4	20.76	23.94
3M	QPSK	60155	8RB#7	20.94	24.12
3M	QPSK	60155	15RB#0	20.70	23.88
3M	QPSK	60197	1RB#0	21.61	24.79
3M	QPSK	60197	1RB#7	21.93	25.11
3M	QPSK	60197	1RB#14	21.74	24.92
3M	QPSK	60197	8RB#0	20.71	23.89
3M	QPSK	60197	8RB#4	20.84	24.02
3M	QPSK	60197	8RB#7	20.93	24.11
3M	QPSK	60197	15RB#0	20.90	24.08
3M	QPSK	60240	1RB#0	21.57	24.75
3M	QPSK	60240	1RB#7	21.83	25.01
3M	QPSK	60240	1RB#14	21.84	25.02

3M	QPSK	60240	8RB#0	20.81	23.99
3M	QPSK	60240	8RB#4	20.91	24.09
3M	QPSK	60240	8RB#7	20.98	24.16
3M	QPSK	60240	15RB#0	20.89	24.07
3M	16QAM	60155	1RB#0	21.54	24.72
3M	16QAM	60155	1RB#7	21.85	25.03
3M	16QAM	60155	1RB#14	21.67	24.85
3M	16QAM	60155	8RB#0	20.65	23.83
3M	16QAM	60155	8RB#4	20.81	23.99
3M	16QAM	60155	8RB#7	20.91	24.09
3M	16QAM	60155	15RB#0	20.73	23.91
3M	16QAM	60197	1RB#0	21.73	24.91
3M	16QAM	60197	1RB#7	22.04	25.22
3M	16QAM	60197	1RB#14	21.87	25.05
3M	16QAM	60197	8RB#0	20.82	24.00
3M	16QAM	60197	8RB#4	20.97	24.15
3M	16QAM	60197	8RB#7	21.11	24.29
3M	16QAM	60197	15RB#0	21.03	24.21
3M	16QAM	60240	1RB#0	21.36	24.54
3M	16QAM	60240	1RB#7	21.71	24.89
3M	16QAM	60240	1RB#14	21.70	24.88
3M	16QAM	60240	8RB#0	20.70	23.88
3M	16QAM	60240	8RB#4	20.76	23.94
3M	16QAM	60240	8RB#7	20.86	24.04
3M	16QAM	60240	15RB#0	20.82	24.00
3M	64QAM	60155	1RB#0	20.67	23.85
3M	64QAM	60155	1RB#7	20.89	24.07
3M	64QAM	60155	1RB#14	20.91	24.09
3M	64QAM	60155	8RB#0	19.82	23.00
3M	64QAM	60155	8RB#4	19.88	23.06
3M	64QAM	60155	8RB#7	20.00	23.18
3M	64QAM	60155	15RB#0	19.84	23.02
3M	64QAM	60197	1RB#0	20.78	23.96
3M	64QAM	60197	1RB#7	21.09	24.27
3M	64QAM	60197	1RB#14	20.98	24.16
3M	64QAM	60197	8RB#0	19.91	23.09
3M	64QAM	60197	8RB#4	19.84	23.02
3M	64QAM	60197	8RB#7	20.03	23.21
3M	64QAM	60197	15RB#0	20.06	23.24
3M	64QAM	60240	1RB#0	20.65	23.83
3M	64QAM	60240	1RB#7	20.97	24.15
3M	64QAM	60240	1RB#14	21.09	24.27
3M	64QAM	60240	8RB#0	19.99	23.17

3M	64QAM	60240	8RB#4	19.99	23.17
3M	64QAM	60240	8RB#7	20.02	23.20
3M	64QAM	60240	15RB#0	20.04	23.22
5M	QPSK	60165	1RB#0	21.59	24.77
5M	QPSK	60165	1RB#13	21.92	25.10
5M	QPSK	60165	1RB#24	21.84	25.02
5M	QPSK	60165	12RB#0	20.76	23.94
5M	QPSK	60165	12RB#6	20.81	23.99
5M	QPSK	60165	12RB#13	21.01	24.19
5M	QPSK	60165	25RB#0	20.78	23.96
5M	QPSK	60197	1RB#0	21.73	24.91
5M	QPSK	60197	1RB#13	21.98	25.16
5M	QPSK	60197	1RB#24	21.81	24.99
5M	QPSK	60197	12RB#0	20.75	23.93
5M	QPSK	60197	12RB#6	20.89	24.07
5M	QPSK	60197	12RB#13	21.03	24.21
5M	QPSK	60197	25RB#0	20.99	24.17
5M	QPSK	60230	1RB#0	21.62	24.80
5M	QPSK	60230	1RB#13	21.90	25.08
5M	QPSK	60230	1RB#24	21.93	25.11
5M	QPSK	60230	12RB#0	20.87	24.05
5M	QPSK	60230	12RB#6	20.95	24.13
5M	QPSK	60230	12RB#13	20.98	24.16
5M	QPSK	60230	25RB#0	20.90	24.08
5M	16QAM	60165	1RB#0	21.56	24.74
5M	16QAM	60165	1RB#13	21.87	25.05
5M	16QAM	60165	1RB#24	21.69	24.87
5M	16QAM	60165	12RB#0	20.69	23.87
5M	16QAM	60165	12RB#6	20.83	24.01
5M	16QAM	60165	12RB#13	20.96	24.14
5M	16QAM	60165	25RB#0	20.76	23.94
5M	16QAM	60197	1RB#0	21.75	24.93
5M	16QAM	60197	1RB#13	22.11	25.29
5M	16QAM	60197	1RB#24	21.94	25.12
5M	16QAM	60197	12RB#0	20.86	24.04
5M	16QAM	60197	12RB#6	21.01	24.19
5M	16QAM	60197	12RB#13	21.11	24.29
5M	16QAM	60197	25RB#0	21.04	24.22
5M	16QAM	60230	1RB#0	21.40	24.58
5M	16QAM	60230	1RB#13	21.75	24.93
5M	16QAM	60230	1RB#24	21.73	24.91
5M	16QAM	60230	12RB#0	20.75	23.93
5M	16QAM	60230	12RB#6	20.81	23.99

5M	16QAM	60230	12RB#13	20.89	24.07
5M	16QAM	60230	25RB#0	20.83	24.01
5M	64QAM	60165	1RB#0	20.71	23.89
5M	64QAM	60165	1RB#13	20.96	24.14
5M	64QAM	60165	1RB#24	20.97	24.15
5M	64QAM	60165	12RB#0	19.89	23.07
5M	64QAM	60165	12RB#6	19.93	23.11
5M	64QAM	60165	12RB#13	20.07	23.25
5M	64QAM	60165	25RB#0	19.92	23.10
5M	64QAM	60197	1RB#0	20.90	24.08
5M	64QAM	60197	1RB#13	21.14	24.32
5M	64QAM	60197	1RB#24	21.05	24.23
5M	64QAM	60197	12RB#0	19.95	23.13
5M	64QAM	60197	12RB#6	19.89	23.07
5M	64QAM	60197	12RB#13	20.13	23.31
5M	64QAM	60197	25RB#0	20.15	23.33
5M	64QAM	60230	1RB#0	20.70	23.88
5M	64QAM	60230	1RB#13	21.04	24.22
5M	64QAM	60230	1RB#24	21.18	24.36
5M	64QAM	60230	12RB#0	20.05	23.23
5M	64QAM	60230	12RB#6	20.03	23.21
5M	64QAM	60230	12RB#13	20.02	23.20
5M	64QAM	60230	25RB#0	20.05	23.23
10M	QPSK	60190	1RB#0	21.50	24.68
10M	QPSK	60190	1RB#25	21.83	25.01
10M	QPSK	60190	1RB#49	21.72	24.90
10M	QPSK	60190	25RB#0	20.64	23.82
10M	QPSK	60190	25RB#13	20.72	23.90
10M	QPSK	60190	25RB#25	20.88	24.06
10M	QPSK	60190	50RB#0	20.71	23.89
10M	QPSK	60197	1RB#0	21.52	24.70
10M	QPSK	60197	1RB#25	21.89	25.07
10M	QPSK	60197	1RB#49	21.67	24.85
10M	QPSK	60197	25RB#0	20.62	23.80
10M	QPSK	60197	25RB#13	20.76	23.94
10M	QPSK	60197	25RB#25	20.87	24.05
10M	QPSK	60197	50RB#0	20.82	24.00
10M	QPSK	60205	1RB#0	21.51	24.69
10M	QPSK	60205	1RB#25	21.79	24.97
10M	QPSK	60205	1RB#49	21.76	24.94
10M	QPSK	60205	25RB#0	20.74	23.92
10M	QPSK	60205	25RB#13	20.83	24.01
10M	QPSK	60205	25RB#25	20.91	24.09

10M	QPSK	60205	50RB#0	20.82	24.00
10M	16QAM	60190	1RB#0	21.46	24.64
10M	16QAM	60190	1RB#25	21.79	24.97
10M	16QAM	60190	1RB#49	21.62	24.80
10M	16QAM	60190	25RB#0	20.60	23.78
10M	16QAM	60190	25RB#13	20.74	23.92
10M	16QAM	60190	25RB#25	20.86	24.04
10M	16QAM	60190	50RB#0	20.69	23.87
10M	16QAM	60197	1RB#0	21.66	24.84
10M	16QAM	60197	1RB#25	22.01	25.19
10M	16QAM	60197	1RB#49	21.80	24.98
10M	16QAM	60197	25RB#0	20.77	23.95
10M	16QAM	60197	25RB#13	20.89	24.07
10M	16QAM	60197	25RB#25	21.02	24.20
10M	16QAM	60197	50RB#0	20.95	24.13
10M	16QAM	60205	1RB#0	21.28	24.46
10M	16QAM	60205	1RB#25	21.65	24.83
10M	16QAM	60205	1RB#49	21.64	24.82
10M	16QAM	60205	25RB#0	20.65	23.83
10M	16QAM	60205	25RB#13	20.68	23.86
10M	16QAM	60205	25RB#25	20.79	23.97
10M	16QAM	60205	50RB#0	20.74	23.92
10M	64QAM	60190	1RB#0	20.62	23.80
10M	64QAM	60190	1RB#25	20.87	24.05
10M	64QAM	60190	1RB#49	20.85	24.03
10M	64QAM	60190	25RB#0	19.77	22.95
10M	64QAM	60190	25RB#13	19.84	23.02
10M	64QAM	60190	25RB#25	19.94	23.12
10M	64QAM	60190	50RB#0	19.85	23.03
10M	64QAM	60197	1RB#0	20.69	23.87
10M	64QAM	60197	1RB#25	21.05	24.23
10M	64QAM	60197	1RB#49	20.91	24.09
10M	64QAM	60197	25RB#0	19.82	23.00
10M	64QAM	60197	25RB#13	19.76	22.94
10M	64QAM	60197	25RB#25	19.97	23.15
10M	64QAM	60197	50RB#0	19.98	23.16
10M	64QAM	60205	1RB#0	20.59	23.77
10M	64QAM	60205	1RB#25	20.93	24.11
10M	64QAM	60205	1RB#49	21.01	24.19
10M	64QAM	60205	25RB#0	19.92	23.10
10M	64QAM	60205	25RB#13	19.91	23.09
10M	64QAM	60205	25RB#25	19.95	23.13
10M	64QAM	60205	50RB#0	19.97	23.15

4.4. Occupied Bandwidth

Ambient condition

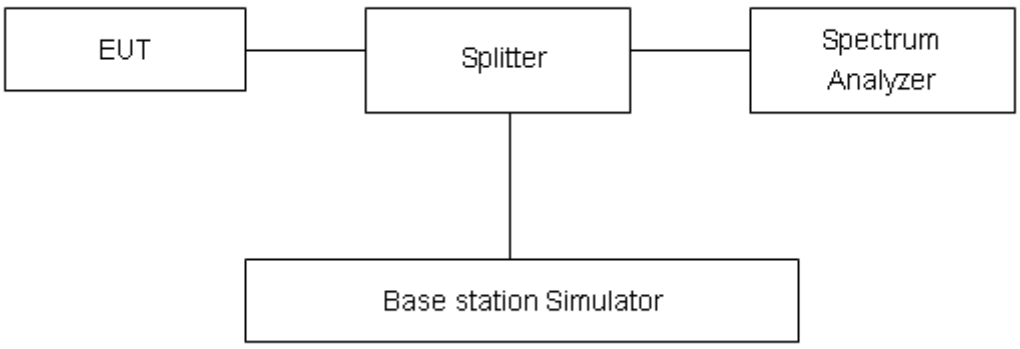
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 51kHz, VBW is set to 160kHz for LTE Band 53 (1.4MHz),
RBW is set to 100kHz,VBW is set to 300kHz for LTE Band 53 (3MHz/5MHz),
RBW is set to 300kHz,VBW is set to 1MHz for LTE Band 53 (10MHz).

99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

The 6 dB bandwidth is at least 500 kHz;

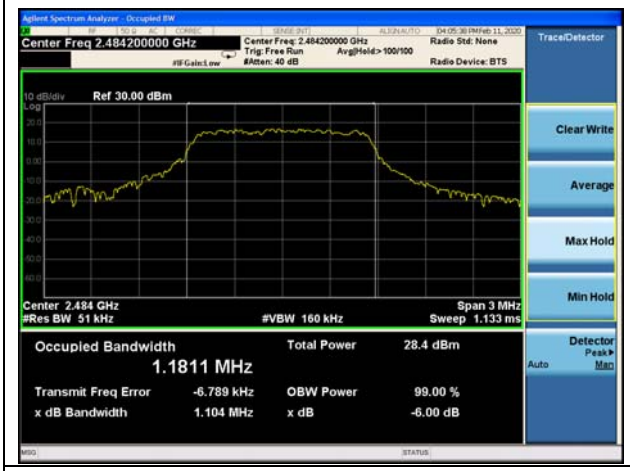
Measurement Uncertainty

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

Test Result

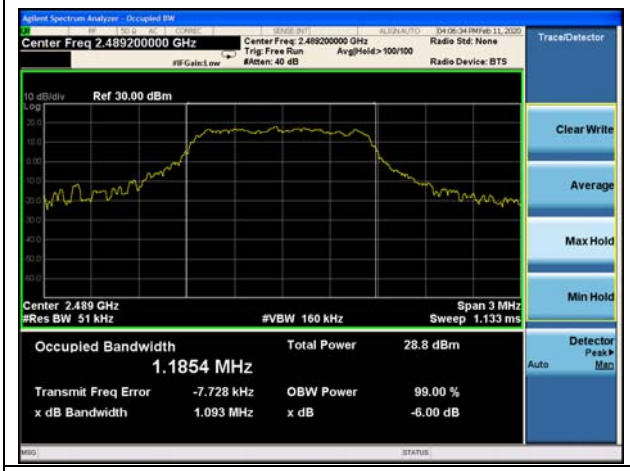
LTE Band53						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	60147	2484.2	1.1811	1.104
			60197	2489.2	1.1854	1.093
			60248	2494.3	1.1819	1.097
		3	60155	2485	2.8001	2.758
			60197	2489.2	2.7997	2.730
			60240	2493.5	2.7802	2.723
		5	60165	2486	4.5227	4.463
			60197	2489.2	4.5321	4.518
			60230	2492.5	4.5260	4.491
		10	60190	2488.5	9.0650	9.066
			60197	2489.2	9.0375	9.023
			60205	2490	9.0534	9.064
	16QAM	1.4	60147	2484.2	1.1809	1.111
			60197	2489.2	1.1606	1.055
			60248	2494.3	1.1567	1.090
		3	60155	2485	2.7771	2.706
			60197	2489.2	2.7839	2.735
			60240	2493.5	2.7736	2.713
		5	60165	2486	4.5104	4.525
			60197	2489.2	4.5146	4.523
			60230	2492.5	4.5269	4.537
		10	60190	2488.5	9.0217	8.989
			60197	2489.2	9.0353	9.012
			60205	2490	9.0460	8.938
	64QAM	1.4	60147	2484.2	1.1713	1.082
			60197	2489.2	1.1634	1.081
			60248	2494.3	1.1689	1.078
		3	60155	2485	2.7955	2.746
			60197	2489.2	2.7967	2.731
			60240	2493.5	2.8196	2.751
		5	60165	2486	4.5199	4.536
			60197	2489.2	4.5198	4.531
			60230	2492.5	4.5233	4.543
		10	60190	2488.5	9.0451	9.017
			60197	2489.2	9.0422	8.996
			60205	2490	9.0369	9.007

