RF TEST REPORT

Applicant	LANDLOG Ltd.
FCC ID	2AXNO-SCFD1US
Product	Tracker
Brand	LANDLOG
Model	SCFD-1US
Report No.	R2008A0578-R3V1
Issue Date	December 21, 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.

Prepared 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

Version	Revision description	Issue Date
Rev.0	/	September 25, 2020
Rev.1	Add RF Power Output and Effective Radiated Power and Occupied Bandwidth items for LTE 4. Add all test items for LTE 12.	December 21, 2020
Note This revised report (Report No. R2008A0578-R3V1) supersedes and replaces the previously issued report (Report No. R2008A0578-R3). Please discard or destroy the previously issued report and dispose of it accordingly.		

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(c)(10)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	27.53(g)	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(g)	PASS
7	Radiates Spurious Emission	2.1053 / 27.53(h) / 27.53(g)	PASS
Date of Testing: August 26, 2020 ~September 17, 2020 and November 25, 2020 ~ December 7, 2020			
Date of Sample Receiving: August 25, 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.			

There is only tested RF Power Output and Effective Radiated Power, Occupied Bandwidth and Radiates Spurious Emission for LTE 4 in this report, other test items please refer to the module report(Report No.: . |16Z41276-GTE01)

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 measurements.

A2LA (Certificate Number: 3857.01)

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

2 General Description of Equipment under Test

2.1 Applicant and Manufacturer Information

Applicant	LANDLOG Ltd.
Applicant address	12F Sumitomofudosan Shibadaimon 2chome Building,2-11-8 Shibadaimon, Minato-ku,Tokyo 105-0012 Japan
Manufacturer	LANDLOG Ltd.
Manufacturer address	12F Sumitomofudosan Shibadaimon 2chome Building,2-11-8 Shibadaimon, Minato-ku,Tokyo 105-0012 Japan

2.2 General information

EUT Description			
Model	SCFD-1US		
IMEI	861475030939526		
Hardware Version	Ver 1.0		
Software Version	01000		
Power Supply	External Power Supply		
Antenna Type	PIFA Antenna		
Antenna Gain	LTE Band 4:-1.24dBi LTE Band 12:-4.26dBi		
Test Mode(s)	LTE Band 4; LTE Band 12,		
Test Modulation	(LTE)QPSK 16QAM;		
LTE Category	4		
Maximum E.I.R.P./ E.R.P.	LTE Band 4	21.82 dBm	
	LTE Band 12	16.86 dBm	
Rated Power Supply Voltage:	5V		
Extreme Voltage	Minimum: 4.25V Maximum:5.75V		
Extreme Temperature	Lowest:-30°C Highest: +50°C		
Operating Voltage	Minimum: 4.8V Maximum:5.5V		
Operating Temperature	Lowest:-10°C Highest: +60°C		
Operating Frequency Range(s)	Mode	Tx (MHz)	Rx (MHz)
	LTE Band 4	1710 ~ 1755	2110 ~ 2155
	LTE Band 12	699 ~ 716	729 ~ 746
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.			

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

4 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 (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 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 LTE Band 4/12:

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 12	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 12	O	O	O	O	-	-	O	O	-	-	O	O	O	O
Band Edge Compliance	LTE 12	O	O	O	O	-	-	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	LTE 12	O	O	O	O	-	-	O	O	-	-	O	O	O	O
Frequency Stability	LTE 12	O	O	O	O	-	-	O	O	O	O	O	O	O	O
Spurious Emissions at Antenna Terminals	LTE 12	O	O	O	O	-	-	O	-	O	-	-	O	O	O
Radiates Spurious Emission	LTE 4	O	-	O	-	-	O	O	-	O	-	-	-	O	-
	LTE 12	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. 3. SCFD-1US dont support full RB of the bandwith more 10MHz, 15MHz and 20MHz @16QAM mode.														

5 Test Case Results

5.1 RF Power Output and Effective Isotropic Radiated Power

Ambient condition

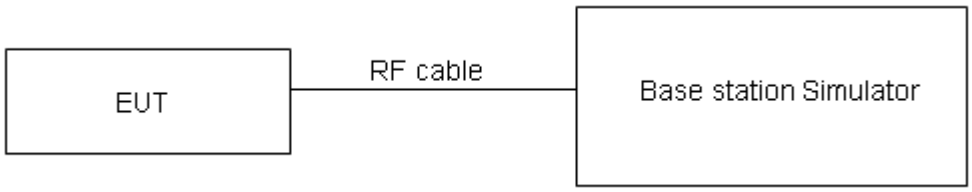
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT was connected to the Base Station Simulator with a known loss. The EUT is controlled by the Base Station Simulator test set to ensure max power transmission with proper modulation.

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.)

Test Setup



Limits

No specific RF power output requirements in part 2.1046.

Rule Part 27.50(c) (10) specifies that “Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP”
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”

Part 27.50(c)(10)Limit	≤ 3 W (34.77 dBm)
Part 27.50(d)(4)Limit	≤ 1 W (30 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.

Test Results

Band	Bandwidth	Modulation	Channel	RB Configuration	Conducted Power (dBm)	ERP/EIRP (dBm)
LTE Band 4	1.4M	QPSK	19957	1RB#0	22.55	21.31
LTE Band 4	1.4M	QPSK	19957	1RB#2	22.35	21.11
LTE Band 4	1.4M	QPSK	19957	1RB#5	22.38	21.14
LTE Band 4	1.4M	QPSK	19957	3RB#0	21.06	19.82
LTE Band 4	1.4M	QPSK	19957	3RB#2	21.09	19.85
LTE Band 4	1.4M	QPSK	19957	3RB#3	21.19	19.95
LTE Band 4	1.4M	QPSK	19957	6RB#0	21.10	19.86
LTE Band 4	1.4M	QPSK	20175	1RB#0	22.38	21.14
LTE Band 4	1.4M	QPSK	20175	1RB#2	22.24	21.00
LTE Band 4	1.4M	QPSK	20175	1RB#5	22.31	21.07
LTE Band 4	1.4M	QPSK	20175	3RB#0	21.31	20.07
LTE Band 4	1.4M	QPSK	20175	3RB#2	21.29	20.05
LTE Band 4	1.4M	QPSK	20175	3RB#3	21.25	20.01
LTE Band 4	1.4M	QPSK	20175	6RB#0	21.52	20.28
LTE Band 4	1.4M	QPSK	20393	1RB#0	22.51	21.27
LTE Band 4	1.4M	QPSK	20393	1RB#2	22.43	21.19
LTE Band 4	1.4M	QPSK	20393	1RB#5	22.93	21.69
LTE Band 4	1.4M	QPSK	20393	3RB#0	21.30	20.06
LTE Band 4	1.4M	QPSK	20393	3RB#2	21.26	20.02
LTE Band 4	1.4M	QPSK	20393	3RB#3	21.32	20.08
LTE Band 4	1.4M	QPSK	20393	6RB#0	21.54	20.30
LTE Band 4	1.4M	16QAM	19957	1RB#0	22.20	20.96
LTE Band 4	1.4M	16QAM	19957	1RB#2	22.31	21.07
LTE Band 4	1.4M	16QAM	19957	1RB#5	22.08	20.84
LTE Band 4	1.4M	16QAM	19957	3RB#0	21.82	20.58
LTE Band 4	1.4M	16QAM	19957	3RB#2	21.46	20.22
LTE Band 4	1.4M	16QAM	19957	3RB#3	21.43	20.19
LTE Band 4	1.4M	16QAM	19957	6RB#0	21.24	20.00
LTE Band 4	1.4M	16QAM	20175	1RB#0	21.96	20.72
LTE Band 4	1.4M	16QAM	20175	1RB#2	22.23	20.99
LTE Band 4	1.4M	16QAM	20175	1RB#5	22.48	21.24
LTE Band 4	1.4M	16QAM	20175	3RB#0	21.64	20.40
LTE Band 4	1.4M	16QAM	20175	3RB#2	21.48	20.24
LTE Band 4	1.4M	16QAM	20175	3RB#3	21.38	20.14
LTE Band 4	1.4M	16QAM	20175	6RB#0	21.22	19.98

LTE Band 4	1.4M	16QAM	20393	1RB#0	22.30	21.06
LTE Band 4	1.4M	16QAM	20393	1RB#2	22.46	21.22
LTE Band 4	1.4M	16QAM	20393	1RB#5	22.41	21.17
LTE Band 4	1.4M	16QAM	20393	3RB#0	21.87	20.63
LTE Band 4	1.4M	16QAM	20393	3RB#2	21.67	20.43
LTE Band 4	1.4M	16QAM	20393	3RB#3	21.44	20.20
LTE Band 4	1.4M	16QAM	20393	6RB#0	21.18	19.94
LTE Band 4	3M	QPSK	19965	1RB#0	22.57	21.33
LTE Band 4	3M	QPSK	19965	1RB#7	22.38	21.14
LTE Band 4	3M	QPSK	19965	1RB#14	22.41	21.17
LTE Band 4	3M	QPSK	19965	8RB#0	21.14	19.90
LTE Band 4	3M	QPSK	19965	8RB#4	21.19	19.95
LTE Band 4	3M	QPSK	19965	8RB#7	21.27	20.03
LTE Band 4	3M	QPSK	19965	15RB#0	21.13	19.89
LTE Band 4	3M	QPSK	20175	1RB#0	22.42	21.18
LTE Band 4	3M	QPSK	20175	1RB#7	22.29	21.05
LTE Band 4	3M	QPSK	20175	1RB#14	22.36	21.12
LTE Band 4	3M	QPSK	20175	8RB#0	21.41	20.17
LTE Band 4	3M	QPSK	20175	8RB#4	21.37	20.13
LTE Band 4	3M	QPSK	20175	8RB#7	21.34	20.10
LTE Band 4	3M	QPSK	20175	15RB#0	21.56	20.32
LTE Band 4	3M	QPSK	20385	1RB#0	22.54	21.30
LTE Band 4	3M	QPSK	20385	1RB#7	22.47	21.23
LTE Band 4	3M	QPSK	20385	1RB#14	22.97	21.73
LTE Band 4	3M	QPSK	20385	8RB#0	21.41	20.17
LTE Band 4	3M	QPSK	20385	8RB#4	21.36	20.12
LTE Band 4	3M	QPSK	20385	8RB#7	21.40	20.16
LTE Band 4	3M	QPSK	20385	15RB#0	21.57	20.33
LTE Band 4	3M	16QAM	19965	1RB#0	22.23	20.99
LTE Band 4	3M	16QAM	19965	1RB#7	22.34	21.10
LTE Band 4	3M	16QAM	19965	1RB#14	21.83	20.59
LTE Band 4	3M	16QAM	19965	8RB#0	21.76	20.52
LTE Band 4	3M	16QAM	19965	8RB#4	21.51	20.27
LTE Band 4	3M	16QAM	19965	8RB#7	21.34	20.10
LTE Band 4	3M	16QAM	19965	15RB#0	21.25	20.01
LTE Band 4	3M	16QAM	20175	1RB#0	21.98	20.74
LTE Band 4	3M	16QAM	20175	1RB#7	22.28	21.04
LTE Band 4	3M	16QAM	20175	1RB#14	22.52	21.28
LTE Band 4	3M	16QAM	20175	8RB#0	22.12	20.88
LTE Band 4	3M	16QAM	20175	8RB#4	21.97	20.73

LTE Band 4	3M	16QAM	20175	8RB#7	21.73	20.49
LTE Band 4	3M	16QAM	20175	15RB#0	21.51	20.27
LTE Band 4	3M	16QAM	20385	1RB#0	22.33	21.09
LTE Band 4	3M	16QAM	20385	1RB#7	22.50	21.26
LTE Band 4	3M	16QAM	20385	1RB#14	22.44	21.20
LTE Band 4	3M	16QAM	20385	8RB#0	21.86	20.62
LTE Band 4	3M	16QAM	20385	8RB#4	21.73	20.49
LTE Band 4	3M	16QAM	20385	8RB#7	21.64	20.40
LTE Band 4	3M	16QAM	20385	15RB#0	21.43	20.19
LTE Band 4	5M	QPSK	19975	1RB#0	22.61	21.37
LTE Band 4	5M	QPSK	19975	1RB#13	22.45	21.21
LTE Band 4	5M	QPSK	19975	1RB#24	22.47	21.23
LTE Band 4	5M	QPSK	19975	12RB#0	21.21	19.97
LTE Band 4	5M	QPSK	19975	12RB#6	21.24	20.00
LTE Band 4	5M	QPSK	19975	12RB#13	21.34	20.10
LTE Band 4	5M	QPSK	19975	25RB#0	21.21	19.97
LTE Band 4	5M	QPSK	20175	1RB#0	22.54	21.30
LTE Band 4	5M	QPSK	20175	1RB#13	22.34	21.10
LTE Band 4	5M	QPSK	20175	1RB#24	22.43	21.19
LTE Band 4	5M	QPSK	20175	12RB#0	21.45	20.21
LTE Band 4	5M	QPSK	20175	12RB#6	21.42	20.18
LTE Band 4	5M	QPSK	20175	12RB#13	21.44	20.20
LTE Band 4	5M	QPSK	20175	25RB#0	21.65	20.41
LTE Band 4	5M	QPSK	20375	1RB#0	22.59	21.35
LTE Band 4	5M	QPSK	20375	1RB#13	22.54	21.30
LTE Band 4	5M	QPSK	20375	1RB#24	23.06	21.82
LTE Band 4	5M	QPSK	20375	12RB#0	21.47	20.23
LTE Band 4	5M	QPSK	20375	12RB#6	21.40	20.16
LTE Band 4	5M	QPSK	20375	12RB#13	21.40	20.16
LTE Band 4	5M	QPSK	20375	25RB#0	21.58	20.34
LTE Band 4	5M	16QAM	19975	1RB#0	22.25	21.01
LTE Band 4	5M	16QAM	19975	1RB#13	22.36	21.12
LTE Band 4	5M	16QAM	19975	1RB#24	22.12	20.88
LTE Band 4	5M	16QAM	19975	12RB#0	21.95	20.71
LTE Band 4	5M	16QAM	19975	12RB#6	21.74	20.50
LTE Band 4	5M	16QAM	19975	12RB#13	21.61	20.37
LTE Band 4	5M	16QAM	19975	25RB#0	21.43	20.19
LTE Band 4	5M	16QAM	20175	1RB#0	22.00	20.76
LTE Band 4	5M	16QAM	20175	1RB#13	22.35	21.11
LTE Band 4	5M	16QAM	20175	1RB#24	22.59	21.35

