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FCC ID TEST REPORT

Under
47 CFR FCC Part 2 & 47 CFR FCC Part 24(E)
☒PCB_PCS Licensed Transmitter

Prepared for:
Moochies Technologies LTD
159 Wardour Street, London, W1F 8WH, UK

FCC ID: 2AW9Z-MW12
EUT: Kids 4G Smartwatch Phone
Model: MW12

July 17, 2020 Issue Date:
Original Report Report Type:
 Test Engineer: Jacky Huang
 Review By: Apollo Liu / Manager

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Report Revision History

Report #	Version	Description	Issued Date
KSZ2020032301J02	Rev.01	Initial issue of report	July 17, 2020

1. General Information

1.1 Notes

The test results of this report relate exclusively to the test item specified in 1.6. The KMO Lab does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the KMO Lab.

1.2 Testing Laboratory

Test Firm Name:	Ke Mei Ou Lab Co., Ltd.
Test Firm Address:	2013-2016, 20th Floor, Business Center, Jiahui Xin Cheng, No 3027, Shen Nan Road, Fu Tian, Shen Zhen, Guang Dong, P. R. China
FCC Designation Number:	CN1532
Test Firm Registration Number:	344480
Internet:	www.kmolab.com
Email:	kmo@kmolab.com
ANSI-ASQ National Accreditation Board/ACLASS ISO/IEC 17025 Accredited Lab for telecommunication standards. The Registration Number is AT-1532. The testing quality system meets with ISO/IEC-17025 requirements, This approval results is accepted by MRA of ILAC.	

1.3 Details of Applicant

Name	Moochies Technologies LTD
Address	159 Wardour Street, London, W1F 8WH, UK

1.4 Application Details

Date of Receipt of Application	: March 23, 2020
Date of Receipt of Test Item	: May 11, 2020
Date of Test	: May 11 ~ July 17, 2020

1.5 Details of Manufacturer

Name	Moochies Technologies LTD
Address	159 Wardour Street, London, W1F 8WH, UK

1.6 Test Item

EUT Feature				
EUT Description:	Kids 4G Smartwatch Phone			
Brand Name:	Moochies			
Model Name:	MW12			
EUT RF Technology:	☒ GSM	Band	UL(MHz)	DL(MHz)
		☒ GSM1900	1850 ~ 1910	1930 ~ 1990
	☒ WCDMA	Band	UL(MHz)	DL(MHz)
		☒ WCDMA Band II	1850 ~ 1910	1930 ~ 1990
	☒ LTE	Band	UL(MHz)	DL(MHz)
		☒ LTE Band 2	1850 ~ 1910	1930 ~ 1990
Antenna Type / Gain:	☒ Internal 0.8dBi->GSM; 0.8dBi->WCDMA Band II 0.8dBi->LTE Band 2		☐ External dBi	
Test Mode(s):	☒ GSM 1900 ☒ WCDMA Band II		☒ LTE Band 2	
Test Modulation:	☒ GSM->GMSK,8PSK		☒ LTE->QPSK,16QAM,64QAM	
	☒ WCDMA-> BPSK, QPSK,16QAM			
GPRS Multislot Class	12		EGPRS Multislot Class	12
HSDPA UE Category	14		HSUPA UE Category	6
LTE Category	19			
HW Version:	G4H-MB			
SW Version:	G4P_EMMC_240_5M_COMMON_OVERSEA_20190919_17.19.00			
EUT Stage:	☒ Identical PrototYPE ☐ Production			

Power Supply	Vmin: 3.6Vdc	Vnom : 3.8Vdc	Vmax: 4.2Vdc
Operating Temperature	Tmin: -10 °C	Tnom: 25 °C	Tmax: 45 °C
Note: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.			

EUT Operational Condition	☐ AC
	☒ DC → ☒ From Battery → ☐ External AC adapter ☐ POE

Specification of Accessory				
☒ Battery	Brand Name	N/A	Model Name	663032V
	Power Rating	3.7V, 700mAh, 2.59Wh		

Maximum ERP/EIRP Power & Frequency Tolerance & Emission Designator							
FCC Rule	RF Technology	Type of Modulation	Band (MHz)	Output Watts(W)	Frequency Tolerance(ppm)	Emission Designator	
☒ 24E	GSM1900 GSM	GMSK	1850.2 – 1909.8	1.2701	0.0093	248KGXW	
☒ 24E	GSM1900 EDGE Cass 8	8PSK	1850.2 – 1909.8	1.2589	0.0087	238KG7W	
☒ 24E	WCDMA Band II RMC 12.2Kbps	BPSK	1852.4 – 1907.6	0.2265	0.0102	4M18F9W	
☒ FCC Rule 24E							
LTE Band 2		QPSK			16QAM		
BW (MHz)	Band (MHz)	Output Watts(W)	Frequency Tolerance (ppm)	Emission Designator	Output Watts(W)	Frequency Tolerance (ppm)	Emission Designator
1.4	1850.7 - 1909.3	0.2624	0.0106	1M10G7D	0.2094	-	1M10W7D
3	1851.5 - 1908.5	0.2565	-	2M70G7D	0.2323	-	2M70W7D
5	1852.5 - 1907.5	0.2716	-	4M54G7D	0.2014	-	4M54W7D
10	1855.0 - 1905.0	0.2661	-	8M96G7D	0.2178	-	8M96W7D
15	1857.5 - 1902.5	0.2624	-	13M6G7D	0.2070	-	13M5W7D
20	1860.0 - 1900.0	0.2704	-	18M1G7D	0.1972	-	18M1W7D
LTE Band 2		64QAM			-		
BW (MHz)	Band (MHz)	Output Watts(W)	Frequency Tolerance (ppm)	Emission Designator	-	-	-
1.4	1850.7 - 1909.3	0.1770	-	1M10W7D	-	-	-
3	1851.5 - 1908.5	0.1726	-	2M70W7D	-	-	-
5	1852.5 - 1907.5	0.1698	-	4M54W7D	-	-	-
10	1855.0 - 1905.0	0.1641	-	8M96W7D	-	-	-
15	1857.5 - 1902.5	0.1652	-	13M6W7D	-	-	-
20	1860.0 - 1900.0	0.1710	-	18M0W7D	-	-	-

1. 7 Applicable Standards

Applicable Standards
According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards: FCC CFR47 Part 2 (2018) FCC CFR 47 Part 24E (2018) ANSI C63.26 (2015) KDB 971168 D01 Power Meas License Digital Systems v03r01
Note: All test items were verified and recorded according to the standards and without any deviation during the test.

2. Technical Test

2.1 Summary of Test Results

The EUT has been tested according to the following specifications:

FCC Rule	Test Type	Limit	Result	Notes
§2.1046	Conducted Output Power	N/A	PASS	Complies
§24.232(d)	Peak-to-Average Ratio	< 13 dB	PASS	Complies
§24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	Complies
§2.1049	Occupied Bandwidth	N/A	PASS	Complies
§2.1051 §24.238(a)	Band Edge Measurement	$< 43 + 10 \log_{10}(P[\text{Watts}])$	PASS	Complies
§2.1051 §24.238(a)	Conducted Spurious Emission	$< 43 + 10 \log_{10}(P[\text{Watts}])$	PASS	Complies
§2.1053 §24.238(a)	Field Strength of Spurious Radiation	$< 43 + 10 \log_{10}(P[\text{Watts}])$	PASS	Complies
§2.1055 §24.235	Frequency Stability for Temperature & Voltage	< 2.5 ppm	PASS	Complies
Note: a. All test items were verified and recorded according to the standards and without any deviation during the test. b. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.				

2.2 EUT Modification

No modification by test lab.

2. 4 Test Configuration

EUT Operation Test Setup		
☒ One SIM card slot only		☐ More than one SIM card slot, each one should be applied throughout the compliance test respectively, and however, only the worst case (SIM 1) will be recorded in this report.
Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (Z axis, horizontal polarization) and the worst case was recorded.		
All mode and data rates and positions were investigated. Subsequently, only the worst mode emissions are reported. The following testing in GSM/WCDMA/LTE is set based on the maximum RF Output Power. Test modes are chosen to be reported as the worst mode configuration below:		
Test Item	Modes/Modulation	
	☒ GSM 1900 Bandwidth: 0.2 MHz	☒ WCDMA Band II Bandwidth: 5 MHz
RF power output	GSM GPRS EGPRS	RMC HSDPA/HSUPA DC-HSDPA/HSPA+
Effective Radiated Power	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC 12.2Kbps Link
Occupied Bandwidth	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC 12.2Kbps Link
Band Edge Compliance	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC 12.2Kbps Link
Peak-to-Average Ratio	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC 12.2Kbps Link
Frequency Stability	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC 12.2Kbps Link
Conducted Spurious Emission	GSM	RMC 12.2Kbps Link
Radiates Spurious Emission	GSM	RMC 12.2Kbps Link

Test modes are chosen to be reported as the worst case configuration below for LTE Band 2														
Test Items	Bandwidth (MHz)						Modulation		RB#			Test Channel		
	1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Max. Output Power	√	√	√	√	√	√	√	√	√	√	√	√	√	√
ERP/EIRP	√	√	√	√	√	√	√	√	√	√	√	√	√	√
26dB and 99% Bandwidth	√	√	√	√	√	√	√	√	-	-	√	-	√	-
Conducted Band Edge	√	√	√	√	√	√	√	√	√	-	√	√	-	√
Peak-to-Average Ratio	√	√	√	√	√	√	√	√	-	-	-	√	√	√
Frequency Stability	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Conducted Spurious Emission	√	√	√	√	√	√	√	-	√	-	-	√	√	√
Radiated Spurious Emission	√	-	√	-	-	√	√	-	√	-	-	-	√	-
Note: 1. The mark "√" means that this configuration is chosen for testing. 2. The mark "-" means that this configuration is not testing.														

3. Technical Characteristics Test

3.1 Conducted Output Power

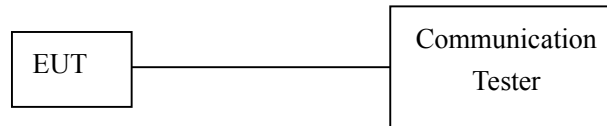
3.1.1 Test Equipment

Please refer to section 6 this report.

3.1.2 Test Procedure

The EUT, which is powered by the Battery, During the process of the testing, The EUT is controlled by the Base Station Simulator to ensure max power transmission and proper modulation. The loss between RF output port of the EUT and the input port of the tester has been taken into consideration.

3.1.3 Test Setup



3.1.4 Limit

According to FCC 2.1046, FCC 22.913(a) Mobile station are limited to 7W; FCC 24.232(b) Mobile stations are limited to 2W eirp peak power, 3GPP Power limitation for HSDPA and HSUPA

3.1.5 RF Output Power Test Result

Refer to Appendix_PCB_FCC 24

3.2 ERP / EIRP Measurement

3.2.1 Test Equipment

Please refer to section 6 this report.

3.2.2 Test Procedure

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

- 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.
- 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).
- 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.
- 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. $LOSS = \text{Generator Output Power (dBm)} - \text{Analyzer reading (dBm)}$
- Determine the effective radiated output power at each angular position from the readings in steps b) and d) using the following equation: $ERP \text{ (dBm)} = LVL \text{ (dBm)} + LOSS \text{ (dB)}$
- The maximum ERP is the maximum value determined in the preceding step.
- 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:

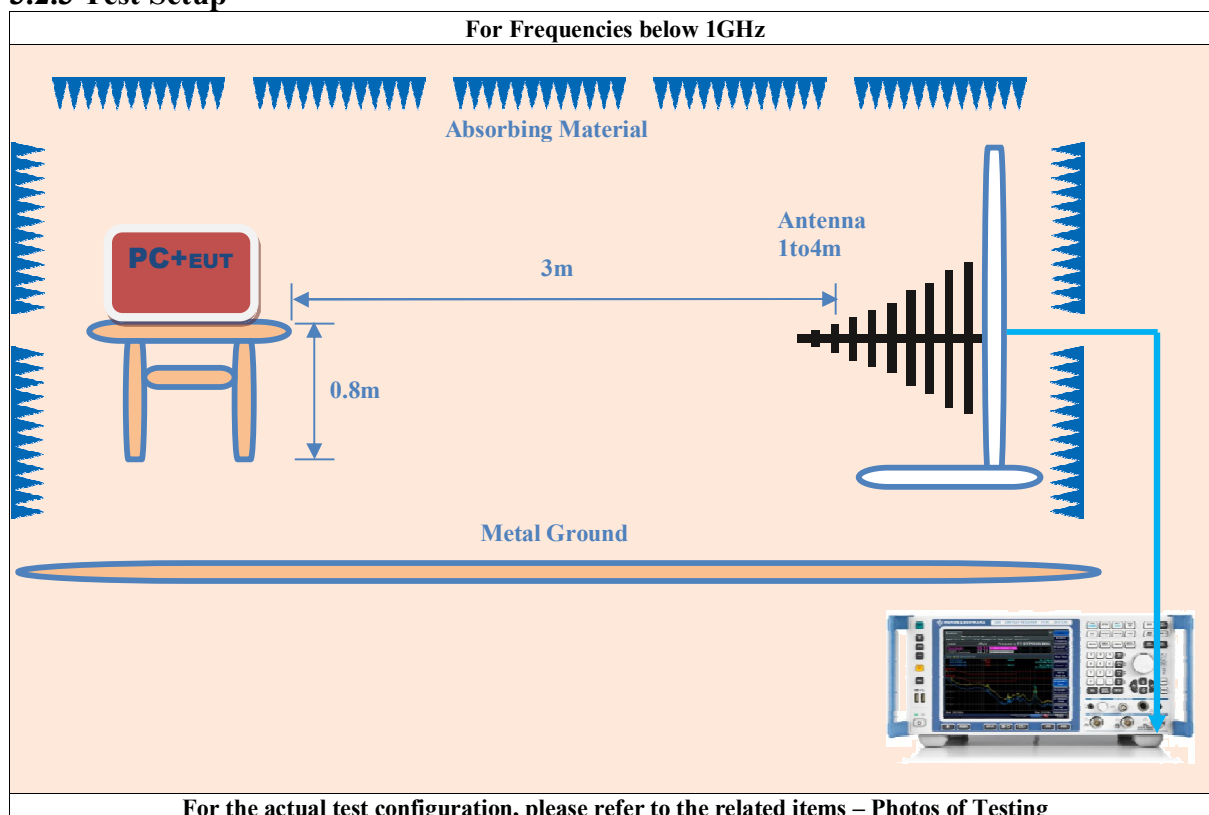
$$EIRP \text{ (dBm)} = \text{Output Power (dBm)} - \text{Losses (dB)} + \text{Antenna Gain (dBi)}$$

where: dBd refers to gain relative to an ideal dipole.

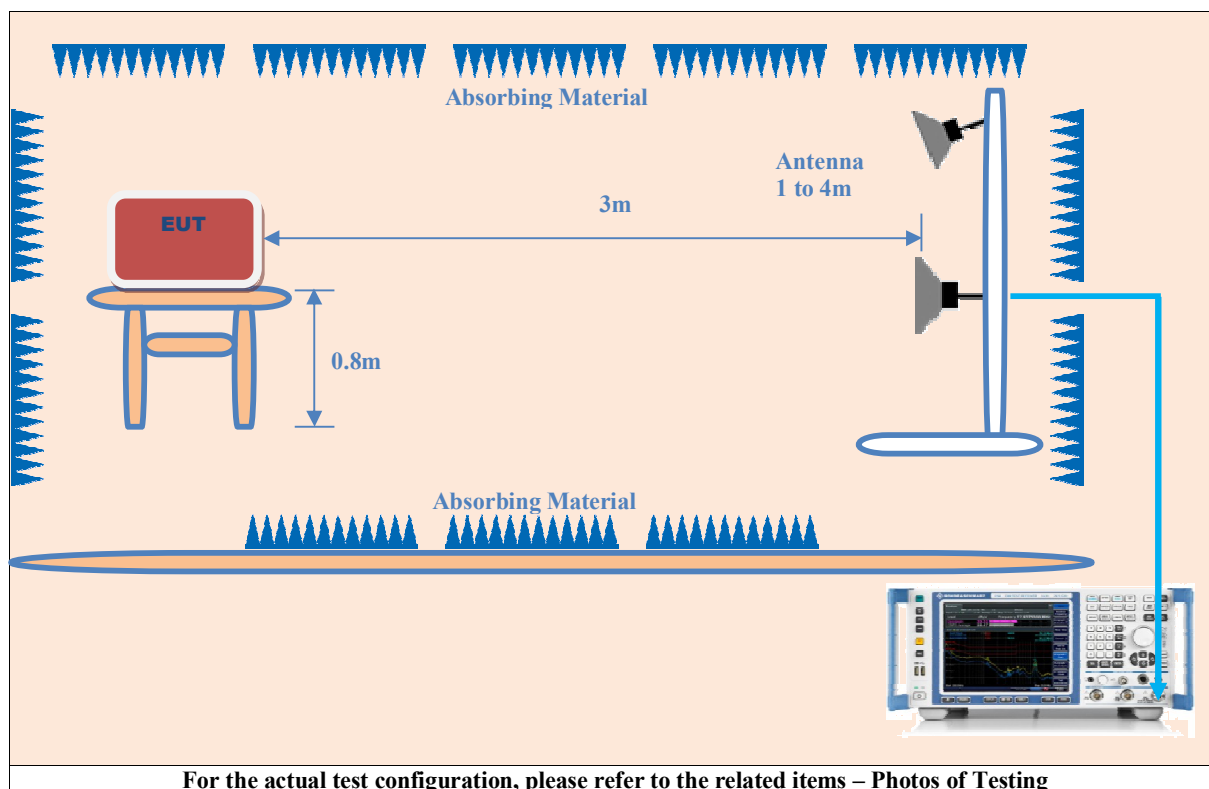
$$EIRP \text{ (dBm)} = ERP \text{ (dBm)} + 2.15 \text{ (dB)}$$

The RB allocation refers to section 5.1, using the maximum output power configuration.

3.2.3 Test Setup



For Frequencies above 1GHz



3.3.4 Limit

According to FCC 2.1046, FCC 22.913(a) Mobile station are limited to 7W; FCC 24.232(b) Mobile stations are limited to 2W eirp peak power.

According to IC RSS-133 §6.4; The peak e.i.r.p. for transmitters operating in the band 1850-1910 MHz shall not exceed the limits 2W which given in SRSP-510.

According to issue 2 of RSS 132, section 4.4. The transmitter output power shall not exceed the limits given in SRSP-503.

3.3.5 Test Result

Refer to Appendix_PCB_FCC 24

3.3 99% Occupied Bandwidth and 26dB Bandwidth Measurement

3.3.1 Test Equipment

Please refer to section 6 this report.

3.3.2 Test Procedure

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 3kHz, VBW is set to 10kHz for GSM 1900,

RBW is set to 51kHz, VBW is set to 160kHz for WCDMA Band II,

RBW is set to 51kHz, VBW is set to 160kHz for LTE Band 2 (1.4MHz),

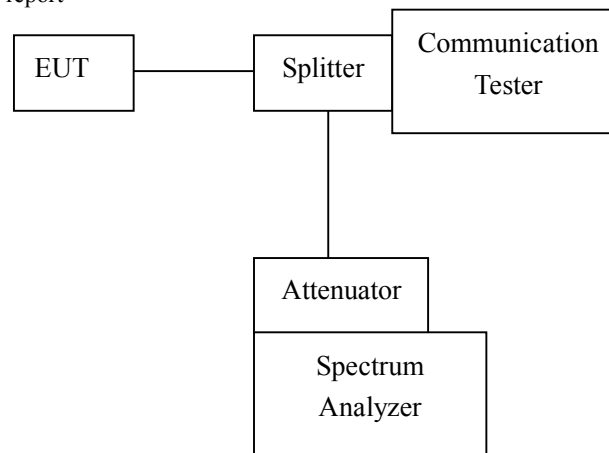
RBW is set to 100kHz, VBW is set to 300kHz for LTE Band 2 (3MHz/5MHz),

RBW is set to 300kHz, VBW is set to 1MHz for LTE Band 2 (10MHz/15MHz/20MHz).

99% power and -26dBc occupied bandwidths are recorded.

3.3.3 Test Setup

Same as section 2.4.1 of this report



3.3.4 Limit

According to FCC 2.1053, FCC 22.917(a) & 24.238(a)

According to IC RSS-Gen Issue 3 §4.6.1

According to IC RSS-133 §2.3

3.3.5 Occupied Bandwidth Test Result

Refer to Appendix_PCB_FCC 24

3.4 Band Edge Measurement

3.4.1 Test Equipment

Please refer to section 6 this report.

3.4.2 Test Procedure

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.

RBW is set to 3kHz, VBW is set to 10kHz for GSM 1900,

RBW is set to 51kHz, VBW is set to 160kHz for WCDMA Band II,

RBW is set to 15kHz, VBW is set to 51kHz fo LTE Band 2 (1.4MHz),

RBW is set to 30kHz,VBW is set to 100kHz for LTE Band 2 (3MHz),

RBW is set to 51kHz,VBW is set to 160kHz for LTE Band 2 (5MHz),

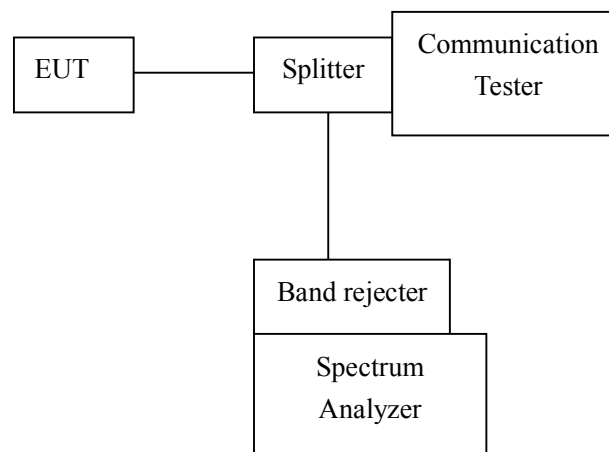
RBW is set to 100kHz,VBW is set to 300kHz for LTE Band 2 (10MHz),

RBW is set to 150kHz,VBW is set to 510kHz for LTE Band 2 (15MHz),

RBW is set to 200kHz,VBW is set to 620kHz for LTE Band 2(20MHz).