LTE Band 53 1.4MHz QPSK CH-Low



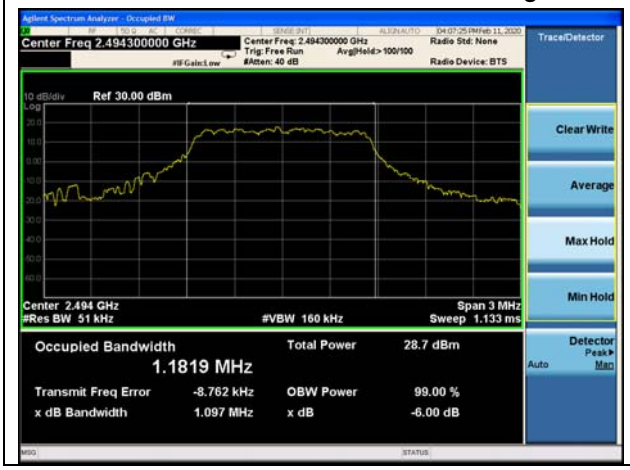
LTE Band 53 3MHz QPSK CH-Low

LTE Band 53 1.4MHz QPSK CH-Middle



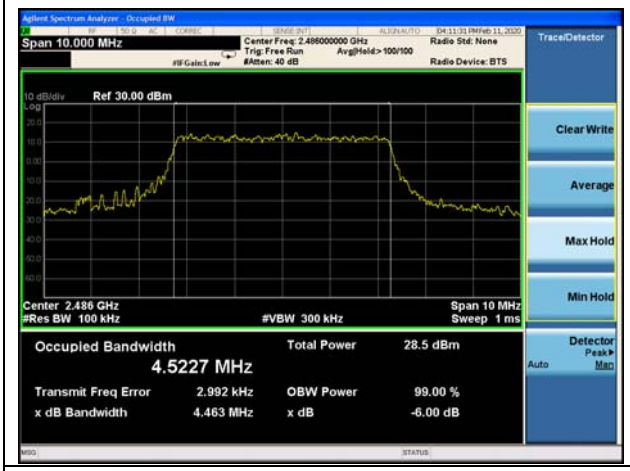
LTE Band 53 3MHz QPSK CH-Middle

LTE Band 53 1.4MHz QPSK CH-High



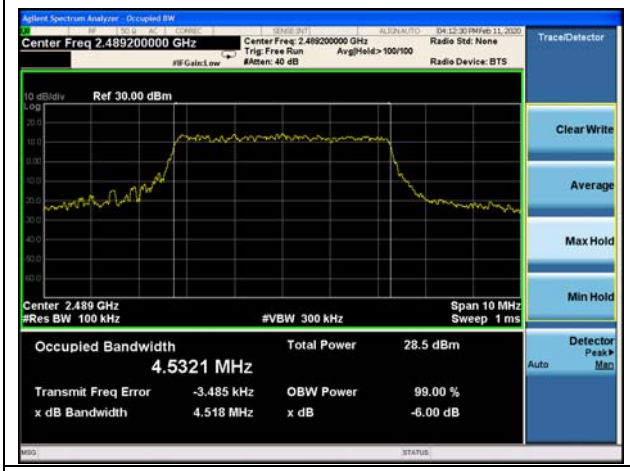
LTE Band 53 3MHz QPSK CH-High

LTE Band 53 5MHz QPSK CH-Low



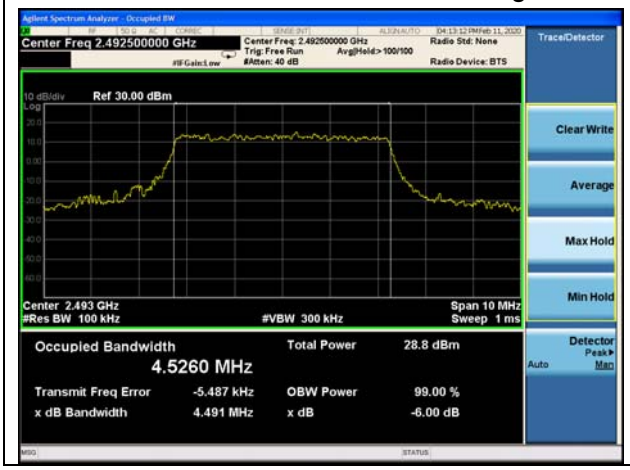
LTE Band 53 10MHz QPSK CH-Low

LTE Band 53 5MHz QPSK CH-Middle



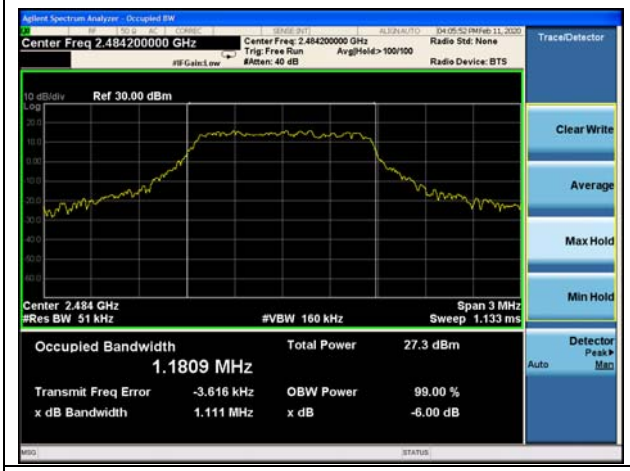
LTE Band 53 10MHz QPSK CH-Middle

LTE Band 53 5MHz QPSK CH-High



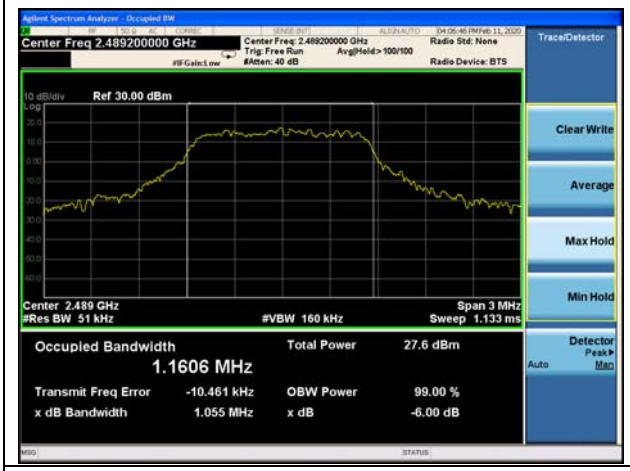
LTE Band 53 10MHz QPSK CH-High

LTE Band 53 1.4MHz 16QAM CH-Low



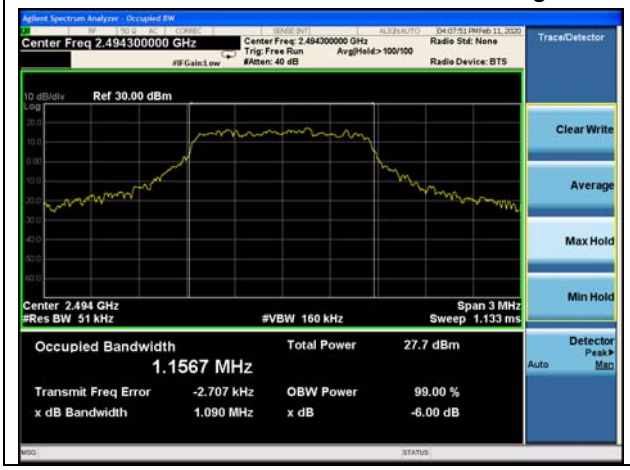
LTE Band 53 3MHz 16QAM CH-Low

LTE Band 53 1.4MHz 16QAM CH-Middle

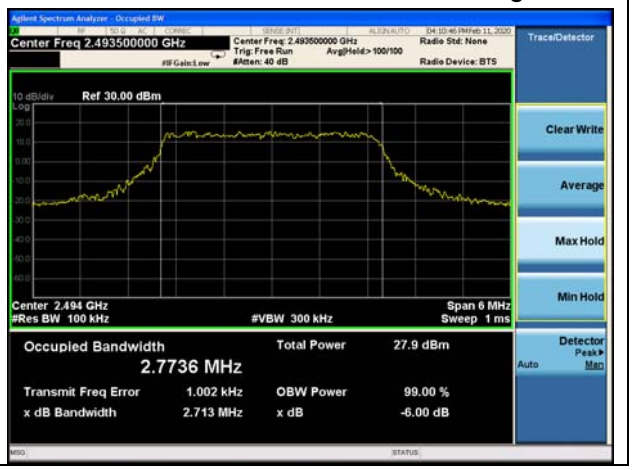


LTE Band 53 3MHz 16QAM CH-Middle

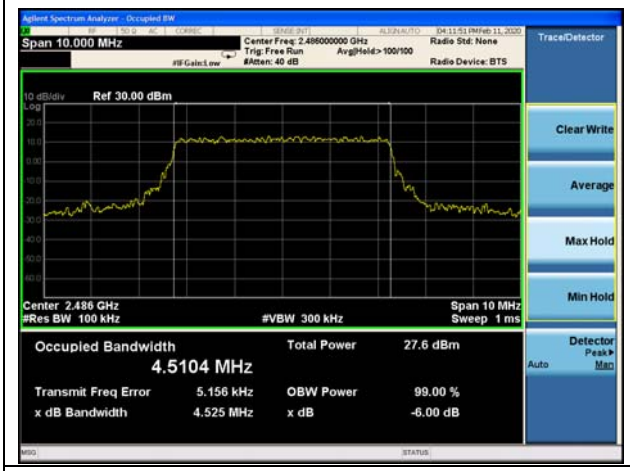
LTE Band 53 1.4MHz 16QAM CH-High



LTE Band 53 3MHz 16QAM CH-High

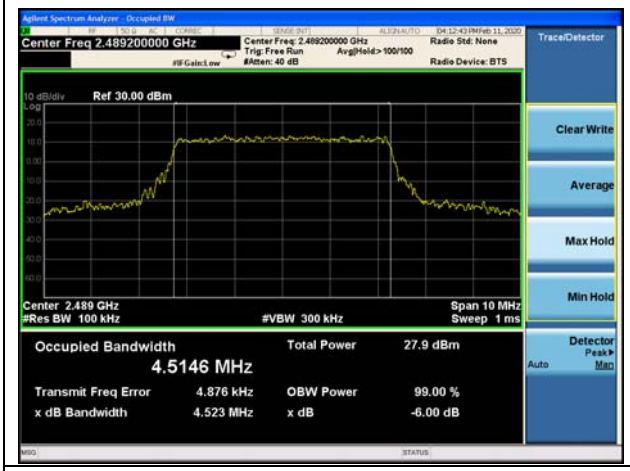


LTE Band 53 5MHz 16QAM CH-Low



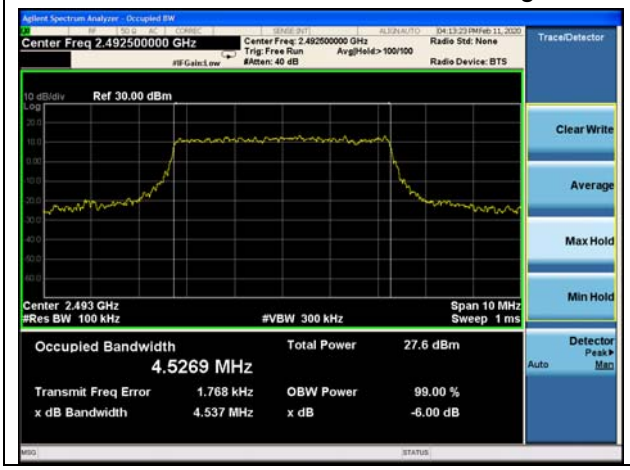
LTE Band 53 10MHz 16QAM CH-Low

LTE Band 53 5MHz 16QAM CH-Middle



LTE Band 53 10MHz 16QAM CH-Middle

LTE Band 53 5MHz 16QAM CH-High



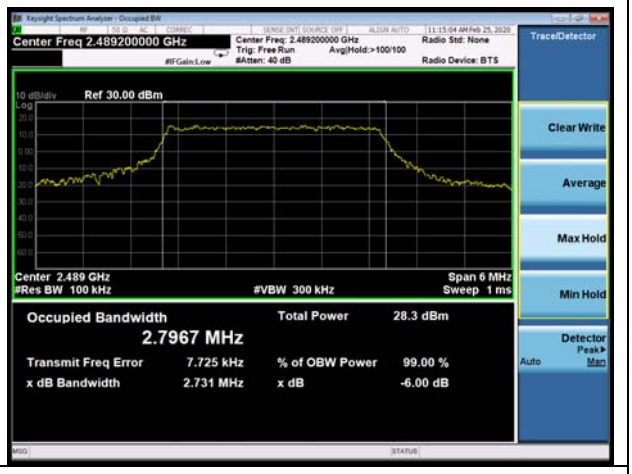
LTE Band 53 10MHz 16QAM CH-High

LTE Band 53 1.4MHz 64QAM CH-Low

LTE Band 53 3MHz 64QAM CH-Low

LTE Band 53 1.4MHz 64QAM CH-Middle

LTE Band 53 3MHz 64QAM CH-Middle

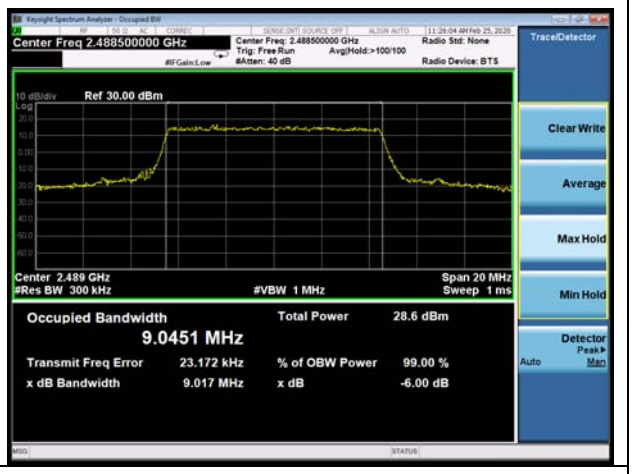


LTE Band 53 1.4MHz 64QAM CH-High

LTE Band 53 3MHz 64QAM CH-High

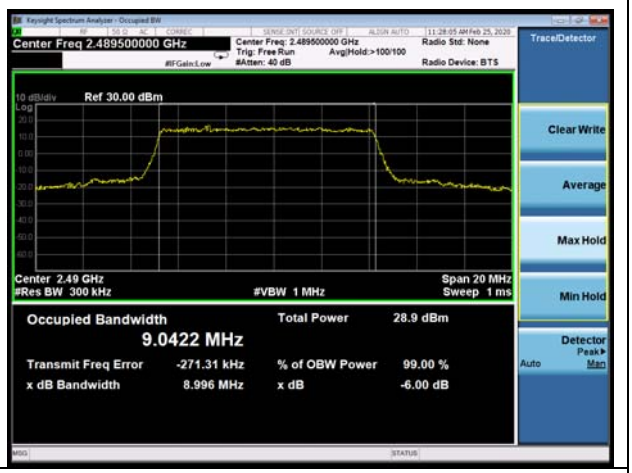
LTE Band 53 5MHz 64QAM CH-Low

LTE Band 53 10MHz 64QAM CH-Low

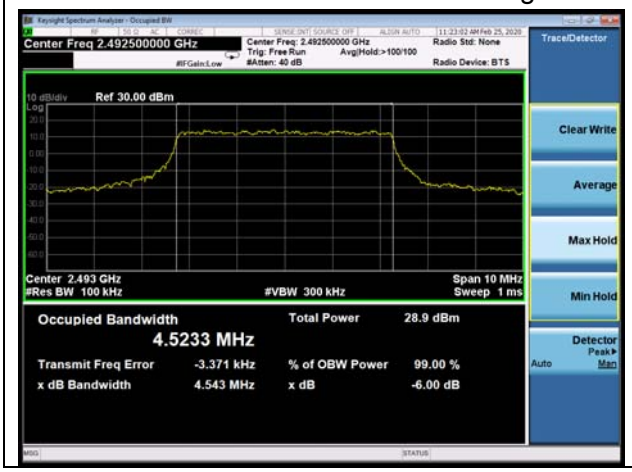


LTE Band 53 5MHz 64QAM CH-Middle

LTE Band 53 10MHz 64QAM CH-Middle



LTE Band 53 5MHz 64QAM CH-High



LTE Band 53 10MHz 64QAM CH-High

4.5. Power Spectral Density

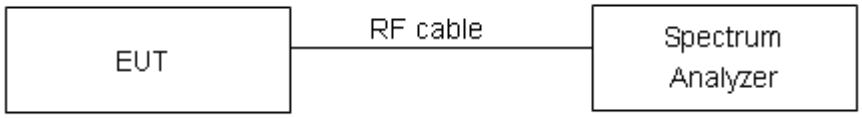
Ambient condition

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

Method of Measurement

During the process of the testing, The EUT was connected to Spectrum Analyzer with a known loss. The EUT is max power transmission with proper modulation.

Test setup



Limits

The maximum power spectral density conducted to the antenna is not greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission;

Limits	≤ 8 dBm / 3kHz

Measurement Uncertainty

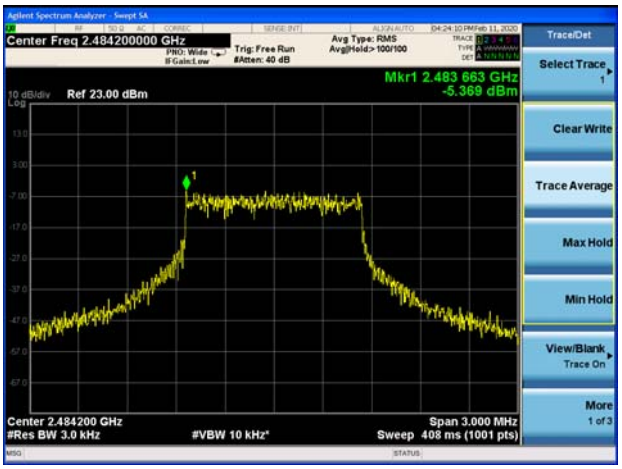
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.75dB.

Test Results:

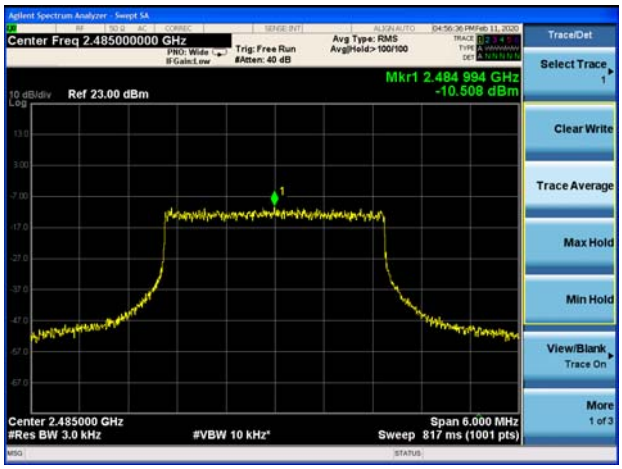
LTE Band 53						
Modulation	**Bandwidth (MHz)**	**Channel**	**Frequency (MHz)**	**Power Spectral Density (dBm / 3kHz)**	**Limit (dBm / 3kHz)**	**Conclusion**
QPSK	1.4	60147	2484.2	-5.369	8	PASS
		60197	2489.2	-5.350	8	PASS
		60248	2494.3	-5.020	8	PASS
	3	60155	2485	-10.508	8	PASS
		60197	2489.2	-10.232	8	PASS
		60240	2493.5	-10.364	8	PASS
	5	60165	2486	-13.479	8	PASS
		60197	2489.2	-12.889	8	PASS
		60230	2492.5	-13.040	8	PASS
	10	60190	2488.5	-16.150	8	PASS
		60197	2489.2	-16.380	8	PASS
		60205	2490	-16.176	8	PASS
16QAM	1.4	60147	2484.2	-6.782	8	PASS
		60197	2489.2	-4.976	8	PASS
		60248	2494.3	-5.323	8	PASS
	3	60155	2485	-11.295	8	PASS
		60197	2489.2	-10.973	8	PASS
		60240	2493.5	-10.873	8	PASS
	5	60165	2486	-13.957	8	PASS
		60197	2489.2	-13.803	8	PASS
		60230	2492.5	-13.695	8	PASS
	10	60190	2488.5	-16.769	8	PASS
		60197	2489.2	-16.895	8	PASS
		60205	2490	-17.895	8	PASS
64QAM	1.4	60147	2484.2	-4.559	8	PASS
		60197	2489.2	-6.066	8	PASS
		60248	2494.3	-5.323	8	PASS
	3	60155	2485	-12.239	8	PASS
		60197	2489.2	-11.949	8	PASS
		60240	2493.5	-11.790	8	PASS

	5	60165	2486	-14.899	8	PASS
		60197	2489.2	-14.744	8	PASS
		60230	2492.5	-14.826	8	PASS
	10	60190	2488.5	-17.992	8	PASS
		60197	2489.2	-17.763	8	PASS
		60205	2490	-17.917	8	PASS