LTE Band 4	5M	16QAM	20175	12RB#0	21.94	20.70
LTE Band 4	5M	16QAM	20175	12RB#6	21.71	20.47
LTE Band 4	5M	16QAM	20175	12RB#13	21.52	20.28
LTE Band 4	5M	16QAM	20175	25RB#0	21.38	20.14
LTE Band 4	5M	16QAM	20375	1RB#0	22.37	21.13
LTE Band 4	5M	16QAM	20375	1RB#13	22.54	21.30
LTE Band 4	5M	16QAM	20375	1RB#24	22.47	21.23
LTE Band 4	5M	16QAM	20375	12RB#0	21.91	20.67
LTE Band 4	5M	16QAM	20375	12RB#6	21.67	20.43
LTE Band 4	5M	16QAM	20375	12RB#13	21.42	20.18
LTE Band 4	5M	16QAM	20375	25RB#0	21.26	20.02
LTE Band 4	10M	QPSK	20000	1RB#0	22.56	21.32
LTE Band 4	10M	QPSK	20000	1RB#25	22.39	21.15
LTE Band 4	10M	QPSK	20000	1RB#49	22.40	21.16
LTE Band 4	10M	QPSK	20000	25RB#0	21.14	19.90
LTE Band 4	10M	QPSK	20000	25RB#13	21.20	19.96
LTE Band 4	10M	QPSK	20000	25RB#25	21.27	20.03
LTE Band 4	10M	QPSK	20000	50RB#0	21.19	19.95
LTE Band 4	10M	QPSK	20175	1RB#0	22.41	21.17
LTE Band 4	10M	QPSK	20175	1RB#25	22.30	21.06
LTE Band 4	10M	QPSK	20175	1RB#49	22.35	21.11
LTE Band 4	10M	QPSK	20175	25RB#0	21.41	20.17
LTE Band 4	10M	QPSK	20175	25RB#13	21.38	20.14
LTE Band 4	10M	QPSK	20175	25RB#25	21.36	20.12
LTE Band 4	10M	QPSK	20175	50RB#0	21.57	20.33
LTE Band 4	10M	QPSK	20350	1RB#0	22.53	21.29
LTE Band 4	10M	QPSK	20350	1RB#25	22.48	21.24
LTE Band 4	10M	QPSK	20350	1RB#49	22.96	21.72
LTE Band 4	10M	QPSK	20350	25RB#0	21.41	20.17
LTE Band 4	10M	QPSK	20350	25RB#13	21.35	20.11
LTE Band 4	10M	QPSK	20350	25RB#25	21.41	20.17
LTE Band 4	10M	QPSK	20350	50RB#0	21.59	20.35
LTE Band 4	10M	16QAM	20000	1RB#0	22.22	20.98
LTE Band 4	10M	16QAM	20000	1RB#25	22.34	21.10
LTE Band 4	10M	16QAM	20000	1RB#49	22.10	20.86
LTE Band 4	10M	16QAM	20175	1RB#0	21.97	20.73
LTE Band 4	10M	16QAM	20175	1RB#25	22.30	21.06
LTE Band 4	10M	16QAM	20175	1RB#49	22.52	21.28
LTE Band 4	10M	16QAM	20350	1RB#0	22.32	21.08
LTE Band 4	10M	16QAM	20350	1RB#25	22.50	21.26

LTE Band 4	10M	16QAM	20350	1RB#49	22.43	21.19
LTE Band 4	15M	QPSK	20025	1RB#0	22.55	21.31
LTE Band 4	15M	QPSK	20025	1RB#38	22.37	21.13
LTE Band 4	15M	QPSK	20025	1RB#74	22.37	21.13
LTE Band 4	15M	QPSK	20025	36RB#0	21.12	19.88
LTE Band 4	15M	QPSK	20025	36RB#18	21.17	19.93
LTE Band 4	15M	QPSK	20025	36RB#39	21.24	20.00
LTE Band 4	15M	QPSK	20025	75RB#0	21.17	19.93
LTE Band 4	15M	QPSK	20175	1RB#0	22.37	21.13
LTE Band 4	15M	QPSK	20175	1RB#38	22.29	21.05
LTE Band 4	15M	QPSK	20175	1RB#74	22.30	21.06
LTE Band 4	15M	QPSK	20175	36RB#0	21.37	20.13
LTE Band 4	15M	QPSK	20175	36RB#18	21.33	20.09
LTE Band 4	15M	QPSK	20175	36RB#39	21.33	20.09
LTE Band 4	15M	QPSK	20175	75RB#0	21.53	20.29
LTE Band 4	15M	QPSK	20325	1RB#0	22.51	21.27
LTE Band 4	15M	QPSK	20325	1RB#38	22.45	21.21
LTE Band 4	15M	QPSK	20325	1RB#74	22.92	21.68
LTE Band 4	15M	QPSK	20325	36RB#0	21.38	20.14
LTE Band 4	15M	QPSK	20325	36RB#18	21.31	20.07
LTE Band 4	15M	QPSK	20325	36RB#39	21.37	20.13
LTE Band 4	15M	QPSK	20325	75RB#0	21.54	20.30
LTE Band 4	15M	16QAM	20025	1RB#0	22.17	20.93
LTE Band 4	15M	16QAM	20025	1RB#38	22.32	21.08
LTE Band 4	15M	16QAM	20025	1RB#74	22.07	20.83
LTE Band 4	15M	16QAM	20175	1RB#0	21.95	20.71
LTE Band 4	15M	16QAM	20175	1RB#38	22.27	21.03
LTE Band 4	15M	16QAM	20175	1RB#74	22.48	21.24
LTE Band 4	15M	16QAM	20325	1RB#0	22.30	21.06
LTE Band 4	15M	16QAM	20325	1RB#38	22.48	21.24
LTE Band 4	15M	16QAM	20325	1RB#74	22.40	21.16
LTE Band 4	20M	QPSK	20050	1RB#0	22.52	21.28
LTE Band 4	20M	QPSK	20050	1RB#50	22.36	21.12
LTE Band 4	20M	QPSK	20050	1RB#99	22.35	21.11
LTE Band 4	20M	QPSK	20050	50RB#0	21.09	19.85
LTE Band 4	20M	QPSK	20050	50RB#25	21.15	19.91
LTE Band 4	20M	QPSK	20050	50RB#50	21.21	19.97
LTE Band 4	20M	QPSK	20050	100RB#0	21.14	19.90
LTE Band 4	20M	QPSK	20175	1RB#0	22.33	21.09
LTE Band 4	20M	QPSK	20175	1RB#50	22.25	21.01

LTE Band 4	20M	QPSK	20175	1RB#99	22.29	21.05
LTE Band 4	20M	QPSK	20175	50RB#0	21.32	20.08
LTE Band 4	20M	QPSK	20175	50RB#25	21.29	20.05
LTE Band 4	20M	QPSK	20175	50RB#50	21.28	20.04
LTE Band 4	20M	QPSK	20175	100RB#0	21.48	20.24
LTE Band 4	20M	QPSK	20300	1RB#0	22.48	21.24
LTE Band 4	20M	QPSK	20300	1RB#50	22.43	21.19
LTE Band 4	20M	QPSK	20300	1RB#99	22.89	21.65
LTE Band 4	20M	QPSK	20300	50RB#0	21.34	20.10
LTE Band 4	20M	QPSK	20300	50RB#25	21.28	20.04
LTE Band 4	20M	QPSK	20300	50RB#50	21.33	20.09
LTE Band 4	20M	QPSK	20300	100RB#0	21.50	20.26
LTE Band 4	20M	16QAM	20050	1RB#0	22.15	20.91
LTE Band 4	20M	16QAM	20050	1RB#50	22.28	21.04
LTE Band 4	20M	16QAM	20050	1RB#99	22.05	20.81
LTE Band 4	20M	16QAM	20175	1RB#0	21.91	20.67
LTE Band 4	20M	16QAM	20175	1RB#50	22.25	21.01
LTE Band 4	20M	16QAM	20175	1RB#99	22.45	21.21
LTE Band 4	20M	16QAM	20300	1RB#0	22.25	21.01
LTE Band 4	20M	16QAM	20300	1RB#50	22.44	21.20
LTE Band 4	20M	16QAM	20300	1RB#99	22.38	21.14

Band	Bandwidth	Modulation	Channel	RB Configuration	Conducted Power (dBm)	ERP/EIRP (dBm)
LTE Band 12	1.4M	QPSK	23017	1RB#0	23.07	16.66
LTE Band 12	1.4M	QPSK	23017	1RB#2	23.05	16.64
LTE Band 12	1.4M	QPSK	23017	1RB#5	23.00	16.59
LTE Band 12	1.4M	QPSK	23017	3RB#0	21.97	15.56
LTE Band 12	1.4M	QPSK	23017	3RB#2	22.05	15.64
LTE Band 12	1.4M	QPSK	23017	3RB#3	22.17	15.76
LTE Band 12	1.4M	QPSK	23017	6RB#0	22.04	15.63
LTE Band 12	1.4M	QPSK	23095	1RB#0	23.22	16.81
LTE Band 12	1.4M	QPSK	23095	1RB#2	23.27	16.86
LTE Band 12	1.4M	QPSK	23095	1RB#5	23.18	16.77
LTE Band 12	1.4M	QPSK	23095	3RB#0	22.24	15.83
LTE Band 12	1.4M	QPSK	23095	3RB#2	22.18	15.77
LTE Band 12	1.4M	QPSK	23095	3RB#3	22.13	15.72
LTE Band 12	1.4M	QPSK	23095	6RB#0	22.19	15.78
LTE Band 12	1.4M	QPSK	23173	1RB#0	22.89	16.48

LTE Band 12	1.4M	QPSK	23173	1RB#2	22.35	15.94
LTE Band 12	1.4M	QPSK	23173	1RB#5	22.85	16.44
LTE Band 12	1.4M	QPSK	23173	3RB#0	22.26	15.85
LTE Band 12	1.4M	QPSK	23173	3RB#2	22.21	15.80
LTE Band 12	1.4M	QPSK	23173	3RB#3	22.19	15.78
LTE Band 12	1.4M	QPSK	23173	6RB#0	22.09	15.68
LTE Band 12	1.4M	16QAM	23017	1RB#0	21.73	15.32
LTE Band 12	1.4M	16QAM	23017	1RB#2	21.64	15.23
LTE Band 12	1.4M	16QAM	23017	1RB#5	21.45	15.04
LTE Band 12	1.4M	16QAM	23017	3RB#0	21.31	14.90
LTE Band 12	1.4M	16QAM	23017	3RB#2	21.23	14.82
LTE Band 12	1.4M	16QAM	23017	3RB#3	21.09	14.68
LTE Band 12	1.4M	16QAM	23017	6RB#0	21.12	14.71
LTE Band 12	1.4M	16QAM	23095	1RB#0	22.35	15.94
LTE Band 12	1.4M	16QAM	23095	1RB#2	22.58	16.17
LTE Band 12	1.4M	16QAM	23095	1RB#5	23.08	16.67
LTE Band 12	1.4M	16QAM	23095	3RB#0	22.46	16.05
LTE Band 12	1.4M	16QAM	23095	3RB#2	22.39	15.98
LTE Band 12	1.4M	16QAM	23095	3RB#3	22.23	15.82
LTE Band 12	1.4M	16QAM	23095	6RB#0	22.15	15.74
LTE Band 12	1.4M	16QAM	23173	1RB#0	21.58	15.17
LTE Band 12	1.4M	16QAM	23173	1RB#2	21.86	15.45
LTE Band 12	1.4M	16QAM	23173	1RB#5	21.57	15.16
LTE Band 12	1.4M	16QAM	23173	3RB#0	21.37	14.96
LTE Band 12	1.4M	16QAM	23173	3RB#2	21.28	14.87
LTE Band 12	1.4M	16QAM	23173	3RB#3	21.16	14.75
LTE Band 12	1.4M	16QAM	23173	6RB#0	21.03	14.62
LTE Band 12	3M	QPSK	23025	1RB#0	23.02	16.61
LTE Band 12	3M	QPSK	23025	1RB#7	22.99	16.58
LTE Band 12	3M	QPSK	23025	1RB#14	22.93	16.52
LTE Band 12	3M	QPSK	23025	8RB#0	21.90	15.49
LTE Band 12	3M	QPSK	23025	8RB#4	22.01	15.60
LTE Band 12	3M	QPSK	23025	8RB#7	22.10	15.69
LTE Band 12	3M	QPSK	23025	15RB#0	22.02	15.61
LTE Band 12	3M	QPSK	23095	1RB#0	23.09	16.68
LTE Band 12	3M	QPSK	23095	1RB#7	23.23	16.82
LTE Band 12	3M	QPSK	23095	1RB#14	23.10	16.69
LTE Band 12	3M	QPSK	23095	8RB#0	22.20	15.79
LTE Band 12	3M	QPSK	23095	8RB#4	22.14	15.73
LTE Band 12	3M	QPSK	23095	8RB#7	22.05	15.64