3.4.3 Test Setup

Band Edge



3.4.4 Limit

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

Limit	-13 dBm
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3.4.5 Conducted Band Edge Test Result

Refer to Appendix_PCB_FCC 24

3.5 Peak-to-Average Ratio

3.5.1 Test Equipment

Please refer to section 6 this report.

3.5.2 Test Procedure

Here the lowest, middle and highest channels are selected to perform testing to verify the peak-to-average ratio. Test procedures:

A. For GSM operating mode:

a. Set RBW=1MHz, VBW=3MHz, Peak detector on spectrum analyzer for first trace.

b. Set the RBW = 1MHz, VBW = 3MHz, RMS detector on spectrum analyzer for second trace.

c. The wanted burst signal is triggered by spectrum analyzer, and measured respectively the peak level and Mean level without burst-off time, after system simulator has synchronized with the spectrum analyzer.

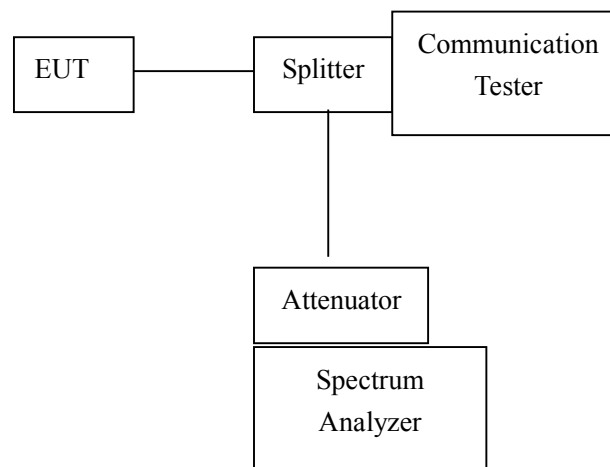
B. For UMTS operating mode:

a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.

b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1%.

c. Record the deviation as Peak to Average Ratio.

3.5.3 Test Setup



3.5.4 Limit

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 in 24.232(d).

3.5.5 Peak-to-Average Ratio Test Result

Refer to Appendix_PCB_FCC 24

3.6 Frequency Stability

3.6.1 Test Equipment

Please refer to section 6 this report.

3.6.2 Test Procedure

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +55°C in 10°C step size,

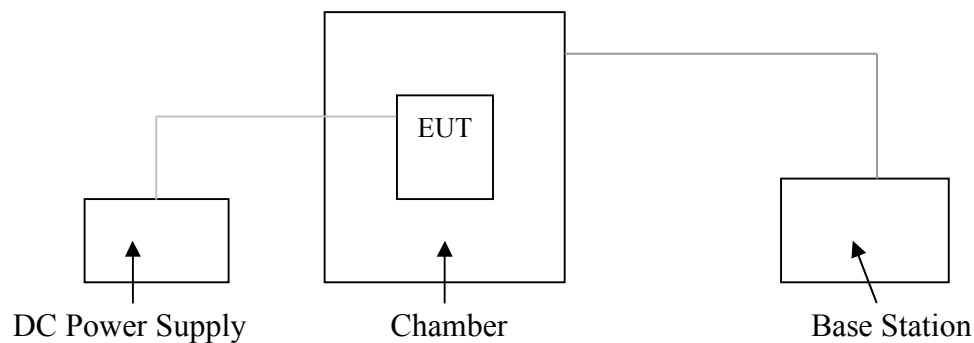
- (1) With all power removed, the temperature was decreased to 0°C and permitted to stabilize for three hours.
- (2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.
- (3) Repeat the above measurements at 10°C increments from -30°C to +55°. 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.

3.6.3 Test Setup



3.6.4 Limit

According to FCC §2.1055(a) (1)

Frequency Tolerance: +/-2.5ppm for 850MHz band; +/-2.5ppm for 1900MHz band

According to RSS-133 §6.3, RSS-132 §4.3

The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations

3.6.5 Frequency Stability Test Result

Refer to Appendix_PCB_FCC 24

3.7 Conducted Spurious Emission Measurement

3.7.1 Test Equipment

Please refer to section 6 this report.

3.7.2 Test Procedure

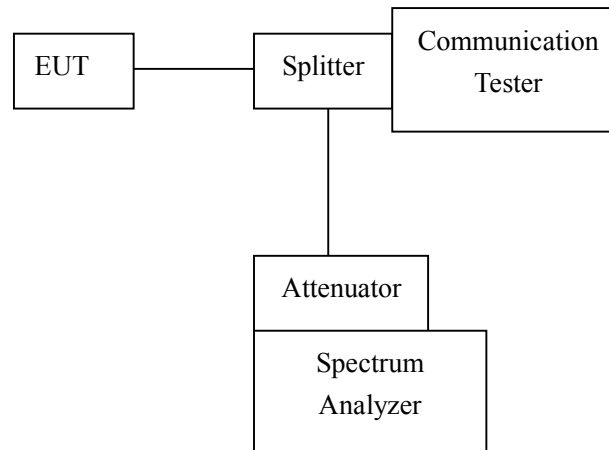
The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier.

The peak detector is used. RBW are set to 100 kHz and VBW are set to 300 kHz for below 1G, RBW are set to 1MHz and VBW are set to 3MHz for above 1G, Sweep is set to ATUO.

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

3.7.3 Test Setup

Out of band emission



3.7.4 Limit

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

Limit	-13 dBm
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3.7.5 Conducted Spurious Emission Test Result

Refer to Appendix_PCB_FCC 24

3.8 Radiated Spurious Emission

3.8.1 Test Equipment

Please refer to section 6 this report.

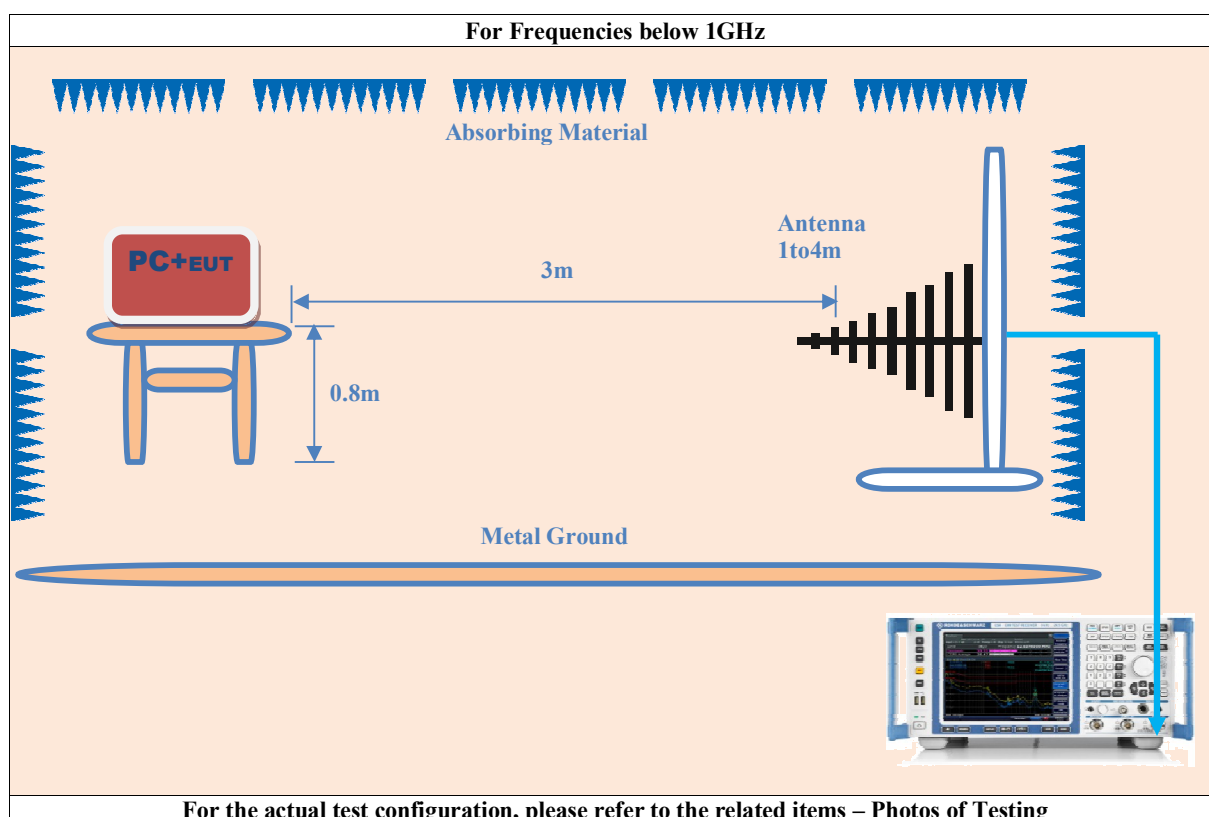
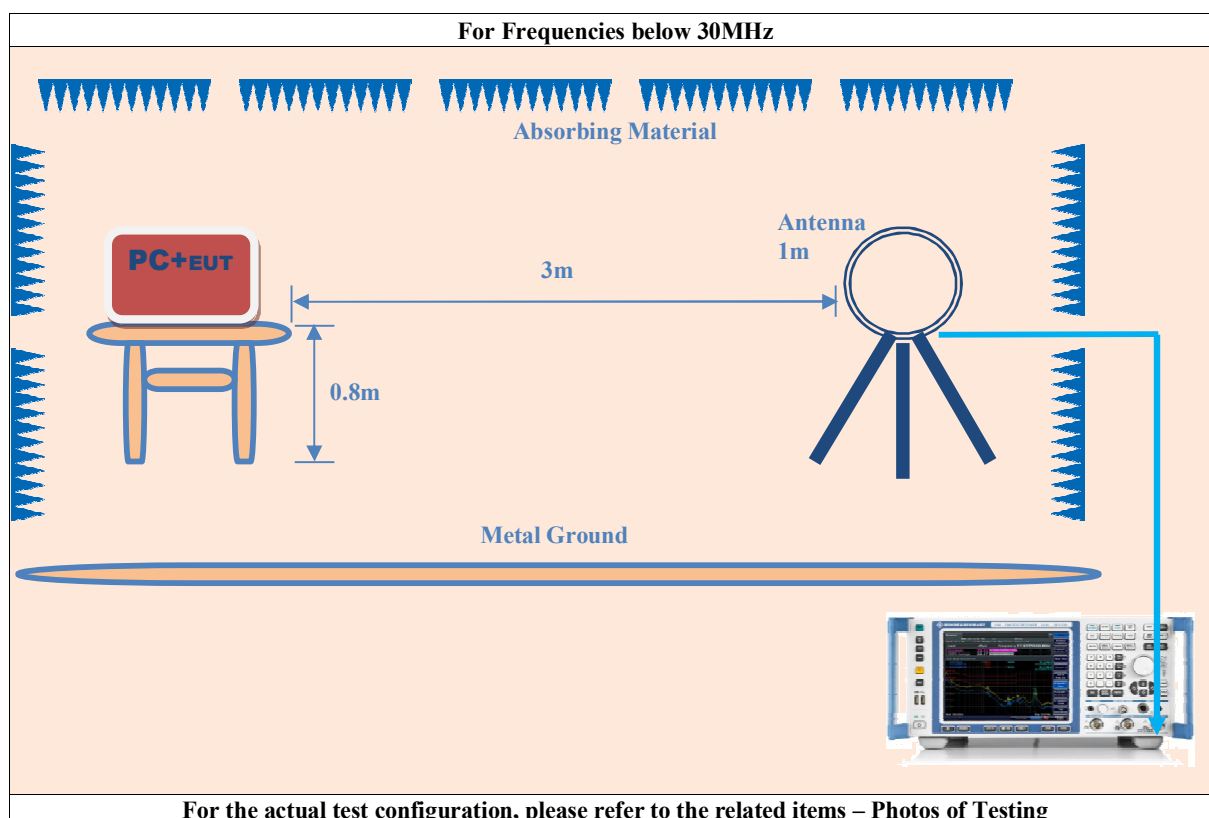
3.8.2 Test Procedure

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:
$$\text{Power(EIRP)} = \text{PMea} - \text{PAg} - \text{Pcl} + \text{Ga}$$

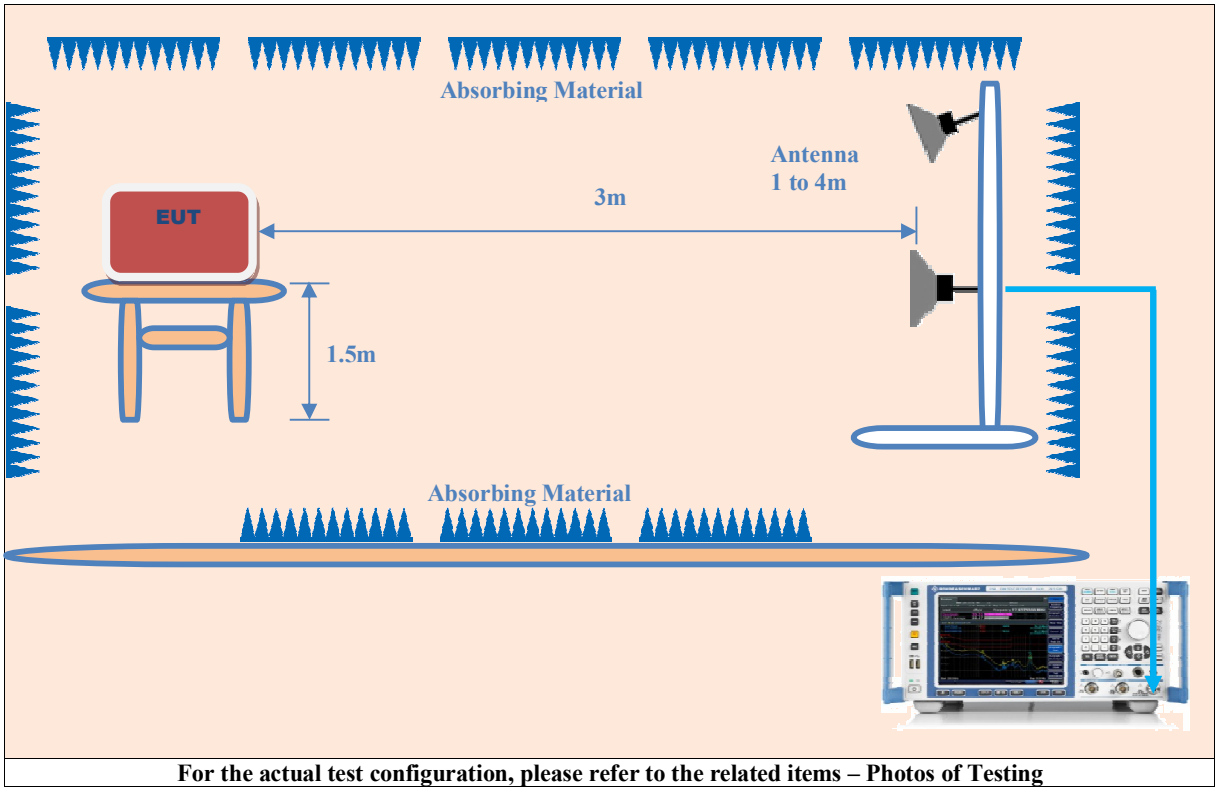
The measurement results are amend as described below:
$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, $\text{ERP} = \text{EIRP} - 2.15\text{dBi}$.

The modulation mode and RB allocation refer to section 2.2, using the maximum output power Configuration.

3.8.3 Test Setup



For Frequencies above 1GHz



3.8.4 Limit

Rule Part 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

Limit	-13 dBm
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3.8.5 Radiated Spurious Emission 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.

Refer to Appendix_PCB_FCC 24

4. Photos of Testing

4.1 EUT Test Photographs

Please refer to Exhibits _External Photos & Internal Photos

4. 2 EUT Detailed Photographs

Please refer to Exhibits _External Photos & Internal Photos

5. FCC ID Label

Please refer to Exhibits _ ID Label & Location Info

6. Test Equipment

The following test equipment were used during the radiated & conducted emission test:

Equipment/ Facilities	Manufacturer	Model #	Serial No.	Cal/Char Date	Due Date
Turntable	Innco systems GmbH	CT-0801	N/A	NCR	NCR
Antenna Tower	Innco systems GmbH	MA-4640-XP-ET	N/A	NCR	NCR

Controller	Innco systems GmbH	CO3000	955/38850716L	NCR	NCR
Pre-Amplifier	Agilent	87405C	MY47010722	Dec.6, 2019	Dec.6, 2021
EMI Test Receiver	Rohde & Schwarz	ESR7	101091	Nov.21, 2018	Nov.21, 2020
Spectrum Analyzer	Rohde & Schwarz	FSP40	100273	Dec.14, 2019	Dec.14, 2021
Vector Signal Generator	Rohde & Schwarz	SMU200A	101824	Dec.13, 2017	Dec.13, 2020
Signal Generator	Rohde & Schwarz	SMB100A	177847	Dec.13, 2017	Dec.13, 2020
Power Meter	Rohde & Schwarz	OSP-B157	KMO-HK015	Dec.13, 2017	Dec.13, 2020
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	124004	Jan. 14, 2020	Jan. 14, 2023
Regulatory Test System 30 MHz to 40 GHz	Rohde & Schwarz	TS8997	KMO-HK015	Dec.13, 2017	Dec.13, 2020
Trilog-Super Broadband Antenna	SCHWARZBECK	VULB9161	9161-4079	Nov.27, 2018	Nov.27, 2021
Broad-Band Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-565	Nov.29, 2018	Nov.29, 2021
AMN	Rohde & Schwarz	ESH3-Z5	100197	Dec.25, 2017	Dec.25, 2020
AMN	CYBERTEK	EM5040A	E115040054	Nov.21, 2018	Nov.21, 2021
KMO Shielded Room	KMO	KMO-001	N/A	NCR	NCR
Coaxial Cable with N-Connectors	SCHWARZBECK	AK9515H	95549	Sep.18, 2019	Sep.18, 2021
3m Anechoic Chamber	KMO	KMO-3AC	N/A	Dec.23, 2019	Dec.23, 2021
Temperature Chamber	TABAI	PSL-4GTW	N/A	Feb.10, 2019	Feb.10, 2021

-----End of Report-----

AppendixA: RF Output Power Test Result

Test Result

GSM1900 Band		Conducted Power(dBm)		
		Channel 512	Channel 661	Channel 810
		1850.2(MHz)	1880(MHz)	1909.8(MHz)
GSM	GSM	30.24	29.77	29.71
GPRS/EGPRS (GMSK)	1TXslot	30.20	29.72	29.70
	2TXslots	29.76	29.48	29.35
	3TXslots	29.34	29.01	28.95
	4TXslots	28.78	28.60	28.44
GPRS/EGPRS	1TXslot	26.12	26.34	26.00
	2TXslots	25.77	25.95	25.66
	3TXslots	25.39	25.49	25.24
	4TXslots	24.97	25.13	24.89

WCDMA Band II		Conducted Power(dBm)		
		Channel 9262	Channel 9400	Channel 9538
		1852.4(MHz)	1880(MHz)	1907.6(MHz)
RMC	12.2k	22.75	22.47	22.31
HSDPA	Sub - Test 1	22.60	22.53	22.67
	Sub - Test 2	22.39	22.46	22.25
	Sub - Test 3	21.92	21.72	21.84
	Sub - Test 4	21.55	21.54	21.52
HSUPA	Sub - Test 1	22.66	22.61	22.50
	Sub - Test 2	22.33	22.32	22.26
	Sub - Test 3	21.78	21.93	21.77
	Sub - Test 4	21.52	21.65	21.67
	Sub - Test 5	21.27	21.34	21.31
DC-HSDPA	Sub - Test 1	-	-	-
	Sub - Test 2	-	-	-
	Sub - Test 3	-	-	-
	Sub - Test 4	-	-	-
HSPA+	16QAM	22.53	22.63	22.63

LTE Band 2				Conducted Power(dBm)		
BW	Modulation	RB size	RB offset	Channel 18607	Channel 18900	Channel 19193
				1850.7(MHz)	1880(MHz)	1909.3(MHz)
1.4MHz	QPSK	1	0	23.39	23.19	22.91
		1	2	23.31	22.99	22.91
		1	5	23.38	23.07	22.89
		3	0	23.16	22.98	22.87
		3	2	23.42	23.05	22.90
		3	3	23.37	23.13	22.86
		6	0	22.14	22.01	21.79
	16QAM	1	0	22.18	22.39	22.31
		1	2	22.19	22.43	22.42
		1	5	22.05	22.21	22.62
		3	0	22.07	22.62	22.41
		3	2	22.20	22.39	22.41
		3	3	22.14	22.46	22.39
		6	0	21.00	21.37	21.02
	64QAM	1	0	21.60	21.48	21.38
		1	2	21.64	21.47	21.41
		1	5	21.67	21.46	21.39
		3	0	21.65	21.42	21.32
		3	2	21.62	21.41	21.36
		3	3	21.68	21.47	21.31
		6	0	20.36	20.25	20.36
BW	Modulation	RB size	RB offset	Channel 18615	Channel 18900	Channel 19185
				1851.5(MHz)	1880(MHz)	1908.5(MHz)
3MHz	QPSK	1	0	23.29	22.97	22.88
		1	7	23.26	22.93	22.91
		1	14	23.27	22.82	22.88
		8	0	22.00	21.85	21.85
		8	4	22.08	21.83	21.75
		8	7	22.01	21.91	21.61
		15	0	22.09	21.84	21.58
	16QAM	1	0	22.80	22.49	22.67
		1	7	22.73	22.42	22.74
		1	14	22.86	22.55	22.75
		8	0	21.76	21.42	21.74
		8	4	21.76	21.39	21.78
		8	7	21.58	21.42	21.70
		15	0	21.74	21.47	21.72
	64QAM	1	0	21.55	21.33	21.37
		1	7	21.57	21.30	21.34
		1	14	21.51	21.31	21.32
		8	0	20.57	20.30	20.37
		8	4	20.57	20.32	20.32
		8	7	20.54	20.31	20.38
		15	0	20.58	20.41	20.27