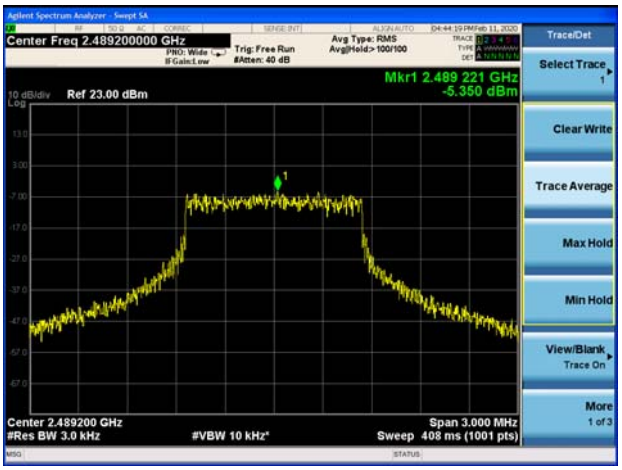
LTE Band 53 1.4MHz QPSK 1RB CH-Low



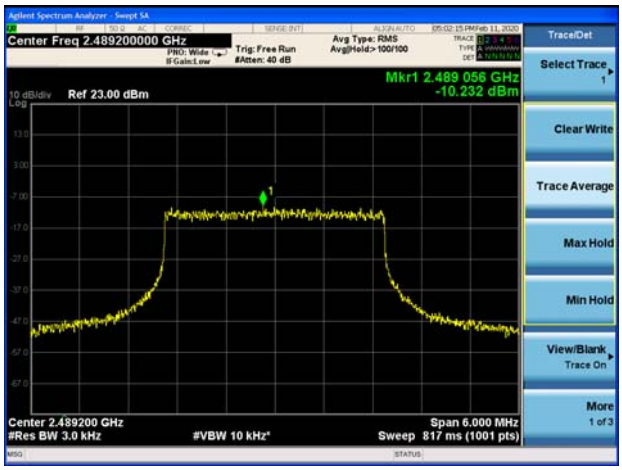
LTE Band 53 3MHz QPSK 1RB CH-Low



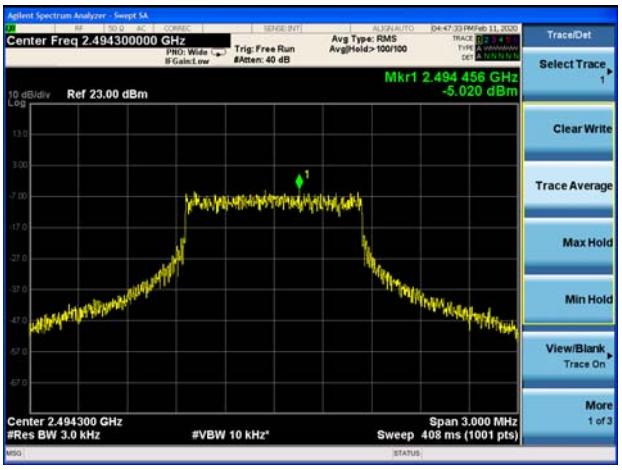
LTE Band 53 1.4MHz QPSK 1RB CH-Middle



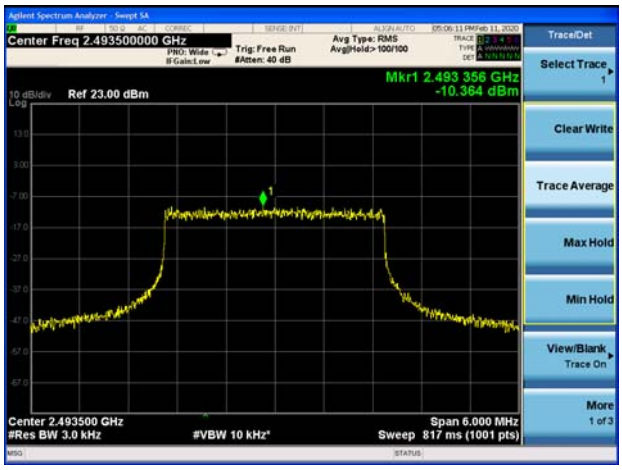
LTE Band 53 3MHz QPSK 1RB CH-Middle



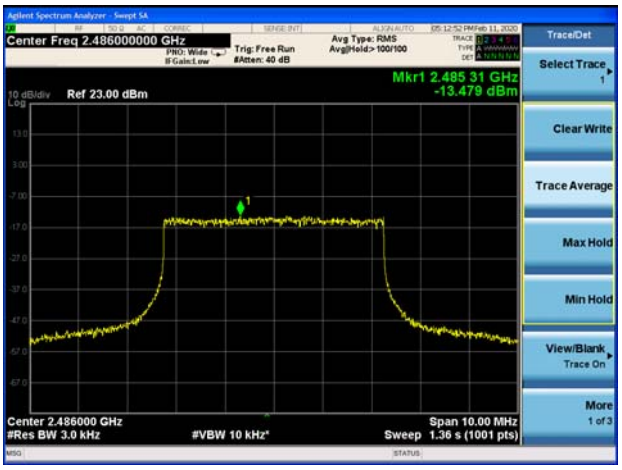
LTE Band 53 1.4MHz QPSK 1RB CH-High



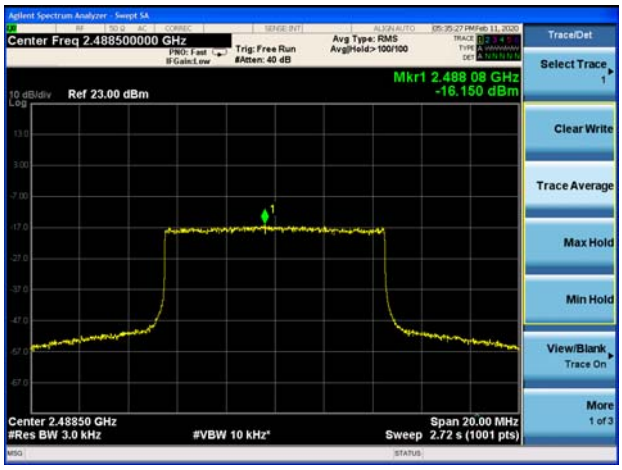
LTE Band 53 3MHz QPSK 1RB CH-High



LTE Band 53 5MHz QPSK 1RB CH-Low

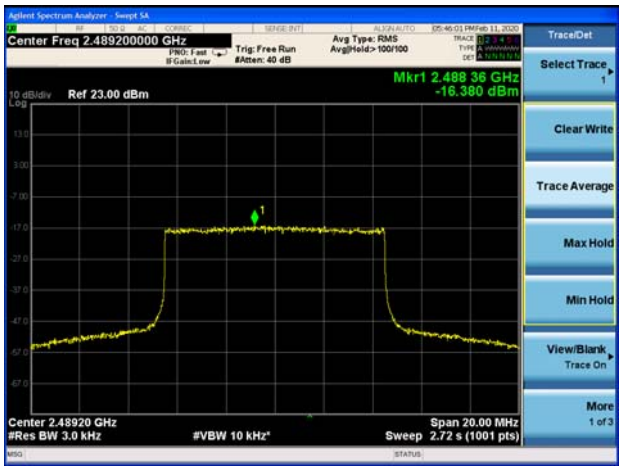


LTE Band 53 10MHz QPSK 1RB CH-Low

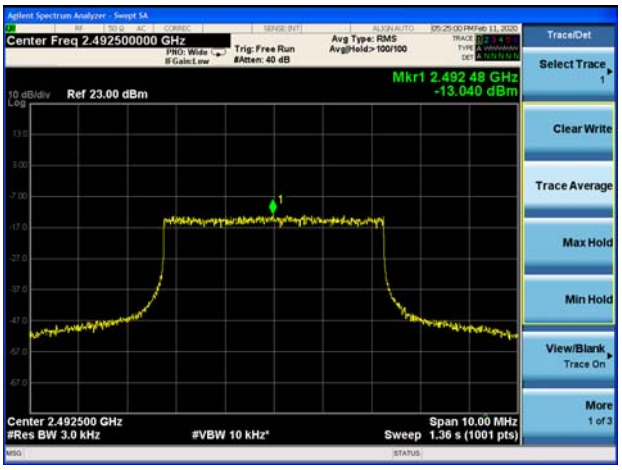


LTE Band 53 5MHz QPSK 1RB CH-Middle

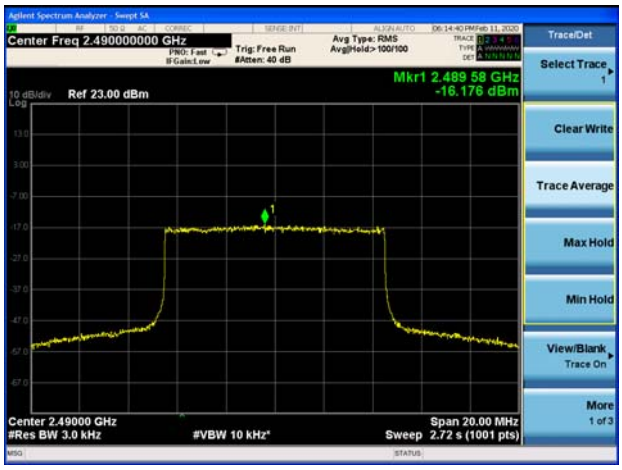
LTE Band 53 10MHz QPSK 1RB CH-Middle



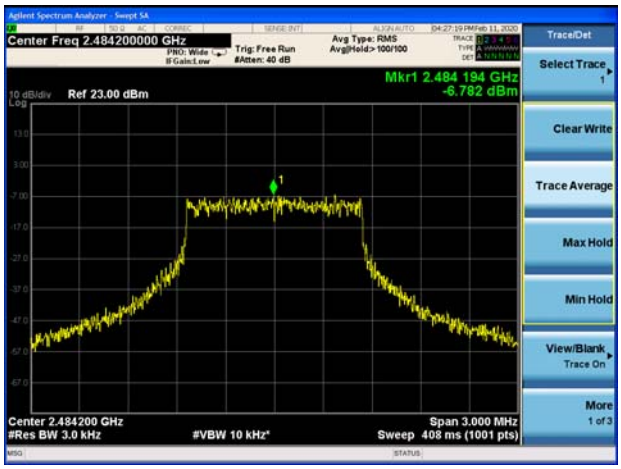
LTE Band 53 5MHz QPSK 1RB CH-High



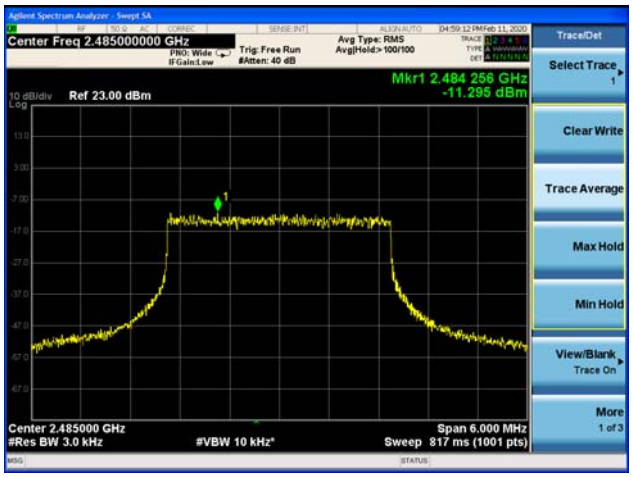
LTE Band 53 10MHz QPSK 1RB CH-High



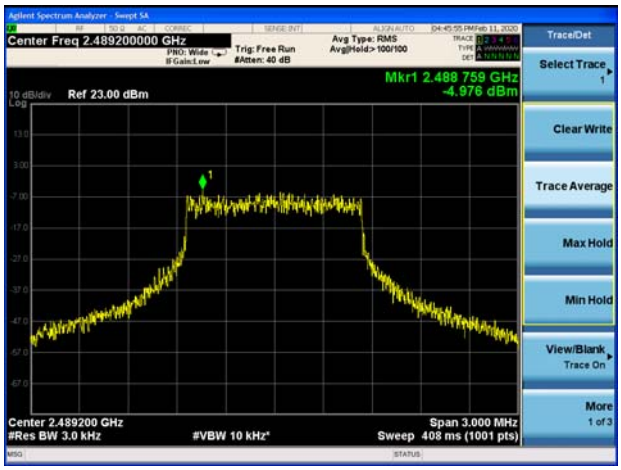
LTE Band 53 1.4MHz 16QAM 1RB CH-Low



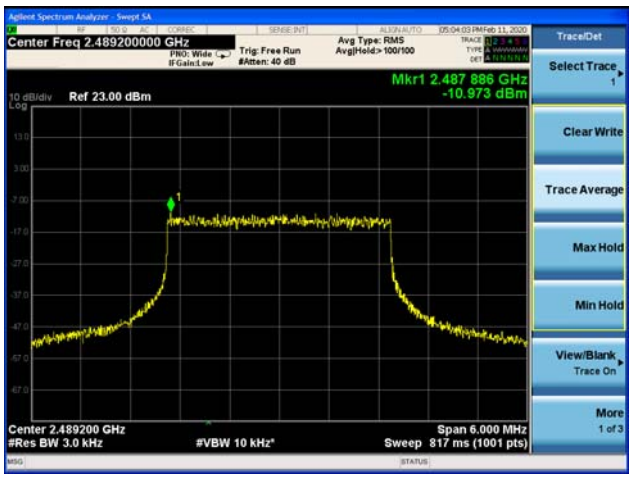
LTE Band 53 3MHz 16QAM 1RB CH-Low



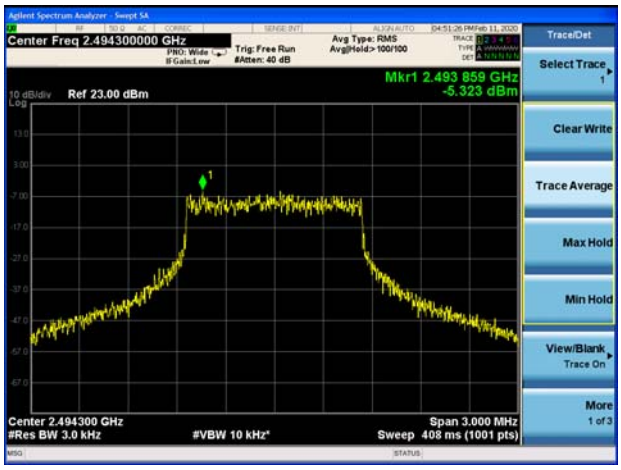
LTE Band 53 1.4MHz 16QAM 1RB CH-Middle



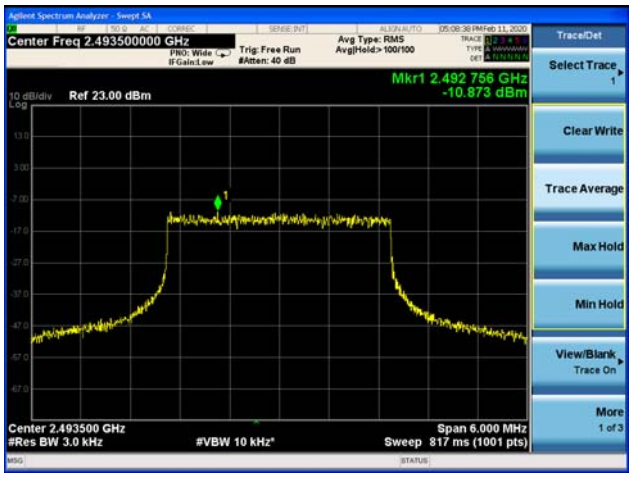
LTE Band 53 3MHz 16QAM 1RB CH-Middle



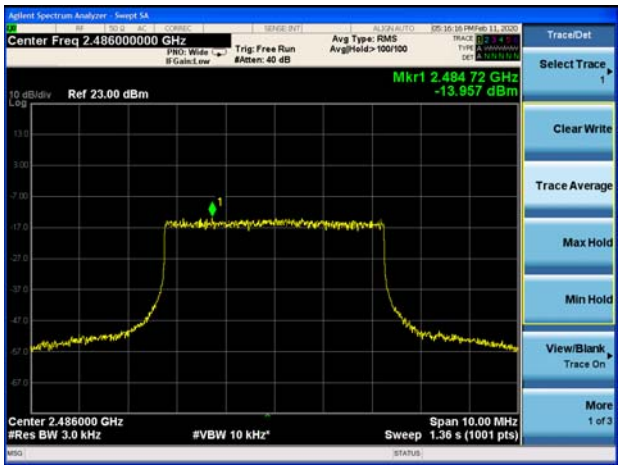
LTE Band 53 1.4MHz 16QAM 1RB CH-High



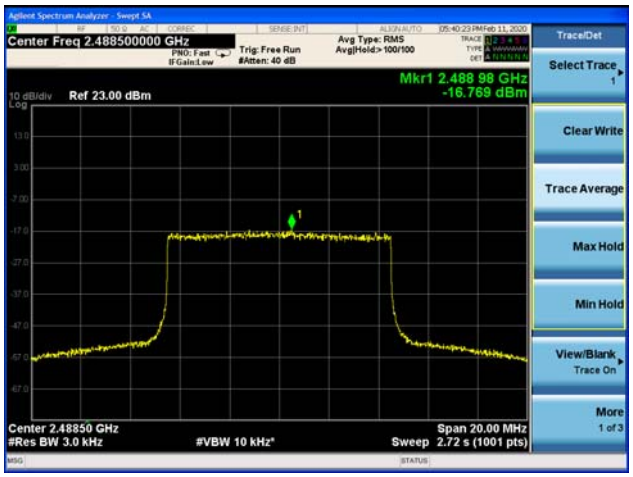
LTE Band 53 3MHz 16QAM 1RB CH-High



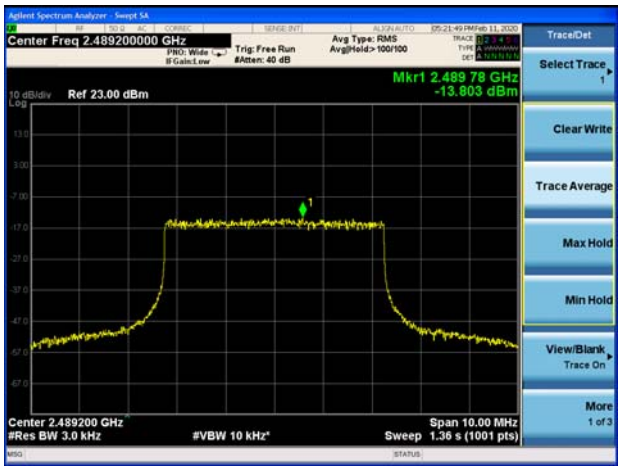
LTE Band 53 5MHz 16QAM 1RB CH-Low



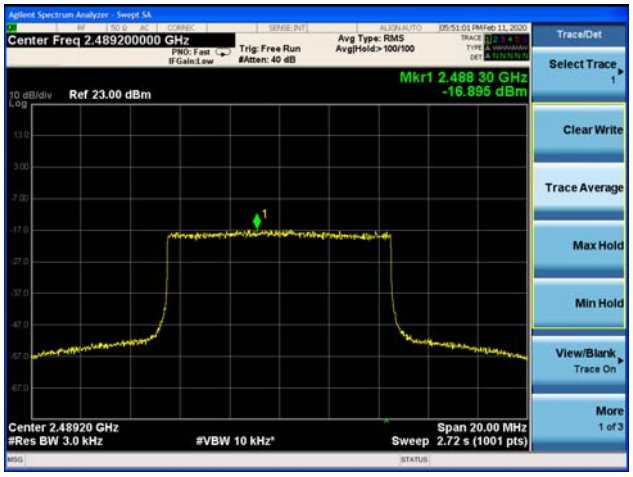
LTE Band 53 10MHz 16QAM 1RB CH-Low



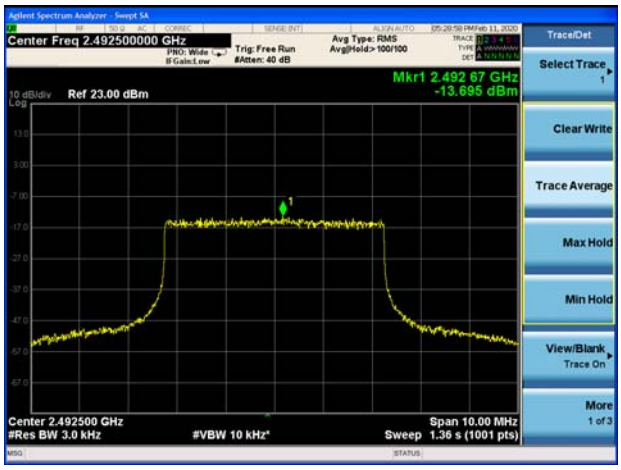
LTE Band 53 5MHz 16QAM 1RB CH-Middle



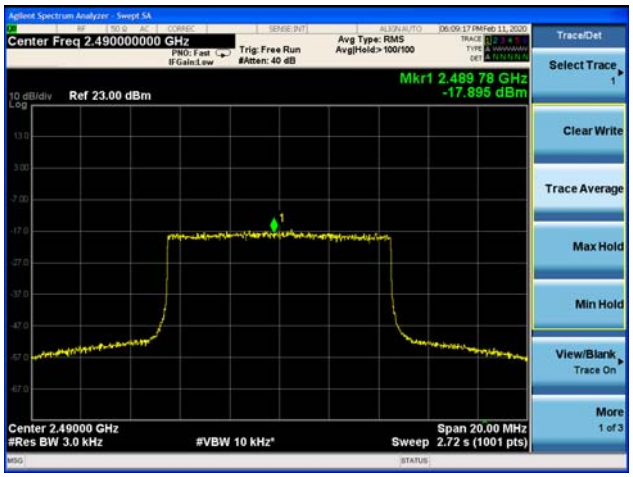
LTE Band 53 10MHz 16QAM 1RB CH-Middle



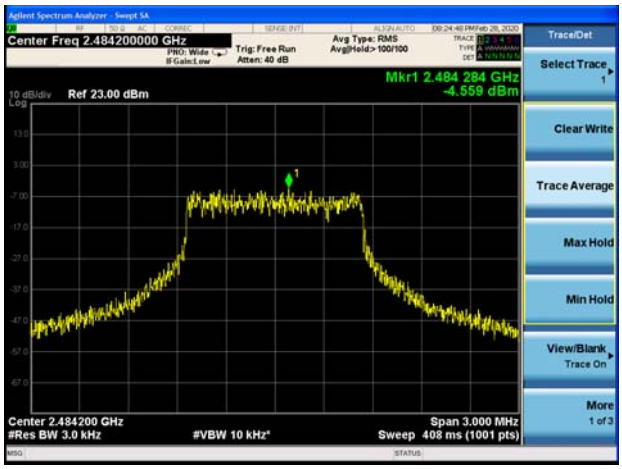
LTE Band 53 5MHz 16QAM 1RB CH-High



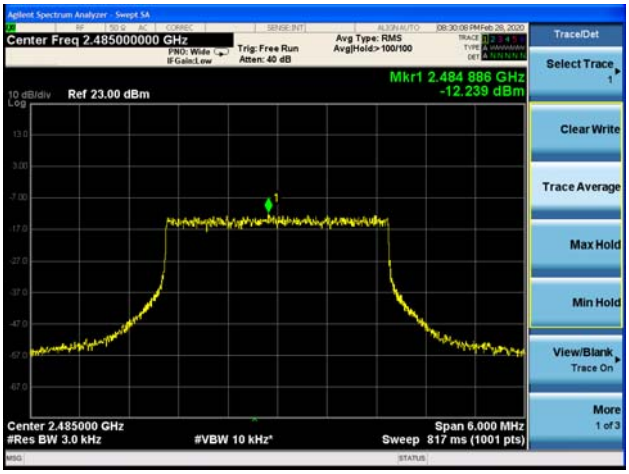
LTE Band 53 10MHz 16QAM 1RB CH-High



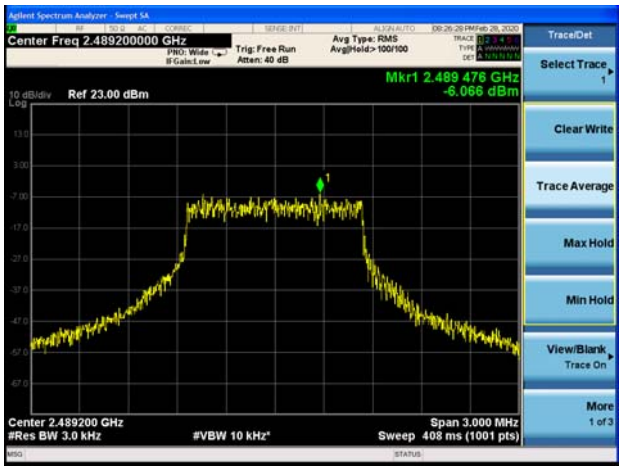
LTE Band 53 1.4MHz 64QAM 1RB CH-Low



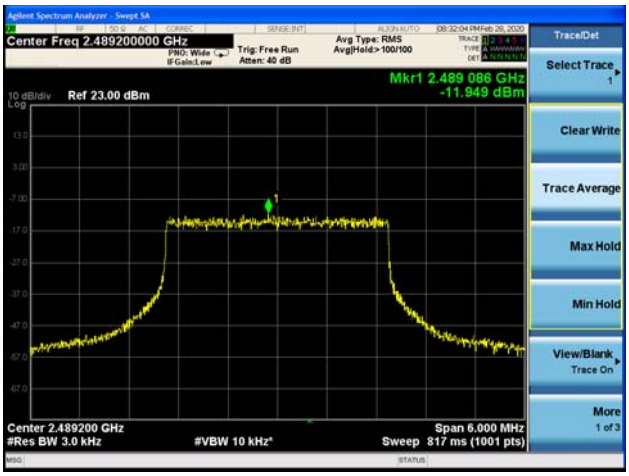
LTE Band 53 3MHz 64QAM 1RB CH-Low



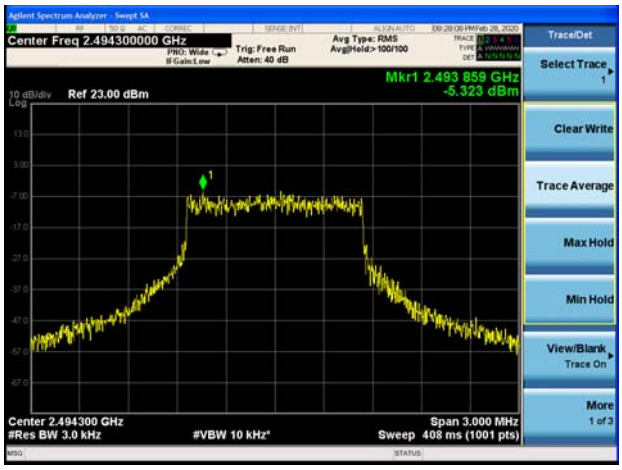
LTE Band 53 1.4MHz 64QAM 1RB CH-Middle



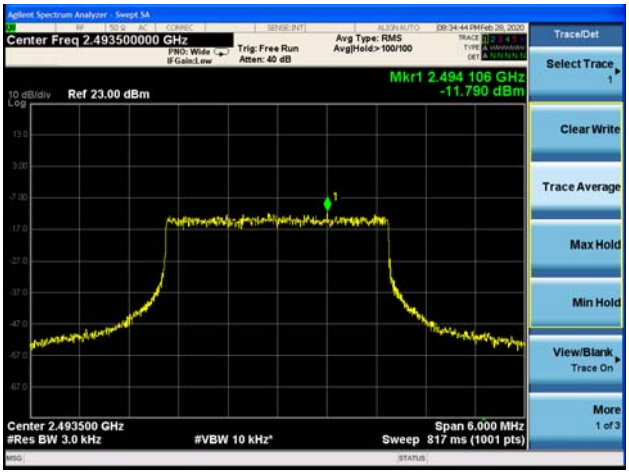
LTE Band 53 3MHz 64QAM 1RB CH-Middle



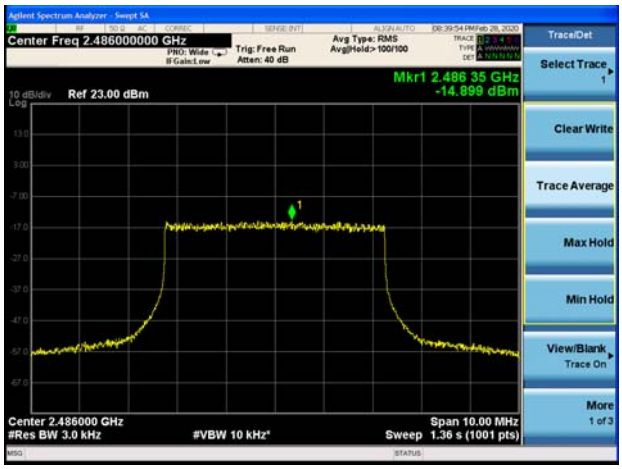
LTE Band 53 1.4MHz 64QAM 1RB CH-High



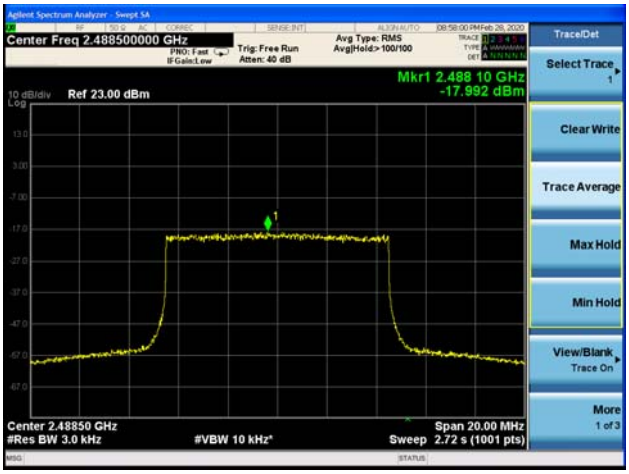
LTE Band 53 3MHz 64QAM 1RB CH-High



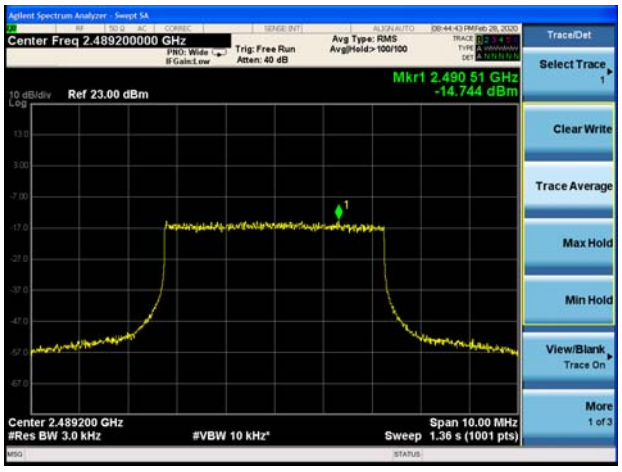
LTE Band 53 5MHz 64QAM 1RB CH-Low



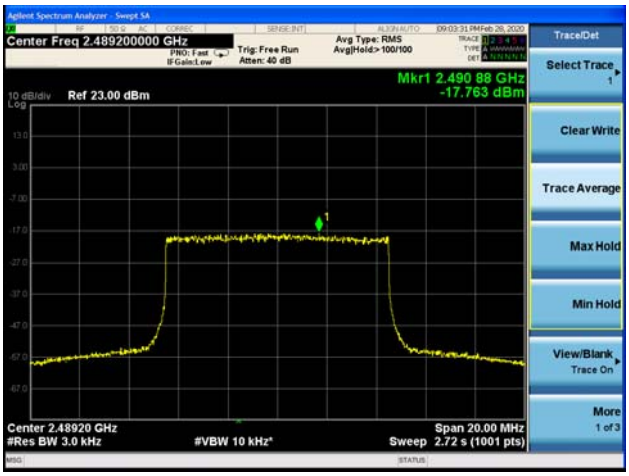
LTE Band 53 10MHz 64QAM 1RB CH-Low



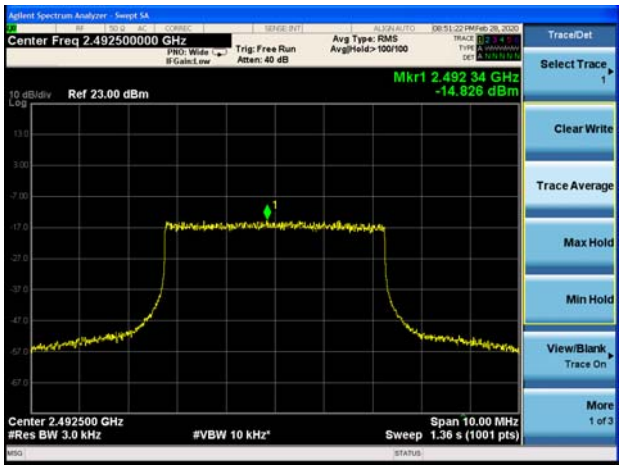
LTE Band 53 5MHz 64QAM 1RB CH-Middle



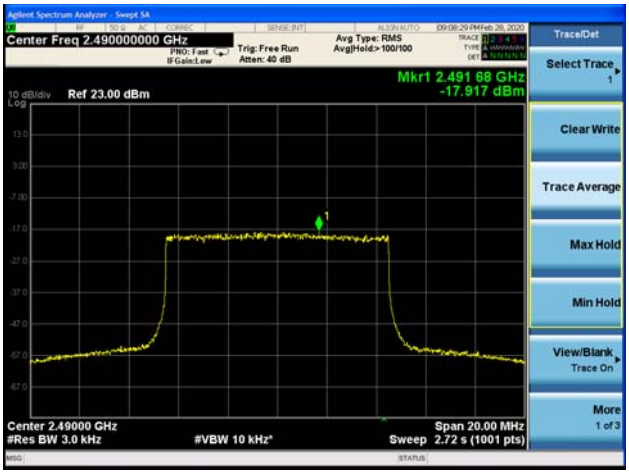
LTE Band 53 10MHz 64QAM 1RB CH-Middle



LTE Band 53 5MHz 64QAM 1RB CH-High



LTE Band 53 10MHz 64QAM 1RB CH-High



4.6. Band Edge Compliance

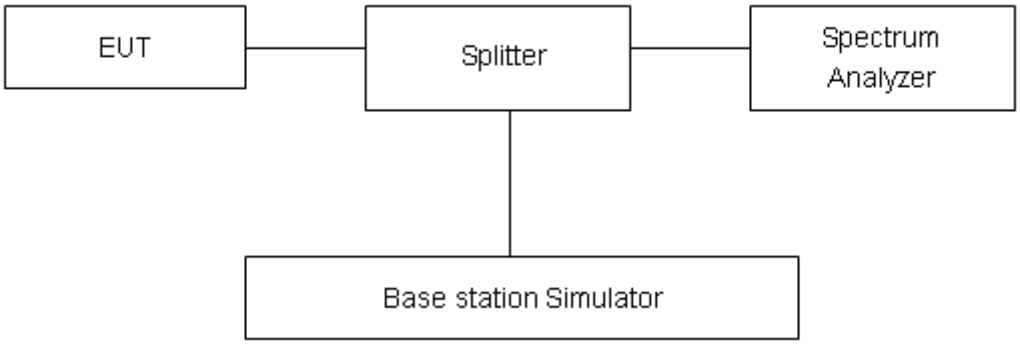
Ambient condition

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 Average detector is used.
Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

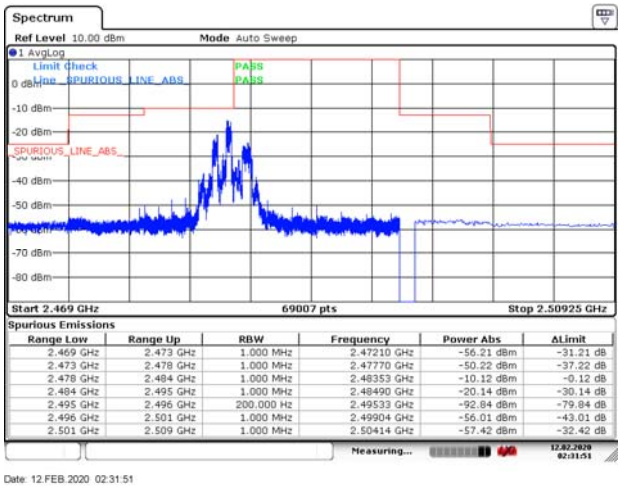
Emissions below 2483.5 MHz are attenuated below the transmitter power (P) measured in watts by a factor of at least 40 + 10 log (P) dB at the channel edge at 2483.5 MHz, 43 + 10 log (P) dB at 5 MHz from the channel edge, and 55 + 10 log (P) dB at X MHz from the channel edge where X is the greater of 6 MHz or the actual emission bandwidth.
Emissions above 2495 MHz are attenuated below the transmitter power (P) measured in watts by a factor of at least 43 + 10 log (P) dB on all frequencies between the channel edge at 2495 MHz and X MHz from this channel edge and 55 + 10 log (P) dB on all frequencies more than X MHz from this channel edge, where X is the greater of 6 MHz or the actual emission bandwidth;

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.