LTE Band 12	3M	QPSK	23095	15RB#0	22.11	15.70
LTE Band 12	3M	QPSK	23165	1RB#0	22.83	16.42
LTE Band 12	3M	QPSK	23165	1RB#7	22.29	15.88
LTE Band 12	3M	QPSK	23165	1RB#14	22.75	16.34
LTE Band 12	3M	QPSK	23165	8RB#0	22.20	15.79
LTE Band 12	3M	QPSK	23165	8RB#4	22.16	15.75
LTE Band 12	3M	QPSK	23165	8RB#7	22.20	15.79
LTE Band 12	3M	QPSK	23165	15RB#0	22.10	15.69
LTE Band 12	3M	16QAM	23025	1RB#0	21.70	15.29
LTE Band 12	3M	16QAM	23025	1RB#7	21.62	15.21
LTE Band 12	3M	16QAM	23025	1RB#14	21.43	15.02
LTE Band 12	3M	16QAM	23025	8RB#0	21.34	14.93
LTE Band 12	3M	16QAM	23025	8RB#4	21.29	14.88
LTE Band 12	3M	16QAM	23025	8RB#7	21.16	14.75
LTE Band 12	3M	16QAM	23025	15RB#0	21.09	14.68
LTE Band 12	3M	16QAM	23095	1RB#0	22.32	15.91
LTE Band 12	3M	16QAM	23095	1RB#7	22.53	16.12
LTE Band 12	3M	16QAM	23095	1RB#14	23.01	16.60
LTE Band 12	3M	16QAM	23095	8RB#0	22.43	16.02
LTE Band 12	3M	16QAM	23095	8RB#4	22.24	15.83
LTE Band 12	3M	16QAM	23095	8RB#7	22.11	15.70
LTE Band 12	3M	16QAM	23095	15RB#0	21.98	15.57
LTE Band 12	3M	16QAM	23165	1RB#0	21.53	15.12
LTE Band 12	3M	16QAM	23165	1RB#7	21.82	15.41
LTE Band 12	3M	16QAM	23165	1RB#14	21.53	15.12
LTE Band 12	3M	16QAM	23165	8RB#0	21.43	15.02
LTE Band 12	3M	16QAM	23165	8RB#4	21.29	14.88
LTE Band 12	3M	16QAM	23165	8RB#7	21.17	14.76
LTE Band 12	3M	16QAM	23165	15RB#0	21.13	14.72
LTE Band 12	5M	QPSK	23035	1RB#0	23.01	16.60
LTE Band 12	5M	QPSK	23035	1RB#13	22.97	16.56
LTE Band 12	5M	QPSK	23035	1RB#24	22.90	16.49
LTE Band 12	5M	QPSK	23035	12RB#0	21.88	15.47
LTE Band 12	5M	QPSK	23035	12RB#6	21.98	15.57
LTE Band 12	5M	QPSK	23035	12RB#13	22.07	15.66
LTE Band 12	5M	QPSK	23035	25RB#0	22.00	15.59
LTE Band 12	5M	QPSK	23095	1RB#0	23.05	16.64
LTE Band 12	5M	QPSK	23095	1RB#13	23.22	16.81
LTE Band 12	5M	QPSK	23095	1RB#24	23.05	16.64
LTE Band 12	5M	QPSK	23095	12RB#0	22.16	15.75

LTE Band 12	5M	QPSK	23095	12RB#6	22.09	15.68
LTE Band 12	5M	QPSK	23095	12RB#13	22.02	15.61
LTE Band 12	5M	QPSK	23095	25RB#0	22.07	15.66
LTE Band 12	5M	QPSK	23155	1RB#0	22.81	16.40
LTE Band 12	5M	QPSK	23155	1RB#13	22.26	15.85
LTE Band 12	5M	QPSK	23155	1RB#24	22.71	16.30
LTE Band 12	5M	QPSK	23155	12RB#0	22.17	15.76
LTE Band 12	5M	QPSK	23155	12RB#6	22.12	15.71
LTE Band 12	5M	QPSK	23155	12RB#13	22.16	15.75
LTE Band 12	5M	QPSK	23155	25RB#0	22.05	15.64
LTE Band 12	5M	16QAM	23035	1RB#0	21.65	15.24
LTE Band 12	5M	16QAM	23035	1RB#13	21.60	15.19
LTE Band 12	5M	16QAM	23035	1RB#24	21.40	14.99
LTE Band 12	5M	16QAM	23035	12RB#0	21.28	14.87
LTE Band 12	5M	16QAM	23035	12RB#6	21.16	14.75
LTE Band 12	5M	16QAM	23035	12RB#13	21.07	14.66
LTE Band 12	5M	16QAM	23035	25RB#0	21.03	14.62
LTE Band 12	5M	16QAM	23095	1RB#0	22.30	15.89
LTE Band 12	5M	16QAM	23095	1RB#13	22.50	16.09
LTE Band 12	5M	16QAM	23095	1RB#24	22.97	16.56
LTE Band 12	5M	16QAM	23095	12RB#0	22.34	15.93
LTE Band 12	5M	16QAM	23095	12RB#6	21.94	15.53
LTE Band 12	5M	16QAM	23095	12RB#13	21.84	15.43
LTE Band 12	5M	16QAM	23095	25RB#0	21.62	15.21
LTE Band 12	5M	16QAM	23155	1RB#0	21.51	15.10
LTE Band 12	5M	16QAM	23155	1RB#13	21.80	15.39
LTE Band 12	5M	16QAM	23155	1RB#24	21.50	15.09
LTE Band 12	5M	16QAM	23155	12RB#0	21.43	15.02
LTE Band 12	5M	16QAM	23155	12RB#6	21.38	14.97
LTE Band 12	5M	16QAM	23155	12RB#13	21.16	14.75
LTE Band 12	5M	16QAM	23155	25RB#0	21.08	14.67
LTE Band 12	10M	QPSK	23060	1RB#0	22.98	16.57
LTE Band 12	10M	QPSK	23060	1RB#25	22.96	16.55
LTE Band 12	10M	QPSK	23060	1RB#49	22.88	16.47
LTE Band 12	10M	QPSK	23060	25RB#0	21.85	15.44
LTE Band 12	10M	QPSK	23060	25RB#13	21.96	15.55
LTE Band 12	10M	QPSK	23060	25RB#25	22.04	15.63
LTE Band 12	10M	QPSK	23060	50RB#0	21.97	15.56
LTE Band 12	10M	QPSK	23095	1RB#0	23.01	16.60
LTE Band 12	10M	QPSK	23095	1RB#25	23.18	16.77

LTE Band 12	10M	QPSK	23095	1RB#49	23.04	16.63
LTE Band 12	10M	QPSK	23095	25RB#0	22.11	15.70
LTE Band 12	10M	QPSK	23095	25RB#13	22.05	15.64
LTE Band 12	10M	QPSK	23095	25RB#25	21.97	15.56
LTE Band 12	10M	QPSK	23095	50RB#0	22.02	15.61
LTE Band 12	10M	QPSK	23130	1RB#0	22.78	16.37
LTE Band 12	10M	QPSK	23130	1RB#25	22.24	15.83
LTE Band 12	10M	QPSK	23130	1RB#49	22.68	16.27
LTE Band 12	10M	QPSK	23130	25RB#0	22.13	15.72
LTE Band 12	10M	QPSK	23130	25RB#13	22.09	15.68
LTE Band 12	10M	QPSK	23130	25RB#25	22.12	15.71
LTE Band 12	10M	QPSK	23130	50RB#0	22.01	15.60
LTE Band 12	10M	16QAM	23060	1RB#0	21.63	15.22
LTE Band 12	10M	16QAM	23060	1RB#25	21.56	15.15
LTE Band 12	10M	16QAM	23060	1RB#49	21.38	14.97
LTE Band 12	10M	16QAM	23095	1RB#0	22.26	15.85
LTE Band 12	10M	16QAM	23095	1RB#25	22.48	16.07
LTE Band 12	10M	16QAM	23095	1RB#49	22.94	16.53
LTE Band 12	10M	16QAM	23130	1RB#0	21.46	15.05
LTE Band 12	10M	16QAM	23130	1RB#25	21.76	15.35
LTE Band 12	10M	16QAM	23130	1RB#49	21.48	15.07

5.2 Occupied Bandwidth

Ambient condition

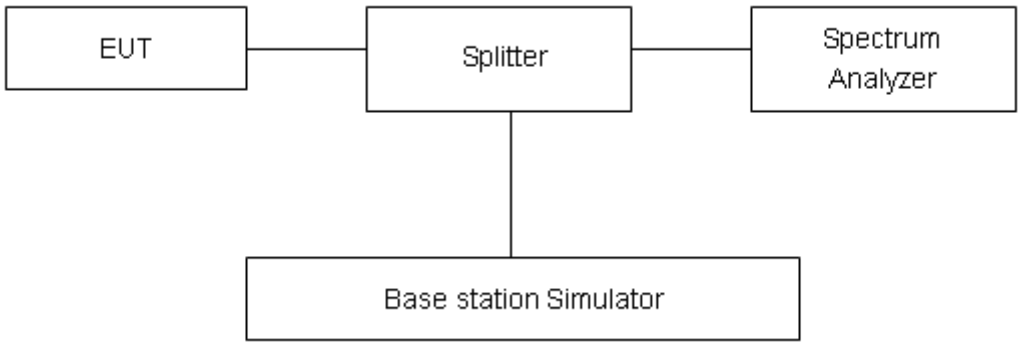
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 30 kHz, VBW is set to 91 kHz for LTE Band 4/12 (1.4MHz).
RBW is set to 62 kHz, VBW is set to 180 kHz for LTE Band 4/12 (3MHz).
RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 4/12 (5MHz).
RBW is set to 200 kHz, VBW is set to 620 kHz for LTE Band 4/12 (10MHz).
RBW is set to 300 kHz, VBW is set to 910 kHz for LTE Band 4 (15MHz).
RBW is set to 430 kHz, VBW is set to 1.2 MHz for LTE Band 4 (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

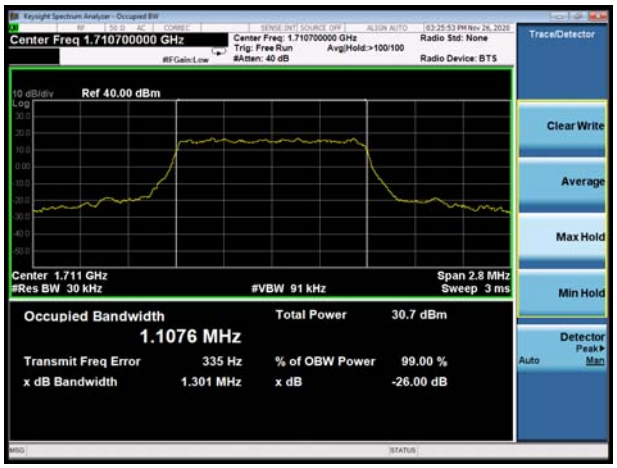
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U=624Hz.