BW	Modulation	RB size	RB offset	Channel 18625	Channel 18900	Channel 19175
				1852.5(MHz)	1880(MHz)	1907.5(MHz)
5MHz	QPSK	1	0	23.49	23.01	22.89
		1	13	23.54	23.00	22.88
		1	24	23.54	22.99	22.98
		12	0	22.23	22.02	21.74
		12	6	22.11	22.09	21.74
		12	13	22.16	22.07	21.71
		25	0	22.15	22.02	21.76
	16QAM	1	0	22.07	22.14	22.12
		1	13	22.10	22.07	22.24
		1	24	22.04	22.21	22.17
		12	0	21.11	21.22	21.10
		12	6	21.05	21.23	21.21
		12	13	21.08	21.31	21.17
		25	0	21.01	21.28	21.19
	64QAM	1	0	21.10	21.10	21.50
		1	13	21.15	21.06	21.46
		1	24	21.09	20.04	20.34
		12	0	20.17	20.10	20.40
		12	6	20.18	20.07	20.37
		12	13	20.18	20.07	20.37
		25	0	20.22	20.03	20.33
BW	Modulation	RB size	RB offset	Channel 18650	Channel 18900	Channel 19150
				1855(MHz)	1880(MHz)	1905(MHz)
10MHz	QPSK	1	0	23.45	23.23	22.80
		1	25	23.42	23.20	22.83
		1	49	23.38	23.21	22.82
		25	0	22.46	22.08	21.73
		25	13	22.38	22.06	21.74
		25	25	22.38	22.00	21.84
		50	0	22.39	22.03	21.83
	16QAM	1	0	22.58	22.37	22.10
		1	25	22.46	22.31	22.12
		1	49	22.46	22.31	22.14
		25	0	21.19	21.39	21.29
		25	13	21.56	21.29	21.21
		25	25	21.53	21.41	21.23
		50	0	21.73	21.35	21.22
	64QAM	1	0	21.15	21.36	21.06
		1	25	21.12	21.34	21.08
		1	49	21.19	21.33	21.01
		25	0	20.16	20.54	20.29
		25	13	20.24	20.55	20.26
		25	25	20.23	20.53	20.20
		50	0	20.21	20.58	20.37

BW	Modulation	RB size	RB offset	Channel 18675	Channel 18900	Channel 19125
				1857.5(MHz)	1880(MHz)	1902.5(MHz)
15MHz	QPSK	1	0	23.35	23.11	22.80
		1	38	23.34	23.23	22.83
		1	74	23.39	23.12	22.81
		36	0	22.23	22.11	21.81
		36	18	22.21	22.01	21.86
		36	39	22.26	22.11	21.75
		75	0	22.14	22.02	21.81
	16QAM	1	0	22.82	22.33	22.15
		1	38	22.85	22.34	22.10
		1	74	22.86	22.36	22.13
		36	0	21.61	21.38	21.08
		36	18	21.69	21.26	21.07
		36	39	21.63	21.36	21.10
		75	0	21.54	21.29	21.15
	64QAM	1	0	21.30	21.07	20.98
		1	38	21.34	21.09	20.95
		1	74	21.38	21.00	20.96
		36	0	20.35	20.00	20.33
		36	18	20.34	20.04	20.30
		36	39	20.30	20.09	20.31
		75	0	20.33	20.16	20.24
BW	Modulation	RB size	RB offset	Channel 18700	Channel 18900	Channel 19100
				1860(MHz)	1880(MHz)	1900(MHz)
20MHz	QPSK	1	0	23.52	23.19	22.94
		1	50	23.49	23.15	22.89
		1	99	23.46	23.24	23.00
		50	0	22.39	22.24	22.02
		50	25	22.44	22.23	22.01
		50	50	22.57	22.18	22.05
		100	0	22.26	22.09	22.01
	16QAM	1	0	22.13	22.07	21.99
		1	50	22.14	22.05	22.00
		1	99	22.15	22.01	22.02
		50	0	21.08	21.05	21.05
		50	25	21.14	21.16	21.00
		50	50	21.17	21.09	20.94
		100	0	21.09	21.15	20.98
	64QAM	1	0	21.49	21.53	20.82
		1	50	21.48	21.54	20.81
		1	99	21.45	21.53	20.89
		50	0	20.18	20.56	20.05
		50	25	20.15	20.57	20.09
		50	50	20.25	20.54	20.01
		100	0	20.18	20.36	20.07

AppendixB: ERP / EIRP Measurement

Test Result

Mode	Channel	Frequency	Polarization	ERP (dBm)	Limit (dBm)	Result
GSM 1900	Low	1850.2	Horizontal	31.04	33	Pass
	Mid	1880	Horizontal	30.57	33	Pass
	High	1909.8	Horizontal	30.51	33	Pass
GPRS 1900	Low	1850.2	Horizontal	31.00	33	Pass
	Mid	1880	Horizontal	30.52	33	Pass
	High	1909.8	Horizontal	30.50	33	Pass
EGPRS 1900	Low	1850.2	Horizontal	26.92	33	Pass
	Mid	1880	Horizontal	27.14	33	Pass
	High	1909.8	Horizontal	26.80	33	Pass
WCDMA Band II	Low	1852.4	Horizontal	23.55	33	Pass
	Mid	1880	Horizontal	23.27	33	Pass
	High	1907.6	Horizontal	23.10	33	Pass

LTE Band 2						
Bandwidth	Channel	Frequency	Polarization	ERP (dBm)	Limit (dBm)	Result
1.4 MHz (QPSK)	Low	1850.7	Horizontal	24.19	33	Pass
	Mid	1880	Horizontal	24.14	33	Pass
	High	1909.3	Horizontal	24.17	33	Pass
3 MHz (QPSK)	Low	1851.5	Horizontal	24.09	33	Pass
	Mid	1880	Horizontal	23.77	33	Pass
	High	1908.5	Horizontal	23.68	33	Pass
5 MHz (QPSK)	Low	1852.5	Horizontal	24.34	33	Pass
	Mid	1880	Horizontal	23.80	33	Pass
	High	1907.5	Horizontal	23.68	33	Pass
10 MHz (QPSK)	Low	1855	Horizontal	24.25	33	Pass
	Mid	1880	Horizontal	24.03	33	Pass
	High	1905	Horizontal	23.60	33	Pass
15 MHz (QPSK)	Low	1857.5	Horizontal	24.19	33	Pass
	Mid	1880	Horizontal	23.92	33	Pass
	High	1902.5	Horizontal	23.61	33	Pass
20 MHz (QPSK)	Low	1860	Horizontal	24.32	33	Pass
	Mid	1880	Horizontal	23.99	33	Pass
	High	1900	Horizontal	23.74	33	Pass
1.4 MHz (16QAM)	Low	1850.7	Horizontal	22.87	33	Pass
	Mid	1880	Horizontal	23.42	33	Pass
	High	1909.3	Horizontal	23.21	33	Pass
3 MHz (16QAM)	Low	1851.5	Horizontal	23.66	33	Pass
	Mid	1880	Horizontal	23.35	33	Pass
	High	1908.5	Horizontal	23.55	33	Pass
5 MHz (16QAM)	Low	1852.5	Horizontal	22.90	33	Pass
	Mid	1880	Horizontal	22.87	33	Pass
	High	1907.5	Horizontal	23.04	33	Pass
10 MHz (16QAM)	Low	1855	Horizontal	23.38	33	Pass
	Mid	1880	Horizontal	23.17	33	Pass
	High	1905	Horizontal	22.90	33	Pass
15 MHz (16QAM)	Low	1857.5	Horizontal	23.66	33	Pass
	Mid	1880	Horizontal	23.16	33	Pass
	High	1902.5	Horizontal	22.93	33	Pass
20 MHz (16QAM)	Low	1860	Horizontal	22.95	33	Pass
	Mid	1880	Horizontal	22.81	33	Pass
	High	1900	Horizontal	22.82	33	Pass

1.4 MHz (64QAM)	Low	1850.7	Horizontal	22.48	33	Pass
	Mid	1880	Horizontal	22.27	33	Pass
	High	1909.3	Horizontal	22.11	33	Pass
3 MHz (64QAM)	Low	1851.5	Horizontal	22.37	33	Pass
	Mid	1880	Horizontal	22.10	33	Pass
	High	1908.5	Horizontal	22.14	33	Pass
5 MHz (64QAM)	Low	1852.5	Horizontal	21.90	33	Pass
	Mid	1880	Horizontal	21.90	33	Pass
	High	1907.5	Horizontal	22.30	33	Pass
10 MHz (64QAM)	Low	1855	Horizontal	21.95	33	Pass
	Mid	1880	Horizontal	22.15	33	Pass
	High	1905	Horizontal	21.86	33	Pass
15 MHz (64QAM)	Low	1857.5	Horizontal	22.18	33	Pass
	Mid	1880	Horizontal	21.80	33	Pass
	High	1902.5	Horizontal	21.76	33	Pass
20 MHz (64QAM)	Low	1860	Horizontal	22.29	33	Pass
	Mid	1880	Horizontal	22.33	33	Pass
	High	1900	Horizontal	21.62	33	Pass

AppendixC: 99% Occupied Bandwidth and 26dB Bandwidth Measurement

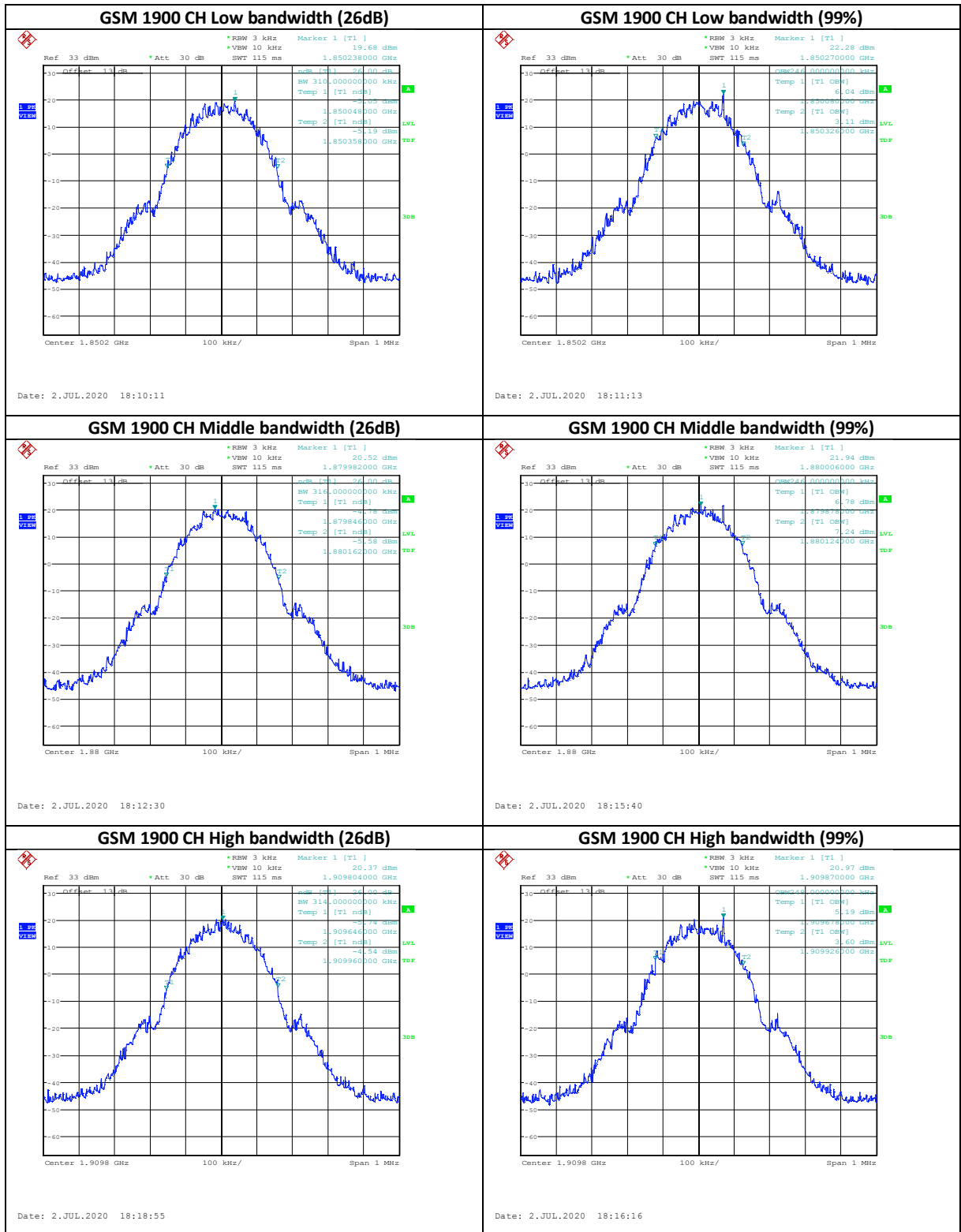
Test Result

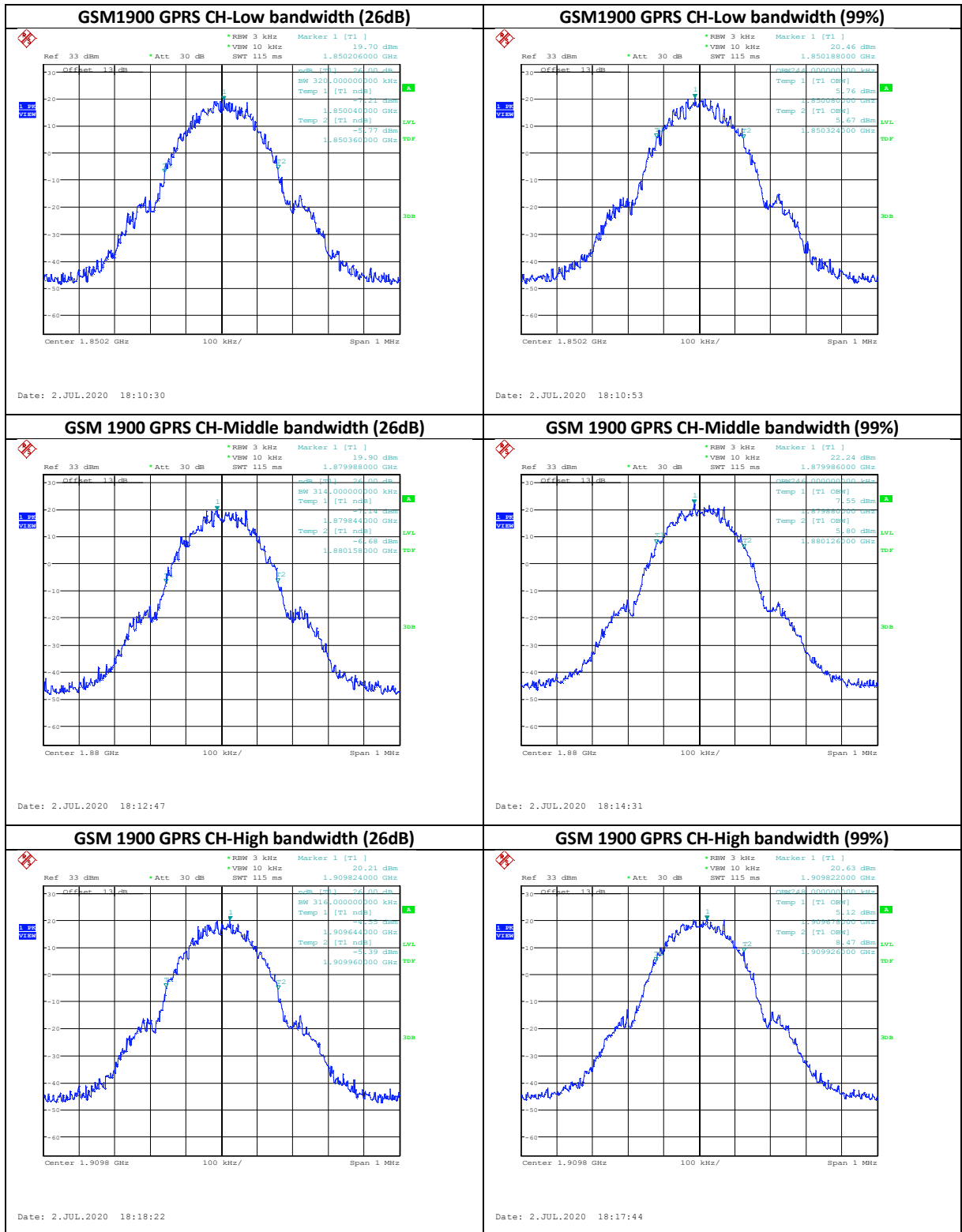
Band	Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
GSM 1900MHz (GSM)	512	1850.2	310 kHz	246 kHz
	661	1880.0	316 kHz	246 kHz
	810	1909.8	314 kHz	248 kHz
GPRS 1900MHz (GMSK)	512	1850.2	320 kHz	244 kHz
	661	1880.0	314 kHz	246 kHz
	810	1909.8	316 kHz	248 kHz
EGPRS 1900 (8-PSK)	512	1850.2	282 kHz	236 kHz
	661	1880.0	282 kHz	238 kHz
	810	1909.8	290 kHz	234 kHz
WCDMA Band II (RMC)	9262	1852.4	4.66MHz	4.16 MHz
	9400	1880	4.72 MHz	4.16 MHz
	9538	1907.6	4.72 MHz	4.18 MHz

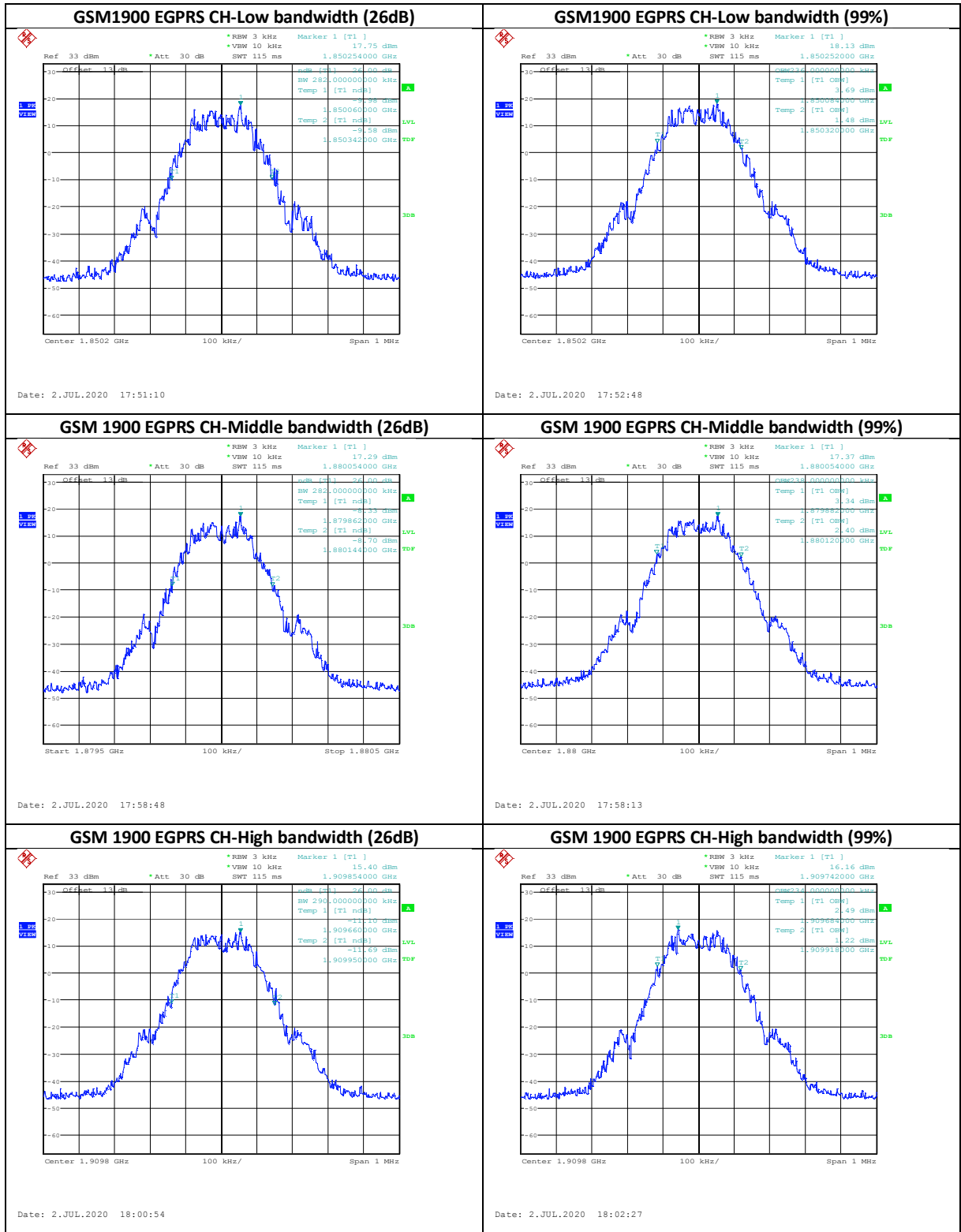
LTE Band 2					
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
QPSK	1.4	18607	1850.7	1.3048	1.1032
		18900	1880.0	1.2712	1.1032
		19193	1909.3	1.2880	1.0976
	3	18615	1851.5	3.0360	2.7000
		18900	1880	3.0000	2.7000
		19185	1908.5	3.0120	2.7000
	5	18625	1852.5	5.1000	4.5400
		18900	1880	5.0000	4.5400
		19175	1907.5	5.0800	4.5400
	10	18650	1855	9.7200	8.9600
		18900	1880	9.7600	8.9600
		19150	1905	9.8000	8.9600
	15	18675	1857.5	15.0600	13.5000
		18900	1880	15.3000	13.5600
		19125	1902.5	15.1800	13.5600
	20	18700	1860	19.8400	18.0000
		18900	1880	19.9200	18.0800
		19100	1900	20.0800	18.0000
16QAM	1.4	18607	1850.7	1.2600	1.0920
		18900	1880.0	1.2712	1.1032
		19193	1909.3	1.2544	1.1032
	3	18615	1851.5	3.0000	2.7000
		18900	1880	3.0240	2.7000
		19185	1908.5	2.9640	2.7000
	5	18625	1852.5	5.1200	4.5400
		18900	1880	5.1600	4.5400
		19175	1907.5	5.1200	4.5200
	10	18650	1855	9.7600	8.9600
		18900	1880	10.0000	8.9600
		19150	1905	9.8000	8.9600
	15	18675	1857.5	15.1800	13.5000
		18900	1880	15.2400	13.5000
		19125	1902.5	15.1200	13.5600
	20	18700	1860	19.6000	18.0000
		18900	1880	19.7600	18.0800
		19100	1900	19.8400	18.0000