Test Result:

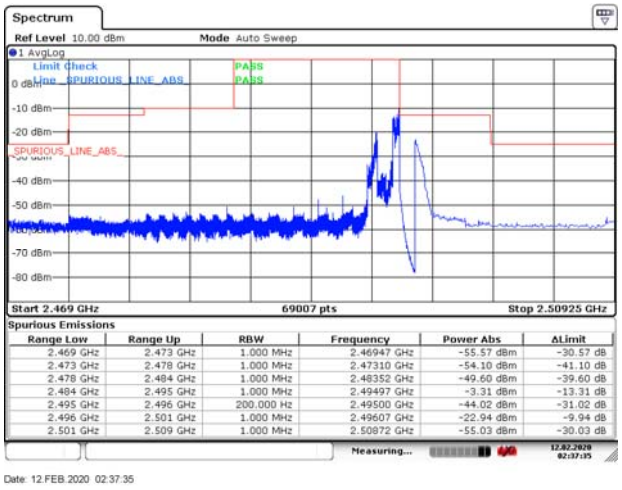
LTE Band 53 1.4MHz QPSK 1RB CH-Low



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.469 GHz	2.473 GHz	1.000 MHz	2.47210 GHz	-56.21 dBm	-31.21 dB
2.473 GHz	2.478 GHz	1.000 MHz	2.47770 GHz	-50.22 dBm	-37.22 dB
2.478 GHz	2.484 GHz	1.000 MHz	2.48353 GHz	-10.12 dBm	-0.12 dB
2.484 GHz	2.495 GHz	1.000 MHz	2.48490 GHz	-20.14 dBm	-30.14 dB
2.495 GHz	2.496 GHz	200.000 Hz	2.49533 GHz	-92.84 dBm	-79.84 dB
2.496 GHz	2.501 GHz	1.000 MHz	2.49904 GHz	-56.01 dBm	-43.01 dB
2.501 GHz	2.509 GHz	1.000 MHz	2.50414 GHz	-57.42 dBm	-32.42 dB

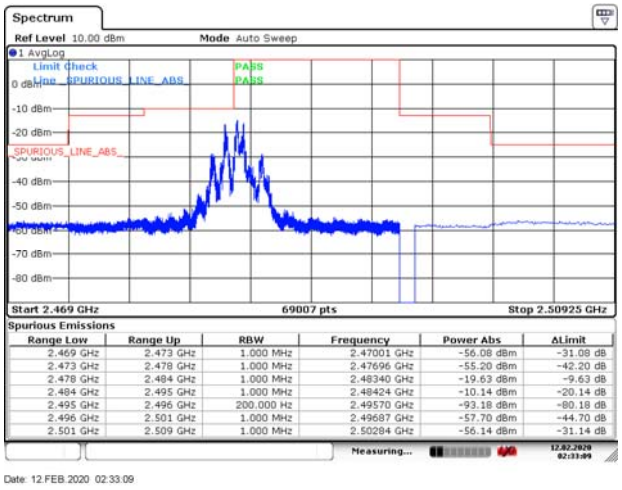
LTE Band 53 1.4MHz QPSK 1RB CH-High



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.469 GHz	2.473 GHz	1.000 MHz	2.46947 GHz	-55.57 dBm	-30.57 dB
2.473 GHz	2.478 GHz	1.000 MHz	2.47310 GHz	-54.10 dBm	-41.10 dB
2.478 GHz	2.484 GHz	1.000 MHz	2.48352 GHz	-49.60 dBm	-39.60 dB
2.484 GHz	2.495 GHz	1.000 MHz	2.49497 GHz	-3.31 dBm	-13.31 dB
2.495 GHz	2.496 GHz	200.000 Hz	2.49500 GHz	-44.02 dBm	-31.02 dB
2.496 GHz	2.501 GHz	1.000 MHz	2.49607 GHz	-22.94 dBm	-9.94 dB
2.501 GHz	2.509 GHz	1.000 MHz	2.50872 GHz	-55.03 dBm	-30.03 dB

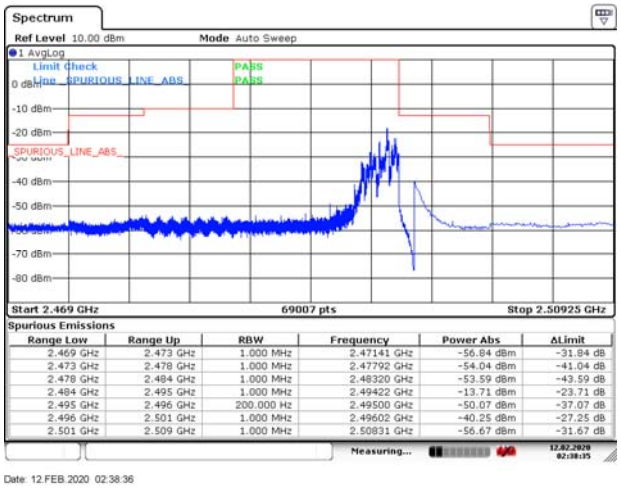
LTE Band 53 1.4MHz QPSK 100%RB CH-Low



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.469 GHz	2.473 GHz	1.000 MHz	2.47001 GHz	-56.08 dBm	-31.08 dB
2.473 GHz	2.478 GHz	1.000 MHz	2.47696 GHz	-55.20 dBm	-42.20 dB
2.478 GHz	2.484 GHz	1.000 MHz	2.48340 GHz	-19.63 dBm	-9.63 dB
2.484 GHz	2.495 GHz	1.000 MHz	2.48424 GHz	-10.14 dBm	-20.14 dB
2.495 GHz	2.496 GHz	200.000 Hz	2.49570 GHz	-93.18 dBm	-80.18 dB
2.496 GHz	2.501 GHz	1.000 MHz	2.49687 GHz	-57.70 dBm	-44.70 dB
2.501 GHz	2.509 GHz	1.000 MHz	2.50284 GHz	-56.14 dBm	-31.14 dB

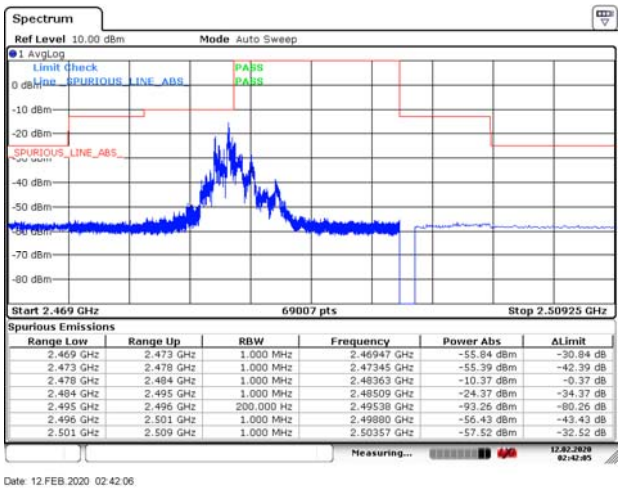
LTE Band 53 1.4MHz QPSK 100%RB CH-High



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.469 GHz	2.473 GHz	1.000 MHz	2.47141 GHz	-56.84 dBm	-31.84 dB
2.473 GHz	2.478 GHz	1.000 MHz	2.47792 GHz	-54.04 dBm	-41.04 dB
2.478 GHz	2.484 GHz	1.000 MHz	2.48320 GHz	-53.59 dBm	-43.59 dB
2.484 GHz	2.495 GHz	1.000 MHz	2.49422 GHz	-13.71 dBm	-23.71 dB
2.495 GHz	2.496 GHz	200.000 Hz	2.49500 GHz	-50.07 dBm	-37.07 dB
2.496 GHz	2.501 GHz	1.000 MHz	2.49602 GHz	-40.25 dBm	-27.25 dB
2.501 GHz	2.509 GHz	1.000 MHz	2.50831 GHz	-56.67 dBm	-31.67 dB

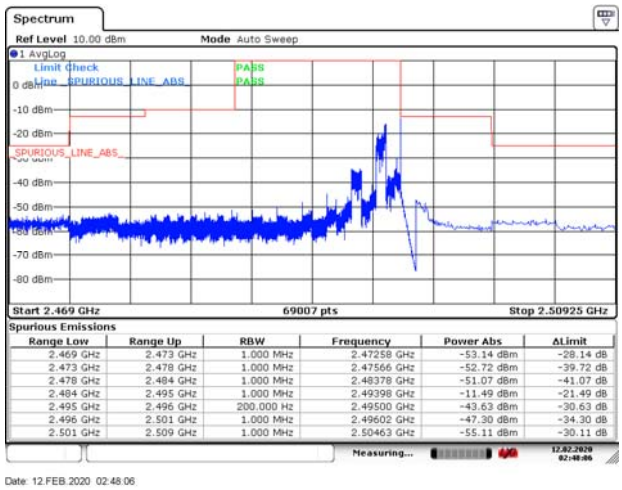
LTE Band 53 3MHz QPSK 1RB CH-Low



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.469 GHz	2.473 GHz	1.000 MHz	2.46947 GHz	-55.84 dBm	-30.84 dB
2.473 GHz	2.478 GHz	1.000 MHz	2.47345 GHz	-55.39 dBm	-42.39 dB
2.478 GHz	2.484 GHz	1.000 MHz	2.48363 GHz	-10.37 dBm	-0.37 dB
2.484 GHz	2.495 GHz	1.000 MHz	2.48509 GHz	-24.37 dBm	-34.37 dB
2.495 GHz	2.496 GHz	200.000 Hz	2.49538 GHz	-93.26 dBm	-80.26 dB
2.496 GHz	2.501 GHz	1.000 MHz	2.49880 GHz	-56.43 dBm	-43.43 dB
2.501 GHz	2.509 GHz	1.000 MHz	2.50357 GHz	-57.52 dBm	-32.52 dB

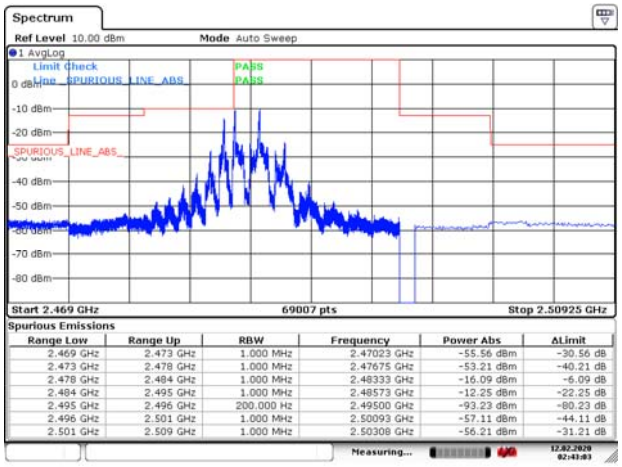
LTE Band 53 3MHz QPSK 1RB CH-High



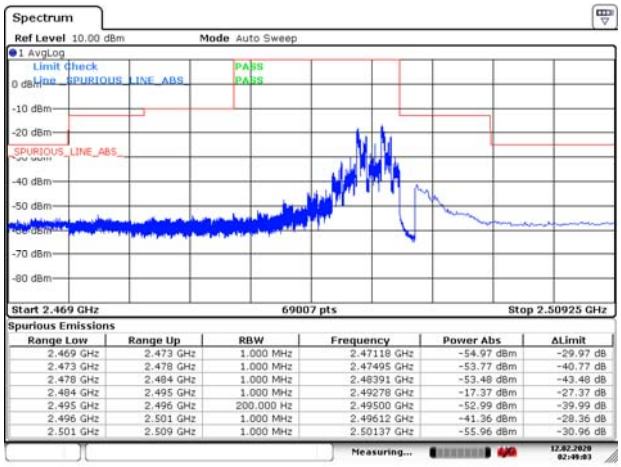
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.469 GHz	2.473 GHz	1.000 MHz	2.47258 GHz	-53.14 dBm	-28.14 dB
2.473 GHz	2.478 GHz	1.000 MHz	2.47566 GHz	-52.72 dBm	-39.72 dB
2.478 GHz	2.484 GHz	1.000 MHz	2.48378 GHz	-51.07 dBm	-41.07 dB
2.484 GHz	2.495 GHz	1.000 MHz	2.49398 GHz	-11.49 dBm	-21.49 dB
2.495 GHz	2.496 GHz	200.000 Hz	2.49500 GHz	-43.63 dBm	-30.63 dB
2.496 GHz	2.501 GHz	1.000 MHz	2.49602 GHz	-47.30 dBm	-34.30 dB
2.501 GHz	2.509 GHz	1.000 MHz	2.50463 GHz	-55.11 dBm	-30.11 dB

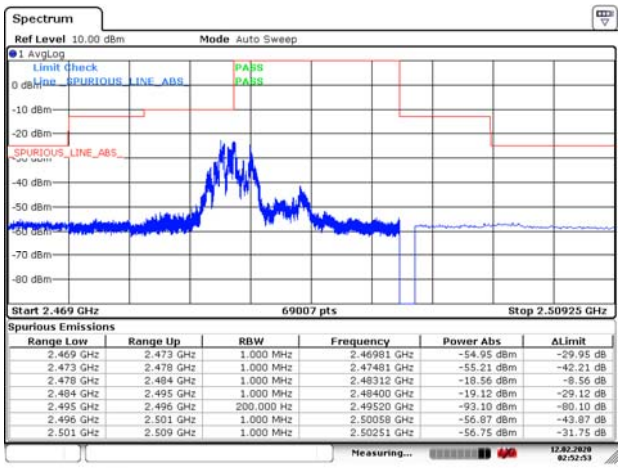
LTE Band 53 3MHz QPSK 100%RB CH-Low



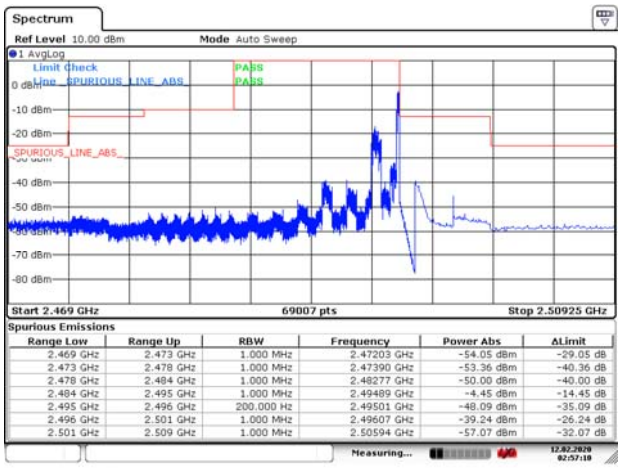
LTE Band 53 3MHz QPSK 100%RB CH-High



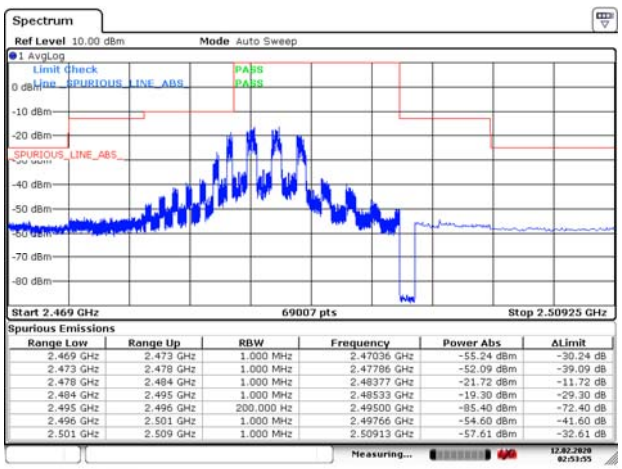
LTE Band 53 5MHz QPSK 1RB CH-Low



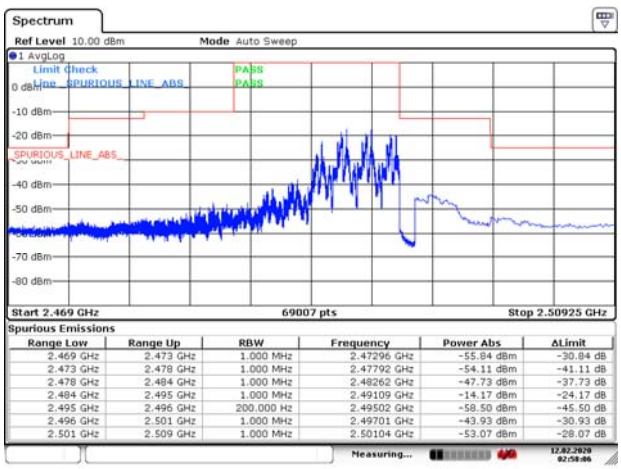
LTE Band 53 5MHz QPSK 1RB CH-High



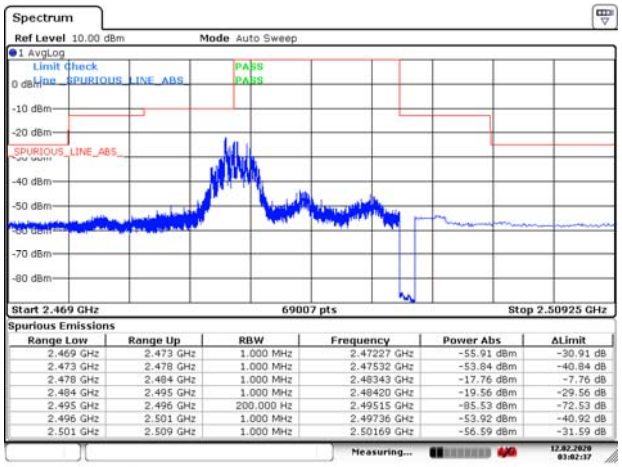
LTE Band 53 5MHz QPSK 100%RB CH-Low



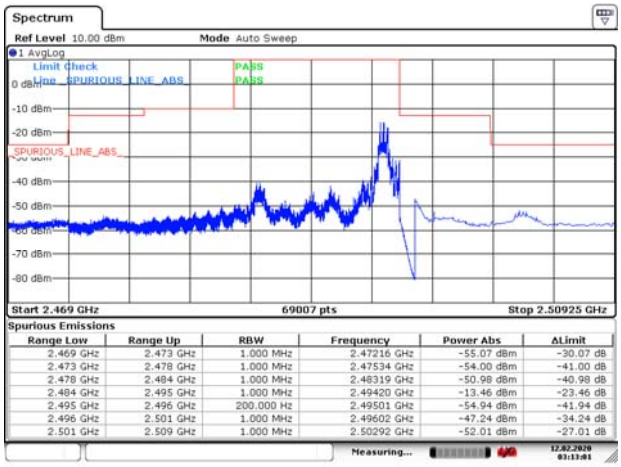
LTE Band 53 5MHz QPSK 100%RB CH-High



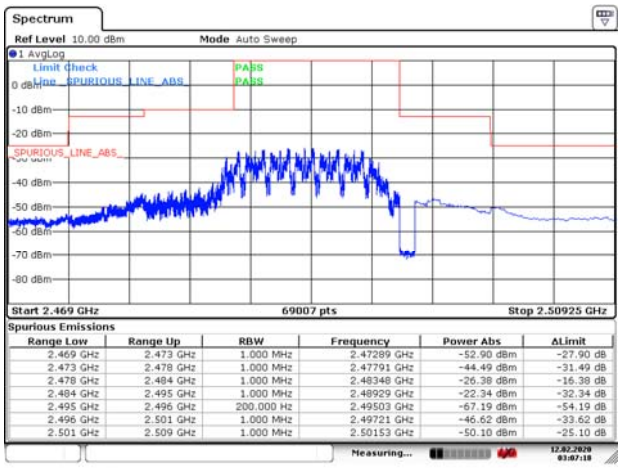
LTE Band 53 10MHz QPSK 1RB CH-Low



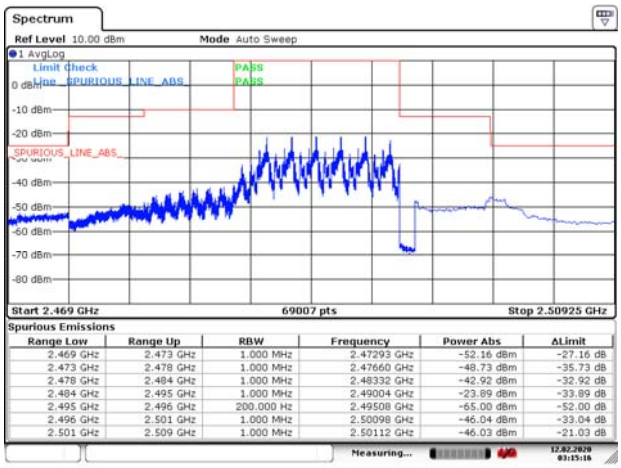
LTE Band 53 10MHz QPSK 1RB CH-High



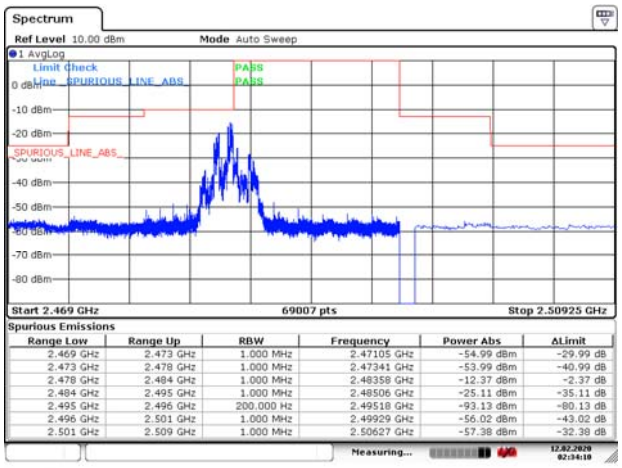
LTE Band 53 10MHz QPSK 100%RB CH-Low



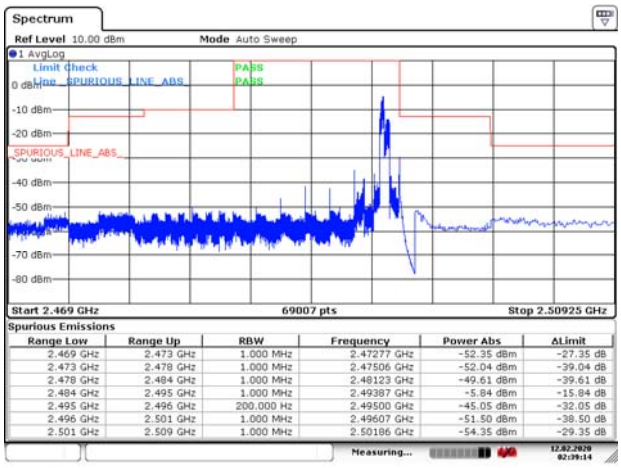
LTE Band 53 10MHz QPSK 100%RB CH-High



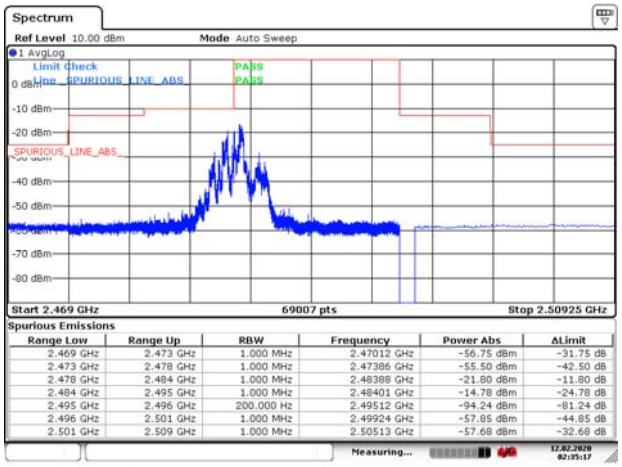
LTE Band 53 1.4MHz 16QAM 1RB CH-Low



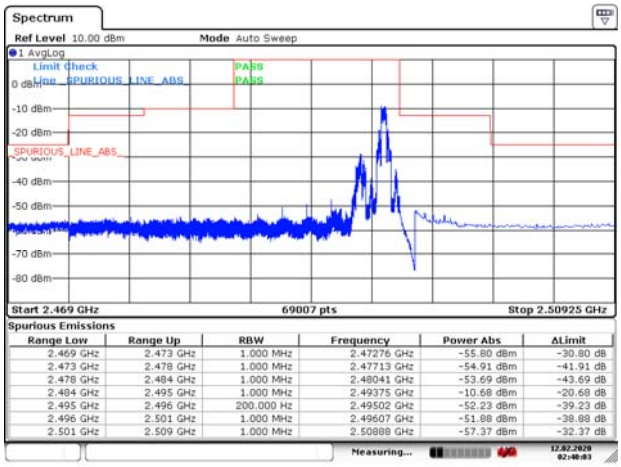
LTE Band 53 1.4MHz 16QAM 1RB CH-High



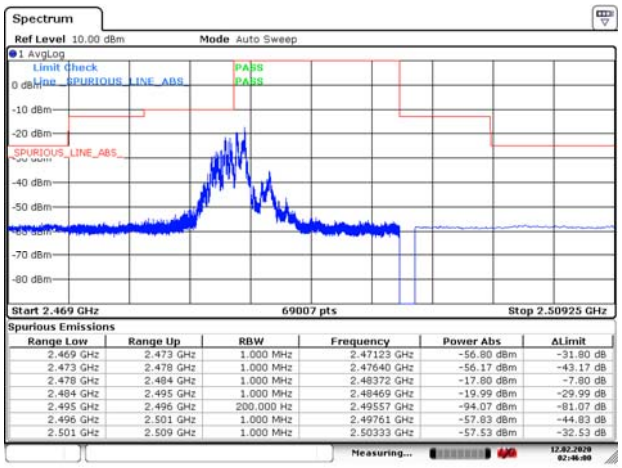
LTE Band 53 1.4MHz 16QAM 100%RB CH-Low



LTE Band 53 1.4MHz 16QAM 100%RB CH-High



LTE Band 53 3MHz 16QAM 1RB CH-Low



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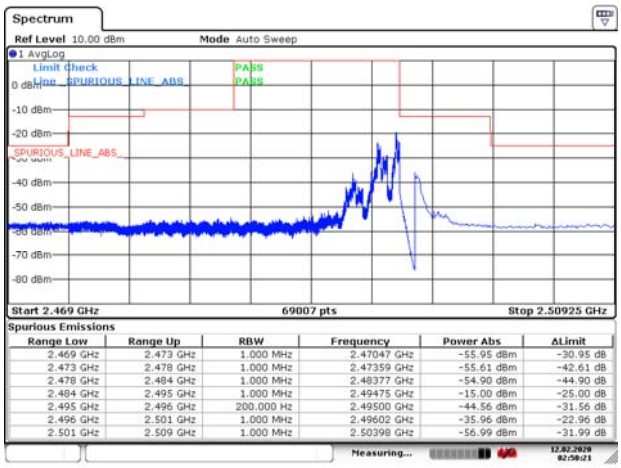
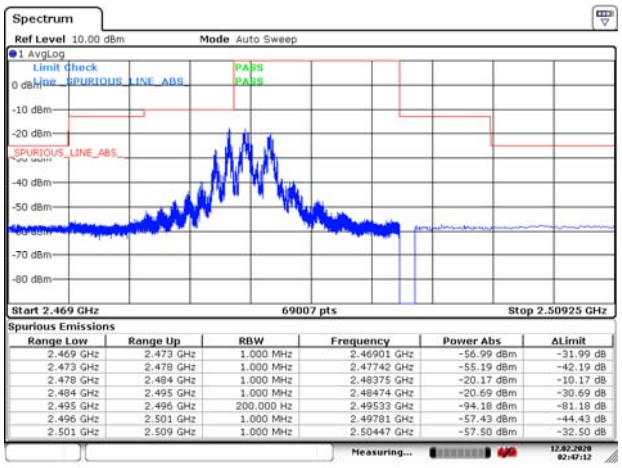
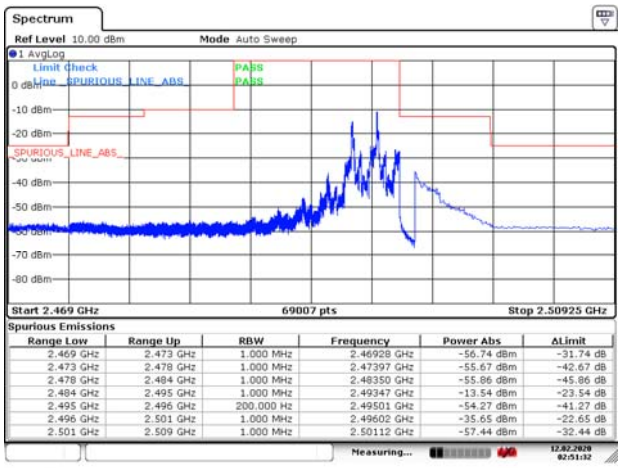