Test Result

LTE Band 4						
RB	**Modulation**	**Bandwidth (MHz)**	**Channel**	**Frequency (MHz)**	**99% Power Bandwidth(MHz)**	**-26dBc Bandwidth(MHz)**
100%	QPSK	1.4	19957	1710.7	1.1076	1.301
			20175	1732.5	1.0969	1.292
			20393	1754.3	1.0948	1.319
		3	19965	1711.5	2.7040	2.990
			20175	1732.5	2.7121	2.992
			20385	1753.5	2.7075	3.015
		5	19975	1712.5	4.5247	5.032
			20175	1732.5	4.5052	5.018
			20375	1752.5	4.5064	4.997
		10	20000	1715	8.9954	9.973
			20175	1732.5	8.9706	9.880
			20350	1750	8.9744	9.841
		15	20025	1717.5	13.4620	14.650
			20175	1732.5	13.3910	14.580
			20325	1747.5	13.4530	14.770
		20	20050	1720	17.9330	19.500
			20175	1732.5	17.8690	19.380
			20300	1745	17.9320	19.660
	16QAM	1.4	19957	1710.7	1.0994	1.291
			20175	1732.5	1.1004	1.293
			20393	1754.3	1.0946	1.280
		3	19965	1711.5	2.7072	3.019
			20175	1732.5	2.7026	2.984
			20385	1753.5	2.7026	2.992
		5	19975	1712.5	4.5118	4.991
			20175	1732.5	4.5208	5.026
			20375	1752.5	4.5275	5.034

LTE Band 12						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	23017	699.7	1.1020	1.277
			23095	707.5	1.0974	1.305
			23173	715.3	1.0992	1.310
		3	23025	700.5	2.7123	2.996
			23095	707.5	2.7208	3.004
			23165	714.5	2.7093	3.003
		5	23035	701.5	4.5197	5.010
			23095	707.5	4.5140	5.047
			23155	713.5	4.5069	5.011
		10	23060	704	8.9576	9.906
			23095	707.5	8.9858	9.934
			23130	711	9.0121	9.954
	16QAM	1.4	23017	699.7	1.1006	1.309
			23095	707.5	1.1011	1.297
			23173	715.3	1.1015	1.287
		3	23025	700.5	2.7107	3.004
			23095	707.5	2.7048	2.995
			23165	714.5	2.7051	3.000
		5	23035	701.5	4.5005	4.986
			23095	707.5	4.5409	5.016
			23155	713.5	4.5315	5.017

LTE Band 4 QPSK 1.4MHz CH-Low



LTE Band 4 QPSK 3MHz CH-Low

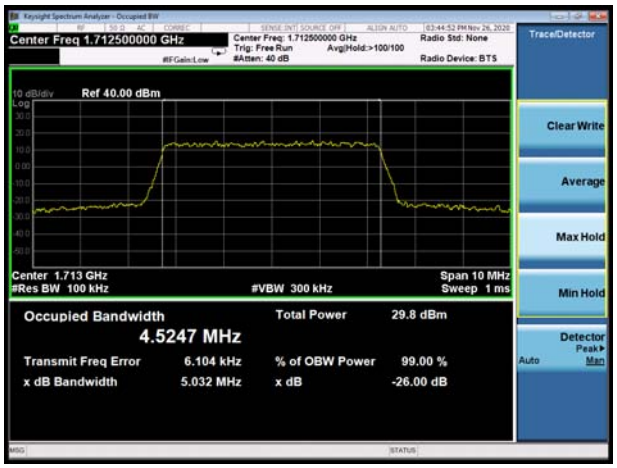
LTE Band 4 QPSK 1.4MHz CH-Middle

LTE Band 4 QPSK 3MHz CH-Middle

LTE Band 4 QPSK 1.4MHz CH-High

LTE Band 4 QPSK 3MHz CH-High

LTE Band 4 QPSK 5MHz CH-Low

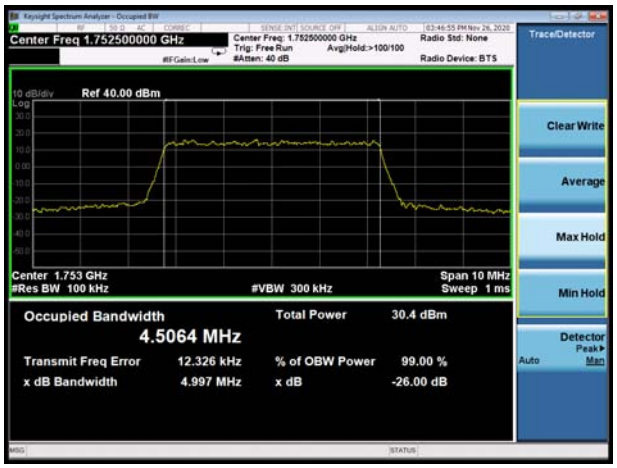


LTE Band 4 QPSK 10MHz CH-Low

LTE Band 4 QPSK 5MHz CH-Middle

LTE Band 4 QPSK 10MHz CH-Middle

LTE Band 4 QPSK 5MHz CH-High

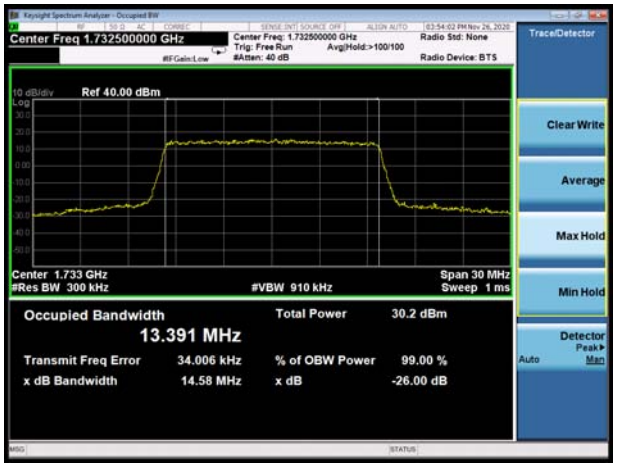


LTE Band 4 QPSK 10MHz CH-High

LTE Band 4 QPSK 15MHz CH-Low

LTE Band 4 QPSK 20MHz CH-Low

LTE Band 4 QPSK 15MHz CH-Middle

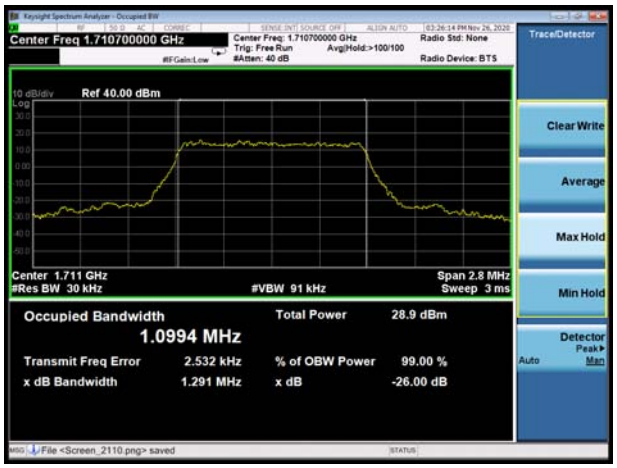


LTE Band 4 QPSK 20MHz CH-Middle

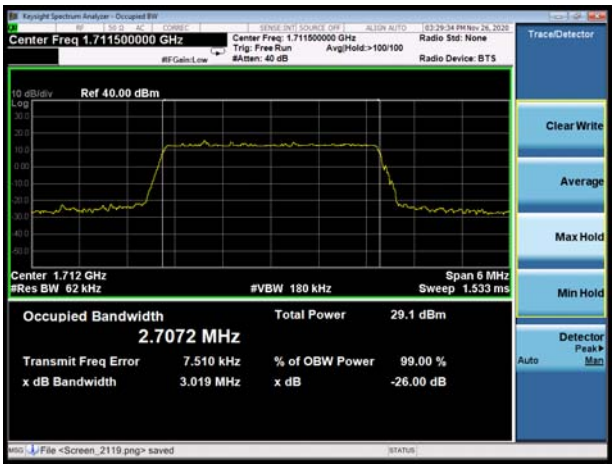
LTE Band 4 QPSK 15MHz CH-High

LTE Band 4 QPSK 20MHz CH-High

LTE Band 4 16QAM 1.4MHz CH-Low



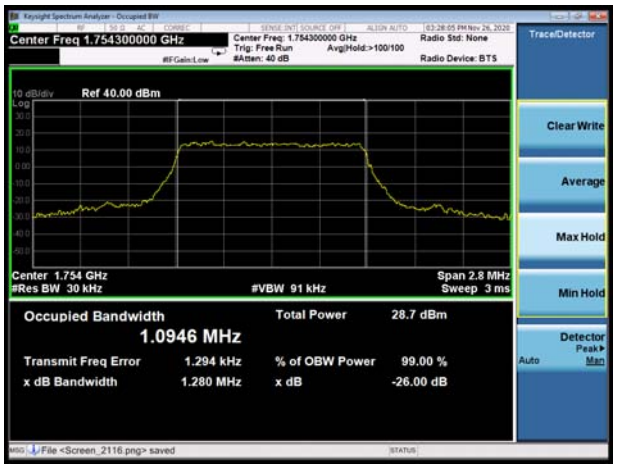
LTE Band 4 16QAM 3MHz CH-Low



LTE Band 4 16QAM 1.4MHz CH-Middle

LTE Band 4 16QAM 3MHz CH-Middle

LTE Band 4 16QAM 1.4MHz CH-High

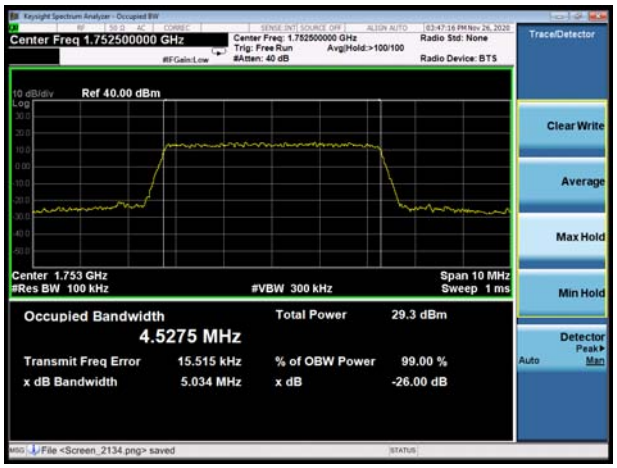


LTE Band 4 16QAM 3MHz CH-High

LTE Band 4 16QAM 5MHz CH-Low

LTE Band 4 16QAM 5MHz CH-Middle

LTE Band 4 16QAM 5MHz CH-High



LTE Band 12 QPSK 1.4MHz CH-Low

LTE Band 12 QPSK 3MHz CH-Low

LTE Band 12 QPSK 1.4MHz CH-Middle

LTE Band 12 QPSK 3MHz CH-Middle

LTE Band 12 QPSK 1.4MHz CH-High

LTE Band 12 QPSK 3MHz CH-High

LTE Band 12 QPSK 5MHz CH-Low

LTE Band 12 QPSK 10MHz CH-Low

LTE Band 12 QPSK 5MHz CH-Middle

LTE Band 12 QPSK 10MHz CH-Middle

LTE Band 12 QPSK 5MHz CH-High

LTE Band 12 QPSK 10MHz CH-High

LTE Band 12 16QAM 1.4MHz CH-Low

LTE Band 12 16QAM 3MHz CH-Low

LTE Band 12 16QAM 1.4MHz CH-Middle

LTE Band 12 16QAM 3MHz CH-Middle

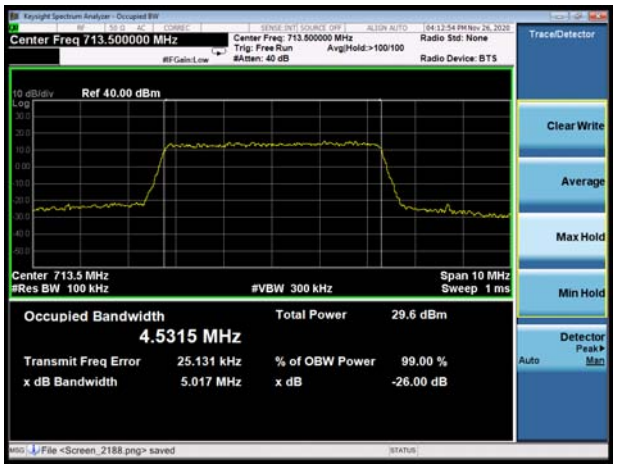
LTE Band 12 16QAM 1.4MHz CH-High

LTE Band 12 16QAM 3MHz CH-High

LTE Band 12 16QAM 5MHz CH-Low

LTE Band 12 16QAM 5MHz CH-Middle

LTE Band 12 16QAM 5MHz CH-High



5.3 Band Edge Compliance

Ambient condition

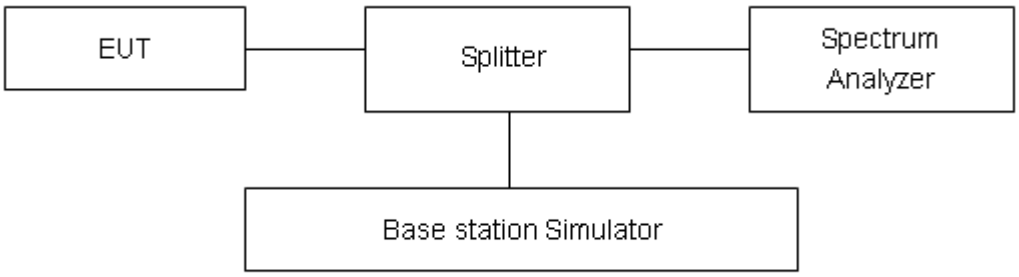
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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.
RBW is set to 30 kHz, VBW is set to 100kHz for LTE Band 12.