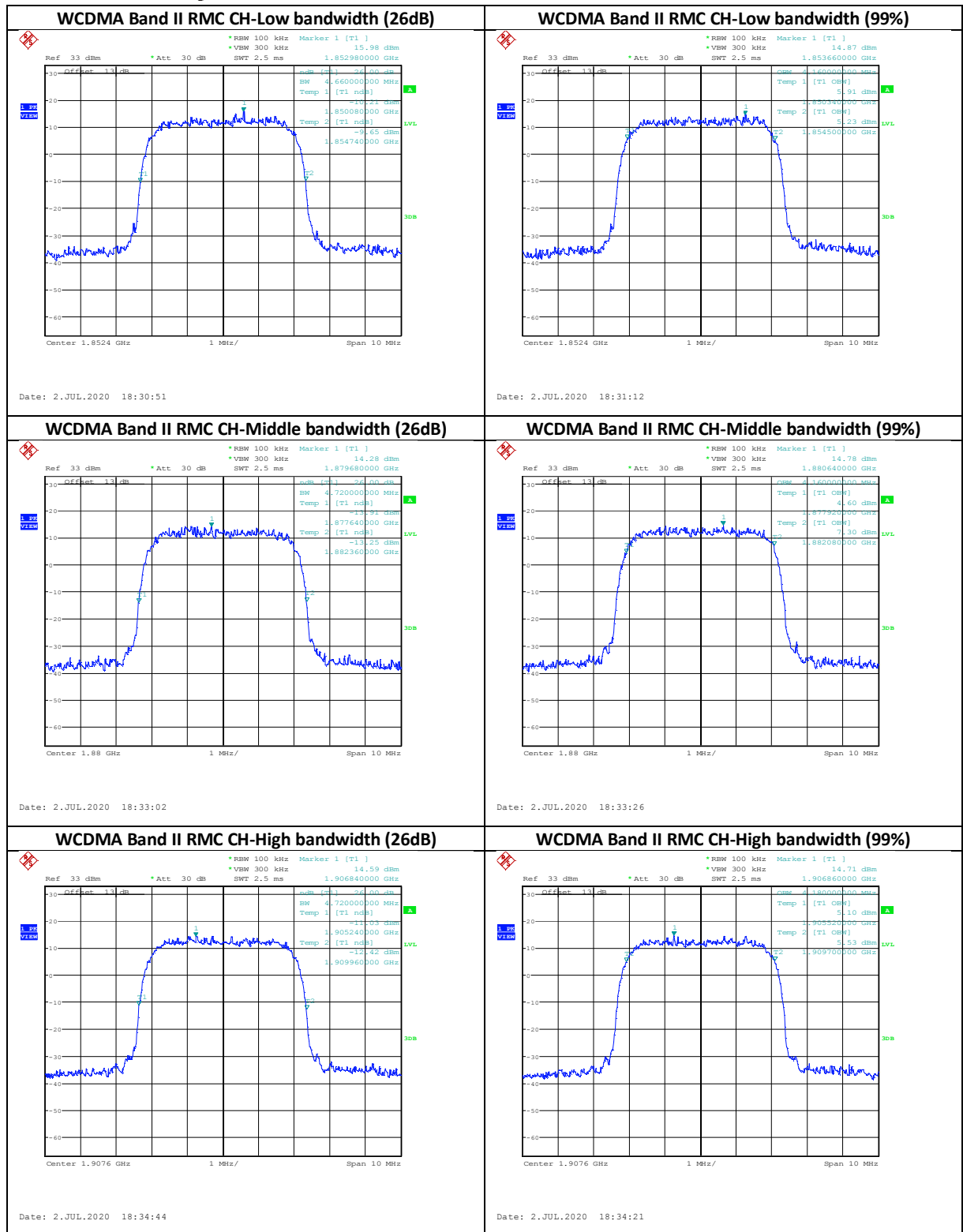
64QAM	1.4	18607	1850.7	1.2544	1.0976
		18900	1880.0	1.2768	1.1032
		19193	1909.3	1.2544	1.1032
	3	18615	1851.5	3.0240	2.7000
		18900	1880	3.0360	2.7000
		19185	1908.5	3.0120	2.7000
	5	18625	1852.5	5.1800	4.5400
		18900	1880	5.1600	4.5400
		19175	1907.5	5.1200	4.5200
	10	18650	1855	9.7600	8.9600
		18900	1880	9.8800	8.9600
		19150	1905	9.7600	8.9600
	15	18675	1857.5	15.2400	13.5600
		18900	1880	15.1800	13.5600
		19125	1902.5	14.7600	13.5600
	20	18700	1860	19.6800	18.0000
		18900	1880	19.5200	18.0000
		19100	1900	19.4400	17.6200

Test Graphs

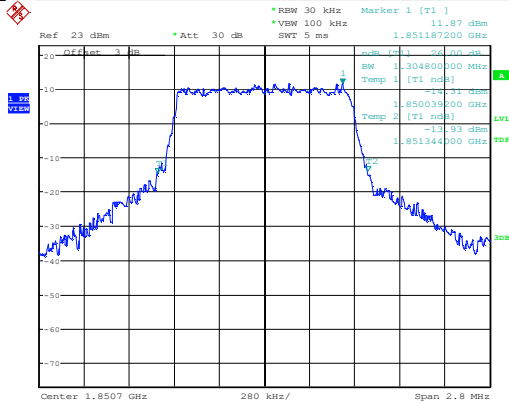






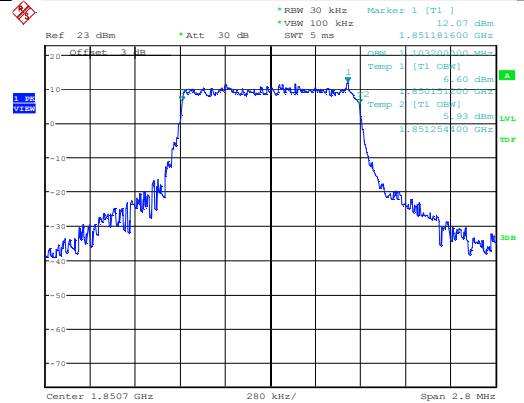


LTE Band 2 QPSK 1.4MHz CH-Low bandwidth (26dB)



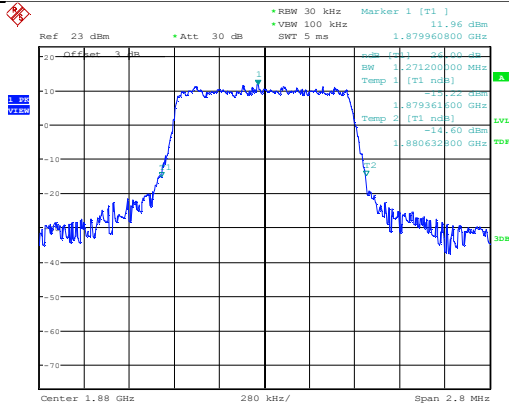
Date: 27.JUN.2020 10:25:30

LTE Band 2 QPSK 1.4MHz CH-Low bandwidth (99%)



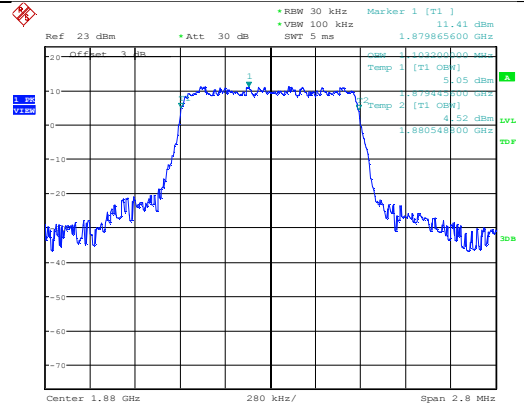
Date: 27.JUN.2020 10:25:59

LTE Band 2 QPSK 1.4MHz CH-Middle bandwidth (26dB)



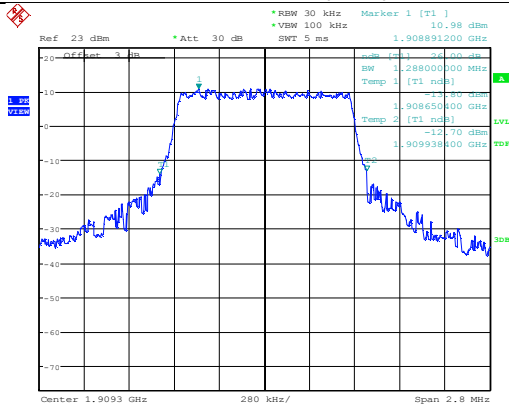
Date: 27.JUN.2020 10:26:53

LTE Band 2 QPSK 1.4MHz CH-Middle bandwidth (99%)



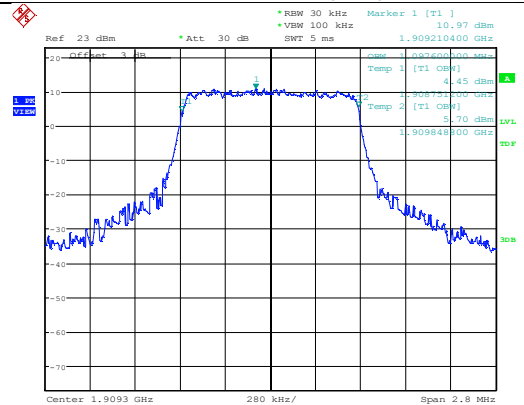
Date: 27.JUN.2020 10:28:18

LTE Band 2 QPSK 1.4MHz CH-High bandwidth (26dB)



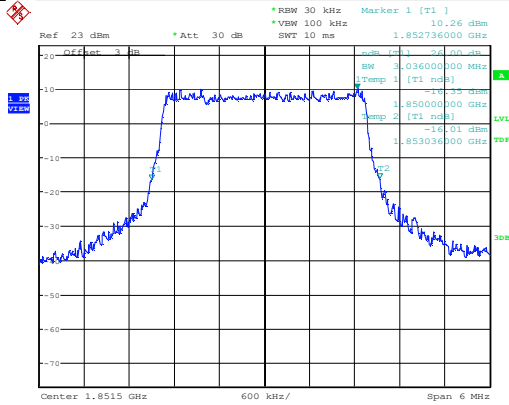
Date: 27.JUN.2020 10:28:52

LTE Band 2 QPSK 1.4MHz CH-High bandwidth (99%)



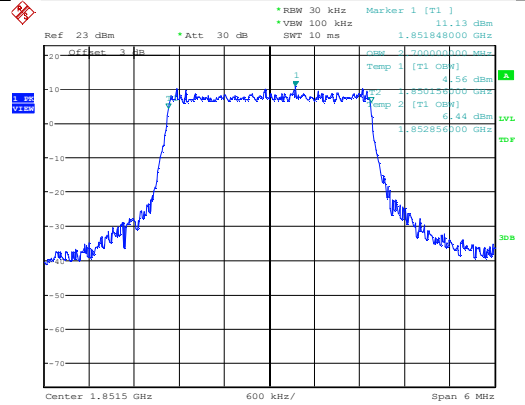
Date: 27.JUN.2020 10:29:24

LTE Band 2 QPSK 3MHz CH-Low bandwidth (26dB)



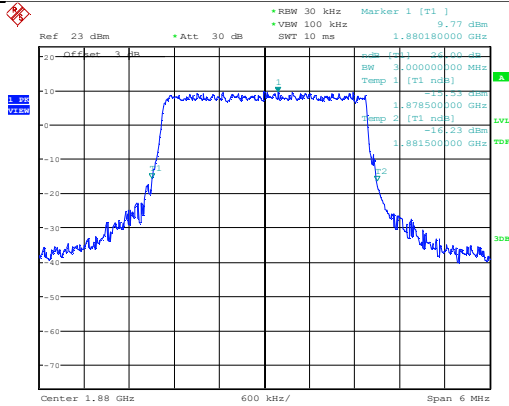
Date: 27.JUN.2020 10:43:30

LTE Band 2 QPSK 3MHz CH-Low bandwidth (99%)



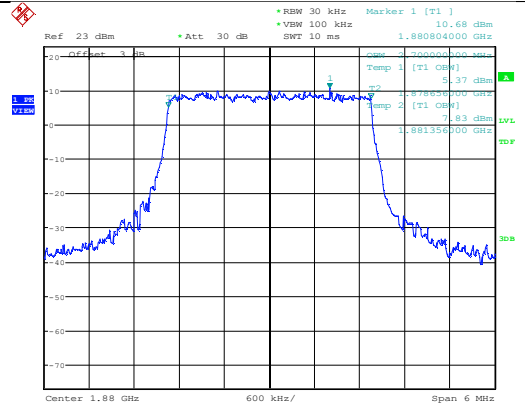
Date: 27.JUN.2020 10:44:00

LTE Band 2 QPSK 3MHz CH-Middle bandwidth (26dB)



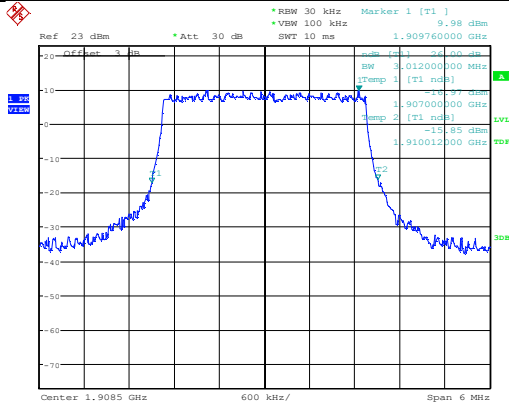
Date: 27.JUN.2020 10:45:05

LTE Band 2 QPSK 3MHz CH-Middle bandwidth (99%)



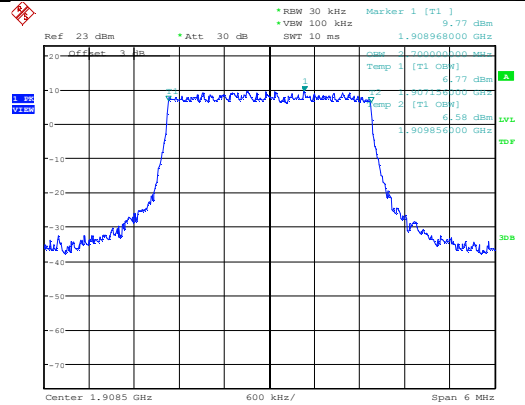
Date: 27.JUN.2020 10:45:48

LTE Band 2 QPSK 3MHz CH-High bandwidth (26dB)

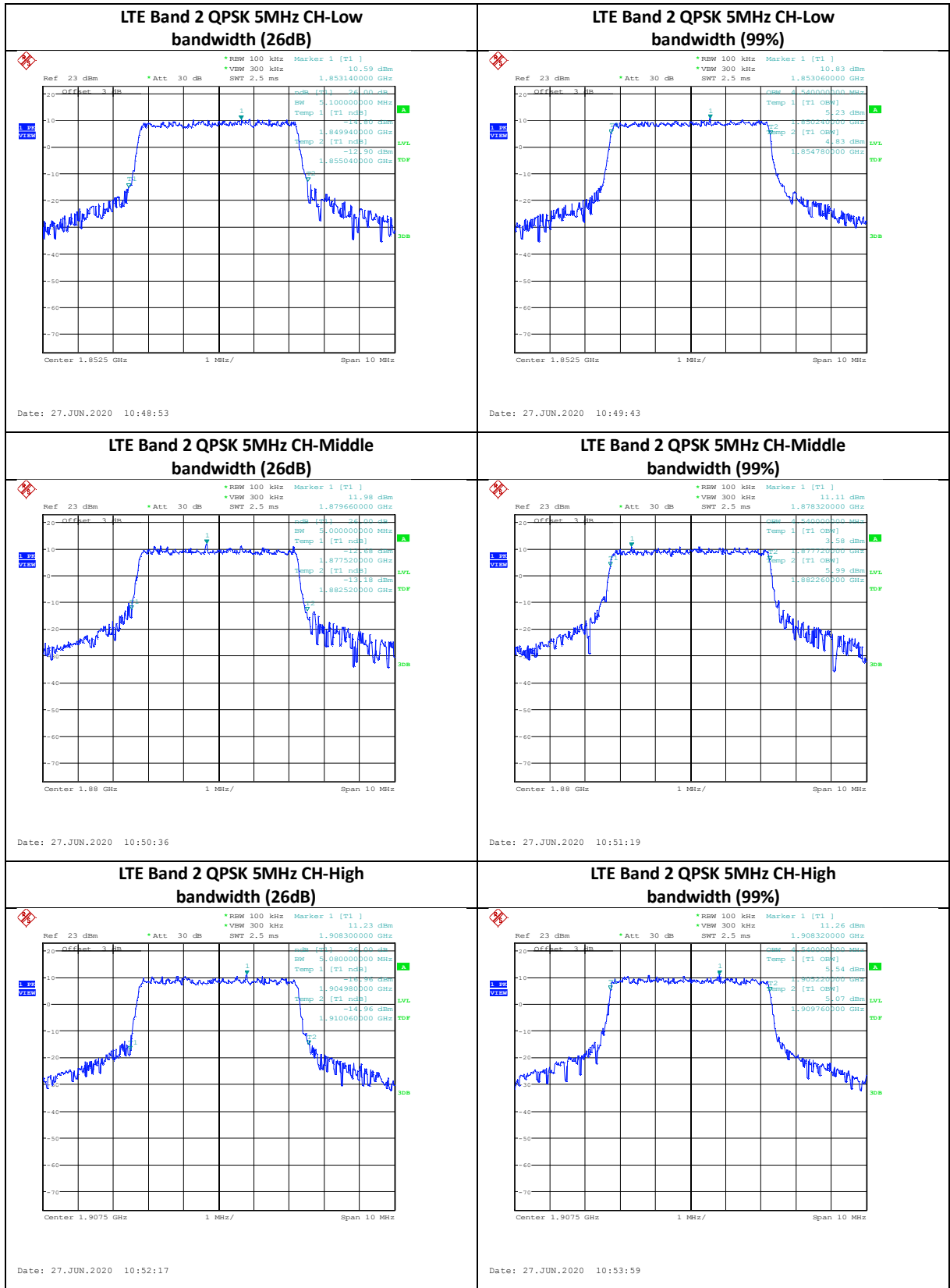


Date: 27.JUN.2020 10:46:59

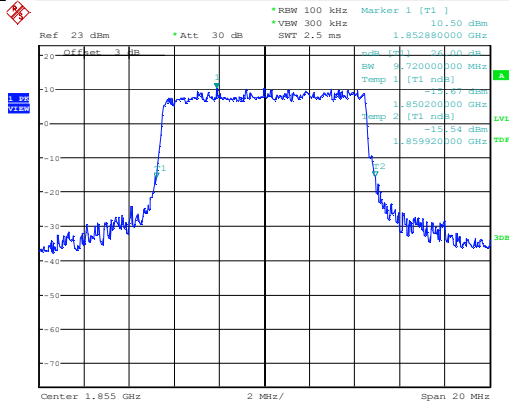
LTE Band 2 QPSK 3MHz CH-High bandwidth (99%)



Date: 27.JUN.2020 10:47:47

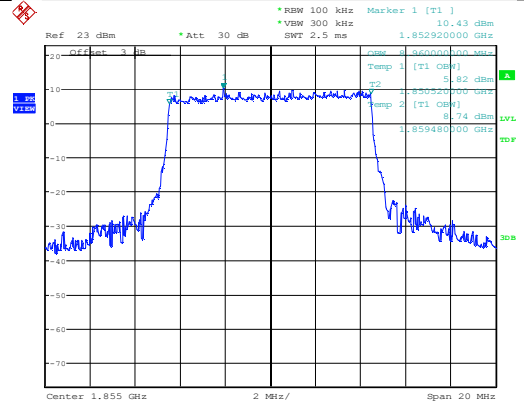


LTE Band 2 QPSK 10MHz CH-Low bandwidth (26dB)