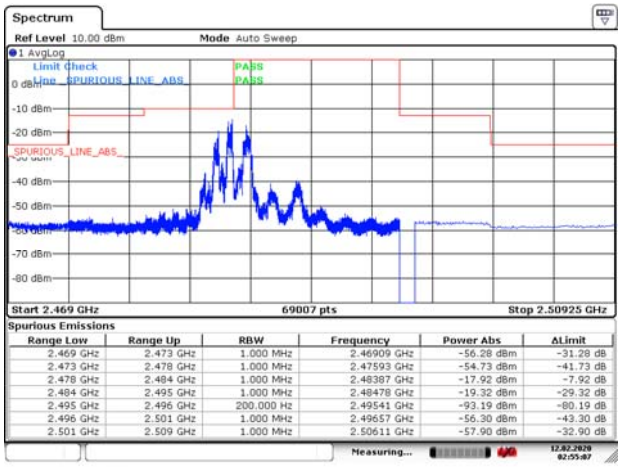
LTE Band 53 3MHz 16QAM 100%RB CH-Low



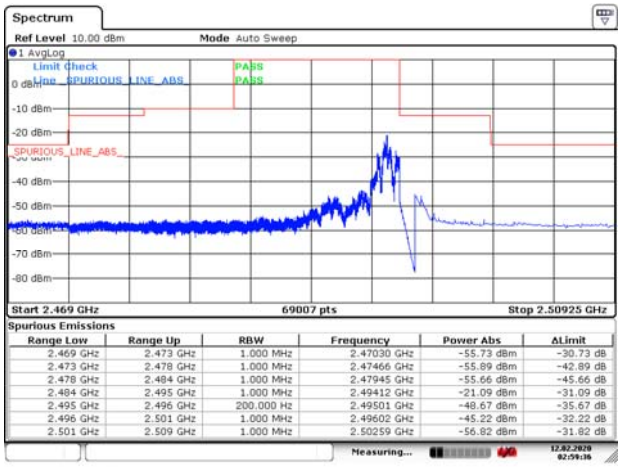
LTE Band 53 3MHz 16QAM 100%RB CH-High



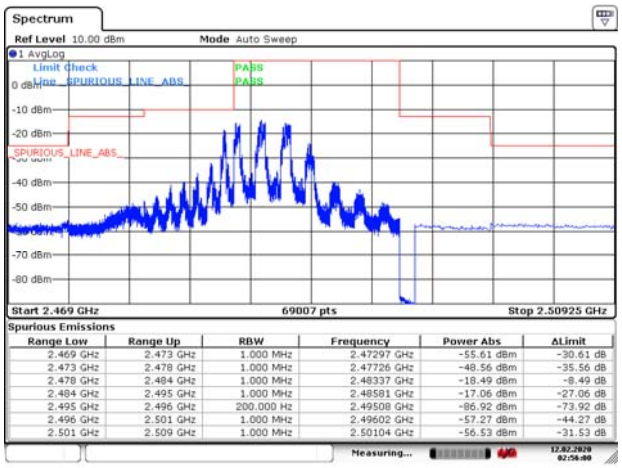
LTE Band 53 5MHz 16QAM 1RB CH-Low



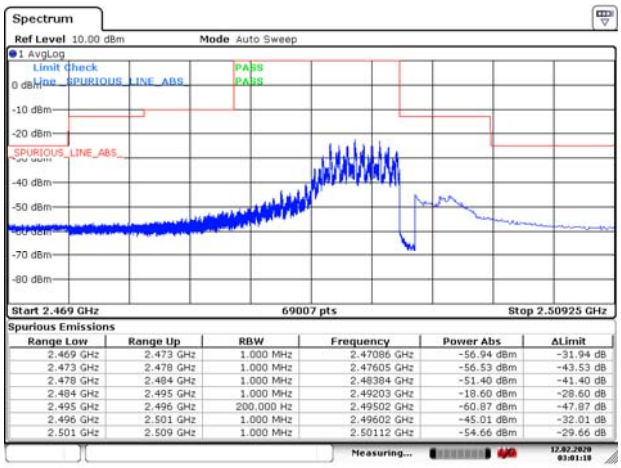
LTE Band 53 5MHz 16QAM 1RB CH-High



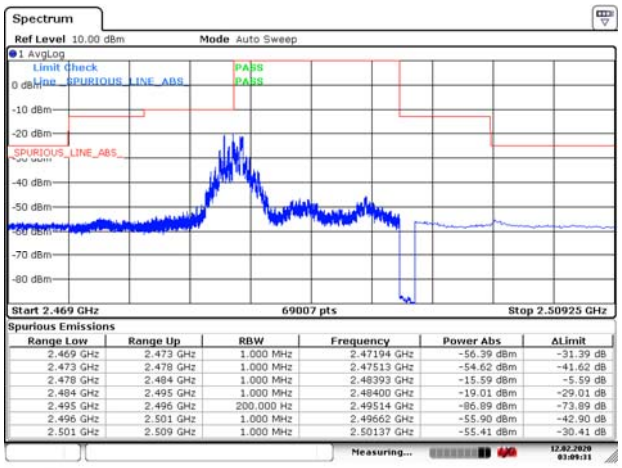
LTE Band 53 5MHz 16QAM 100%RB CH-Low



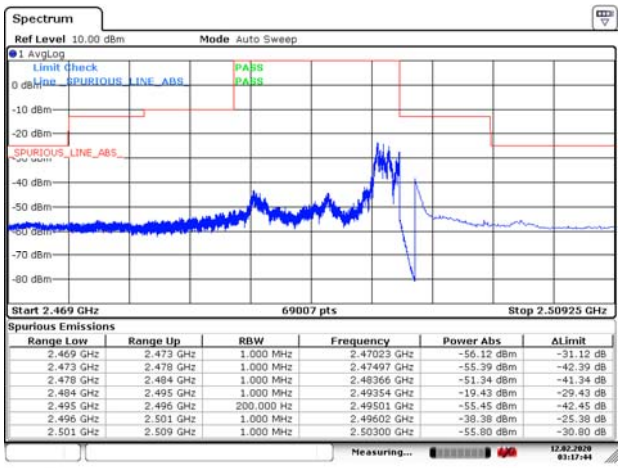
LTE Band 53 5MHz 16QAM 100%RB CH-High



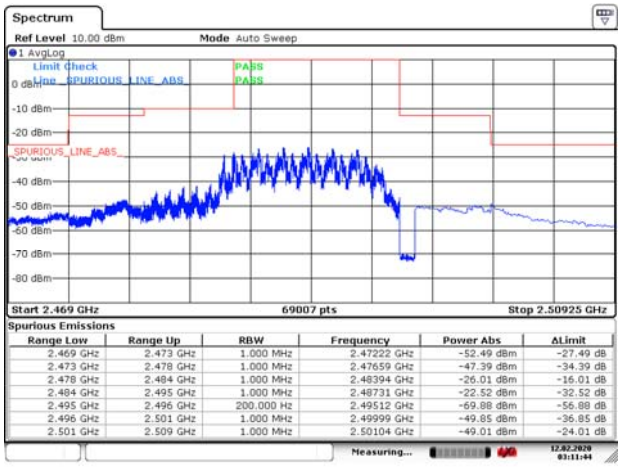
LTE Band 53 10MHz 16QAM 1RB CH-Low



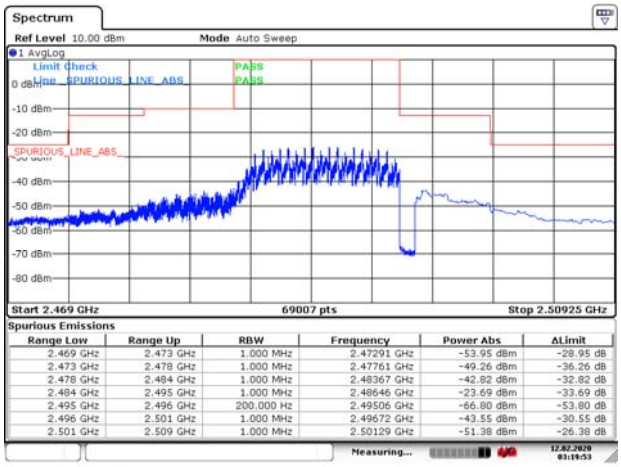
LTE Band 53 10MHz 16QAM 1RB CH-High



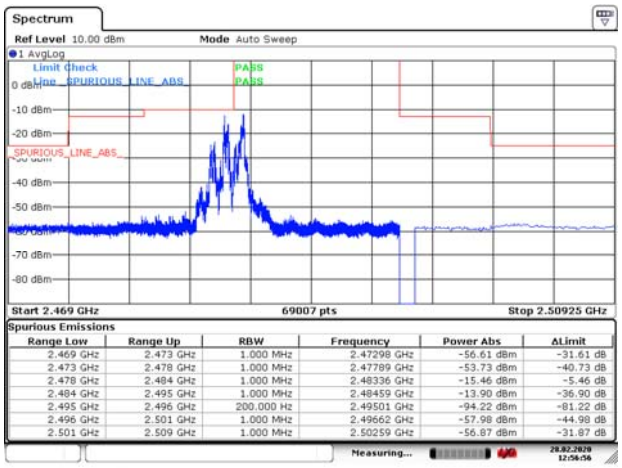
LTE Band 53 10MHz 16QAM 100%RB CH-Low



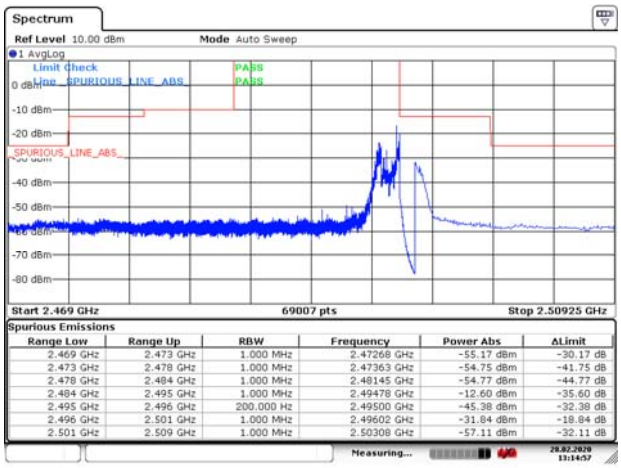
LTE Band 53 10MHz 16QAM 100%RB CH-High



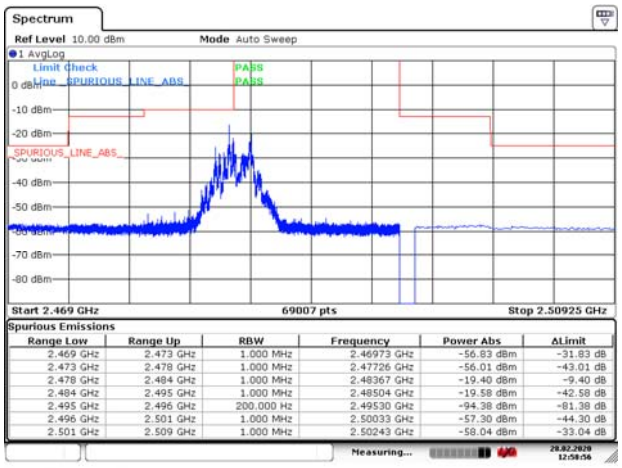
LTE Band 53 1.4MHz 64QAM 1RB CH-Low



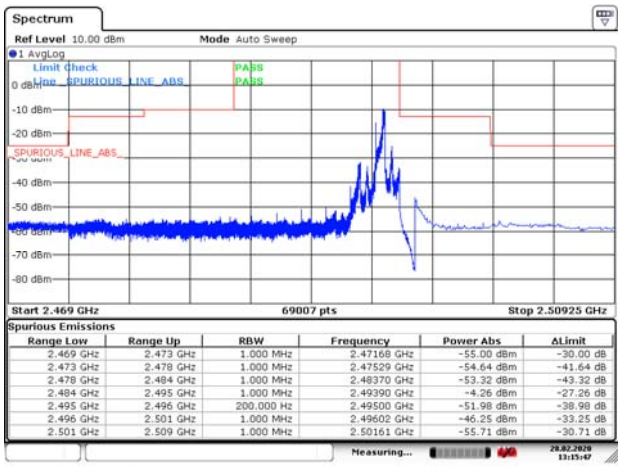
LTE Band 53 1.4MHz 64QAM 1RB CH-High



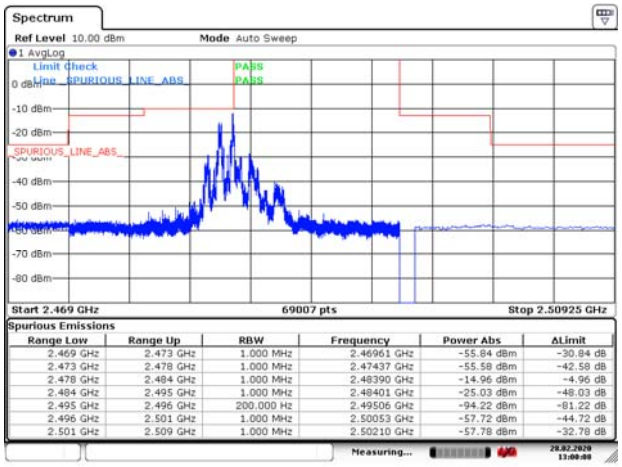
LTE Band 53 1.4MHz 64QAM 100%RB CH-Low



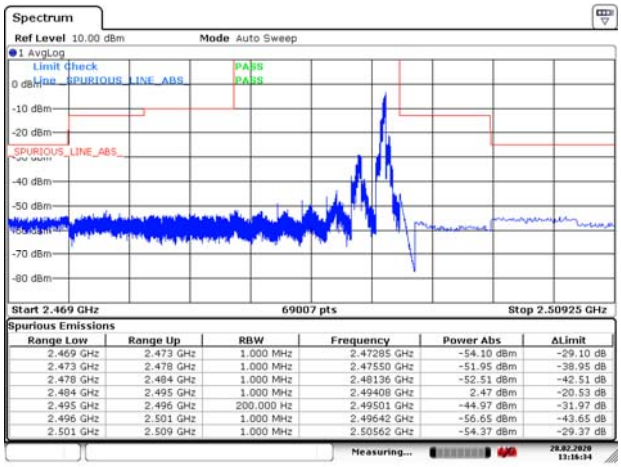
LTE Band 53 1.4MHz 64QAM 100%RB CH-High



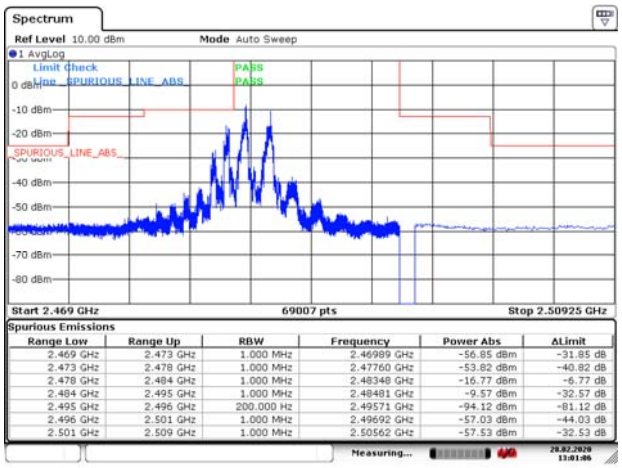
LTE Band 53 3MHz 64QAM 1RB CH-Low



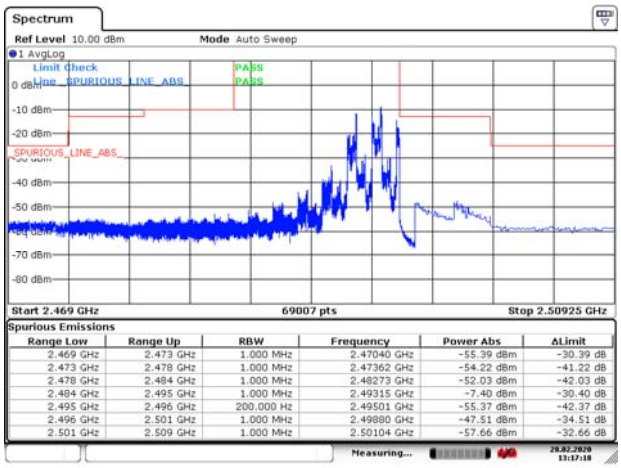
LTE Band 53 3MHz 64QAM 1RB CH-High



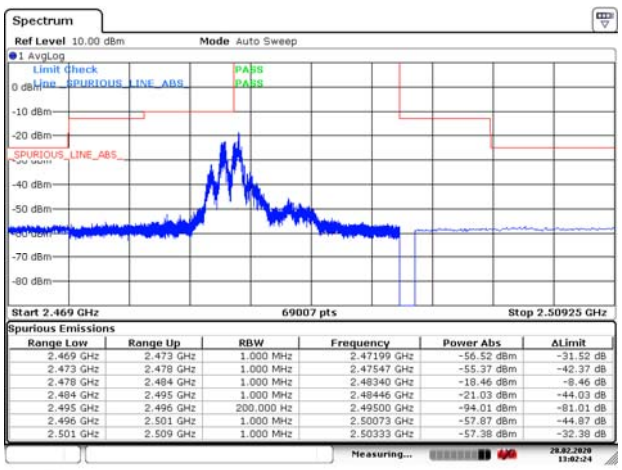
LTE Band 53 3MHz 64QAM 100%RB CH-Low



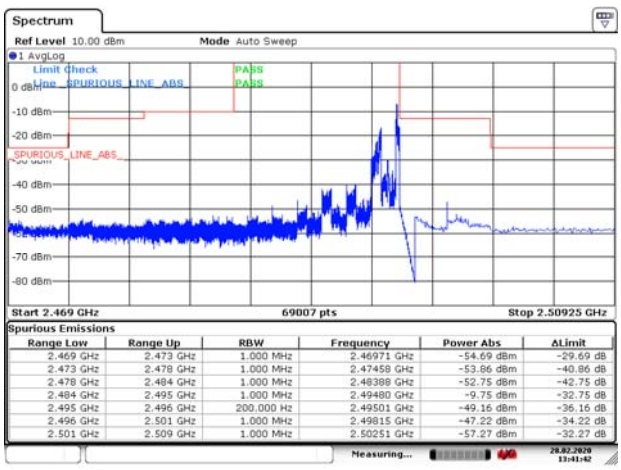
LTE Band 53 3MHz 64QAM 100%RB CH-High



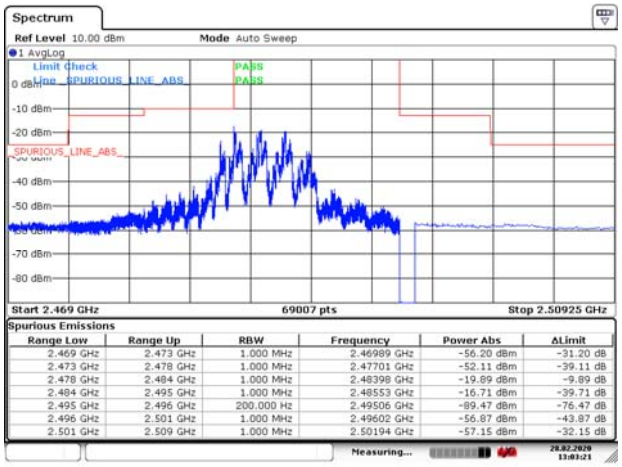
LTE Band 53 5MHz 64QAM 1RB CH-Low



LTE Band 53 5MHz 64QAM 1RB CH-High



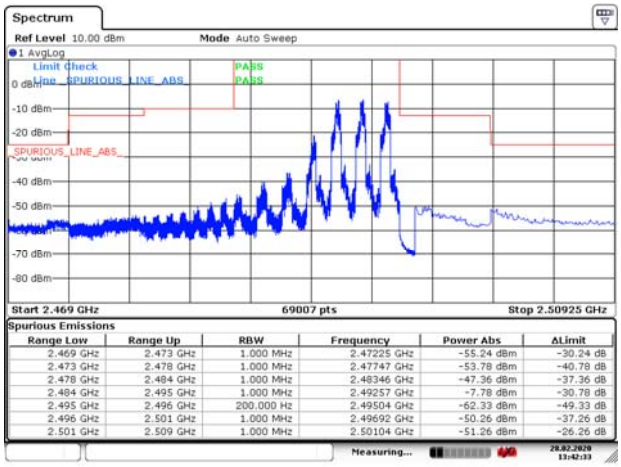
LTE Band 53 5MHz 64QAM 100%RB CH-Low



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.469 GHz	2.473 GHz	1.000 MHz	2.46989 GHz	-56.20 dBm	-31.20 dB
2.473 GHz	2.478 GHz	1.000 MHz	2.47701 GHz	-52.11 dBm	-39.11 dB
2.478 GHz	2.484 GHz	1.000 MHz	2.48398 GHz	-19.89 dBm	-9.89 dB
2.484 GHz	2.495 GHz	1.000 MHz	2.48553 GHz	-16.71 dBm	-39.71 dB
2.495 GHz	2.496 GHz	200.000 Hz	2.49506 GHz	-89.47 dBm	-76.47 dB
2.496 GHz	2.501 GHz	1.000 MHz	2.49602 GHz	-56.87 dBm	-43.87 dB
2.501 GHz	2.509 GHz	1.000 MHz	2.50194 GHz	-57.15 dBm	-32.15 dB

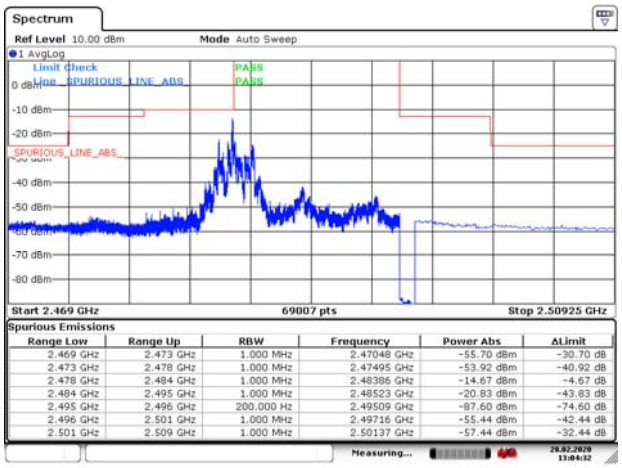
LTE Band 53 5MHz 64QAM 100%RB CH-High



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.469 GHz	2.473 GHz	1.000 MHz	2.47225 GHz	-55.24 dBm	-30.24 dB
2.473 GHz	2.478 GHz	1.000 MHz	2.47747 GHz	-53.78 dBm	-40.78 dB
2.478 GHz	2.484 GHz	1.000 MHz	2.48346 GHz	-47.36 dBm	-37.36 dB
2.484 GHz	2.495 GHz	1.000 MHz	2.49257 GHz	-7.78 dBm	-30.78 dB
2.495 GHz	2.496 GHz	200.000 Hz	2.49504 GHz	-62.33 dBm	-49.33 dB
2.496 GHz	2.501 GHz	1.000 MHz	2.49692 GHz	-50.26 dBm	-37.26 dB
2.501 GHz	2.509 GHz	1.000 MHz	2.50104 GHz	-51.26 dBm	-26.26 dB

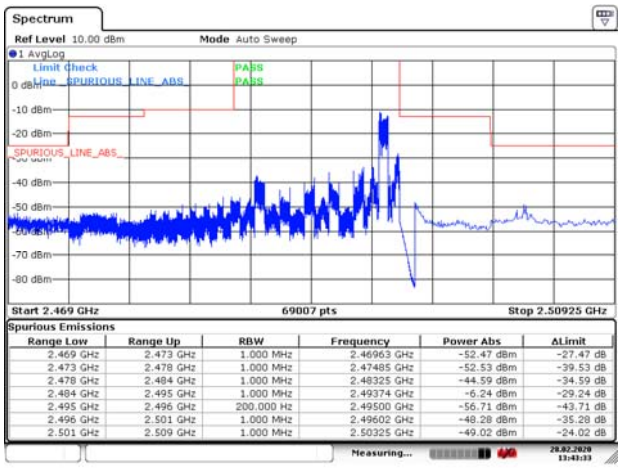
LTE Band 53 10MHz 64QAM 1RB CH-Low



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.469 GHz	2.473 GHz	1.000 MHz	2.47048 GHz	-55.70 dBm	-30.70 dB
2.473 GHz	2.478 GHz	1.000 MHz	2.47495 GHz	-53.92 dBm	-40.92 dB
2.478 GHz	2.484 GHz	1.000 MHz	2.48386 GHz	-14.67 dBm	-4.67 dB
2.484 GHz	2.495 GHz	1.000 MHz	2.48523 GHz	-20.83 dBm	-43.83 dB
2.495 GHz	2.496 GHz	200.000 Hz	2.49509 GHz	-87.60 dBm	-74.60 dB
2.496 GHz	2.501 GHz	1.000 MHz	2.49716 GHz	-55.44 dBm	-42.44 dB
2.501 GHz	2.509 GHz	1.000 MHz	2.50137 GHz	-57.44 dBm	-32.44 dB