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

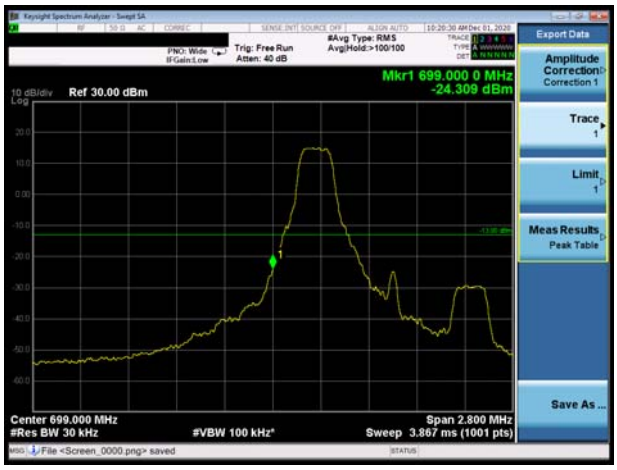
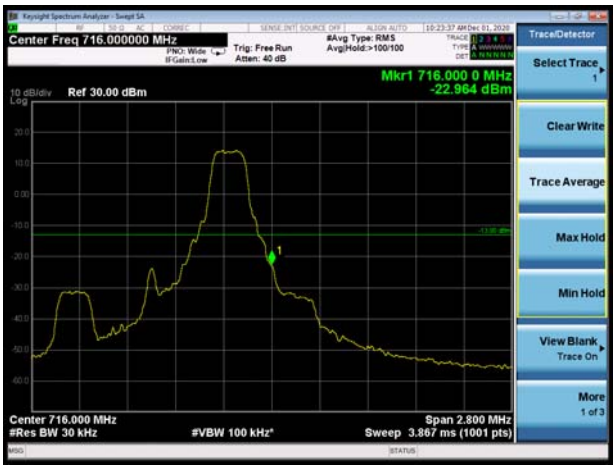
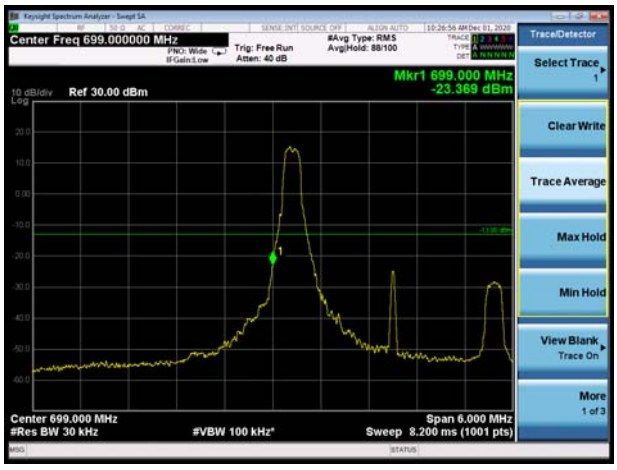
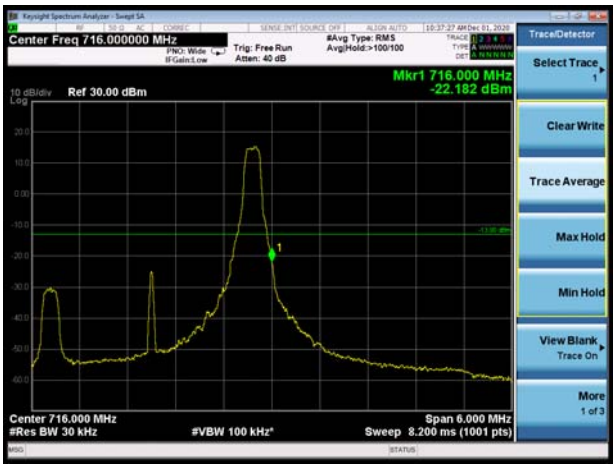
Rule Part 27.53(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

Measurement Uncertainty

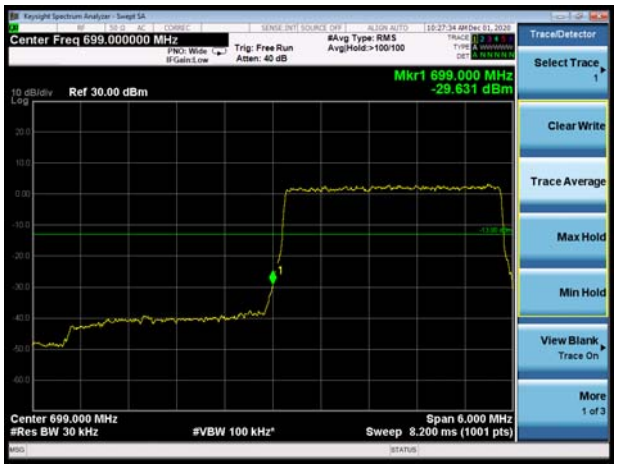
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96, U=0.684dB.

Test Result

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

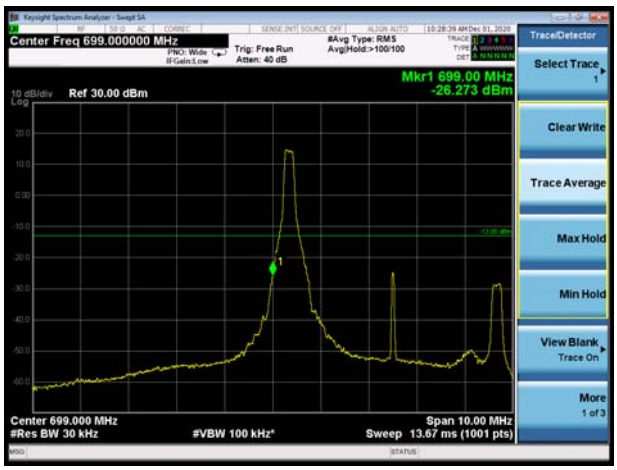
LTE Band 12 QPSK 1.4MHz CH-Low, 1 RB	LTE Band 12 QPSK 1.4MHz CH-High, 1 RB
	