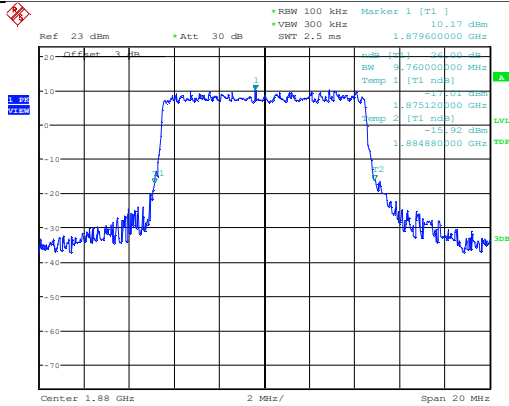
Date: 27.JUN.2020 10:56:23

LTE Band 2 QPSK 10MHz CH-Low bandwidth (99%)



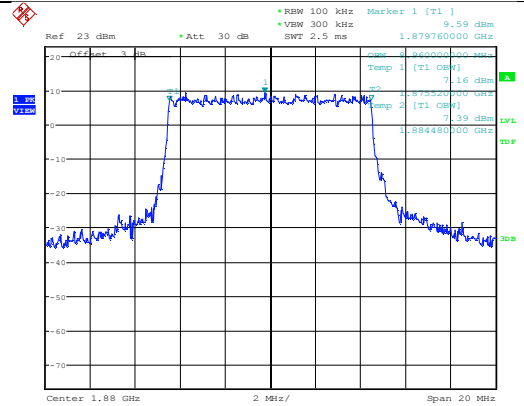
Date: 27.JUN.2020 10:57:15

LTE Band 2 QPSK 10MHz CH-Middle bandwidth (26dB)



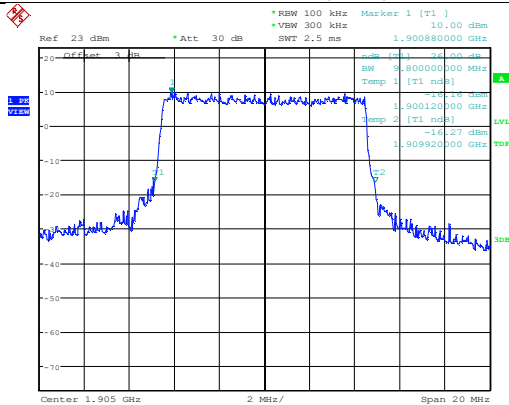
Date: 27.JUN.2020 10:58:38

LTE Band 2 QPSK 10MHz CH-Middle bandwidth (99%)



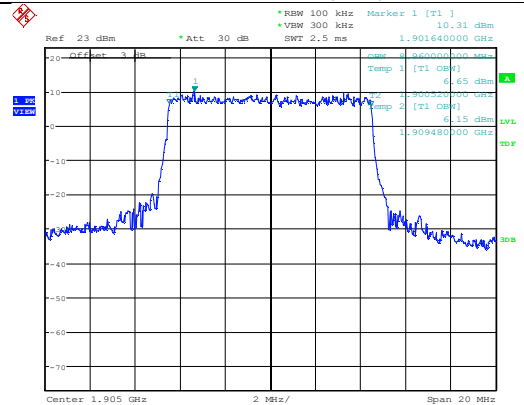
Date: 27.JUN.2020 10:59:57

LTE Band 2 QPSK 10MHz CH-High bandwidth (26dB)

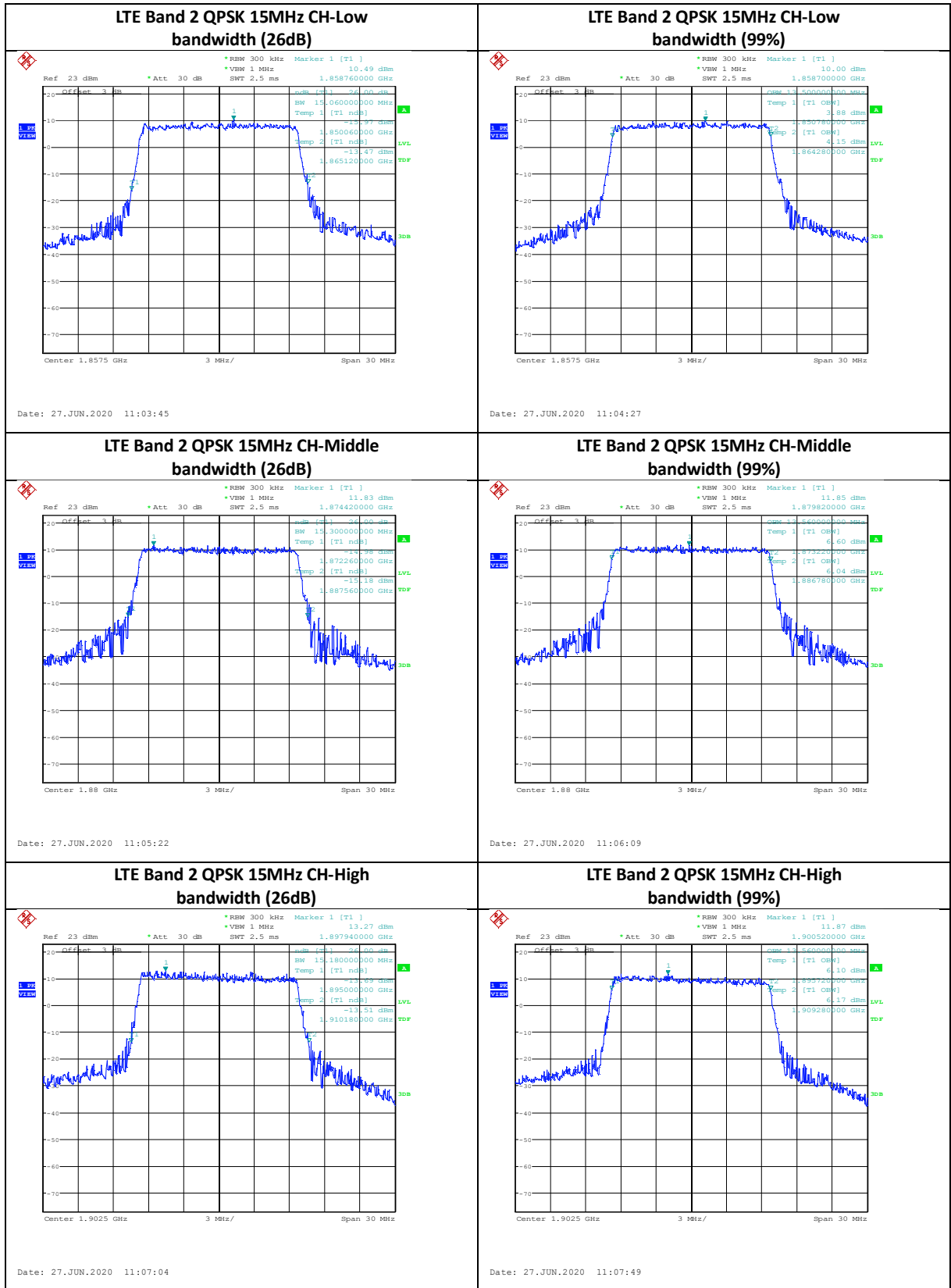


Date: 27.JUN.2020 11:01:51

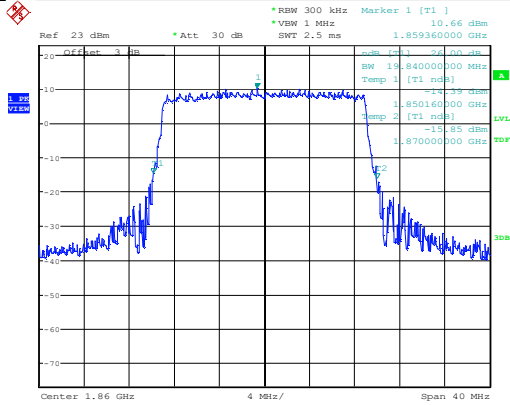
LTE Band 2 QPSK 10MHz CH-High bandwidth (99%)



Date: 27.JUN.2020 11:02:45

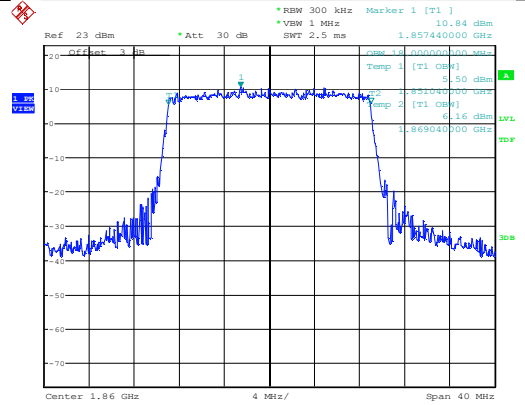


LTE Band 2 QPSK 20MHz CH-Low bandwidth (26dB)



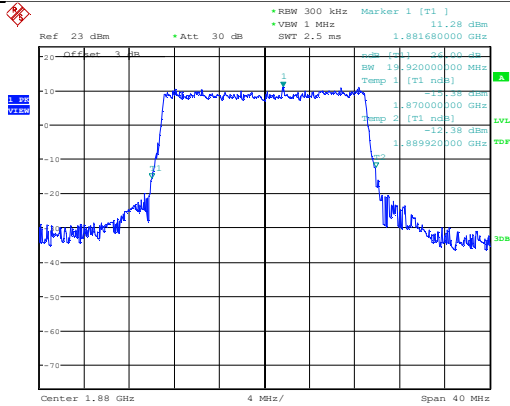
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LTE Band 2 QPSK 20MHz CH-Low bandwidth (99%)



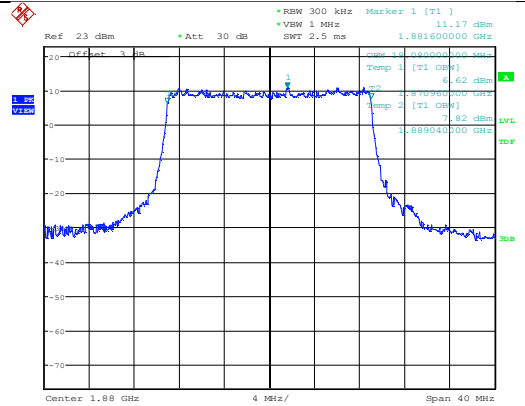
Date: 27.JUN.2020 11:14:31

LTE Band 2 QPSK 20MHz CH-Middle bandwidth (26dB)



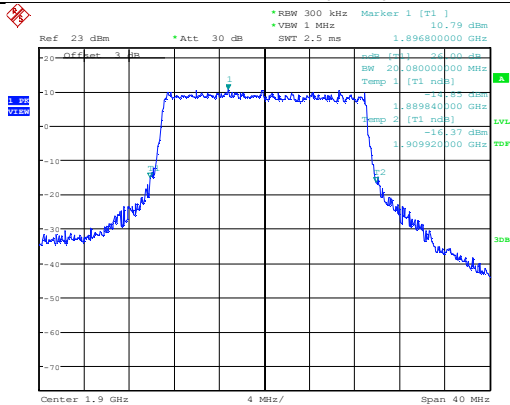
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LTE Band 2 QPSK 20MHz CH-Middle bandwidth (99%)



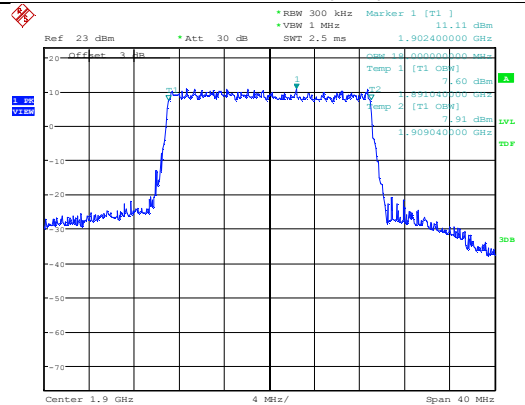
Date: 27.JUN.2020 11:18:33

LTE Band 2 QPSK 20MHz CH-High bandwidth (26dB)



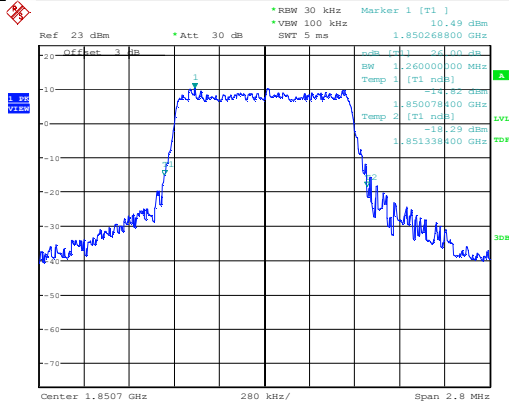
Date: 27.JUN.2020 11:20:38

LTE Band 2 QPSK 20MHz CH-High bandwidth (99%)



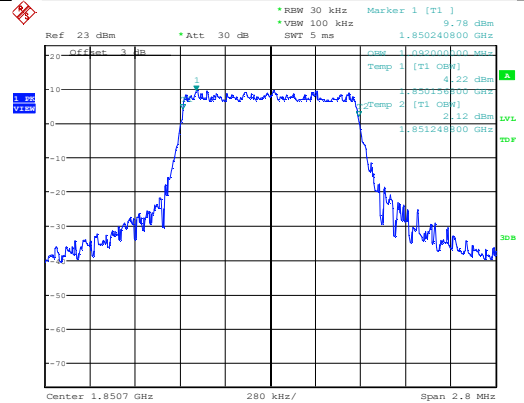
Date: 27.JUN.2020 11:21:14

LTE Band 2 16QAM 1.4MHz CH-Low bandwidth (26dB)



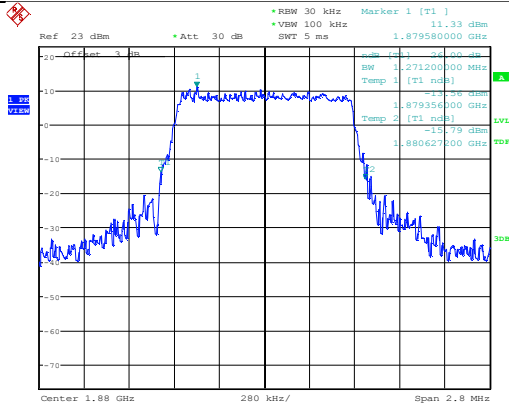
Date: 27.JUN.2020 11:22:12

LTE Band 2 16QAM 1.4MHz CH-Low bandwidth (99%)



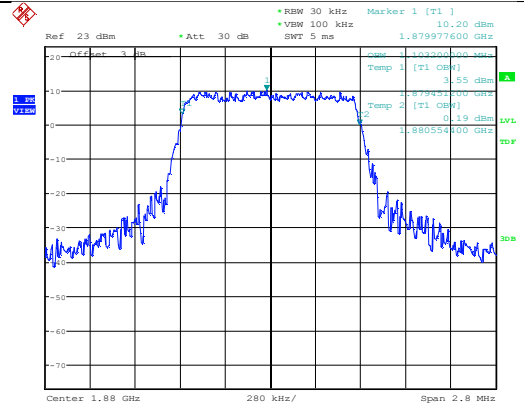
Date: 27.JUN.2020 11:23:10

LTE Band 2 16QAM 1.4MHz CH-Middle bandwidth (26dB)



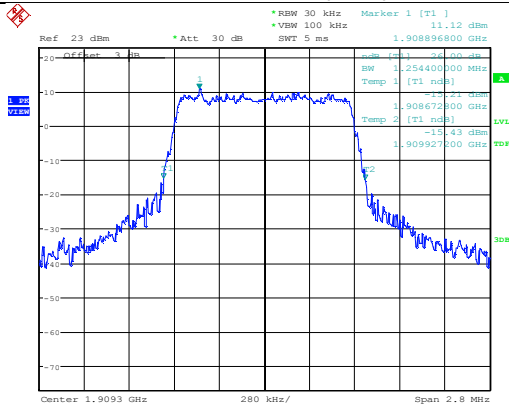
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LTE Band 2 16QAM 1.4MHz CH-Middle bandwidth (99%)



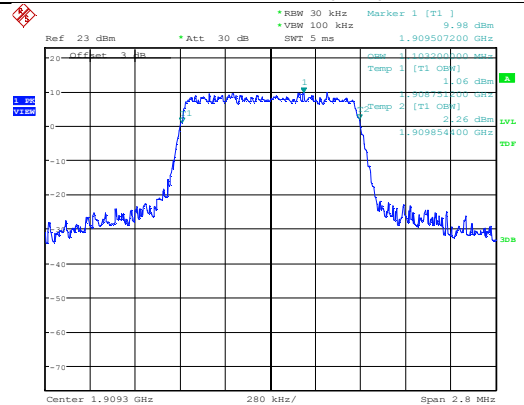
Date: 27.JUN.2020 11:24:06

LTE Band 2 16QAM 1.4MHz CH-High bandwidth (26dB)

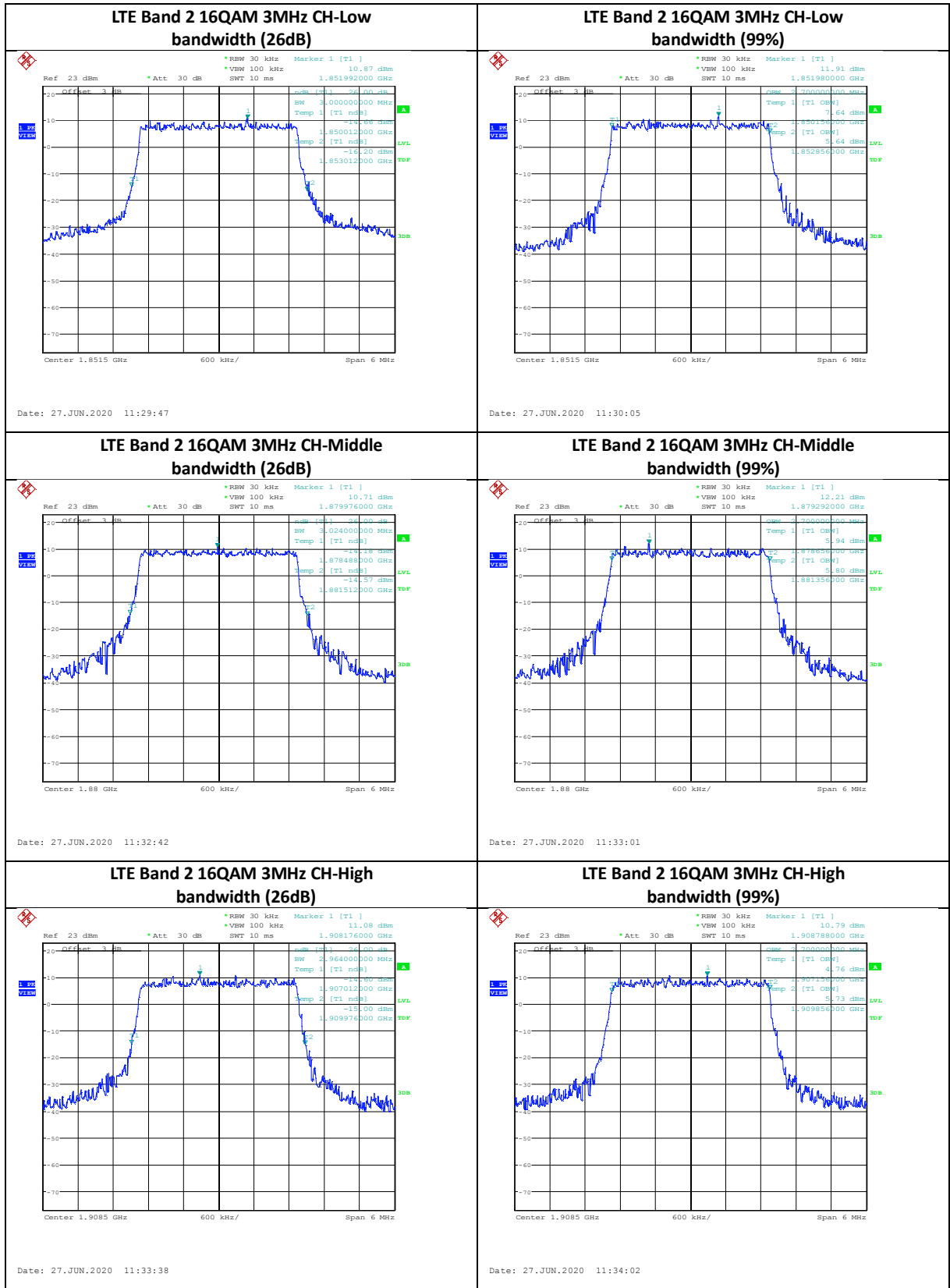


Date: 27.JUN.2020 11:27:46

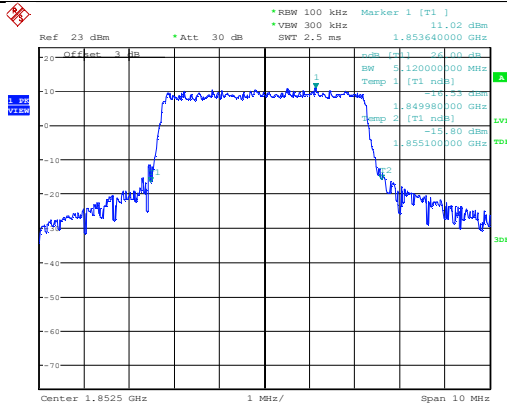
LTE Band 2 16QAM 1.4MHz CH-High bandwidth (99%)