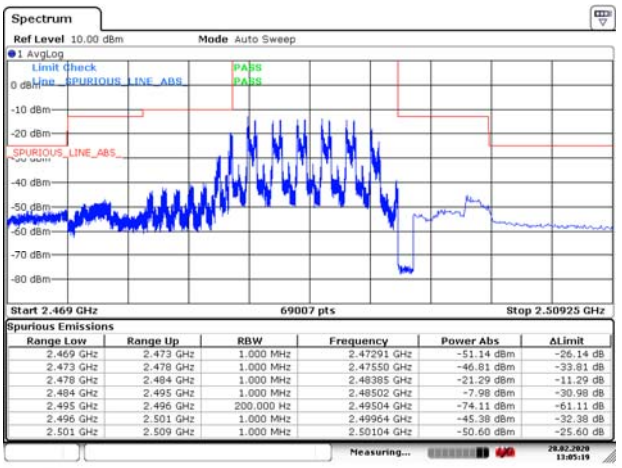
LTE Band 53 10MHz 64QAM 1RB CH-High



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.469 GHz	2.473 GHz	1.000 MHz	2.46963 GHz	-52.47 dBm	-27.47 dB
2.473 GHz	2.478 GHz	1.000 MHz	2.47485 GHz	-52.53 dBm	-39.53 dB
2.478 GHz	2.484 GHz	1.000 MHz	2.48325 GHz	-44.59 dBm	-34.59 dB
2.484 GHz	2.495 GHz	1.000 MHz	2.49374 GHz	-6.24 dBm	-29.24 dB
2.495 GHz	2.496 GHz	200.000 Hz	2.49500 GHz	-56.71 dBm	-43.71 dB
2.496 GHz	2.501 GHz	1.000 MHz	2.49602 GHz	-48.28 dBm	-35.28 dB
2.501 GHz	2.509 GHz	1.000 MHz	2.50325 GHz	-49.02 dBm	-24.02 dB

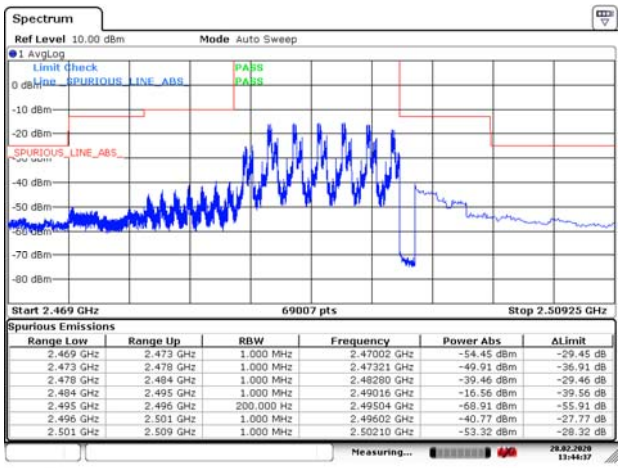
LTE Band 53 10MHz 64QAM 100%RB CH-Low



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.469 GHz	2.473 GHz	1.000 MHz	2.47291 GHz	-51.14 dBm	-26.14 dB
2.473 GHz	2.478 GHz	1.000 MHz	2.47550 GHz	-46.81 dBm	-33.81 dB
2.478 GHz	2.484 GHz	1.000 MHz	2.48385 GHz	-21.29 dBm	-11.29 dB
2.484 GHz	2.495 GHz	1.000 MHz	2.48502 GHz	-7.98 dBm	-30.98 dB
2.495 GHz	2.496 GHz	200.000 Hz	2.49504 GHz	-74.11 dBm	-61.11 dB
2.496 GHz	2.501 GHz	1.000 MHz	2.49964 GHz	-45.38 dBm	-32.38 dB
2.501 GHz	2.509 GHz	1.000 MHz	2.50104 GHz	-50.60 dBm	-25.60 dB

LTE Band 53 10MHz 64QAM 100%RB CH-High



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.469 GHz	2.473 GHz	1.000 MHz	2.47002 GHz	-54.45 dBm	-29.45 dB
2.473 GHz	2.478 GHz	1.000 MHz	2.47321 GHz	-49.91 dBm	-36.91 dB
2.478 GHz	2.484 GHz	1.000 MHz	2.48280 GHz	-39.46 dBm	-29.46 dB
2.484 GHz	2.495 GHz	1.000 MHz	2.49016 GHz	-16.56 dBm	-39.56 dB
2.495 GHz	2.496 GHz	200.000 Hz	2.49504 GHz	-68.91 dBm	-55.91 dB
2.496 GHz	2.501 GHz	1.000 MHz	2.49602 GHz	-40.77 dBm	-27.77 dB
2.501 GHz	2.509 GHz	1.000 MHz	2.50210 GHz	-53.32 dBm	-28.32 dB

4.7. Peak-to-Average Power Ratio (PAPR)

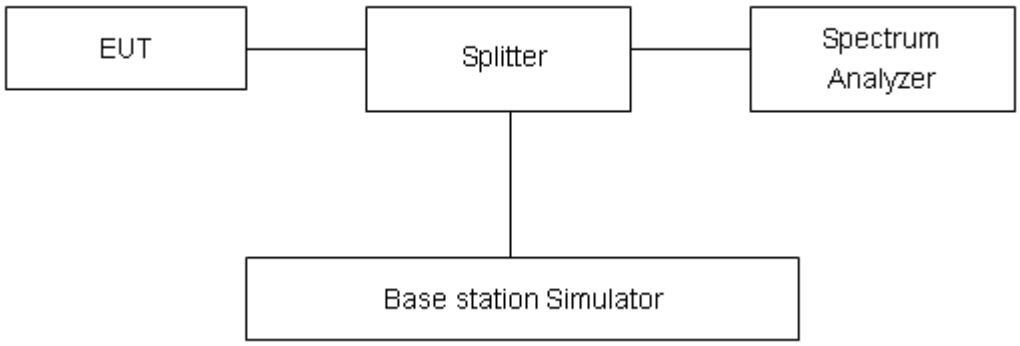
Ambient condition

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

Methods of Measurement

Measure the total peak power and record as PPk. And measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (*e.g.*, dBm). Determine the PAPR from:
PAPR (dB) = PPk (dBm) - PAvg (dBm).

Test Setup



Limits

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

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.

Test Results

LTE Band53						
RB	Modulation	Bandwidth (MHz)	Channel	Peak	Avg	PAPR
100%	QPSK	1.4M	L	25.47	16.64	8.83
			M	25.62	16.76	8.86
			H	25.48	16.63	8.85
		3M	L	25.36	16.55	8.81
			M	25.55	17.11	8.44
			H	25.36	16.87	8.49
		5M	L	25.53	16.66	8.87
			M	25.38	16.47	8.91
			H	25.38	16.73	8.65
		10M	L	25.31	16.46	8.85
			M	25.36	16.31	9.05
			H	25.38	16.95	8.43
	16QAM	1.4M	L	25.23	15.89	9.34
			M	25.37	15.99	9.38
			H	25.24	16.01	9.23
		3M	L	25.22	15.38	9.84
			M	25.44	16.30	9.14
			H	25.23	16.05	9.18
		5M	L	25.41	16.52	8.89
			M	25.09	16.28	8.81
			H	25.00	15.66	9.34
		10M	L	25.01	15.29	9.72
			M	25.12	15.95	9.17
			H	24.98	15.38	9.60
	64QAM	1.4M	L	25.20	15.76	9.44
			M	25.31	15.91	9.40
			H	25.23	15.91	9.32
		3M	L	24.94	15.57	9.37
			M	25.12	16.01	9.11
			H	24.86	15.70	9.16
		5M	L	24.96	15.76	9.20
			M	25.37	15.56	9.81
			H	25.37	15.81	9.56
		10M	L	25.38	15.79	9.59
			M	25.25	15.64	9.61
			H	25.29	15.81	9.48

4.8. Frequency Stability

Ambient condition

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

Method of Measurement

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -40°C to +70°C in 10°C step size,

(1) With all power removed, the temperature was decreased to 0°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -40°C to +70°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

Frequency Stability (Voltage Variation)

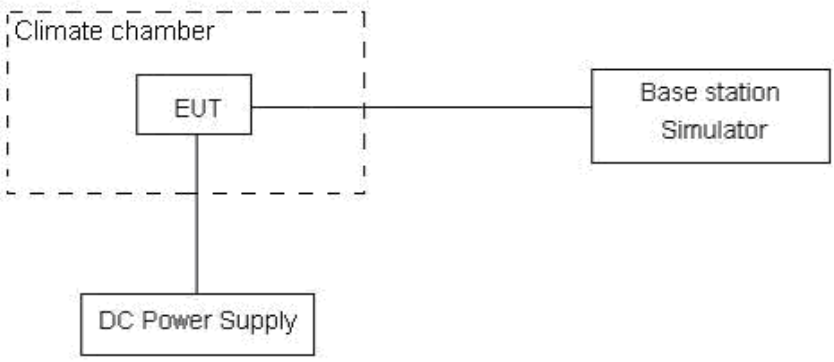
The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery-operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3 V and 3.6 V, with a nominal voltage of 3.3V.

Test setup



Limits

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

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75％ confidence level for the normal distribution is with the coverage factor k = 3, U= 0.01ppm.

Test Result

LTE Band53								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	1.4MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal(25℃)	Normal	13.94	11.69	7.89	0.00741	0.00622	0.00420	P
Extreme(70℃)		14.14	4.87	7.80	0.00752	0.00259	0.00415	P
Extreme(60℃)		17.32	8.91	17.22	0.00921	0.00474	0.00916	P
Extreme(50℃)		14.73	2.90	3.24	0.00783	0.00154	0.00172	P
Extreme(40℃)		13.88	11.33	14.01	0.00739	0.00603	0.00745	P
Extreme(30℃)		14.08	3.26	7.51	0.00749	0.00173	0.00399	P
Extreme(20℃)		10.21	15.33	14.62	0.00543	0.00816	0.00778	P
Extreme(10℃)		8.01	16.72	13.49	0.00426	0.00889	0.00718	P
Extreme(0℃)		2.07	3.45	12.91	0.00110	0.00184	0.00687	P
Extreme(-10℃)		15.96	15.76	15.49	0.00849	0.00838	0.00824	P
Extreme(-20℃)		11.37	4.23	8.61	0.00605	0.00225	0.00458	P
Extreme(-30℃)		11.01	14.31	1.20	0.00585	0.00761	0.00064	P
Extreme(-40℃)		7.38	3.39	1.76	0.00393	0.00180	0.00094	P
25℃	LV	1.44	3.59	5.79	0.00077	0.00191	0.00308	P
	HV	17.48	16.53	14.38	0.00930	0.00880	0.00765	P
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	3MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal(25℃)	Normal	12.25	3.25	5.22	0.00652	0.00173	0.00278	P
Extreme(70℃)		6.55	4.68	4.24	0.00349	0.00249	0.00226	P
Extreme(60℃)		11.96	7.52	2.36	0.00636	0.00400	0.00125	P
Extreme(50℃)		11.83	12.03	1.92	0.00630	0.00640	0.00102	P
Extreme(40℃)		9.31	11.66	13.21	0.00495	0.00620	0.00703	P
Extreme(30℃)		17.00	12.19	1.31	0.00904	0.00648	0.00070	P
Extreme(20℃)		1.40	1.48	9.98	0.00074	0.00079	0.00531	P
Extreme(10℃)		14.83	4.04	15.59	0.00789	0.00215	0.00829	P
Extreme(0℃)		16.24	13.20	6.68	0.00864	0.00702	0.00355	P
Extreme(-10℃)		16.63	8.42	8.75	0.00885	0.00448	0.00466	P
Extreme(-20℃)		8.62	6.65	7.63	0.00459	0.00354	0.00406	P
Extreme(-30℃)		15.56	17.65	15.16	0.00828	0.00939	0.00806	P
Extreme(-40℃)		2.89	3.90	11.23	0.00154	0.00207	0.00597	P
25℃	LV	13.91	17.78	6.65	0.00740	0.00946	0.00354	P

	HV	14.75	17.17	16.12	0.00785	0.00913	0.00857	P
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal(25℃)	Normal	2.02	6.49	6.21	0.00108	0.00345	0.00330	P
Extreme(70℃)		5.64	12.89	5.42	0.00300	0.00686	0.00288	P
Extreme(60℃)		15.63	1.71	15.76	0.00831	0.00091	0.00839	P
Extreme(50℃)		15.95	1.29	17.31	0.00848	0.00068	0.00921	P
Extreme(40℃)		6.43	4.16	17.06	0.00342	0.00221	0.00908	P
Extreme(30℃)		13.87	8.09	12.40	0.00738	0.00430	0.00660	P
Extreme(20℃)		6.88	8.29	17.02	0.00366	0.00441	0.00905	P
Extreme(10℃)		7.39	8.82	11.82	0.00393	0.00469	0.00629	P
Extreme(0℃)		4.73	14.46	13.03	0.00251	0.00769	0.00693	P
Extreme(-10℃)		9.23	17.33	6.80	0.00491	0.00922	0.00362	P
Extreme(-20℃)		9.62	11.98	10.25	0.00512	0.00637	0.00545	P
Extreme(-30℃)		7.70	9.43	17.09	0.00410	0.00502	0.00909	P
Extreme(-40℃)		13.59	4.29	16.80	0.00723	0.00228	0.00894	P
25℃	LV	3.44	3.01	10.38	0.00183	0.00160	0.00552	P
	HV	17.98	4.69	14.52	0.00956	0.00249	0.00773	P
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal(25℃)	Normal	9.03	14.11	16.53	0.00480	0.00750	0.00879	P
Extreme(70℃)		3.04	11.05	13.48	0.00162	0.00588	0.00717	P
Extreme(60℃)		1.16	13.74	3.00	0.00062	0.00731	0.00160	P
Extreme(50℃)		2.16	12.02	8.93	0.00115	0.00639	0.00475	P
Extreme(40℃)		8.46	17.13	1.24	0.00450	0.00911	0.00066	P
Extreme(30℃)		5.12	4.59	2.25	0.00272	0.00244	0.00119	P
Extreme(20℃)		1.23	7.16	10.27	0.00066	0.00381	0.00546	P
Extreme(10℃)		6.56	6.98	2.78	0.00349	0.00371	0.00148	P
Extreme(0℃)		14.84	5.05	13.94	0.00789	0.00268	0.00741	P
Extreme(-10℃)		13.34	5.68	17.76	0.00710	0.00302	0.00945	P
Extreme(-20℃)		8.46	13.03	11.03	0.00450	0.00693	0.00587	P
Extreme(-30℃)		6.29	15.72	16.81	0.00335	0.00836	0.00894	P
Extreme(-40℃)		16.99	13.24	14.03	0.00903	0.00704	0.00746	P
25℃	LV	15.81	18.00	13.67	0.00841	0.00957	0.00727	P
	HV	16.05	7.40	14.69	0.00854	0.00394	0.00781	P
Note:P=Pass								

4.9. Spurious Emissions at Antenna Terminals

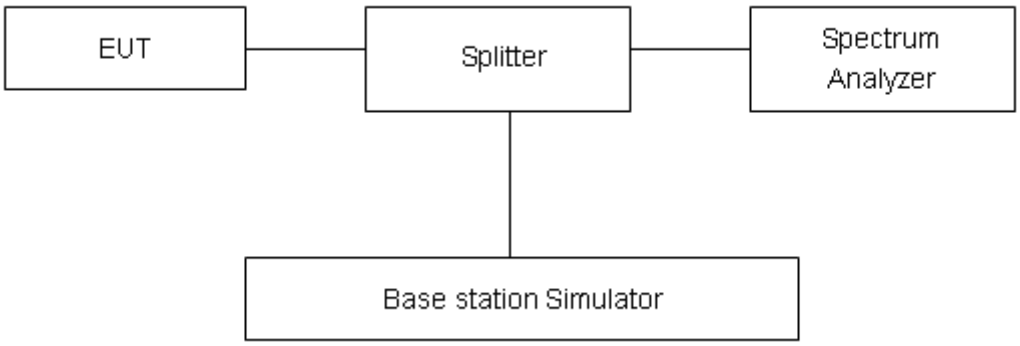
Ambient condition

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 measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used.
RBW is set to 100kHz, VBW is set to 300kHz for 30MHz~1GHz
RBW is set to 1MHz, VBW is set to 3MHz for above 1GHz, Sweep is set to ATUO.
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Limits

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB."

Limit	-13 dBm

Measurement Uncertainty

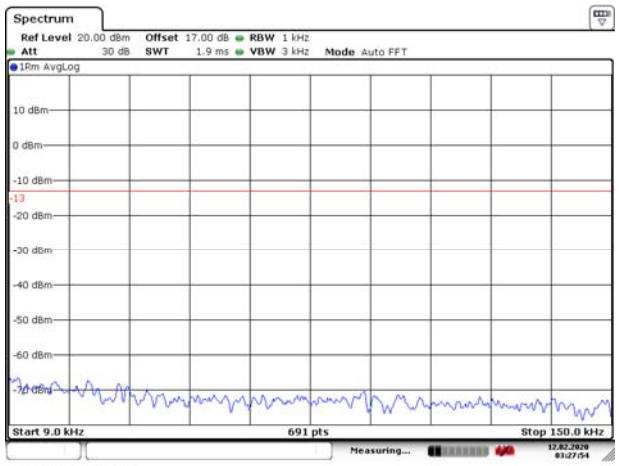
The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor *k* = 1.96.

Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-20GHz	1.407 dB

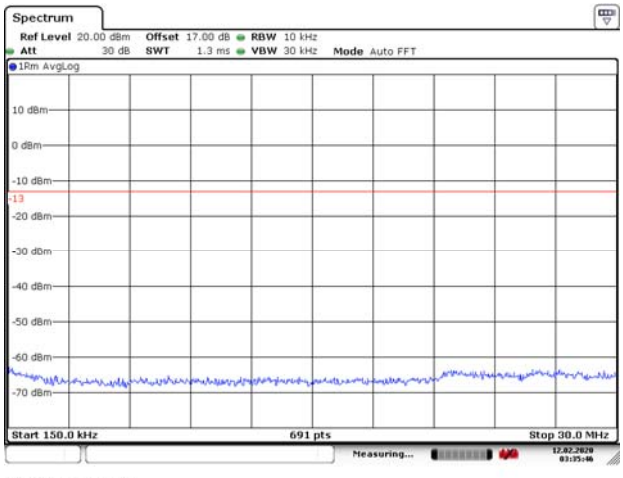
Test Result

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.
The signal beyond the limit is carrier.

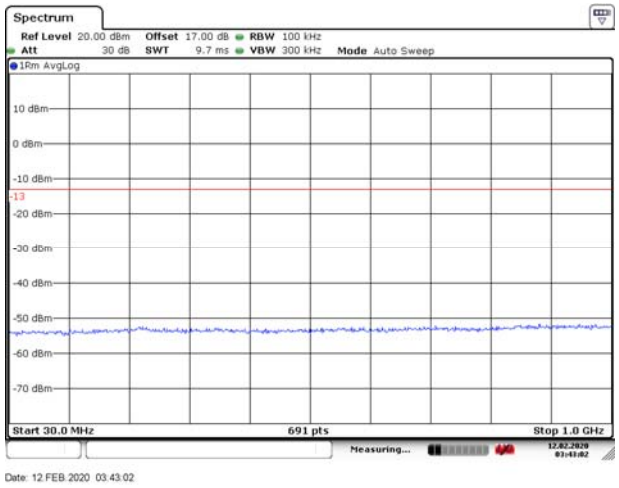
LTE Band 53 1.4MHz CH-Low 9kHz~150kHz



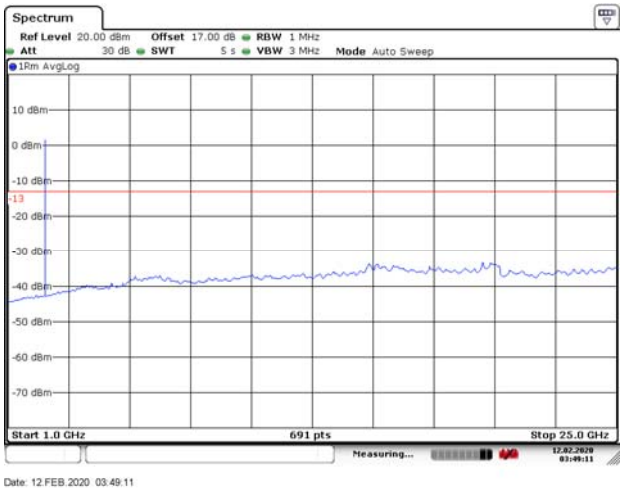
LTE Band 53 1.4MHz CH-Low 150kHz~30MHz



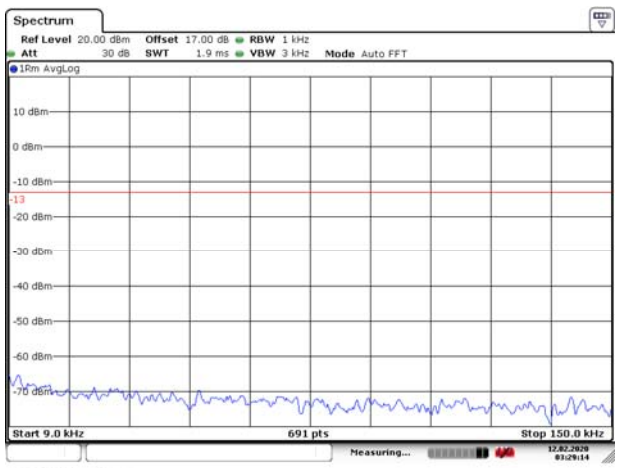
LTE Band 53 1.4MHz CH-Low 30MHz~1GHz



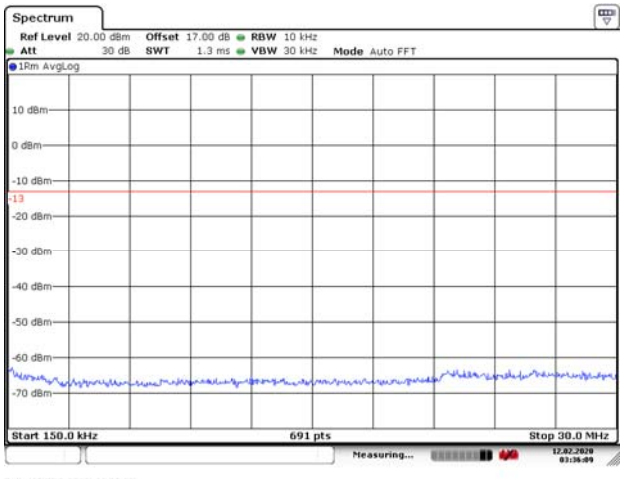
LTE Band 53 1.4MHz CH-Low 1GHz~25GHz



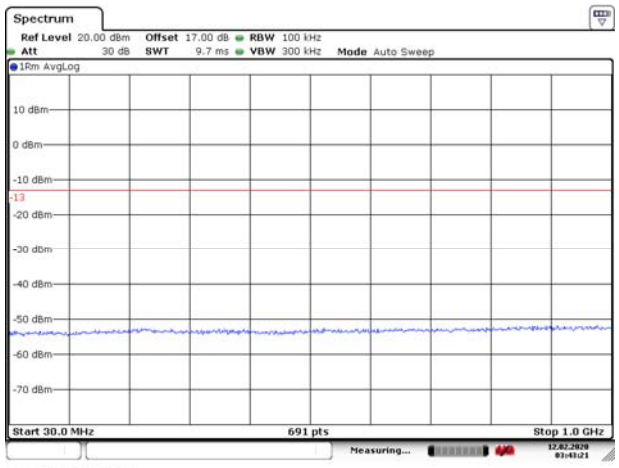
LTE Band 53 1.4MHz CH-Middle 9kHz~150kHz



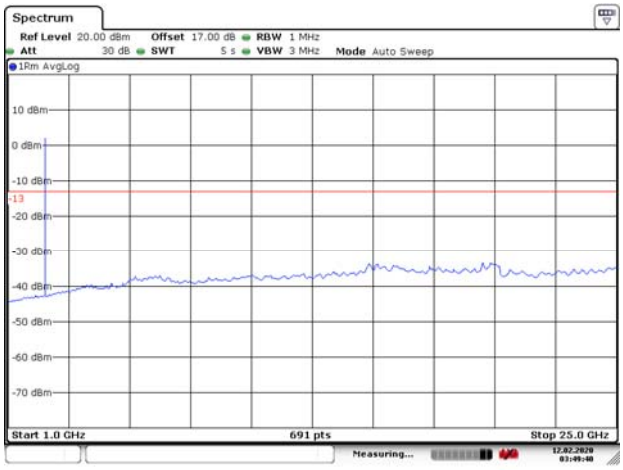
LTE Band 53 1.4MHz CH-Middle 150kHz~30MHz