LTE Band 12 QPSK 1.4MHz CH-Low, 100%RB	LTE Band 12 QPSK 1.4MHz CH-High, 100%RB
	
LTE Band 12 QPSK 3MHz CH-Low, 1 RB	LTE Band 12 QPSK 3MHz CH-High, 1 RB
	

LTE Band 12 QPSK 3MHz CH-Low, 100%RB

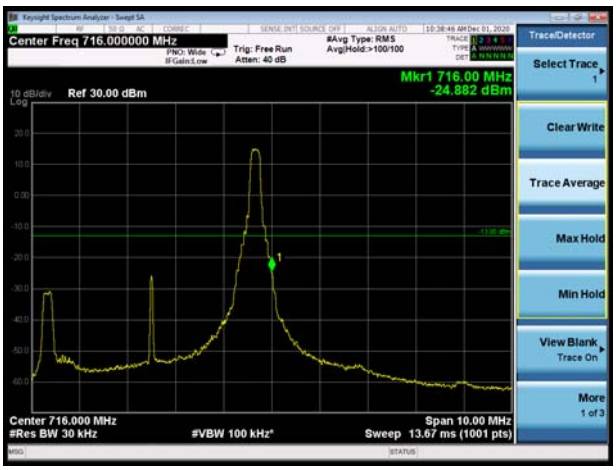


LTE Band 12 QPSK 3MHz CH-High, 100%RB

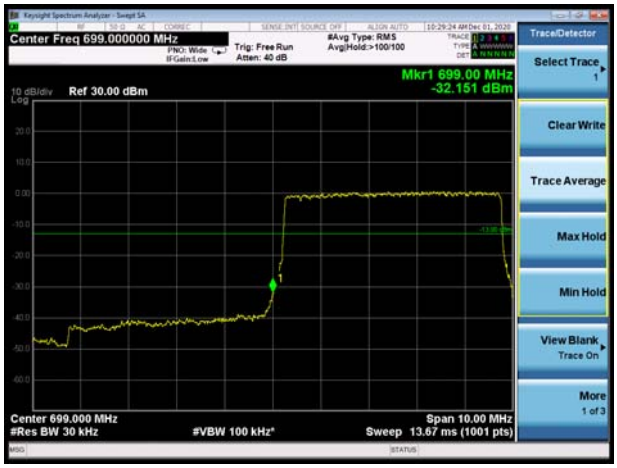
LTE Band 12 QPSK 5MHz CH-Low, 1 RB



LTE Band 12 QPSK 5MHz CH-High, 1 RB

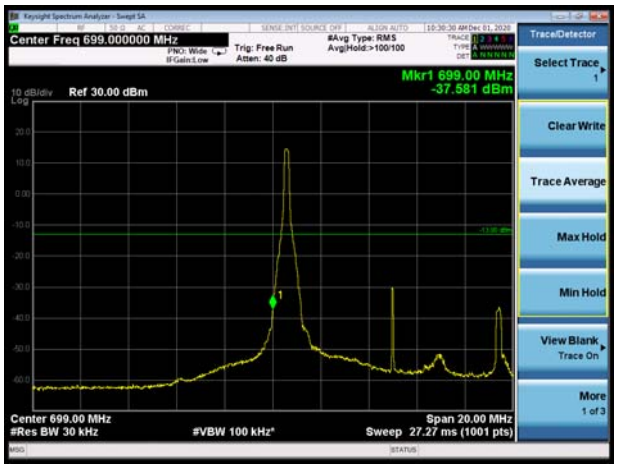


LTE Band 12 QPSK 5MHz CH-Low, 100%RB

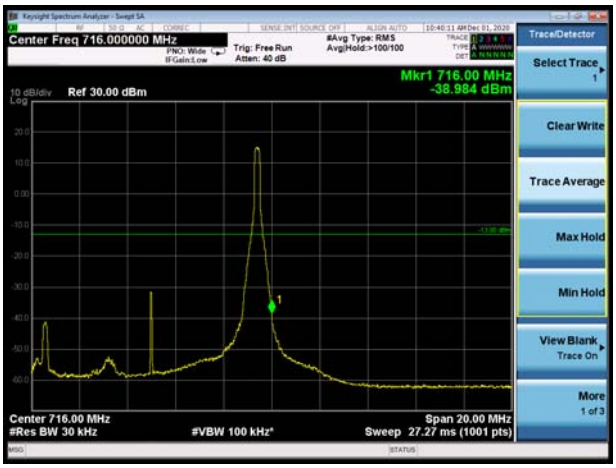


LTE Band 12 QPSK 5MHz CH-High, 100%RB

LTE Band 12 QPSK 10MHz CH-Low, 1 RB



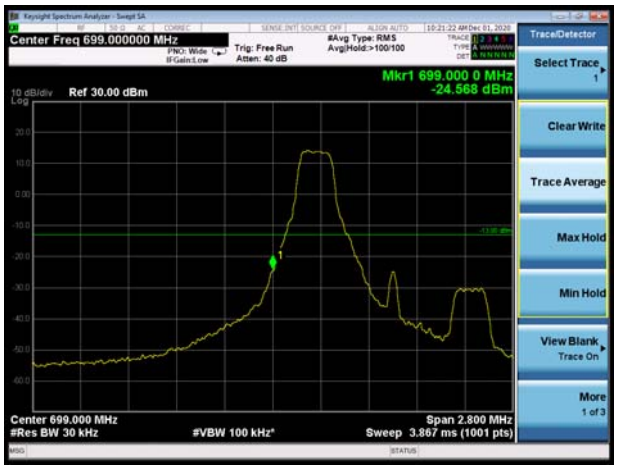
LTE Band 12 QPSK 10MHz CH-High, 1 RB



LTE Band 12 QPSK 10MHz CH-Low, 100%RB

LTE Band 12 QPSK 10MHz CH-High, 100%RB

LTE Band 12 16QAM 1.4MHz CH-Low, 1 RB

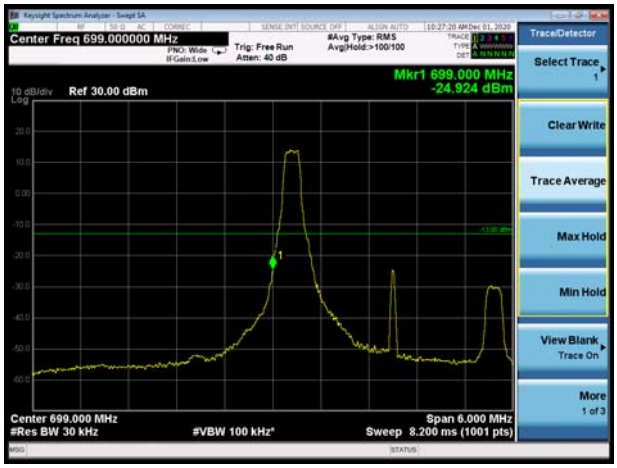


LTE Band 12 16QAM 1.4MHz CH-High, 1 RB

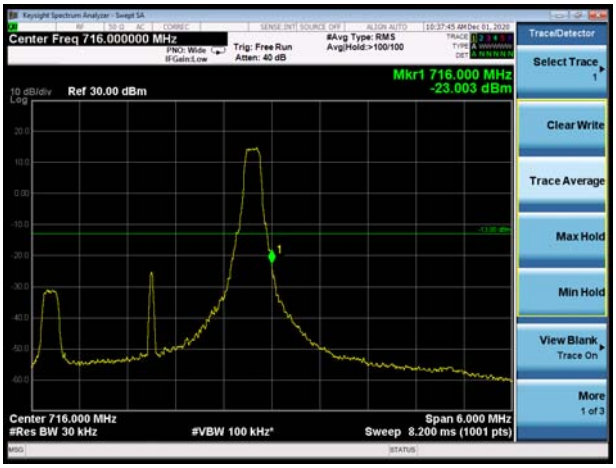
LTE Band 12 16QAM 1.4MHz CH-Low, 100%RB

LTE Band 12 16QAM 1.4MHz CH-High, 100%RB

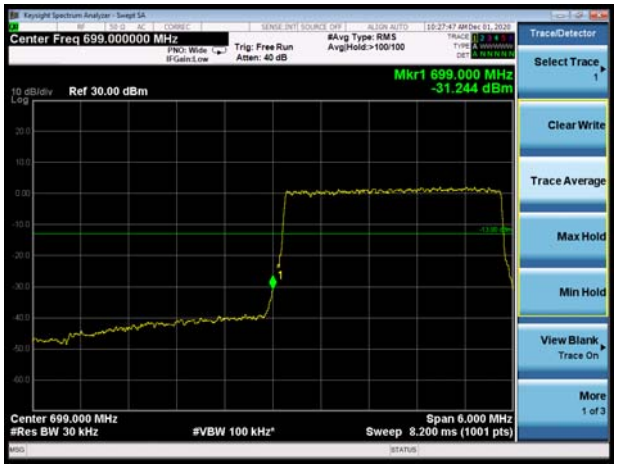
LTE Band 12 16QAM 3MHz CH-Low, 1 RB



LTE Band 12 16QAM 3MHz CH-High, 1 RB

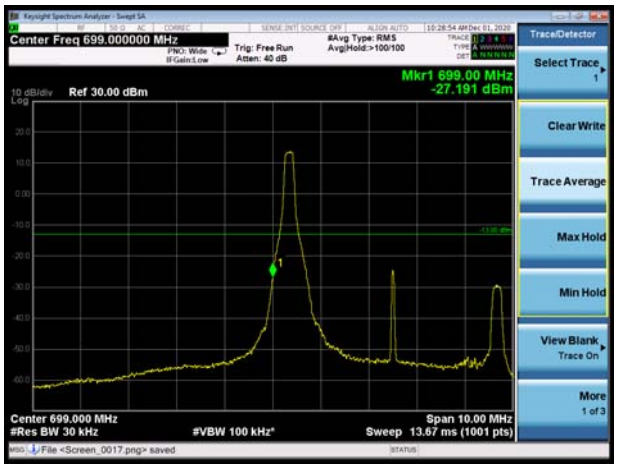


LTE Band 12 16QAM 3MHz CH-Low, 100%RB

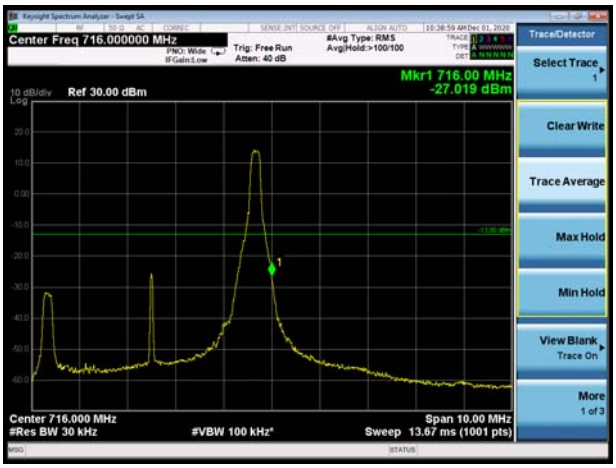


LTE Band 12 16QAM 3MHz CH-High, 100%RB

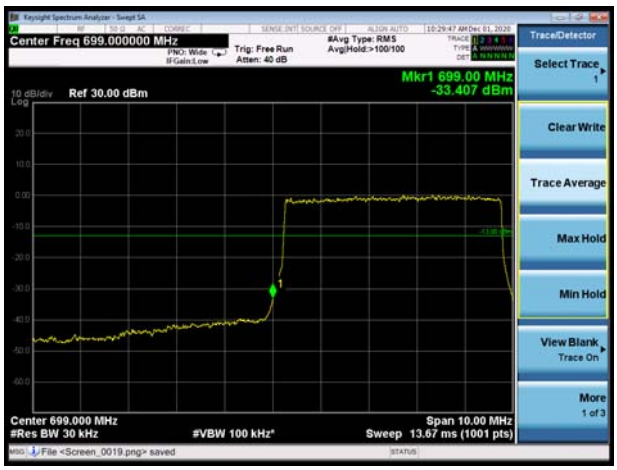
LTE Band 12 16QAM 5MHz CH-Low, 1 RB



LTE Band 12 16QAM 5MHz CH-High, 1 RB

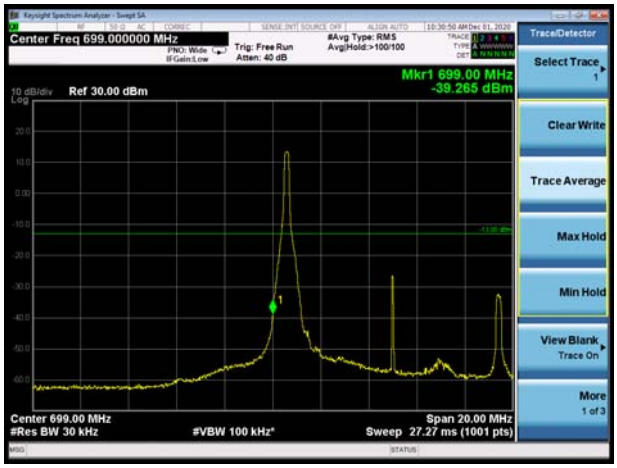


LTE Band 12 16QAM 5MHz CH-Low, 100%RB

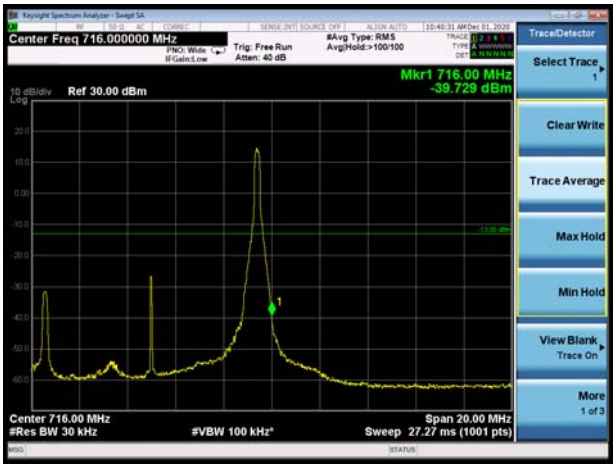


LTE Band 12 16QAM 5MHz CH-High, 100%RB

LTE Band 12 16QAM 10MHz CH-Low, 1 RB



LTE Band 12 16QAM 10MHz CH-High, 1 RB



5.4 Peak-to-Average Power Ratio (PAPR)

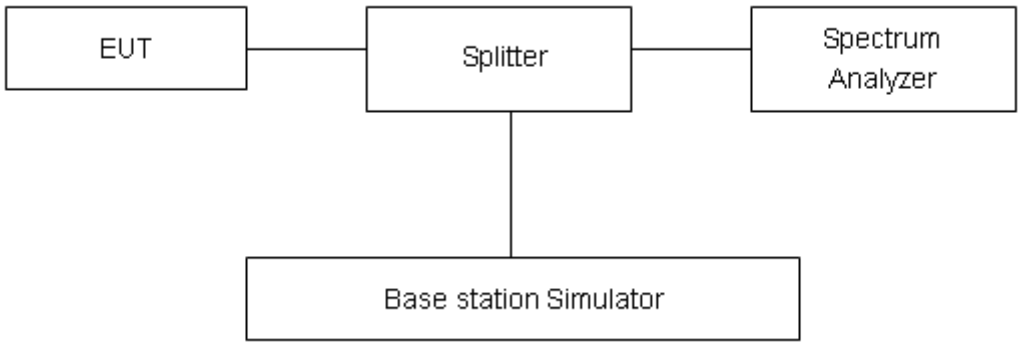
Ambient condition

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

Rule Part 27.50(d)(5) Equipment employed must be authorized in accordance with the provisions of 24.51. Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (d)(6) of this section. 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 thenormal distribution is with the coverage factor k = 2, U= 0.4 dB.

Test Results

LTE Band 12								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	23017	699.7	26.22	21.18	5.04	≤13	PASS
		23095	707.5	26.28	21.29	4.99	≤13	PASS
		23173	715.3	26.27	21.41	4.86	≤13	PASS
	3	23025	700.5	26.25	21.21	5.04	≤13	PASS
		23095	707.5	26.41	21.38	5.03	≤13	PASS
		23165	714.5	26.33	21.44	4.89	≤13	PASS
	5	23035	701.5	26.24	21.25	4.99	≤13	PASS
		23095	707.5	26.31	21.32	4.99	≤13	PASS
		23155	713.5	26.24	21.24	5.00	≤13	PASS
	10	23060	704	26.05	21.20	4.85	≤13	PASS
		23095	707.5	26.33	21.28	5.05	≤13	PASS
		23130	711	26.43	21.29	5.14	≤13	PASS
16QAM	1.4	23017	699.7	26.00	20.08	5.92	≤13	PASS
		23095	707.5	26.46	20.53	5.93	≤13	PASS
		23173	715.3	26.22	20.52	5.70	≤13	PASS
	3	23025	700.5	26.15	20.21	5.94	≤13	PASS
		23095	707.5	26.24	20.34	5.90	≤13	PASS
		23165	714.5	26.11	20.26	5.85	≤13	PASS
	5	23035	701.5	26.11	20.27	5.84	≤13	PASS
		23095	707.5	26.20	20.35	5.85	≤13	PASS
		23155	713.5	26.17	20.37	5.80	≤13	PASS

5.5 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 -30°C to +50°C in 10°C step size.

(1)With all power removed, the temperature was decreased to -10°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 -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

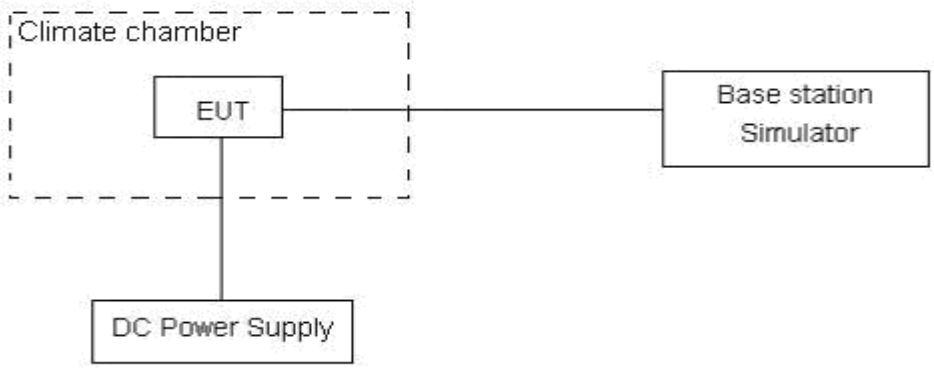
Frequency Stability (Voltage Variation)

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

Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced 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 4.25 V and 5.75 V, with a nominal voltage of 5V.

Test setup



Limits

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

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

Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	17.20	8.44	0.00915	0.00449	PASS
Extreme（50℃）		13.00	13.99	0.00692	0.00744	PASS
Extreme（40℃）		8.87	11.49	0.00472	0.00611	PASS
Extreme（30℃）		13.70	6.03	0.00729	0.00321	PASS
Extreme（20℃）		5.37	3.60	0.00285	0.00192	PASS
Extreme（10℃）		5.87	11.01	0.00312	0.00585	PASS
Extreme（0℃）		12.62	1.48	0.00671	0.00079	PASS
Extreme（-10℃）		10.76	7.56	0.00572	0.00402	PASS
Extreme（-20℃）		12.05	8.97	0.00641	0.00477	PASS
Extreme（-30℃）		6.57	14.51	0.00349	0.00772	PASS
25℃	LV	6.89	1.72	0.00367	0.00091	PASS
	HV	15.83	10.19	0.00842	0.00542	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	9.55	15.49	0.00508	0.00824	PASS
Extreme（50℃）		15.66	7.21	0.00833	0.00383	PASS
Extreme（40℃）		11.19	16.30	0.00595	0.00867	PASS
Extreme（30℃）		17.86	7.19	0.00950	0.00382	PASS
Extreme（20℃）		17.84	16.67	0.00949	0.00886	PASS
Extreme（10℃）		17.97	10.49	0.00956	0.00558	PASS
Extreme（0℃）		6.04	10.85	0.00321	0.00577	PASS
Extreme（-10℃）		9.18	12.42	0.00488	0.00661	PASS
Extreme（-20℃）		13.97	2.61	0.00743	0.00139	PASS
Extreme（-30℃）		15.41	1.36	0.00820	0.00072	PASS
25℃	LV	1.67	15.20	0.00089	0.00808	PASS
	HV	8.50	17.60	0.00452	0.00936	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	7.32	1.42	0.00389	0.00075	PASS
Extreme（50℃）		11.21	8.01	0.00596	0.00426	PASS
Extreme（40℃）		7.09	3.73	0.00377	0.00198	PASS
Extreme（30℃）		10.09	5.23	0.00537	0.00278	PASS
Extreme（20℃）		4.63	7.24	0.00246	0.00385	PASS
Extreme（10℃）		14.59	4.08	0.00776	0.00217	PASS