Date: 27.JUN.2020 11:27:24

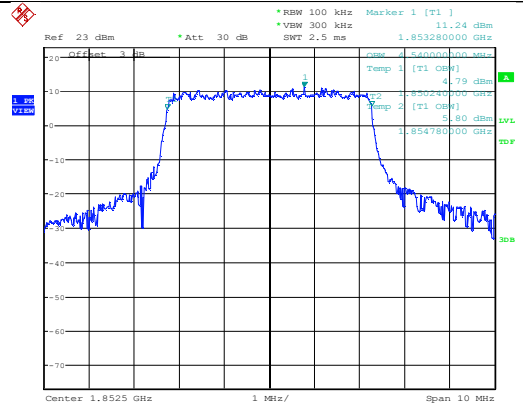


**LTE Band 2 16QAM 5MHz CH-Low
bandwidth (26dB)**



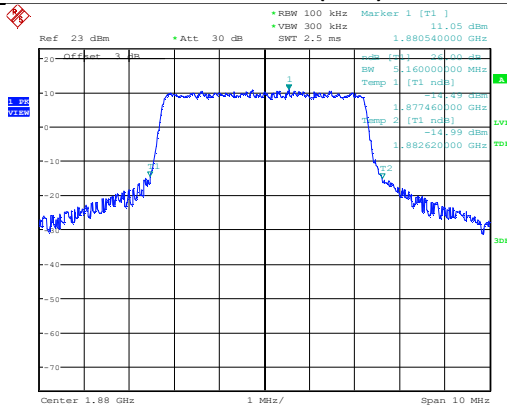
Date: 27.JUN.2020 11:36:21

**LTE Band 2 16QAM 5MHz CH-Low
bandwidth (99%)**



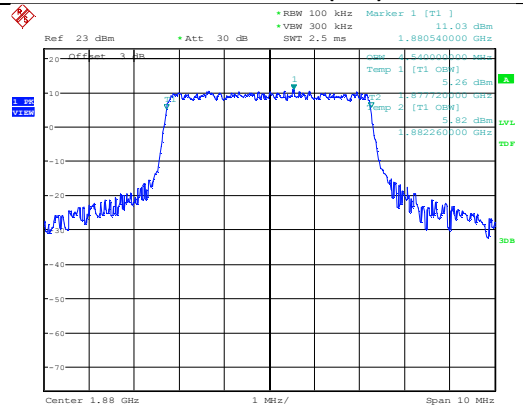
Date: 27.JUN.2020 11:37:12

**LTE Band 2 16QAM 5MHz CH-Middle
bandwidth (26dB)**



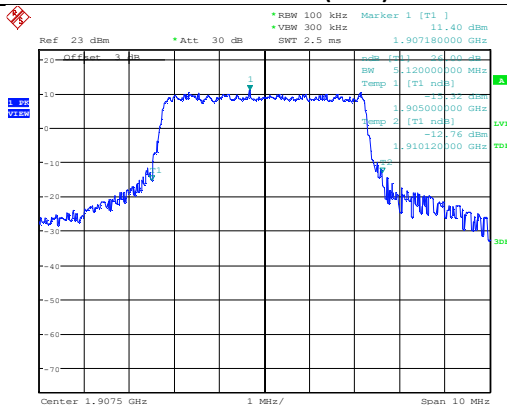
Date: 27.JUN.2020 11:43:51

**LTE Band 2 16QAM 5MHz CH-Middle
bandwidth (99%)**



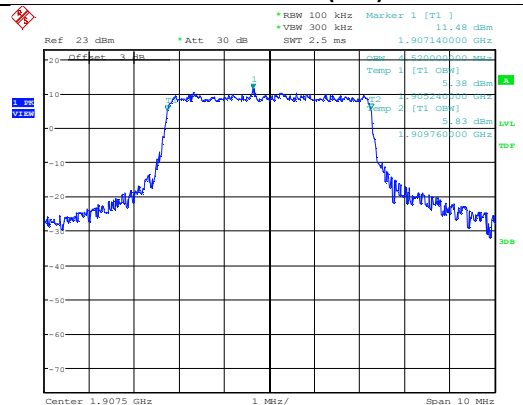
Date: 27.JUN.2020 11:44:49

**LTE Band 2 16QAM 5MHz CH-High
bandwidth (26dB)**



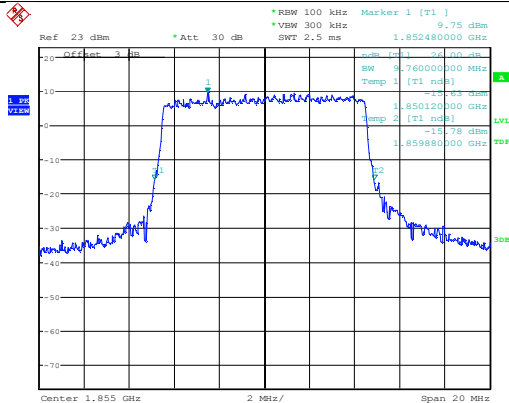
Date: 27.JUN.2020 11:46:09

**LTE Band 2 16QAM 5MHz CH-High
bandwidth (99%)**



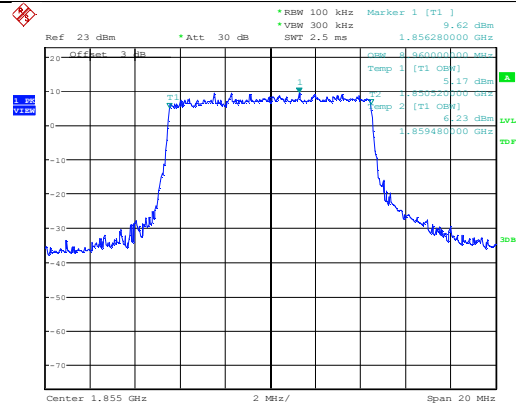
Date: 27.JUN.2020 11:47:43

LTE Band 2 16QAM 10MHz CH-Low bandwidth (26dB)



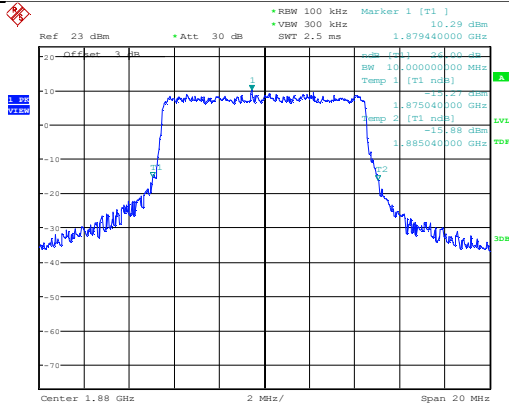
Date: 27.JUN.2020 11:52:53

LTE Band 2 16QAM 10MHz CH-Low bandwidth (99%)



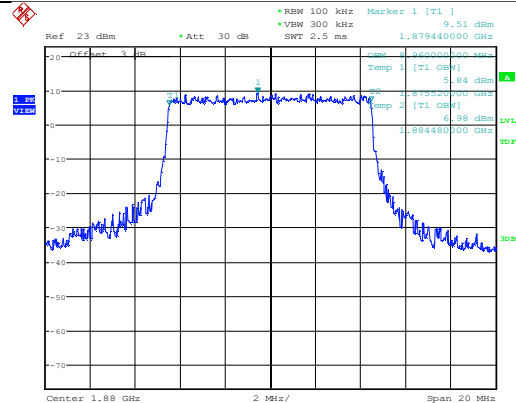
Date: 27.JUN.2020 11:51:47

LTE Band 2 16QAM 10MHz CH-Middle bandwidth (26dB)



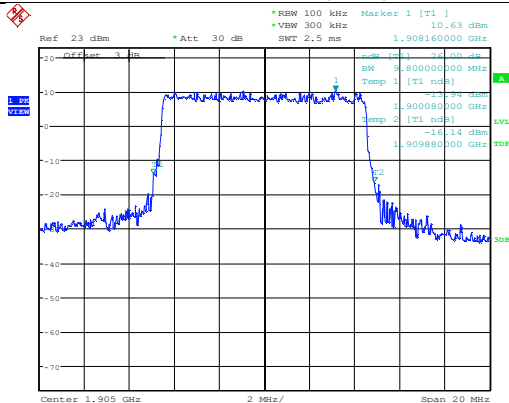
Date: 27.JUN.2020 11:54:43

LTE Band 2 16QAM 10MHz CH-Middle bandwidth (99%)



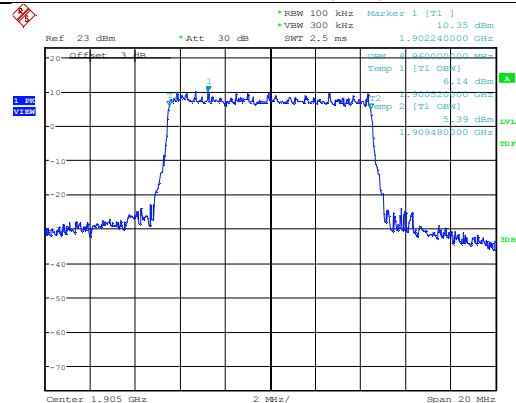
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LTE Band 2 16QAM 10MHz CH-High bandwidth (26dB)



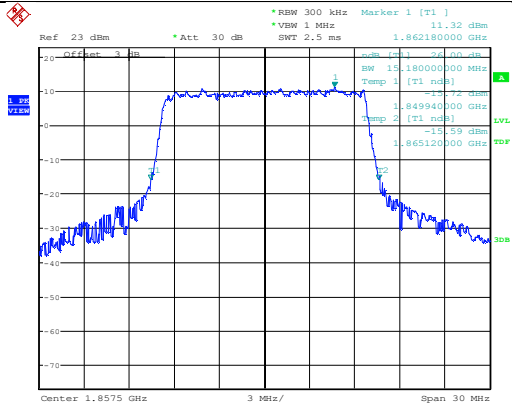
Date: 27.JUN.2020 12:01:56

LTE Band 2 16QAM 10MHz CH-High bandwidth (99%)



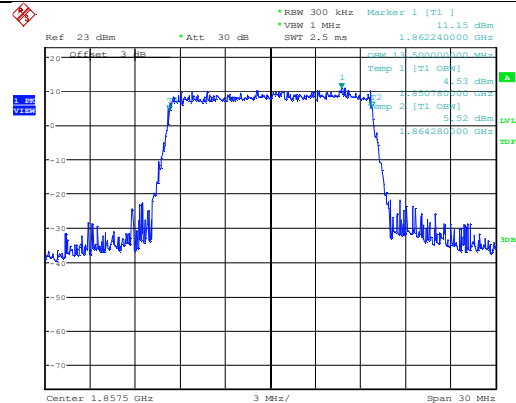
Date: 27.JUN.2020 12:01:32

**LTE Band 2 16QAM 15MHz CH-Low
bandwidth (26dB)**



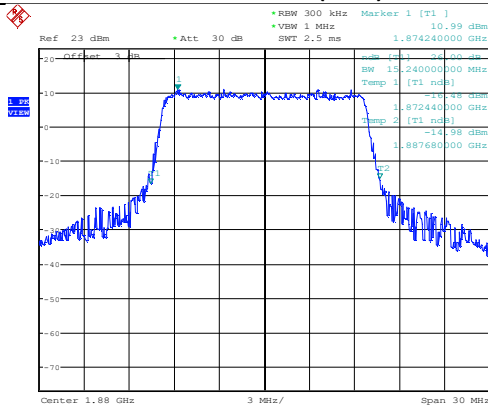
Date: 27.JUN.2020 12:09:00

**LTE Band 2 16QAM 15MHz CH-Low
bandwidth (99%)**



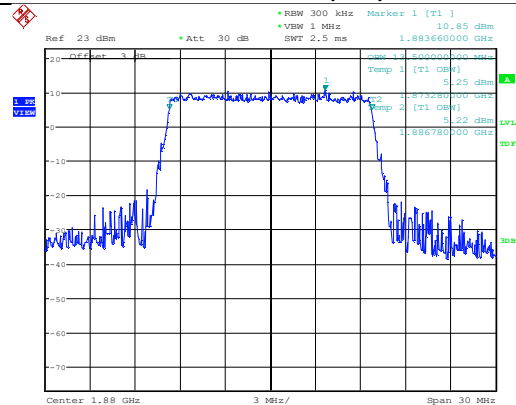
Date: 27.JUN.2020 12:07:44

**LTE Band 2 16QAM 15MHz CH-Middle
bandwidth (26dB)**



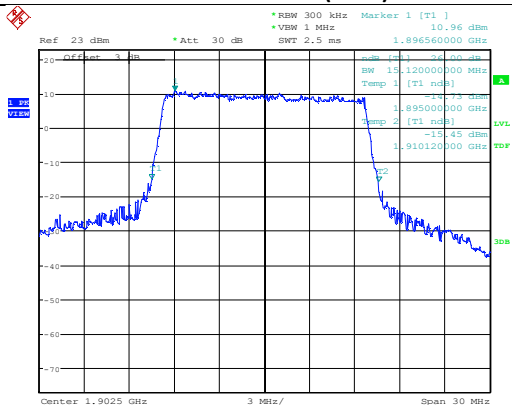
Date: 27.JUN.2020 12:10:18

**LTE Band 2 16QAM 15MHz CH-Middle
bandwidth (99%)**



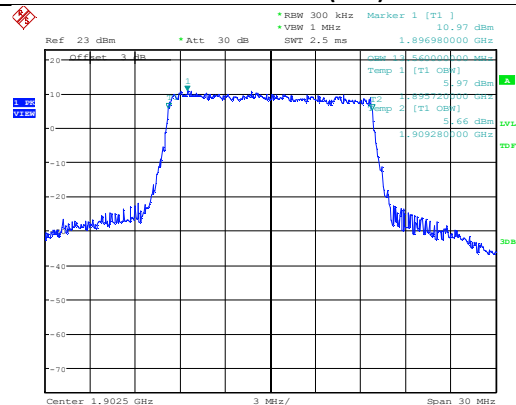
Date: 27.JUN.2020 12:10:40

**LTE Band 2 16QAM 15MHz CH-High
bandwidth (26dB)**



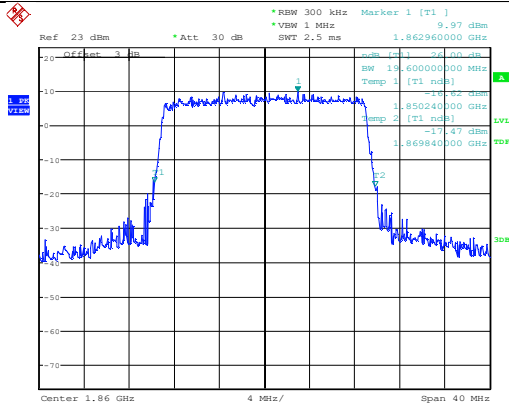
Date: 27.JUN.2020 12:14:24

**LTE Band 2 16QAM 15MHz CH-High
bandwidth (99%)**



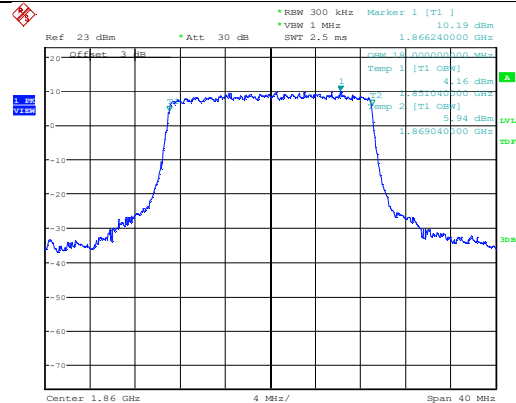
Date: 27.JUN.2020 12:13:15

LTE Band 2 16QAM 20MHz CH-Low bandwidth (26dB)



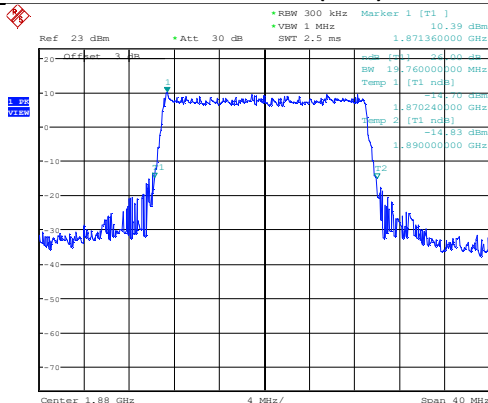
Date: 27.JUN.2020 12:20:26

LTE Band 2 16QAM 20MHz CH-Low bandwidth (99%)



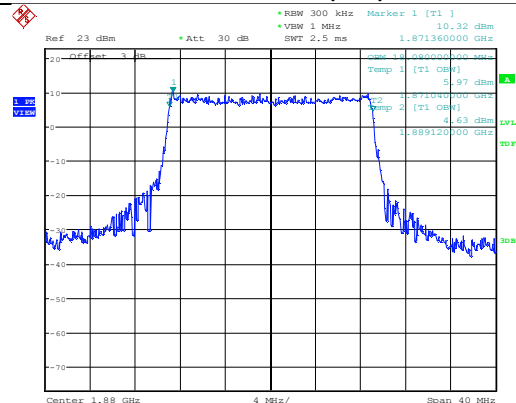
Date: 27.JUN.2020 12:20:01

LTE Band 2 16QAM 20MHz CH-Middle bandwidth (26dB)



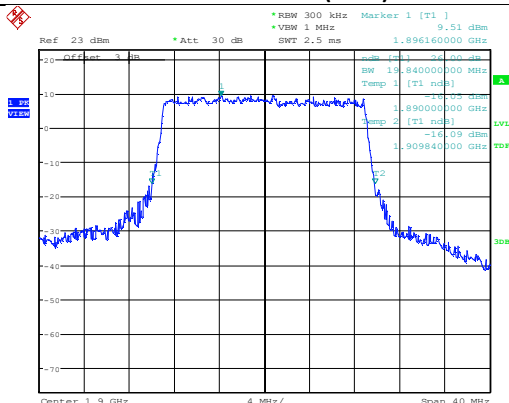
Date: 27.JUN.2020 12:21:13

LTE Band 2 16QAM 20MHz CH-Middle bandwidth (99%)



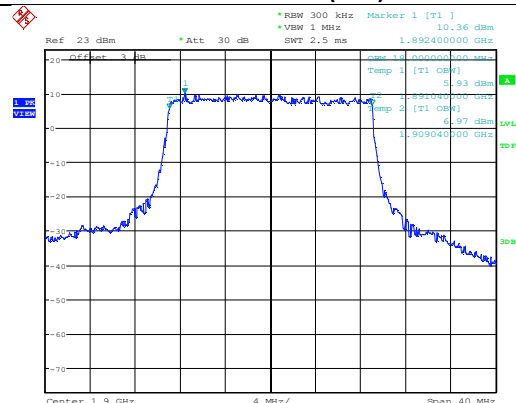
Date: 27.JUN.2020 12:21:59

LTE Band 2 16QAM 20MHz CH-High bandwidth (26dB)



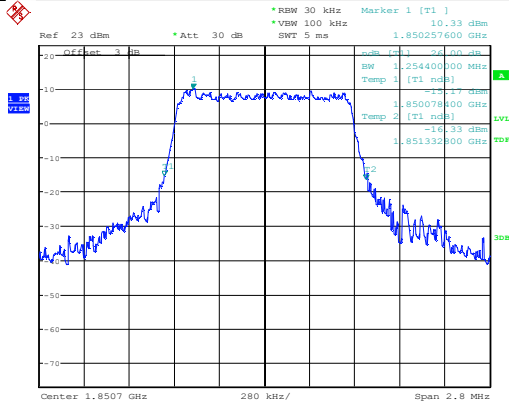
Date: 27.JUN.2020 12:25:57

LTE Band 2 16QAM 20MHz CH-High bandwidth (99%)



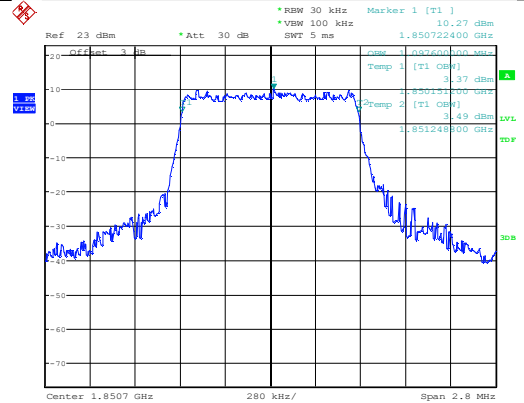
Date: 27.JUN.2020 12:25:10

LTE Band 2 64QAM 1.4MHz CH-Low bandwidth (26dB)



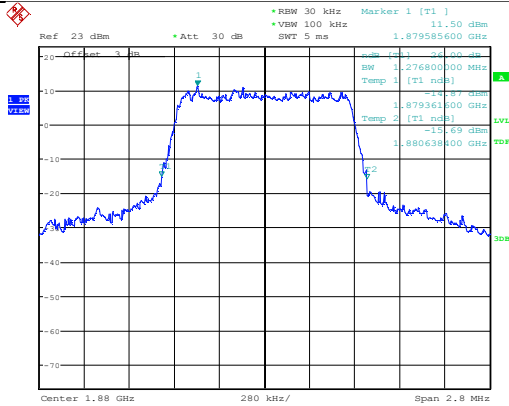
Date: 27.JUN.2020 11:22:33

LTE Band 2 64QAM 1.4MHz CH-Low bandwidth (99%)



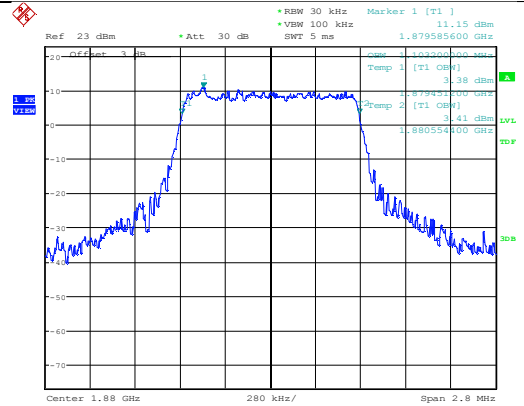
Date: 27.JUN.2020 11:22:54

LTE Band 2 64QAM 1.4MHz CH-Middle bandwidth (26dB)