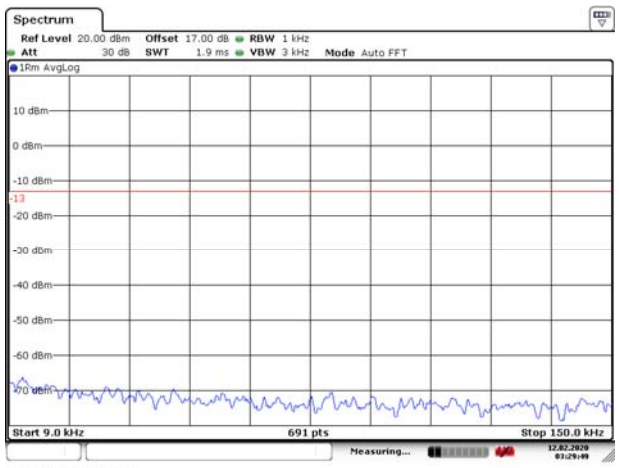
LTE Band 53 1.4MHz CH-Middle 30MHz~1GHz



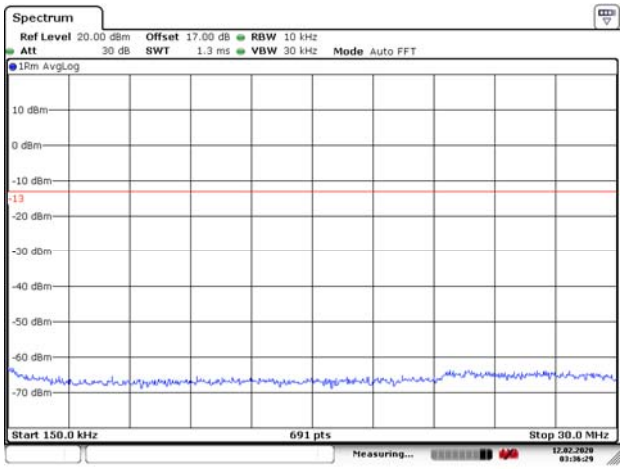
LTE Band 53 1.4MHz CH-Middle 1GHz~25GHz



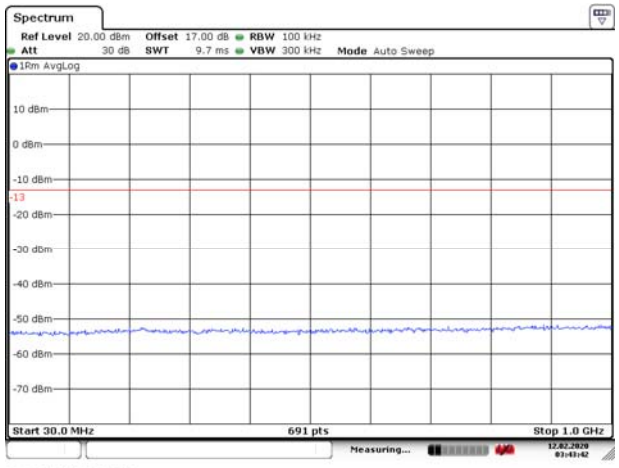
LTE Band 53 1.4MHz CH-High 9kH~150kHz



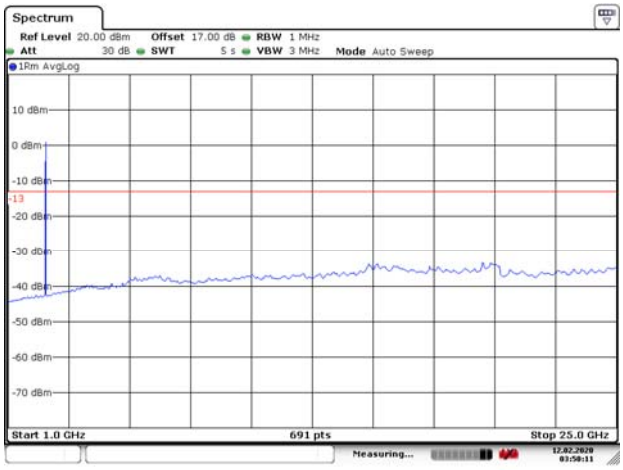
LTE Band 53 1.4MHz CH-High 150kHz~30MHz



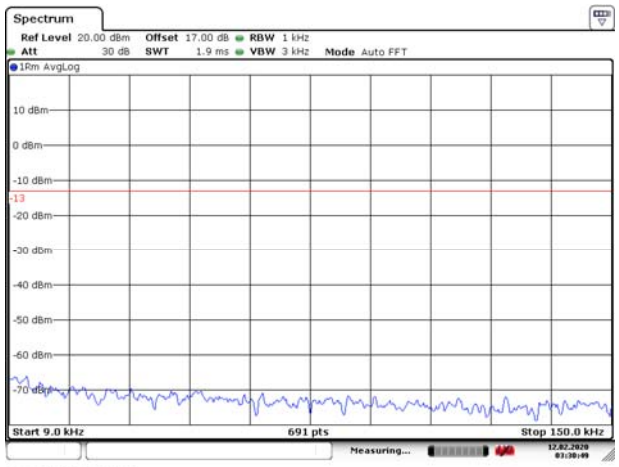
LTE Band 53 1.4MHz CH-High 30MHz~1GHz



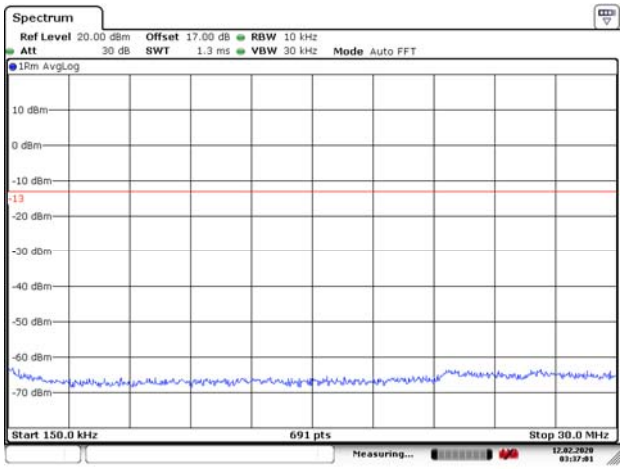
LTE Band 53 1.4MHz CH-High 1GHz~25GHz



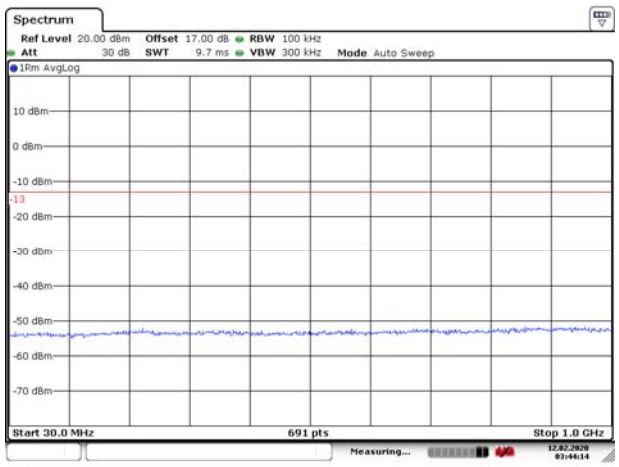
LTE Band 53 3MHz CH-Low 9kHz~150kHz



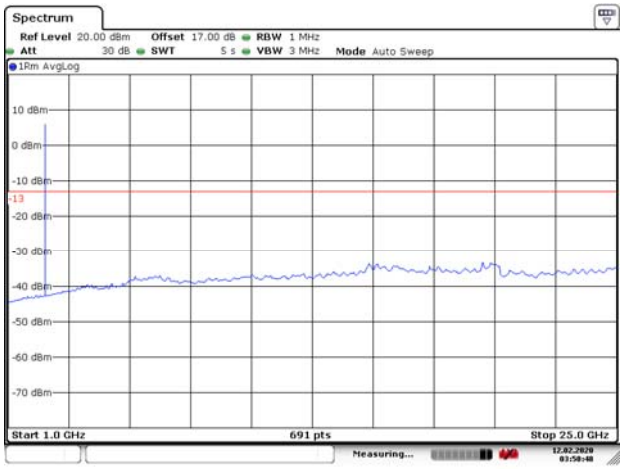
LTE Band 53 3MHz CH-Low 150kHz~30MHz



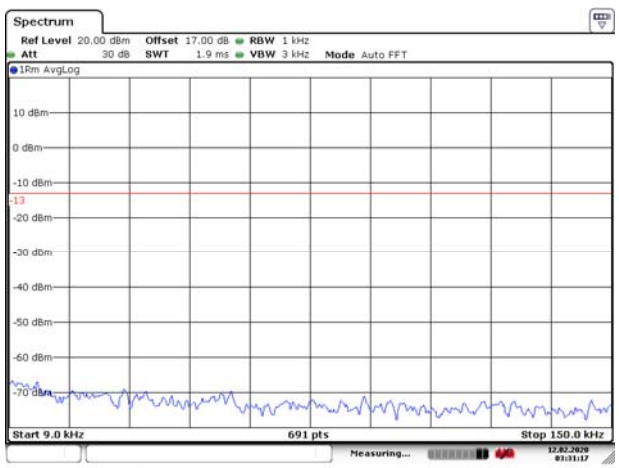
LTE Band 53 3MHz CH-Low 30MHz~1GHz



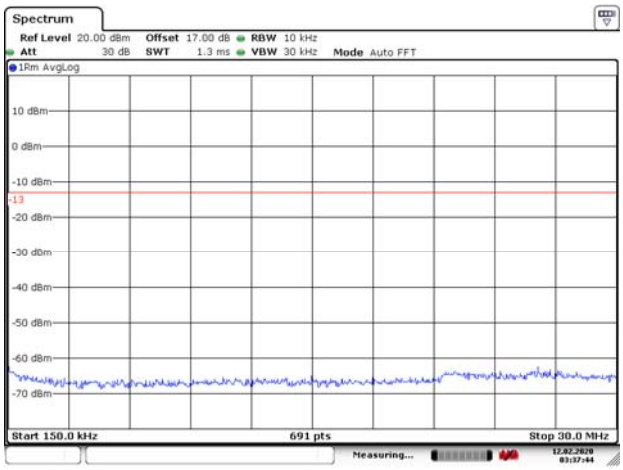
LTE Band 53 3MHz CH-Low 1GHz~25GHz



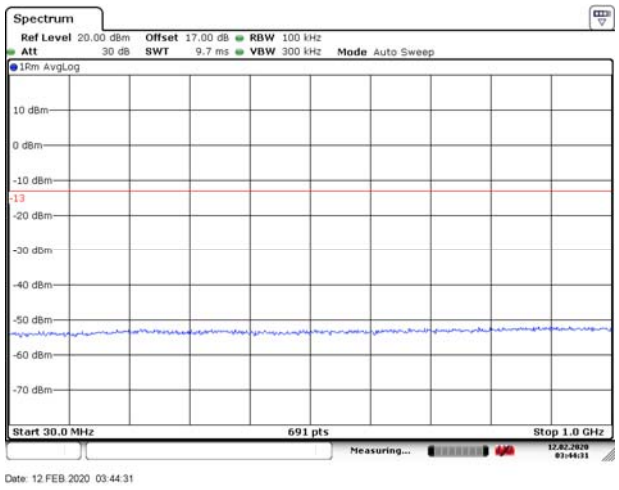
LTE Band 53 3MHz CH-Middle 9kHz~150kHz



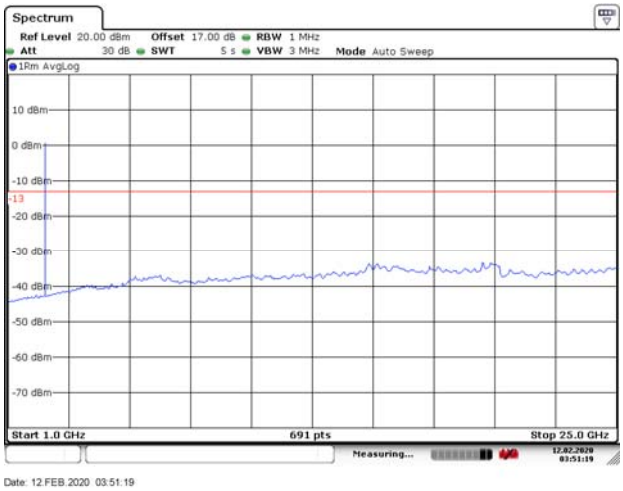
LTE Band 53 3MHz CH-Middle 150kHz~30MHz



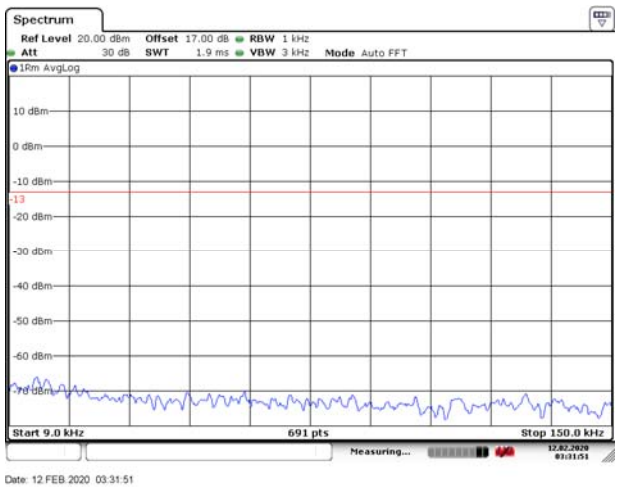
LTE Band 53 3MHz CH-Middle 30MHz~1GHz



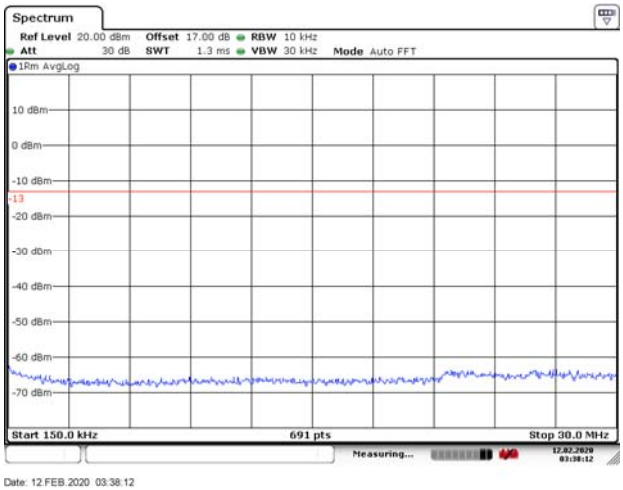
LTE Band 53 3MHz CH-Middle 1GHz~25GHz



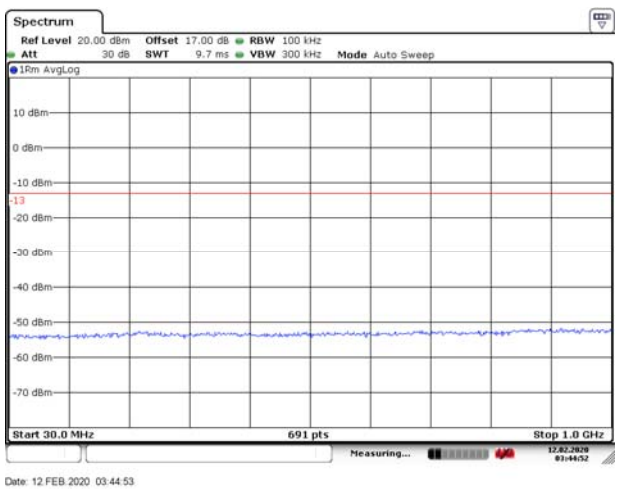
LTE Band 53 3MHz CH-High 9kHz~150kHz



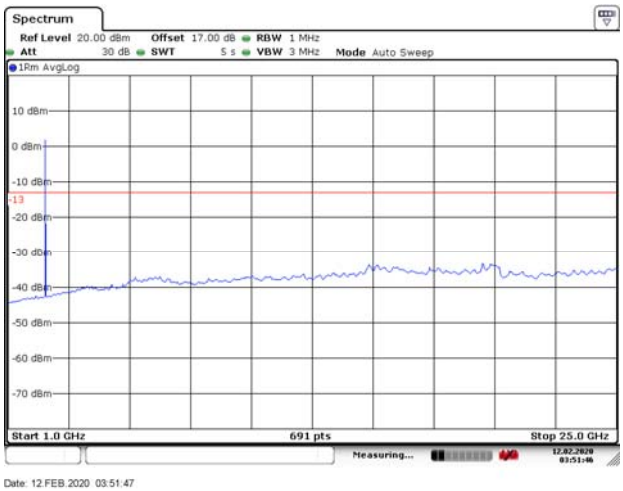
LTE Band 53 3MHz CH-High 150kHz~30MHz



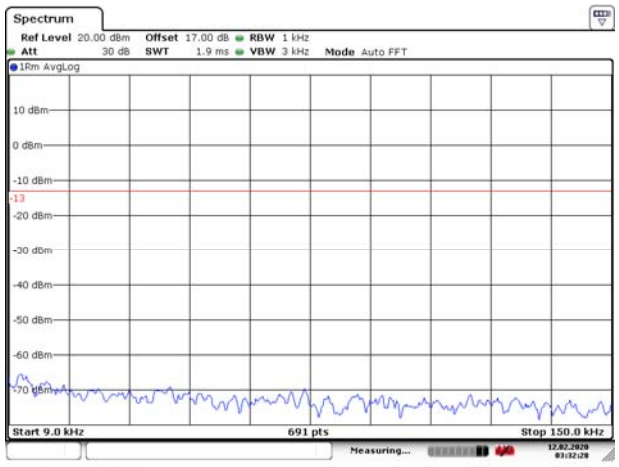
LTE Band 53 3MHz CH-High 30MHz~1GHz



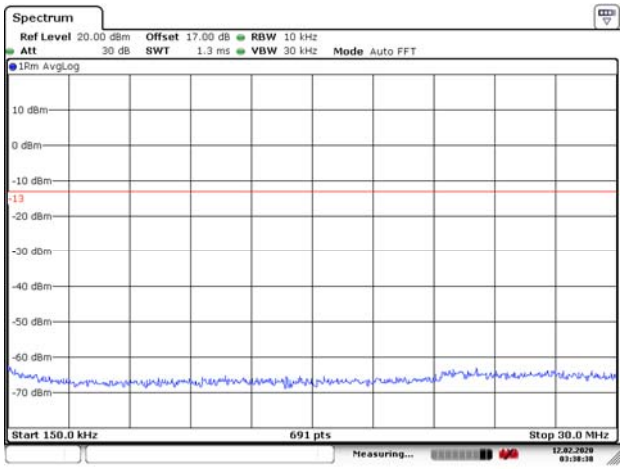
LTE Band 53 3MHz CH-High 1GHz~25GHz



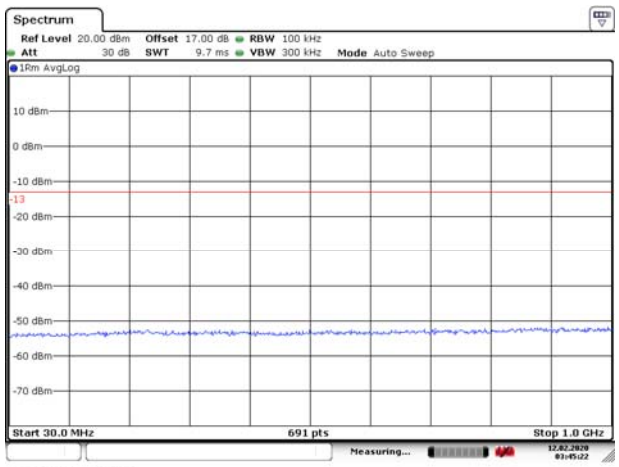
LTE Band 53 5MHz CH-Low 9kHz~150kHz



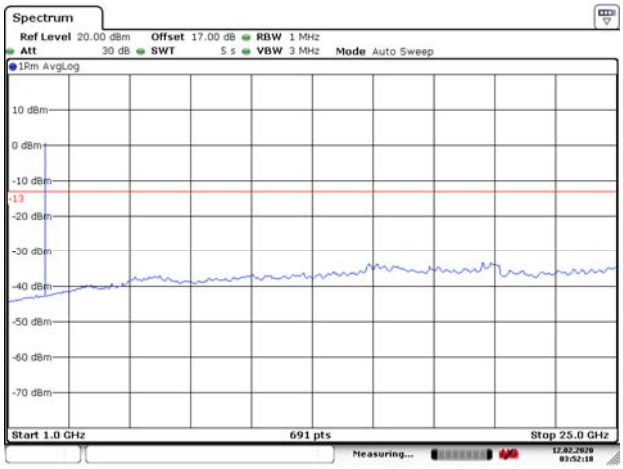
LTE Band 53 5MHz CH-Low 150kHz~30MHz



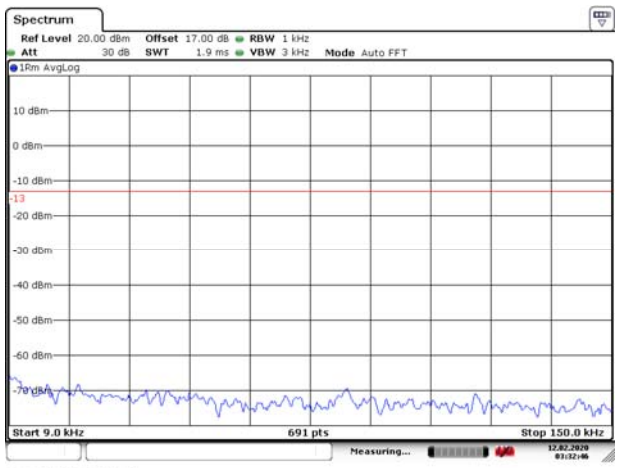
LTE Band 53 5MHz CH-Low 30MHz~1GHz



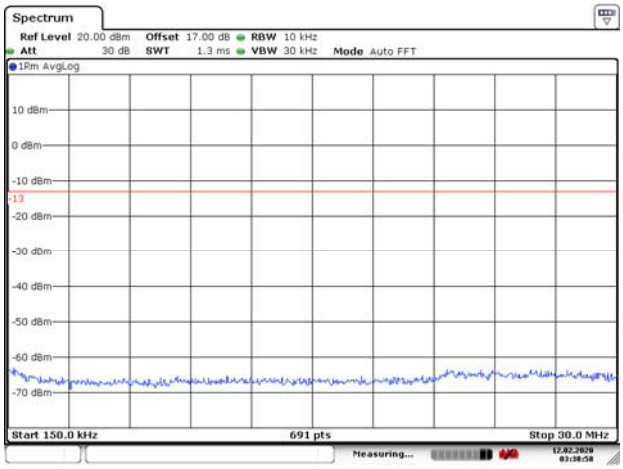
LTE Band 53 5MHz CH-Low 1GHz~25GHz



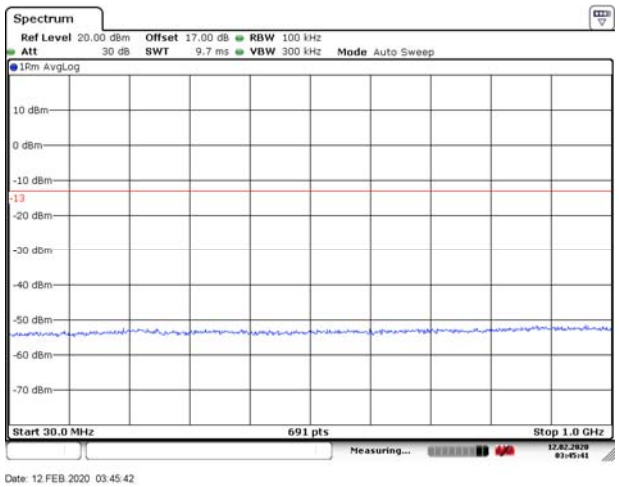
LTE Band 53 5MHz CH-Middle 9kHz~150kHz



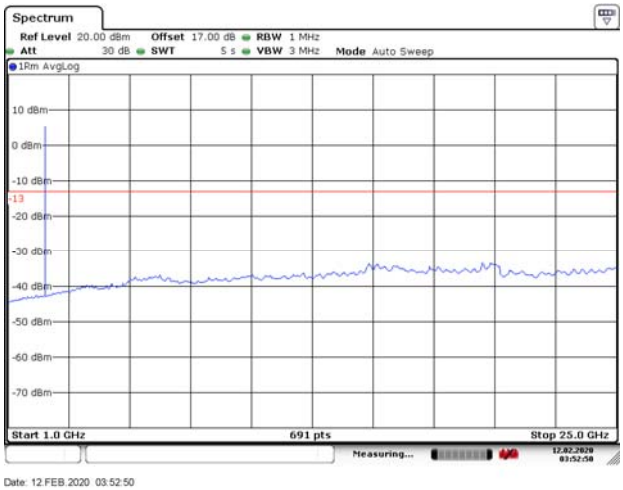
LTE Band 53 5MHz CH-Middle 150kHz~30MHz



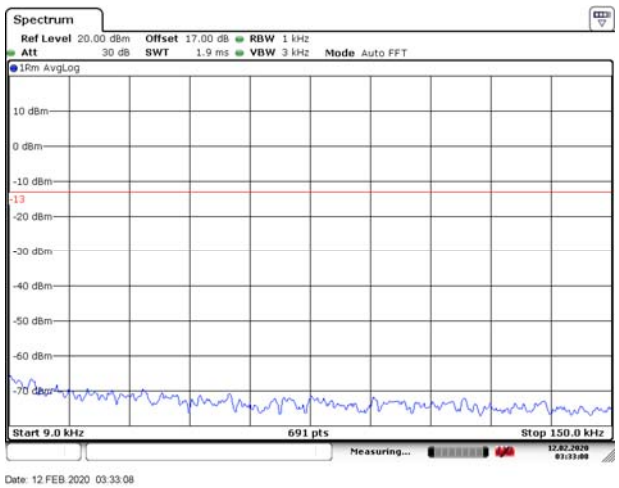
LTE Band 53 5MHz CH-Middle 30MHz~1GHz



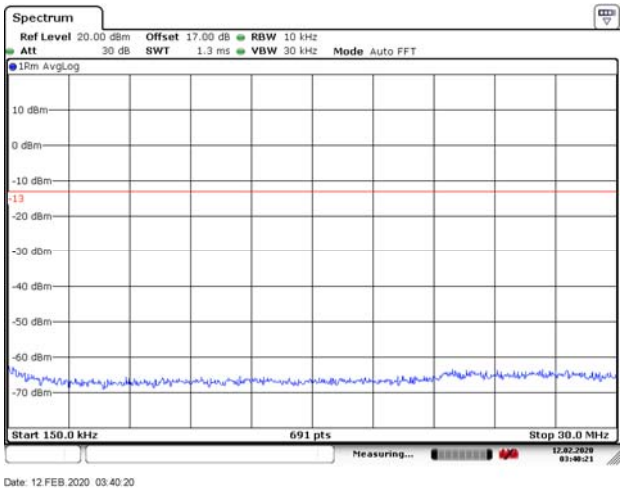
LTE Band 53 5MHz CH-Middle 1GHz~25GHz



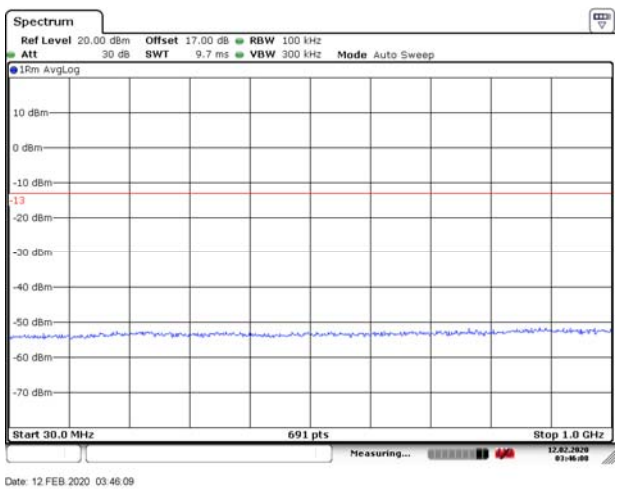
LTE Band 53 5MHz CH-High 9kHz~150kHz



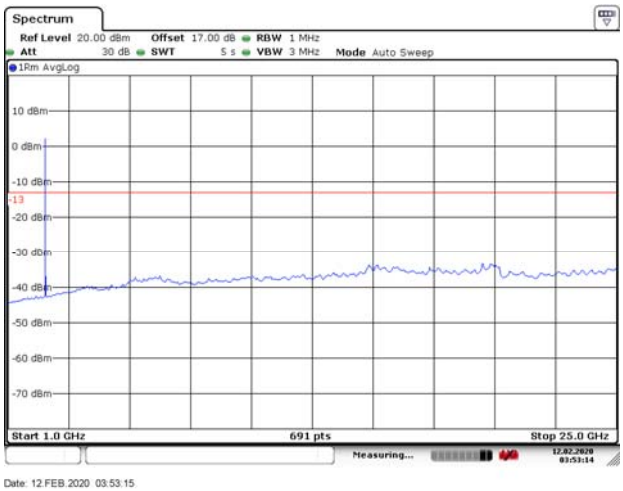
LTE Band 53 5MHz CH-High 150kHz~30MHz



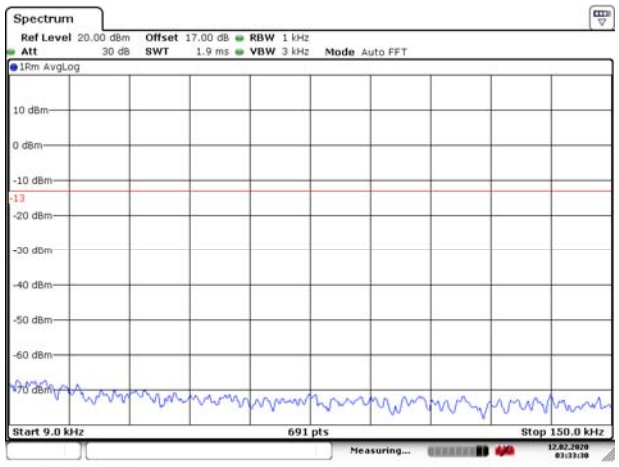
LTE Band 53 5MHz CH-High 30MHz~1GHz



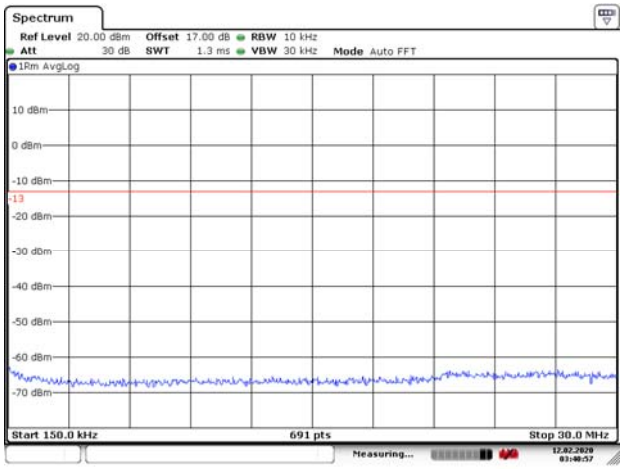
LTE Band 53 5MHz CH-High 1GHz~25GHz



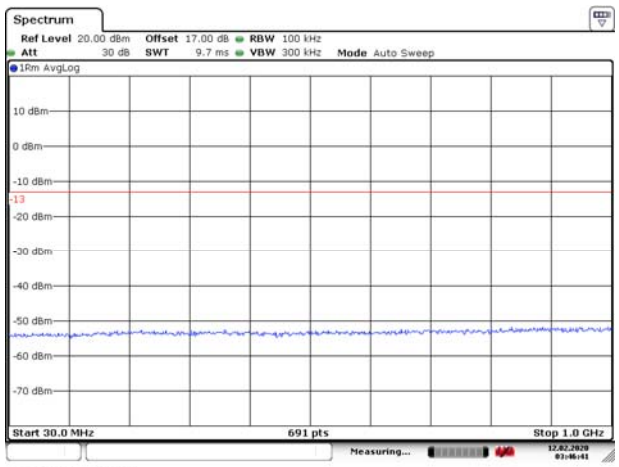
LTE Band 53 10MHz CH-Low 9kHz~150kHz



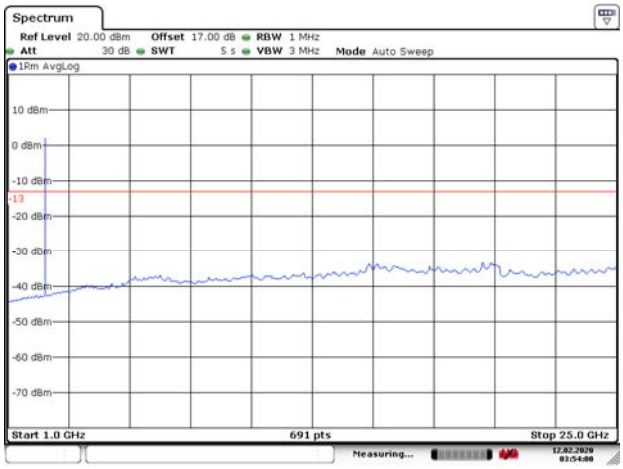
LTE Band 53 10MHz CH-Low 150kHz~30MHz



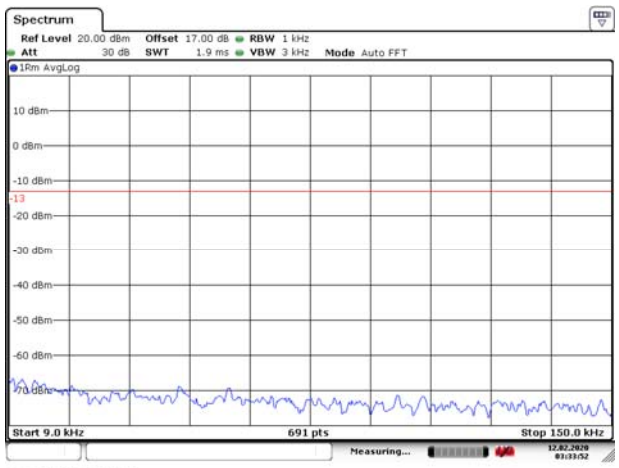
LTE Band 53 10MHz CH-Low 30MHz~1GHz



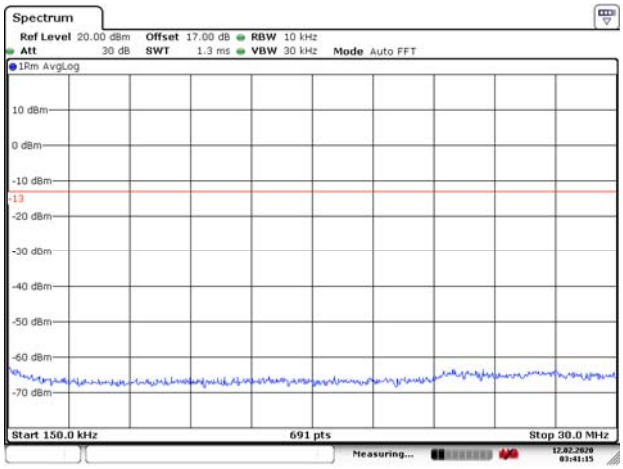
LTE Band 53 10MHz CH-Low 1GHz~25GHz



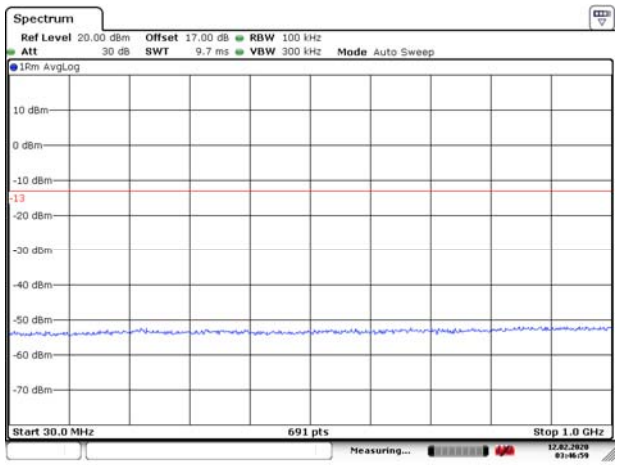
LTE Band 53 10MHz CH-Middle 9kHz~150kHz



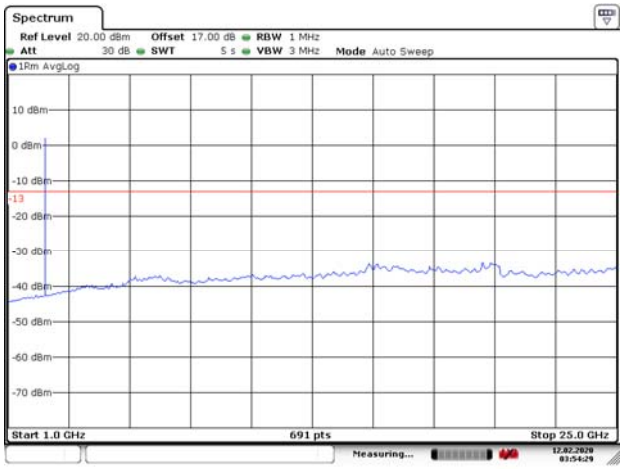
LTE Band 53 10MHz CH-Middle 150kHz~30MHz



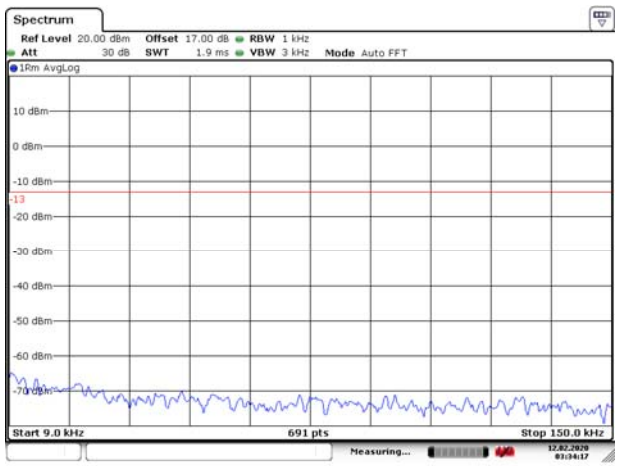
LTE Band 53 10MHz CH-Middle 30MHz~1GHz



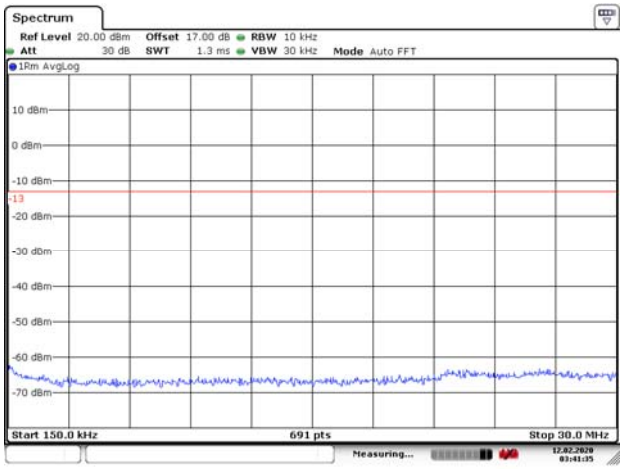
LTE Band 53 10MHz CH-Middle 1GHz~25GHz



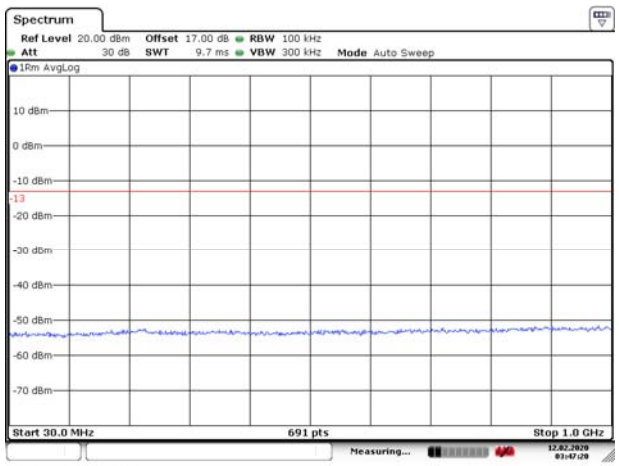
LTE Band 53 10MHz CH-High 9kHz~150kHz



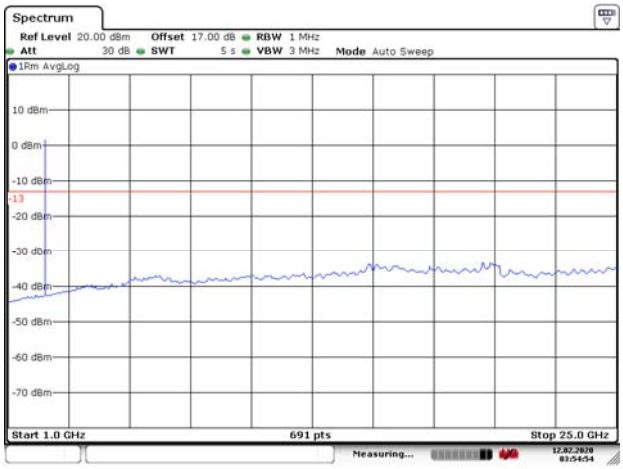
LTE Band 53 10MHz CH-High 150kHz~30MHz



LTE Band 53 10MHz CH-High 30MHz~1GHz



LTE Band 53 10MHz CH-High 1GHz~25GHz



4.10. Radiates Spurious Emission

Ambient condition

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

Method of Measurement

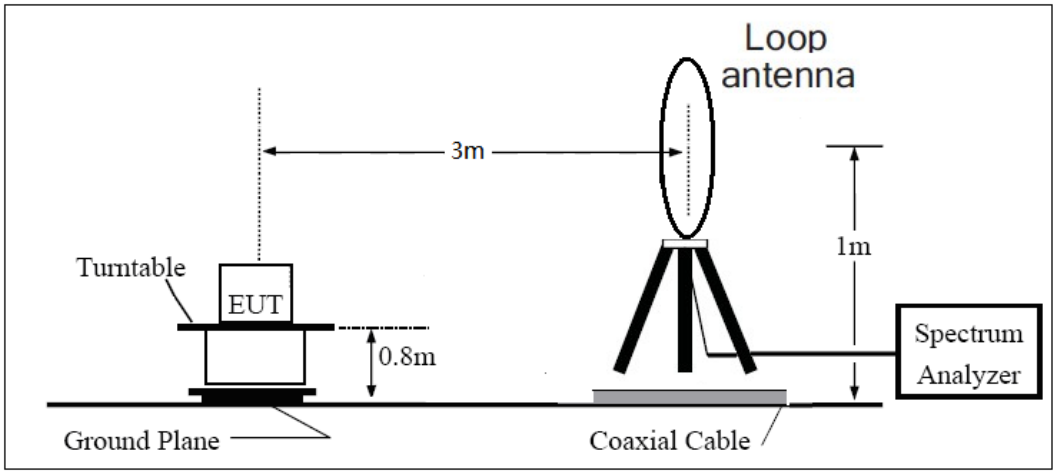