Extreme（0℃）		2.38	15.84	0.00127	0.00842	PASS
Extreme（-10℃）		12.96	8.55	0.00689	0.00455	PASS
Extreme（-20℃）		13.33	9.39	0.00709	0.00499	PASS
Extreme（-30℃）		1.61	3.05	0.00085	0.00162	PASS
25℃	LV	11.82	17.41	0.00629	0.00926	PASS
	HV	8.29	6.40	0.00441	0.00340	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal（25℃）	Normal	1.15	3.37	0.00061	0.00179	PASS
Extreme（50℃）		2.77	14.47	0.00147	0.00770	PASS
Extreme（40℃）		16.45	14.56	0.00875	0.00774	PASS
Extreme（30℃）		17.96	16.69	0.00955	0.00888	PASS
Extreme（20℃）		17.33	5.80	0.00922	0.00309	PASS
Extreme（10℃）		8.44	14.93	0.00449	0.00794	PASS
Extreme（0℃）		11.68	8.48	0.00621	0.00451	PASS
Extreme（-10℃）		17.60	6.82	0.00936	0.00363	PASS
Extreme（-20℃）		7.92	9.72	0.00421	0.00517	PASS
Extreme（-30℃）		16.89	12.74	0.00898	0.00678	PASS
25℃	LV	1.68	10.37	0.00089	0.00552	PASS
	HV	3.68	3.59	0.00196	0.00191	PASS

5.6 Spurious Emissions at Antenna Terminals

Ambient condition

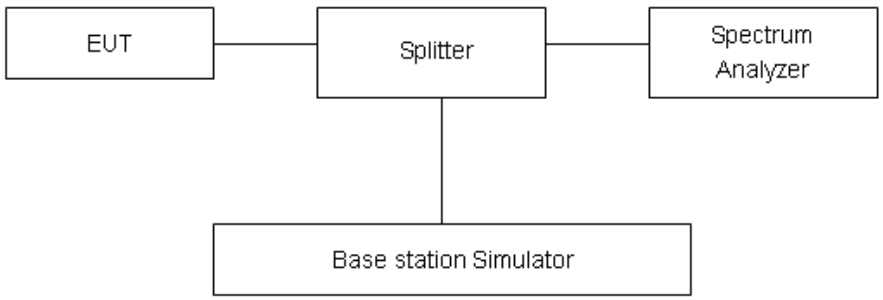
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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.
RBW is set to 1 kHz (0.009MHz~ 0.15 MHz),
RBW is set to 10 kHz (0.15 MHz~ 30 MHz)
RBW is set to 100 kHz (30MHz~1000 MHz)
RBW is set to 1000 kHz (above 1000MHz)

Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Limits

Rule Part 27.53 (g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

Part 27.53(g) Limit	-13 dBm

Measurement Uncertainty

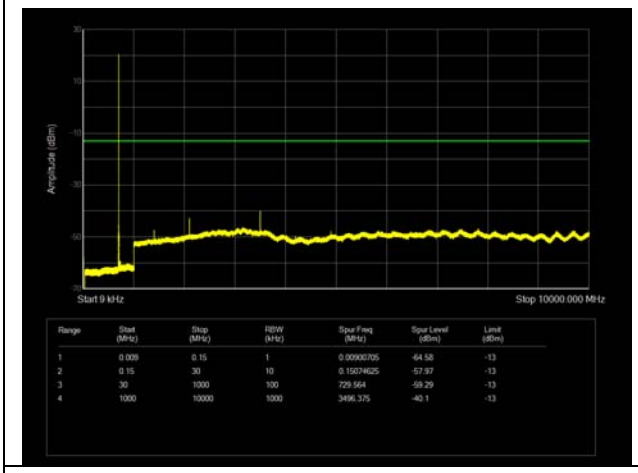
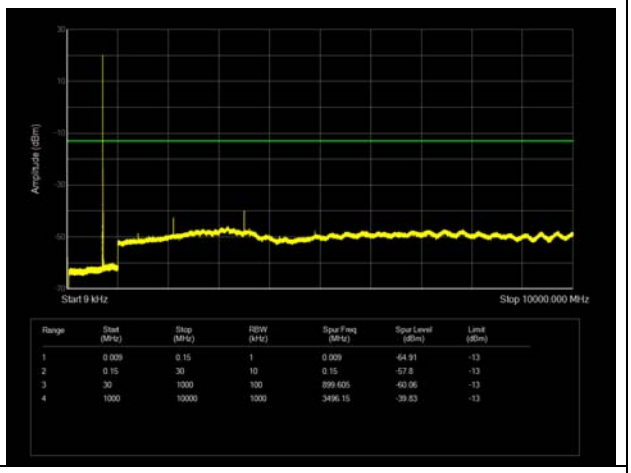
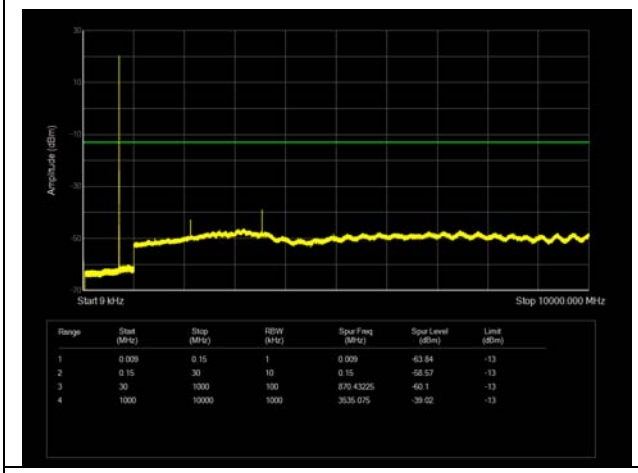
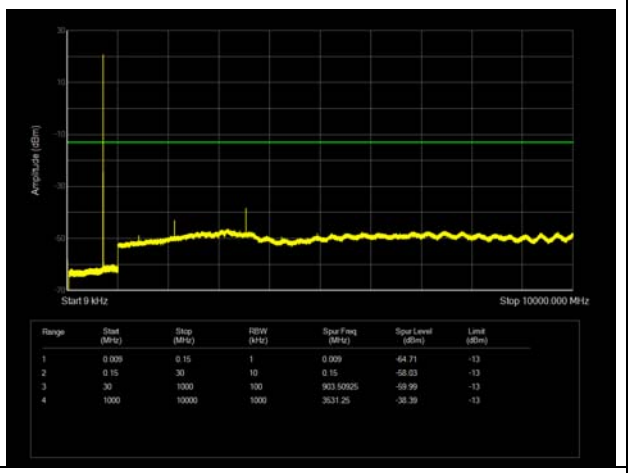
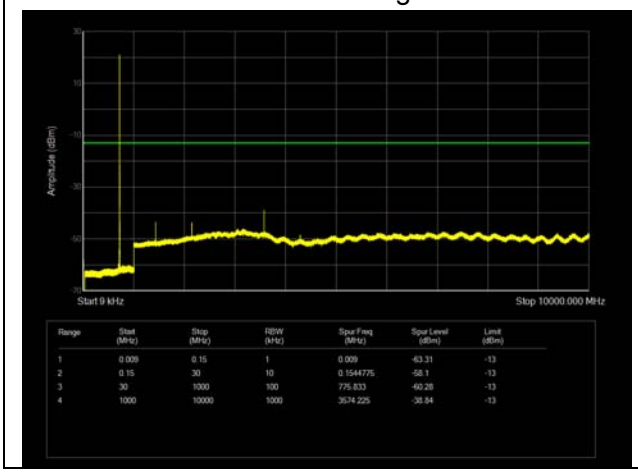
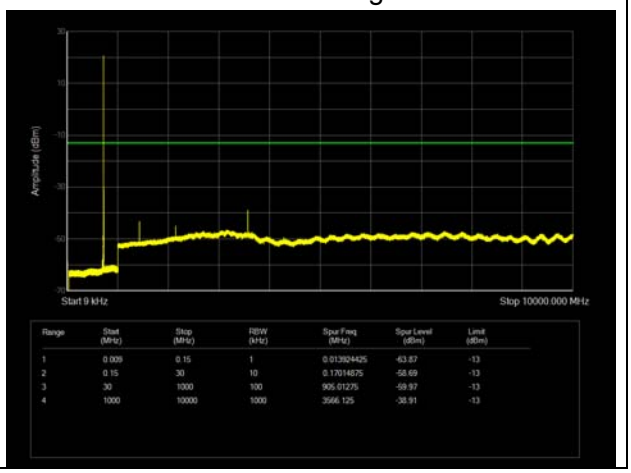
The assessed measurement uncertainty to ensure 99.75％ confidence level for the normal distribution is with the coverage factor *k* = 1.96.

Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-27GHz	1.407 dB

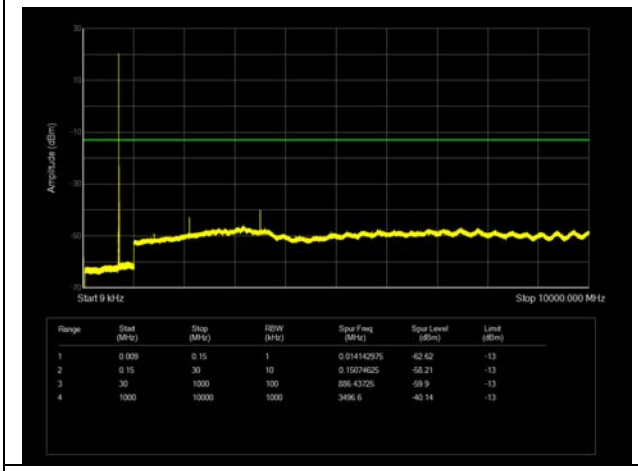
Test Result

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.

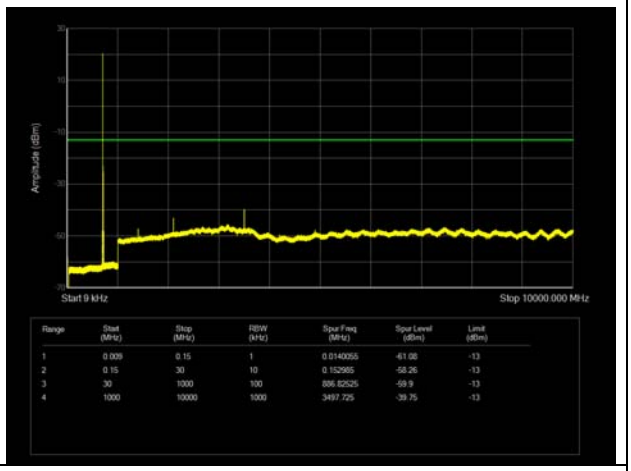
The signal beyond the limit is carrier.