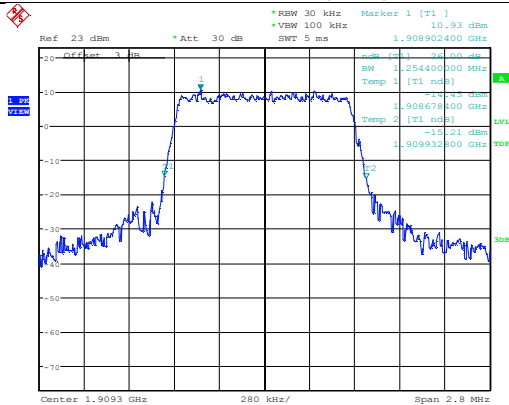
Date: 27.JUN.2020 11:25:24

LTE Band 2 64QAM 1.4MHz CH-Middle bandwidth (99%)



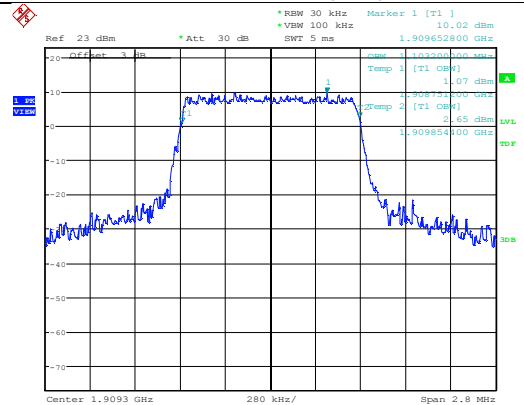
Date: 27.JUN.2020 11:24:32

LTE Band 2 64QAM 1.4MHz CH-High bandwidth (26dB)



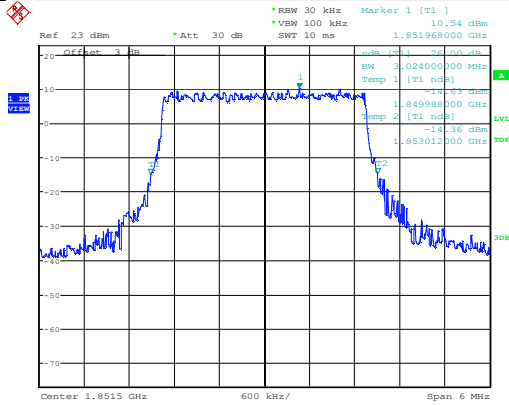
Date: 27.JUN.2020 11:26:28

LTE Band 2 64QAM 1.4MHz CH-High bandwidth (99%)



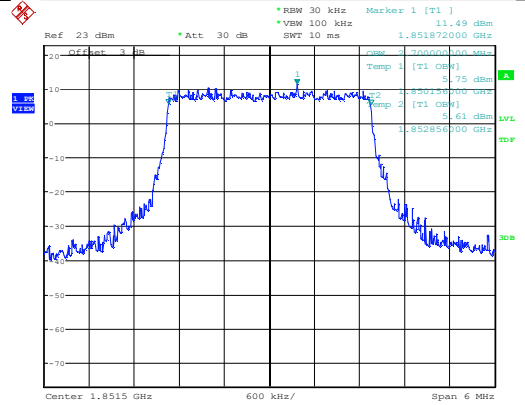
Date: 27.JUN.2020 11:26:52

**LTE Band 2 64QAM 3MHz CH-Low
bandwidth (26dB)**



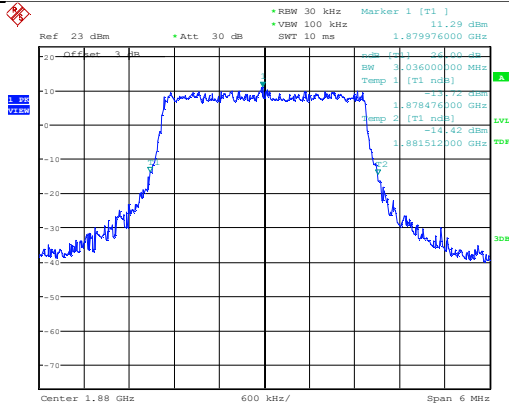
Date: 27.JUN.2020 11:30:41

**LTE Band 2 64QAM 3MHz CH-Low
bandwidth (99%)**



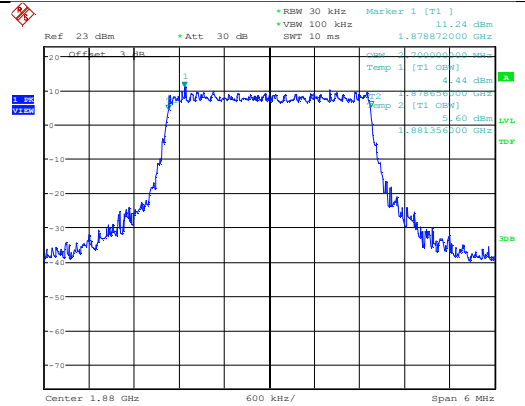
Date: 27.JUN.2020 11:30:23

**LTE Band 2 64QAM 3MHz CH-Middle
bandwidth (26dB)**



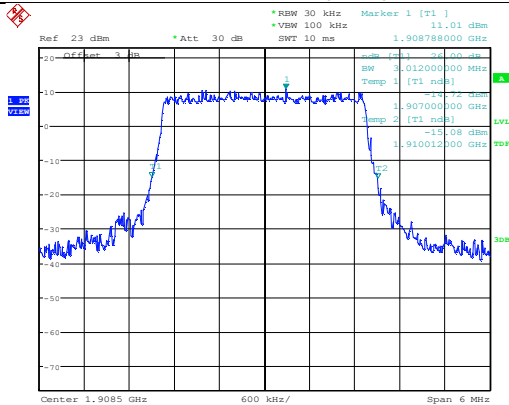
Date: 27.JUN.2020 11:32:14

**LTE Band 2 64QAM 3MHz CH-Middle
bandwidth (99%)**



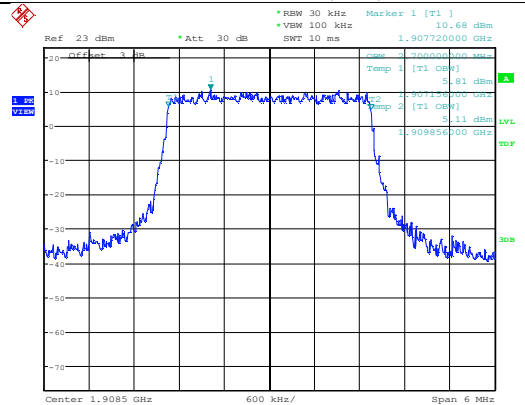
Date: 27.JUN.2020 11:31:28

**LTE Band 2 64QAM 3MHz CH-High
bandwidth (26dB)**



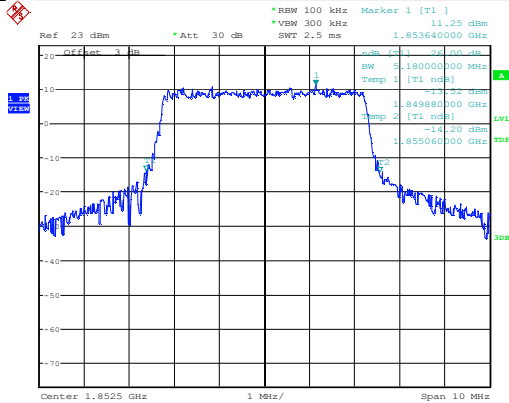
Date: 27.JUN.2020 11:34:39

**LTE Band 2 64QAM 3MHz CH-High
bandwidth (99%)**



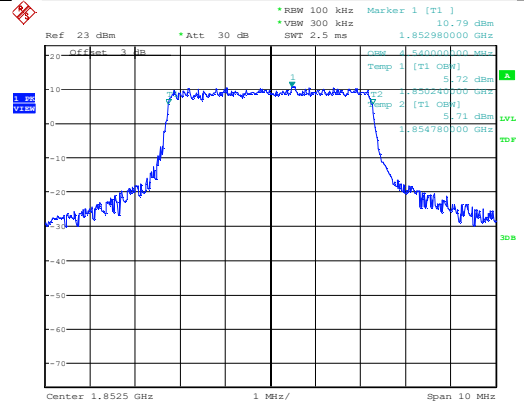
Date: 27.JUN.2020 11:34:18

**LTE Band 2 64QAM 5MHz CH-Low
bandwidth (26dB)**



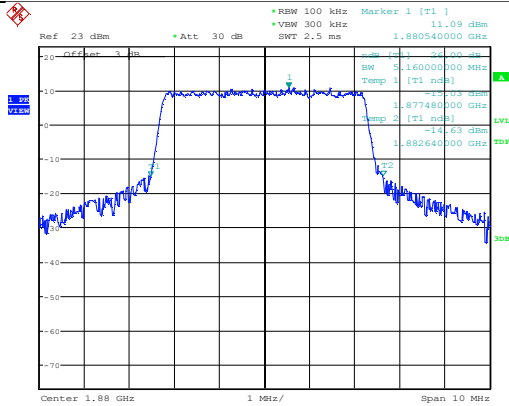
Date: 27.JUN.2020 11:39:29

**LTE Band 2 64QAM 5MHz CH-Low
bandwidth (99%)**



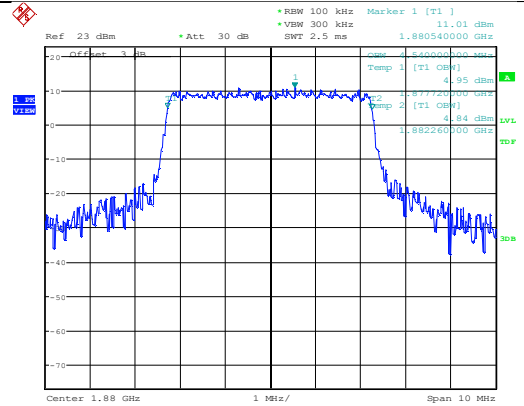
Date: 27.JUN.2020 11:38:25

**LTE Band 2 64QAM 5MHz CH-Middle
bandwidth (26dB)**



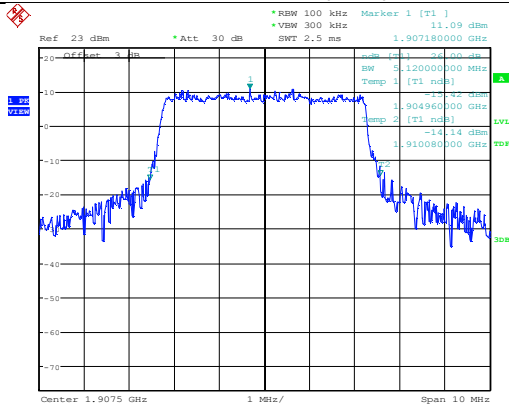
Date: 27.JUN.2020 11:42:27

**LTE Band 2 64QAM 5MHz CH-Middle
bandwidth (99%)**



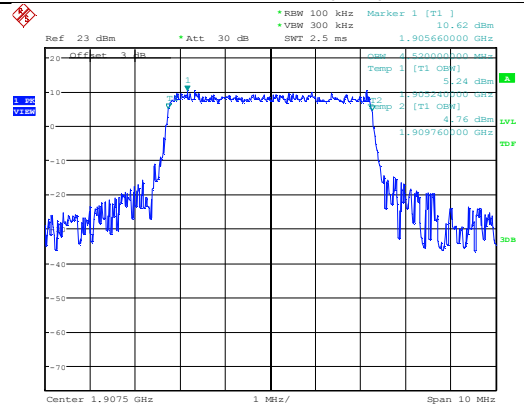
Date: 27.JUN.2020 11:41:22

**LTE Band 2 64QAM 5MHz CH-High
bandwidth (26dB)**



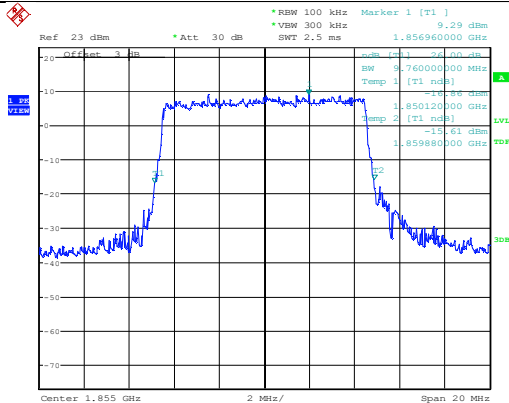
Date: 27.JUN.2020 11:48:54

**LTE Band 2 64QAM 5MHz CH-High
bandwidth (99%)**



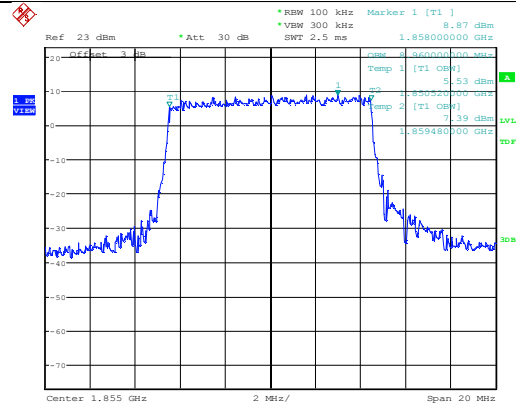
Date: 27.JUN.2020 11:48:11

LTE Band 2 64QAM 10MHz CH-Low bandwidth (26dB)



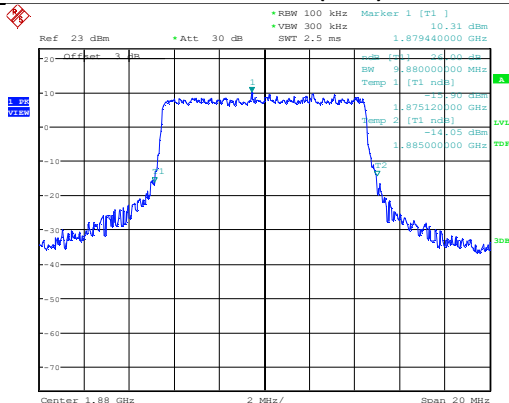
Date: 27.JUN.2020 11:49:50

LTE Band 2 64QAM 10MHz CH-Low bandwidth (99%)



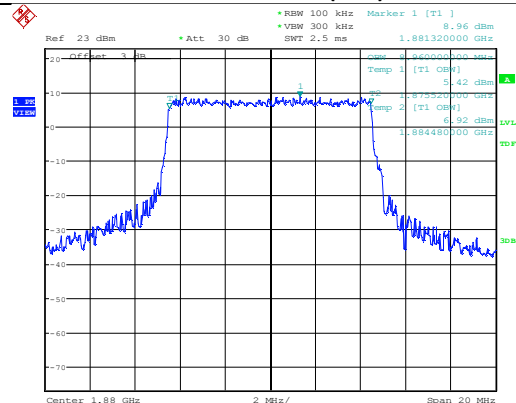
Date: 27.JUN.2020 11:50:26

LTE Band 2 64QAM 10MHz CH-Middle bandwidth (26dB)



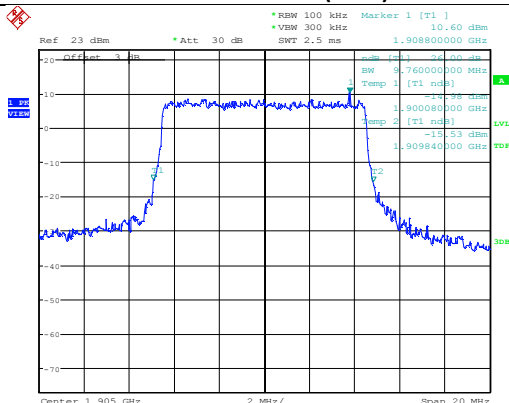
Date: 27.JUN.2020 11:58:25

LTE Band 2 64QAM 10MHz CH-Middle bandwidth (99%)



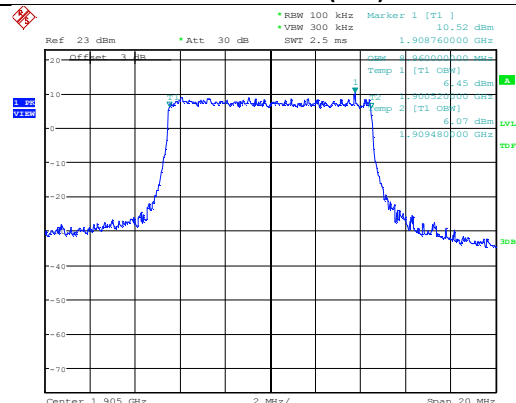
Date: 27.JUN.2020 11:55:50

LTE Band 2 64QAM 10MHz CH-High bandwidth (26dB)



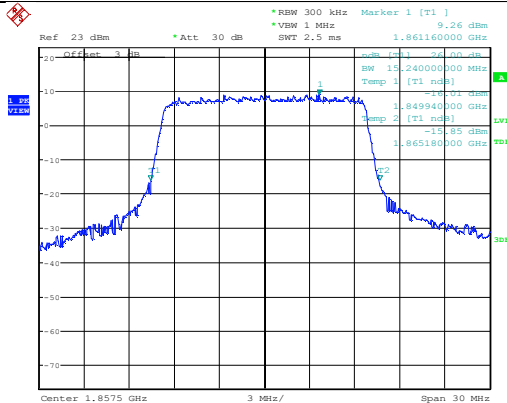
Date: 27.JUN.2020 11:59:32

LTE Band 2 64QAM 10MHz CH-High bandwidth (99%)



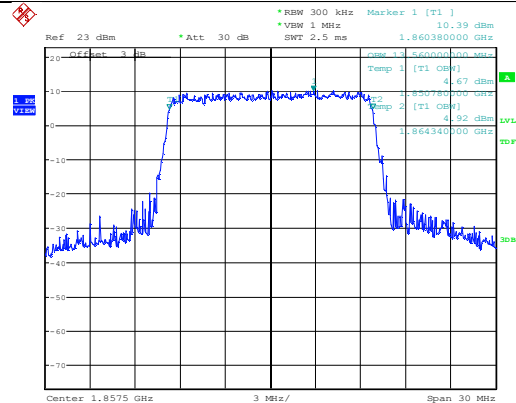
Date: 27.JUN.2020 12:01:00

LTE Band 2 64QAM 15MHz CH-Low bandwidth (26dB)



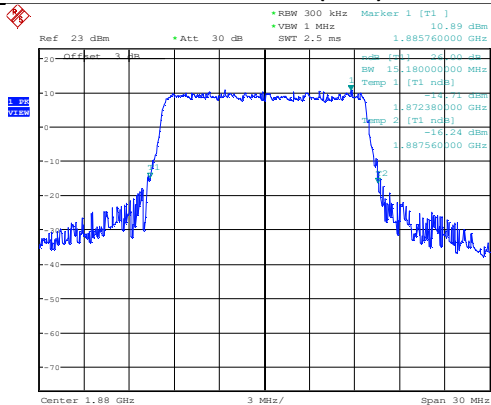
Date: 27.JUN.2020 12:04:23

LTE Band 2 64QAM 15MHz CH-Low bandwidth (99%)



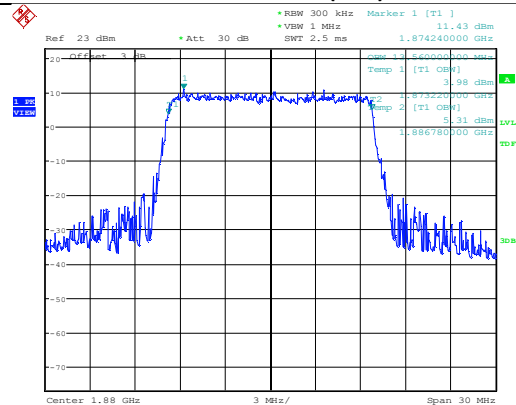
Date: 27.JUN.2020 12:07:20

LTE Band 2 64QAM 15MHz CH-Middle bandwidth (26dB)



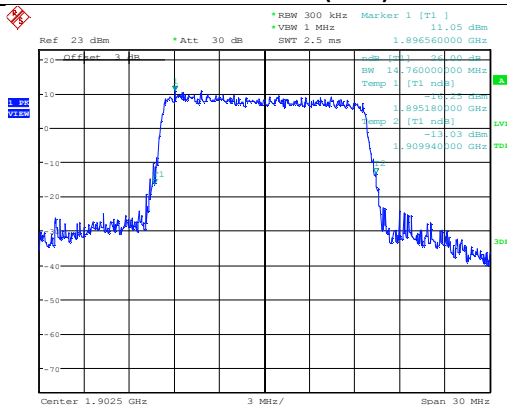
Date: 27.JUN.2020 12:11:43

LTE Band 2 64QAM 15MHz CH-Middle bandwidth (99%)



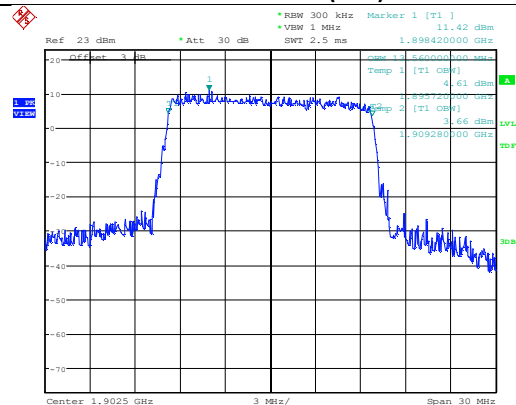
Date: 27.JUN.2020 12:11:03

LTE Band 2 64QAM 15MHz CH-High bandwidth (26dB)