1. The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=200Hz,VBW=600Hz for 9kHz150kHz , RBW=10kHz, VBW=30kHz 150kHz-30MHz , RBW=100kHz,VBW=300kHz for 30MHz to 1GHz and RBW=1MHz, VBW=3MHz for above 1GHz, And the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
Power(EIRP)=PMea- PAg - Pcl + Ga
The measurement results are amend as described below:
Power(EIRP)=PMea- Pcl + Ga
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi)

and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

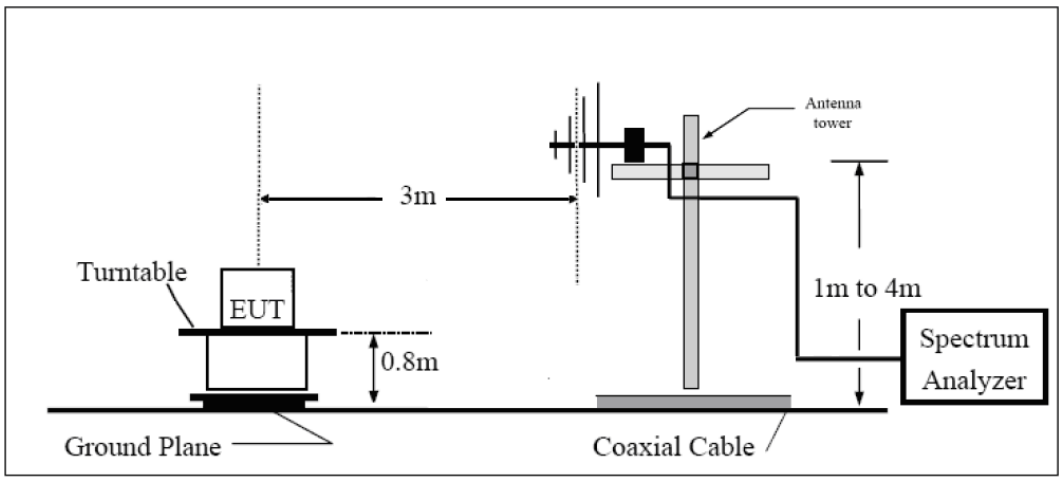
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

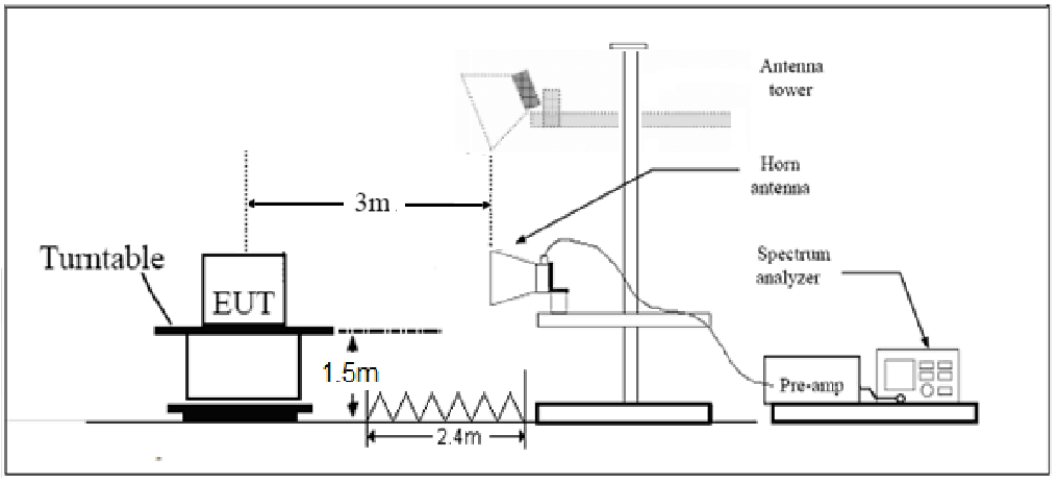
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



Note: Area side: 2.4mX3.6m

Limits

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB."

Limit	-13 dBm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95％ confidence level for the normal distribution is with the coverage factor *k* = 1.96, *U*= 3.55 dB.

Test Result

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

LTE Band 53 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	4978.4	-49.10	2.00	10.15	Horizontal	-40.95	-13.00	27.95	45
3	7467.6	-45.60	2.50	11.35	Horizontal	-36.75	-13.00	23.75	0
4	9956.8	-37.66	4.20	12.05	Horizontal	-29.81	-13.00	16.81	315
5	12446.0	-47.38	5.20	14.85	Horizontal	-37.73	-13.00	24.73	45
6	14935.2	-48.57	5.50	13.23	Horizontal	-40.84	-13.00	27.84	270
7	17424.4	-44.55	6.80	14.25	Horizontal	-37.10	-13.00	24.10	225
8	19913.6	/	/	/	/	/	/	/	/
9	22402.8	/	/	/	/	/	/	/	/
10	24892.0	/	/	/	/	/	/	/	/
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 53 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	4978.4	-47.77	2.00	10.15	Horizontal	-39.62	-13.00	26.62	90
3	7467.6	-48.52	2.50	11.35	Horizontal	-39.67	-13.00	26.67	0
4	9956.8	-36.47	4.20	12.05	Horizontal	-28.62	-13.00	15.62	315
5	12446.0	-45.31	5.20	14.85	Horizontal	-35.66	-13.00	22.66	45
6	14935.2	-47.02	5.50	13.23	Horizontal	-39.29	-13.00	26.29	90
7	17424.4	-45.75	6.80	14.25	Horizontal	-38.30	-13.00	25.30	135
8	19913.6	/	/	/	/	/	/	/	/
9	22402.8	/	/	/	/	/	/	/	/
10	24892.0	/	/	/	/	/	/	/	/
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 53 10MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	4978.4	-47.68	2.00	10.15	Horizontal	-39.53	-13.00	26.53	45
3	7467.6	-46.55	2.50	11.35	Horizontal	-37.70	-13.00	24.70	315
4	9956.8	-34.31	4.20	12.05	Horizontal	-26.46	-13.00	13.46	45
5	12446.0	-43.48	5.20	14.85	Horizontal	-33.83	-13.00	20.83	0
6	14935.2	-47.16	5.50	13.23	Horizontal	-39.43	-13.00	26.43	225
7	17424.4	-45.04	6.80	14.25	Horizontal	-37.59	-13.00	24.59	315
8	19913.6	/	/	/	/	/	/	/	/
9	22402.8	/	/	/	/	/	/	/	/
10	24892.0	/	/	/	/	/	/	/	/

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.

5. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMU200	118133	2019-05-19	2020-05-18
Base Station Simulator	R&S	CMW500	113824	2019-05-19	2020-05-18
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2019-05-19	2020-05-18
Universal Radio Communication Tester	Key sight	E5515C	MY48367192	2019-05-19	2020-05-18
Signal Analyzer	R&S	FSV40	101298	2019-05-19	2020-05-18
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2017-09-26	2020-09-25
Trilog Antenna	SCHWARZBECK	VUBL 9163	9163-201	2017-11-18	2020-11-17
Horn Antenna	R&S	HF907	100126	2018-07-07	2020-07-06
Horn Antenna	ETS-Lindgren	3160-09	00102643	2018-06-20	2020-06-19
Signal generator	R&S	SMB 100A	102594	2019-05-19	2020-05-18
Climatic Chamber	ESPEC	SU-242	93000506	2017-12-17	2020-12-16
Preampflier	R&S	SCU18	102327	2019-05-19	2020-05-18
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2019-05-19	2020-05-18
RF Cable	Agilent	SMA 15cm	0001	2019-12-13	2020-06-12
Software	R&S	EMC32	9.26.0	/	/

********END OF REPORT ********