LTE Band 12 1.4MHz CH-Low 9kHz~10GHz	LTE Band 12 3MHz CH-Low 9kHz~10GHz
	
LTE Band 12 1.4MHz CH- Middle 9kHz~10GHz	LTE Band 12 3MHz CH- Middle 9kHz~10GHz
	
LTE Band 12 1.4MHz CH-High 9kHz~10GHz	LTE Band 12 3MHz CH-High 9kHz~10GHz
	

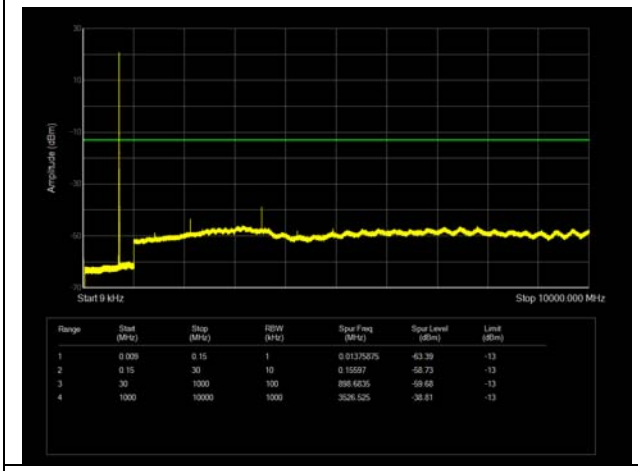
LTE Band 12 5MHz CH-Low 9kHz~10GHz



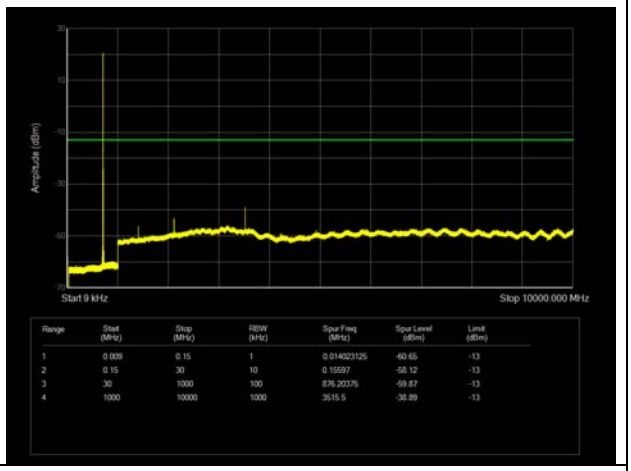
LTE Band 12 10MHz CH-Low 9kHz~10GHz



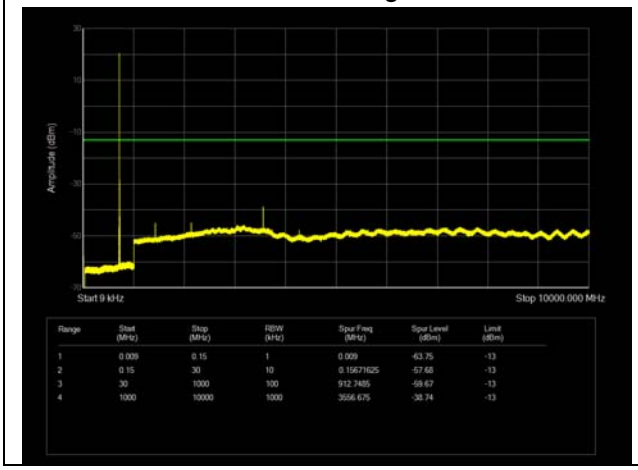
LTE Band 12 5MHz CH- Middle 9kHz~10GHz



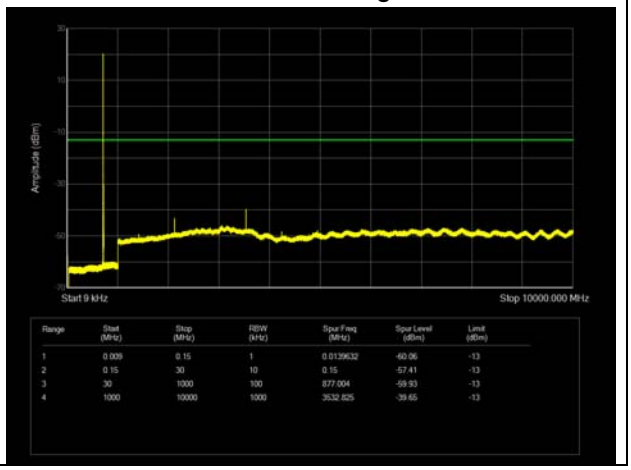
LTE Band 12 10MHz CH- Middle 9kHz~10GHz



LTE Band 12 5MHz CH-High 9kHz~10GHz



LTE Band 12 10MHz CH-High 9kHz~10GHz



5.7 Radiates Spurious Emission

Ambient condition

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

Method of Measurement

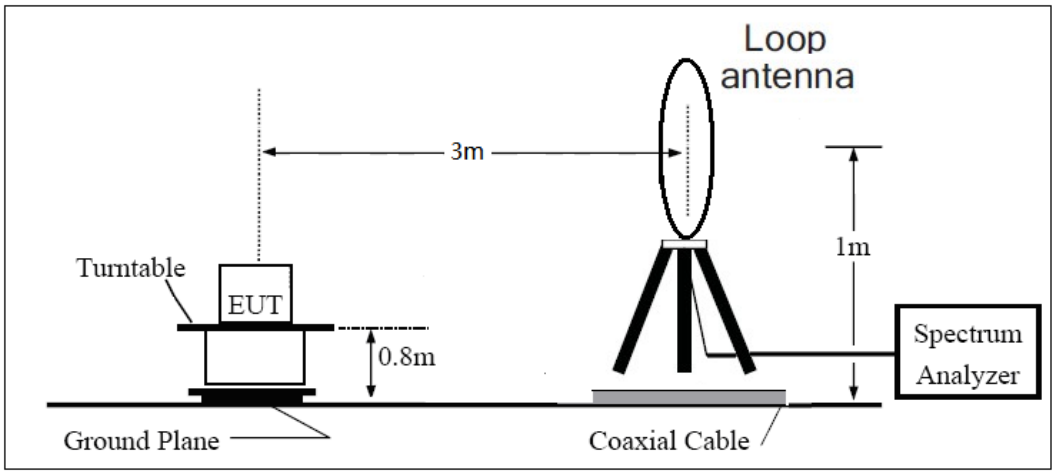
1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable 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 9kHz-150kHz , 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.

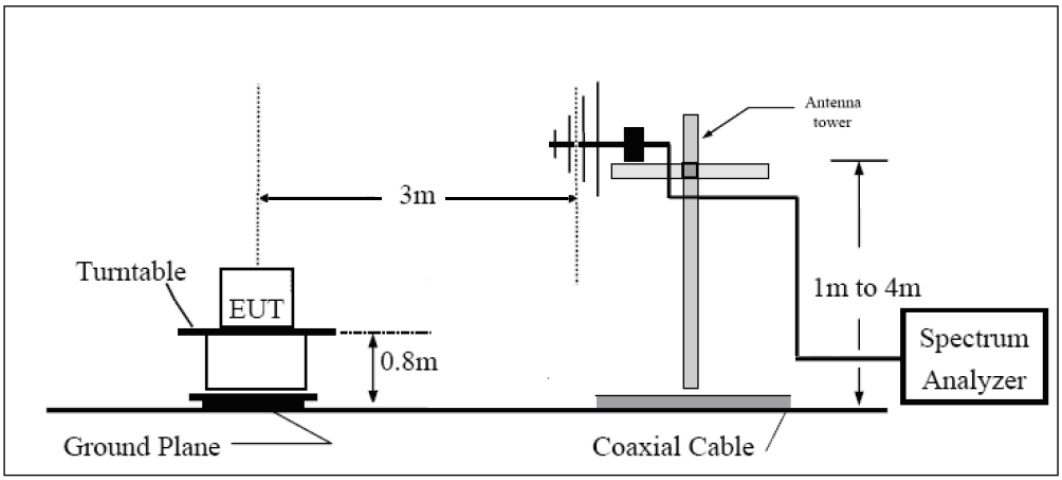
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

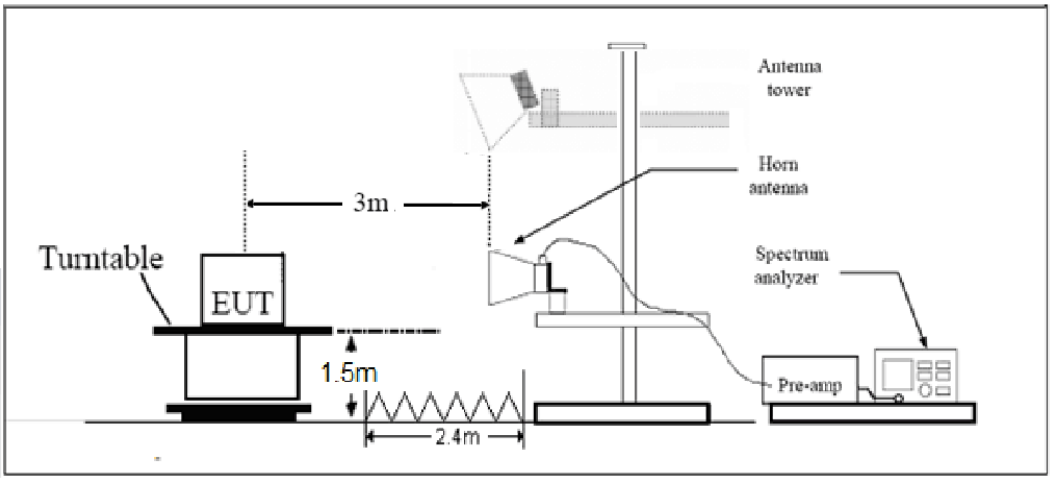
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Limits

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 log10 (P) dB.”

Rule Part 27.53 (g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

Part 27.53(h)/(g) 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 4 QPSK 1.4MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3464.3	-31.79	2.6	10.75	Horizontal	-23.64	-13.00	10.64	0
3	5197.5	-36.43	2.4	11.05	Horizontal	-27.78	-13.00	14.78	90
4	6930.0	-44.56	4.5	11.15	Horizontal	-37.91	-13.00	24.91	225
5	8662.5	-43.02	5.1	11.35	Horizontal	-36.77	-13.00	23.77	45
6	10395.0	-46.19	5.3	11.95	Horizontal	-39.54	-13.00	26.54	270
7	12127.5	-51.44	5.5	13.55	Horizontal	-43.39	-13.00	30.39	180
8	13860.0	-49.69	6.3	13.75	Horizontal	-42.24	-13.00	29.24	0
9	15592.5	-48.09	6.7	13.85	Horizontal	-40.94	-13.00	27.94	45
10	17325.0	-47.21	6.8	14.25	Horizontal	-39.76	-13.00	26.76	315
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 4 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3460.5	-31.31	2.6	10.75	Horizontal	-23.16	-13.00	10.16	90
3	5191.5	-36.06	2.4	11.05	Horizontal	-27.41	-13.00	14.41	45
4	6930.0	-44.82	4.5	11.15	Horizontal	-38.17	-13.00	25.17	180
5	8662.5	-42.11	5.1	11.35	Horizontal	-35.86	-13.00	22.86	180
6	10395.0	-45.38	5.3	11.95	Horizontal	-38.73	-13.00	25.73	270
7	12127.5	-49.55	5.5	13.55	Horizontal	-41.50	-13.00	28.50	45
8	13860.0	-47.78	6.3	13.75	Horizontal	-40.33	-13.00	27.33	90
9	15592.5	-47.39	6.7	13.85	Horizontal	-40.24	-13.00	27.24	315
10	17325.0	-45.27	6.8	14.25	Horizontal	-37.82	-13.00	24.82	45
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 4 QPSK 20MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.0	-33.06	2.6	10.75	Horizontal	-24.91	-13.00	11.91	180
3	5170.9	-37.49	2.4	11.05	Horizontal	-28.84	-13.00	15.84	90
4	6930.0	-45.27	4.5	11.15	Horizontal	-38.62	-13.00	25.62	225
5	8662.5	-44.53	5.1	11.35	Horizontal	-38.28	-13.00	25.28	180
6	10395.0	-44.13	5.3	11.95	Horizontal	-37.48	-13.00	24.48	0
7	12127.5	-48.38	5.5	13.55	Horizontal	-40.33	-13.00	27.33	90
8	13860.0	-49.08	6.3	13.75	Horizontal	-41.63	-13.00	28.63	225
9	15592.5	-48.65	6.7	13.85	Horizontal	-41.50	-13.00	28.50	315
10	17325.0	-46.76	6.8	14.25	Horizontal	-39.31	-13.00	26.31	45
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 12 QPSK 1.4MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1415.0	-58.26	2.00	10.75	Horizontal	-51.66	-13.00	38.66	45
3	2122.5	-46.32	2.51	11.05	Horizontal	-39.93	-13.00	26.93	270
4	2830.0	-51.51	4.20	11.15	Horizontal	-46.71	-13.00	33.71	180
5	3537.5	-40.54	5.20	11.15	Horizontal	-36.74	-13.00	23.74	45
6	4245.0	-56.20	5.50	11.95	Horizontal	-51.90	-13.00	38.90	90
7	4952.5	-55.44	5.70	13.55	Horizontal	-49.74	-13.00	36.74	315
8	5660.0	-55.70	6.30	13.75	Horizontal	-50.40	-13.00	37.40	0
9	6367.5	-56.65	6.80	13.85	Horizontal	-51.75	-13.00	38.75	180
10	7075.0	-56.36	6.90	14.25	Horizontal	-51.16	-13.00	38.16	270
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 12 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1410.6	-57.20	2.00	10.75	Horizontal	-50.60	-13.00	37.60	0
3	2115.9	-45.54	2.51	11.05	Horizontal	-39.15	-13.00	26.15	45
4	2821.2	-51.41	4.20	11.15	Horizontal	-46.61	-13.00	33.61	90
5	3537.5	-43.01	5.20	11.15	Horizontal	-39.21	-13.00	26.21	45
6	4245.0	-56.03	5.50	11.95	Horizontal	-51.73	-13.00	38.73	315
7	4952.5	-53.09	5.70	13.55	Horizontal	-47.39	-13.00	34.39	225
8	5660.0	-55.95	6.30	13.75	Horizontal	-50.65	-13.00	37.65	90
9	6367.5	-56.27	6.80	13.85	Horizontal	-51.37	-13.00	38.37	45
10	7075.0	-57.16	6.90	14.25	Horizontal	-51.96	-13.00	38.96	180
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 12 QPSK 10MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1406.4	-58.12	2.00	10.75	Horizontal	-51.52	-13.00	38.52	225
3	2109.6	-46.26	2.51	11.05	Horizontal	-39.87	-13.00	26.87	315
4	2812.8	-56.31	4.20	11.15	Horizontal	-51.51	-13.00	38.51	45
5	3537.5	-45.23	5.20	11.15	Horizontal	-41.43	-13.00	28.43	225
6	4245.0	-55.73	5.50	11.95	Horizontal	-51.43	-13.00	38.43	180
7	4952.5	-56.85	5.70	13.55	Horizontal	-51.15	-13.00	38.15	0
8	5660.0	-56.29	6.30	13.75	Horizontal	-50.99	-13.00	37.99	90
9	6367.5	-56.62	6.80	13.85	Horizontal	-51.72	-13.00	38.72	45
10	7075.0	-56.46	6.90	14.25	Horizontal	-51.26	-13.00	38.26	315
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.									

6 Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	113824	2020-05-18	2021-05-17
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2020-05-18	2021-05-17
Signal Analyzer	R&S	FSV30	100815	2019-12-15	2020-12-14
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2020-04-02	2023-04-01
Trilog Antenna	SCHWARZBECK	VUBL 9163	391	2019-12-16	2021-12-15
Horn Antenna	R&S	HF907	102723	2018-08-11	2021-08-10
Horn Antenna	ETS-Lindgren	3160-09	00102643	2018-06-20	2021-06-19
Signal generator	R&S	SMB 100A	102594	2020-05-18	2021-05-17
Climatic Chamber	ESPEC	SU-242	93000506	2017-12-17	2020-12-16
Preampflier	R&S	SCU18	102327	2020-05-18	2021-05-17
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2020-05-18	2021-05-17
RF Cable	Agilent	SMA 15cm	0001	2020-06-12	2020-12-11
Software	R&S	EMC32	9.26.0	/	/

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