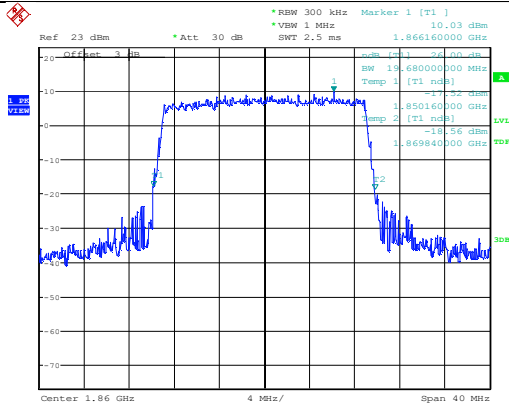
Date: 27.JUN.2020 12:12:12

LTE Band 2 64QAM 15MHz CH-High bandwidth (99%)



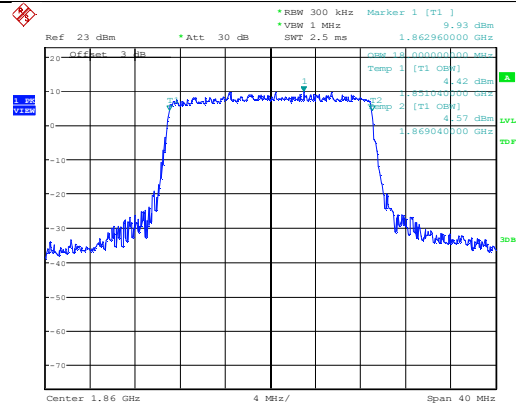
Date: 27.JUN.2020 12:12:31

LTE Band 2 64QAM 20MHz CH-Low bandwidth (26dB)



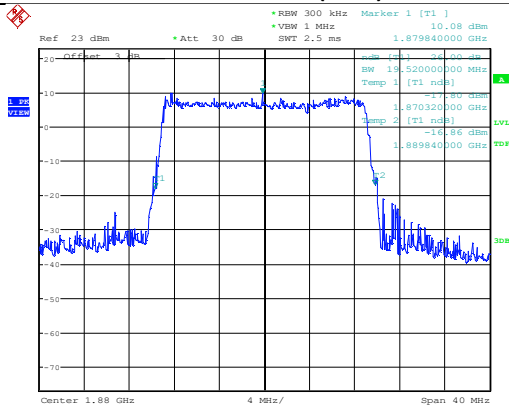
Date: 27.JUN.2020 12:15:05

LTE Band 2 64QAM 20MHz CH-Low bandwidth (99%)



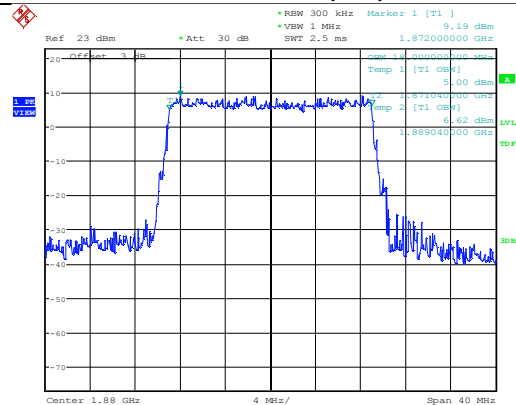
Date: 27.JUN.2020 12:15:56

LTE Band 2 64QAM 20MHz CH-Middle bandwidth (26dB)



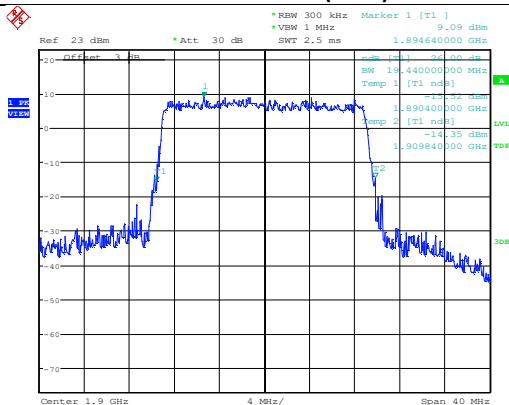
Date: 27.JUN.2020 12:22:38

LTE Band 2 64QAM 20MHz CH-Middle bandwidth (99%)



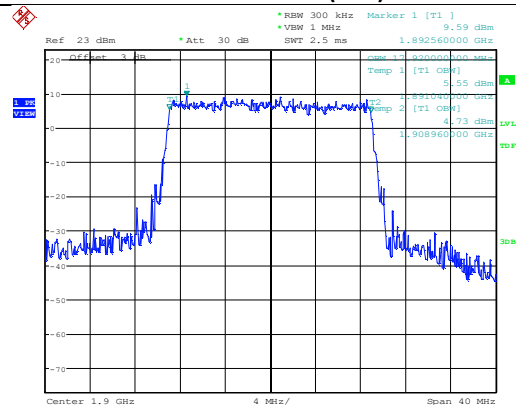
Date: 27.JUN.2020 12:22:20

LTE Band 2 64QAM 20MHz CH-High bandwidth (26dB)



Date: 27.JUN.2020 12:23:05

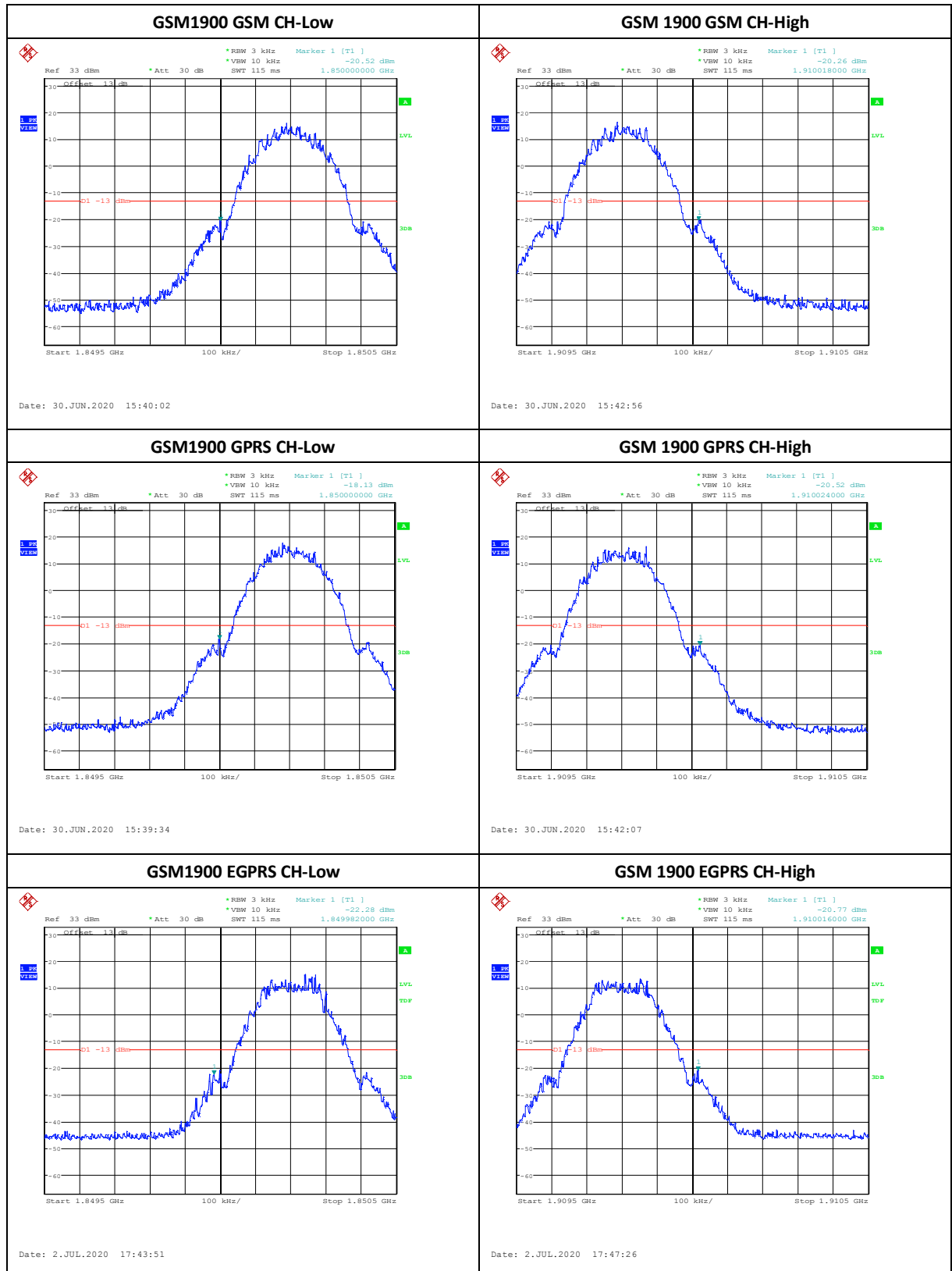
LTE Band 2 64QAM 20MHz CH-High bandwidth (99%)

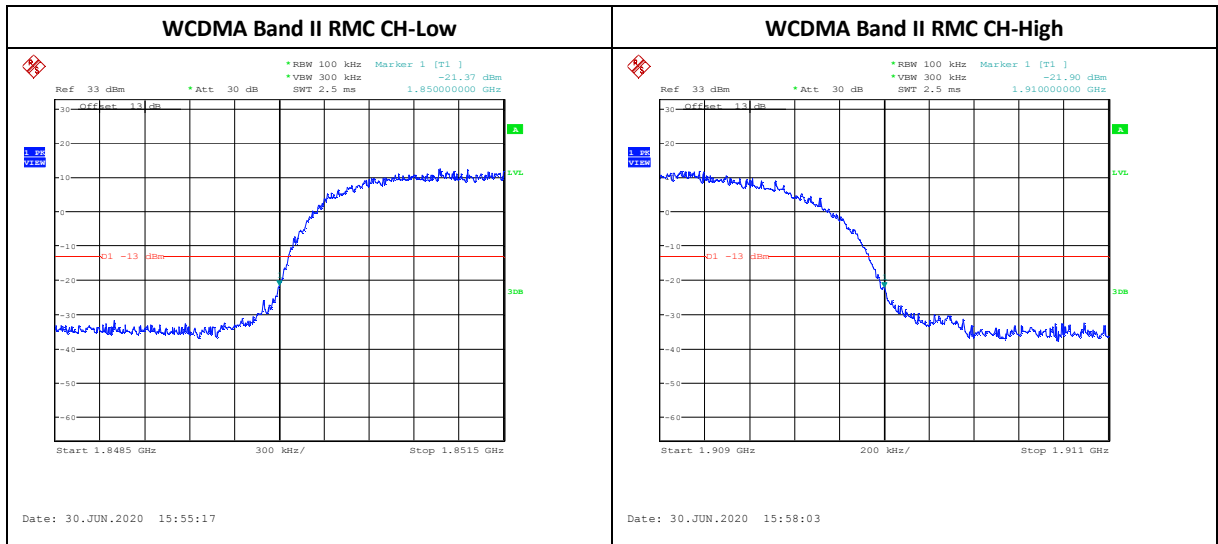


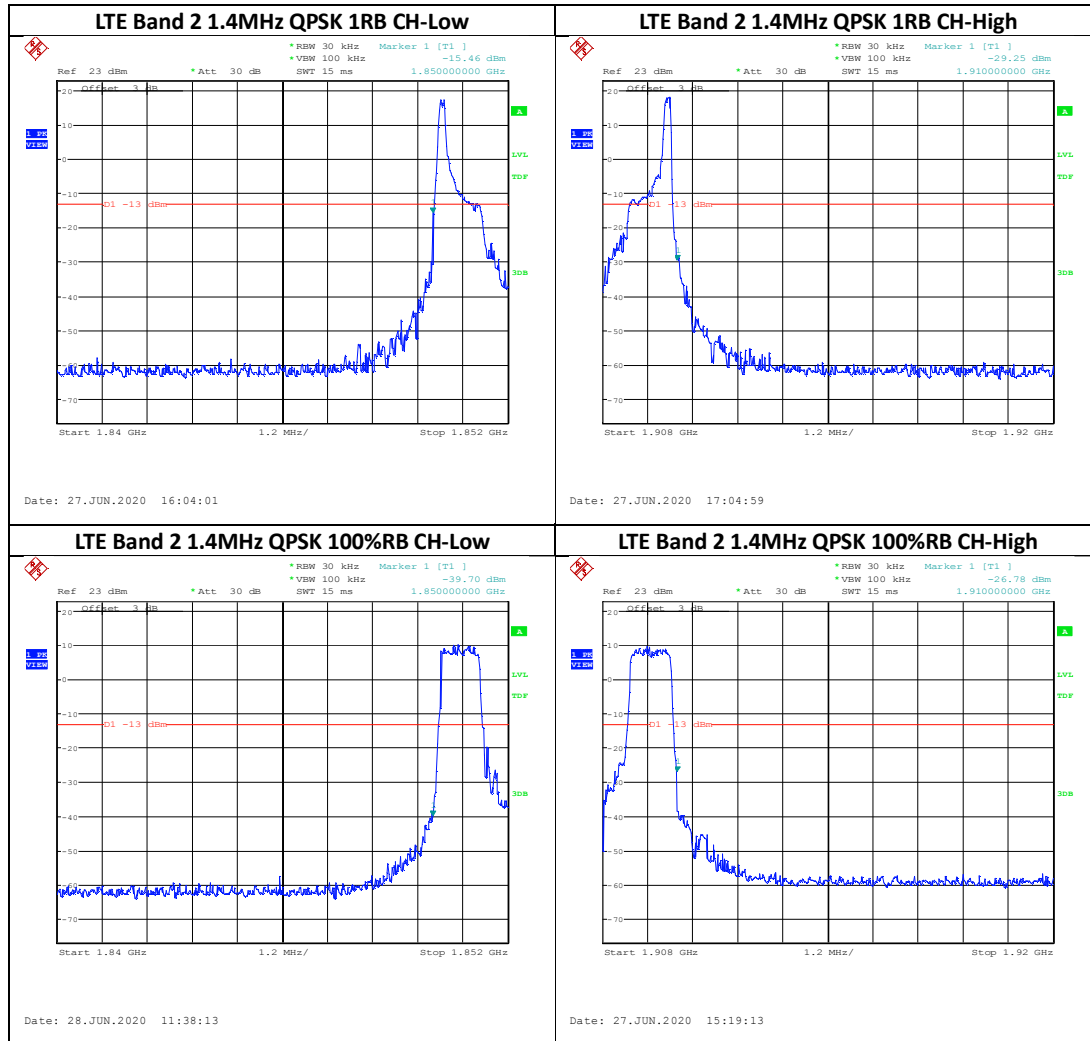
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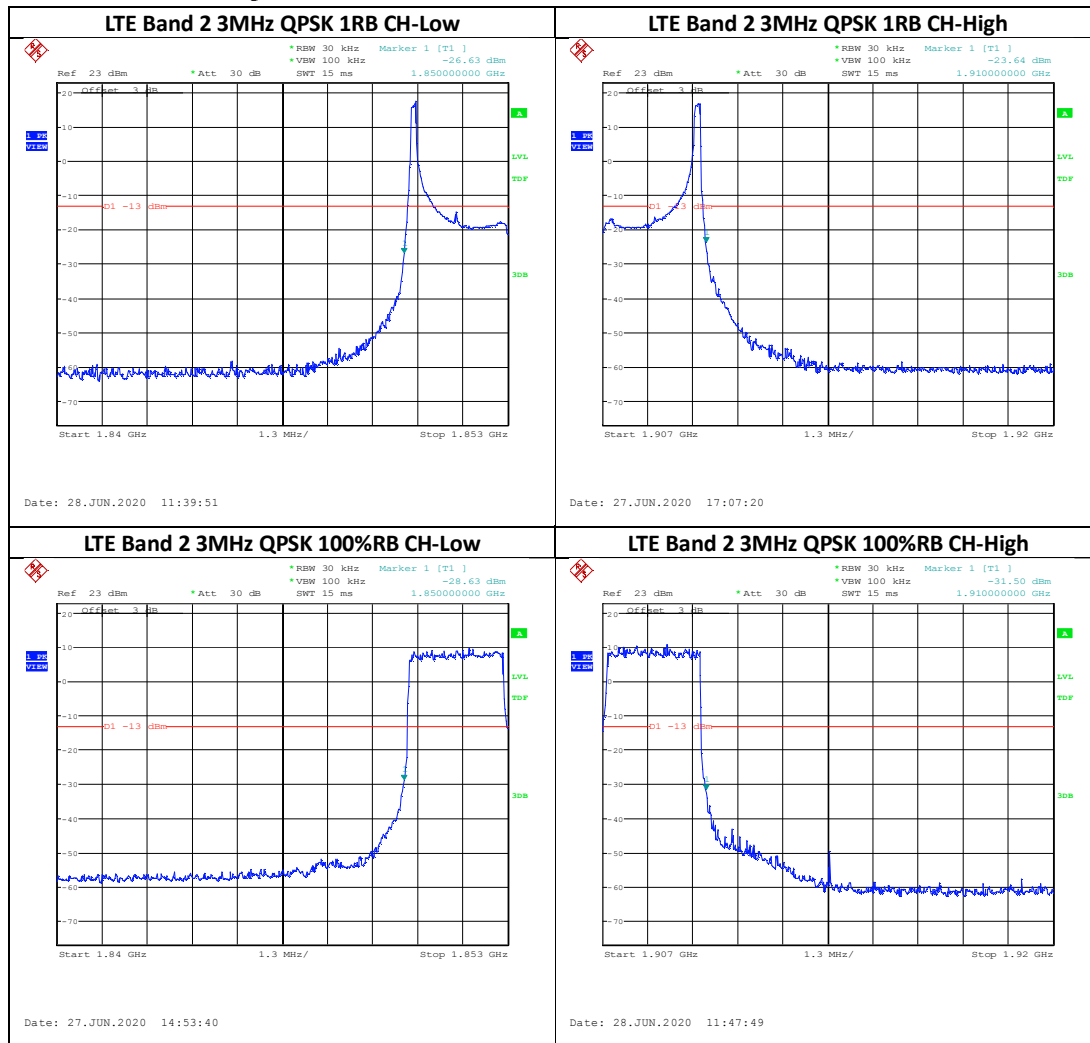
AppendixD: Band Edge Measurement

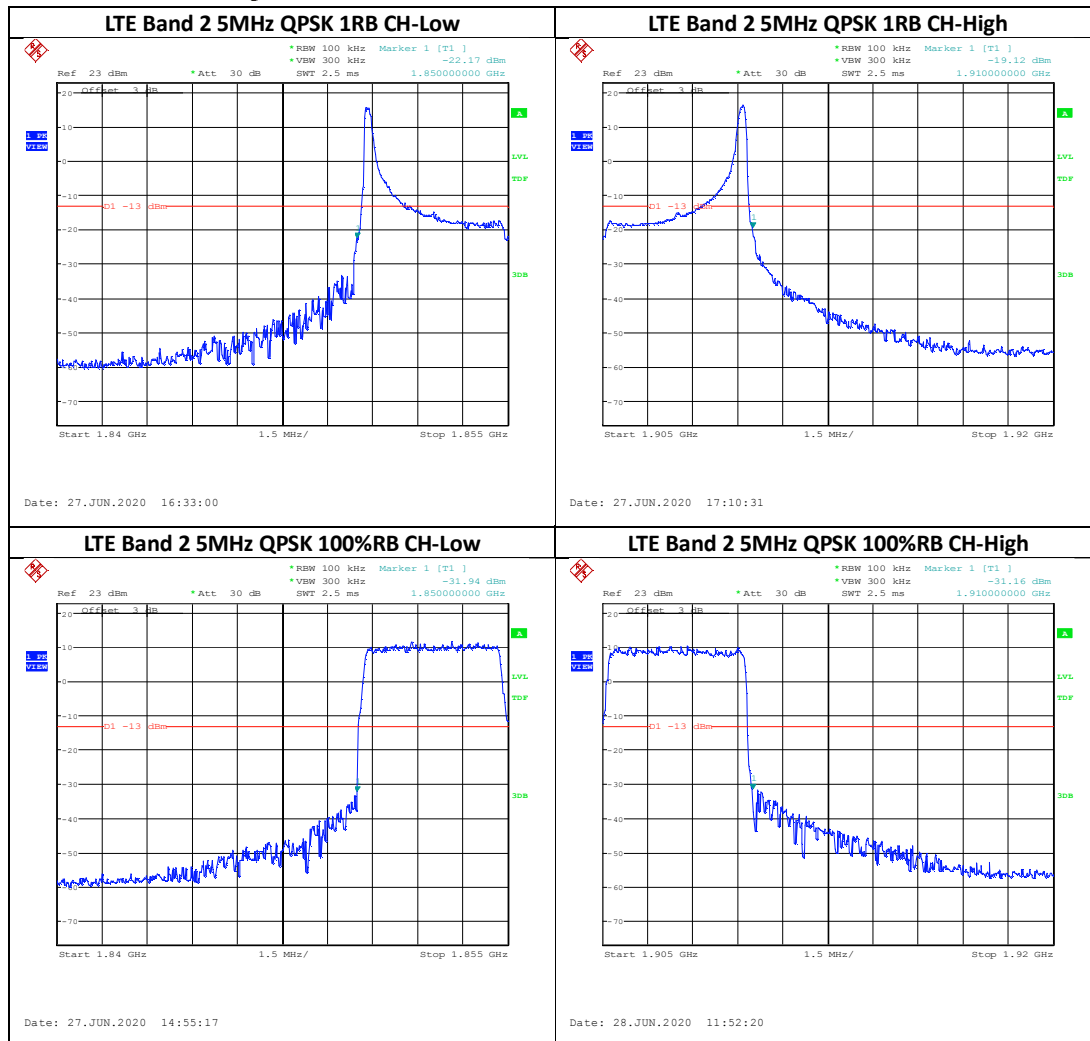
Test Result

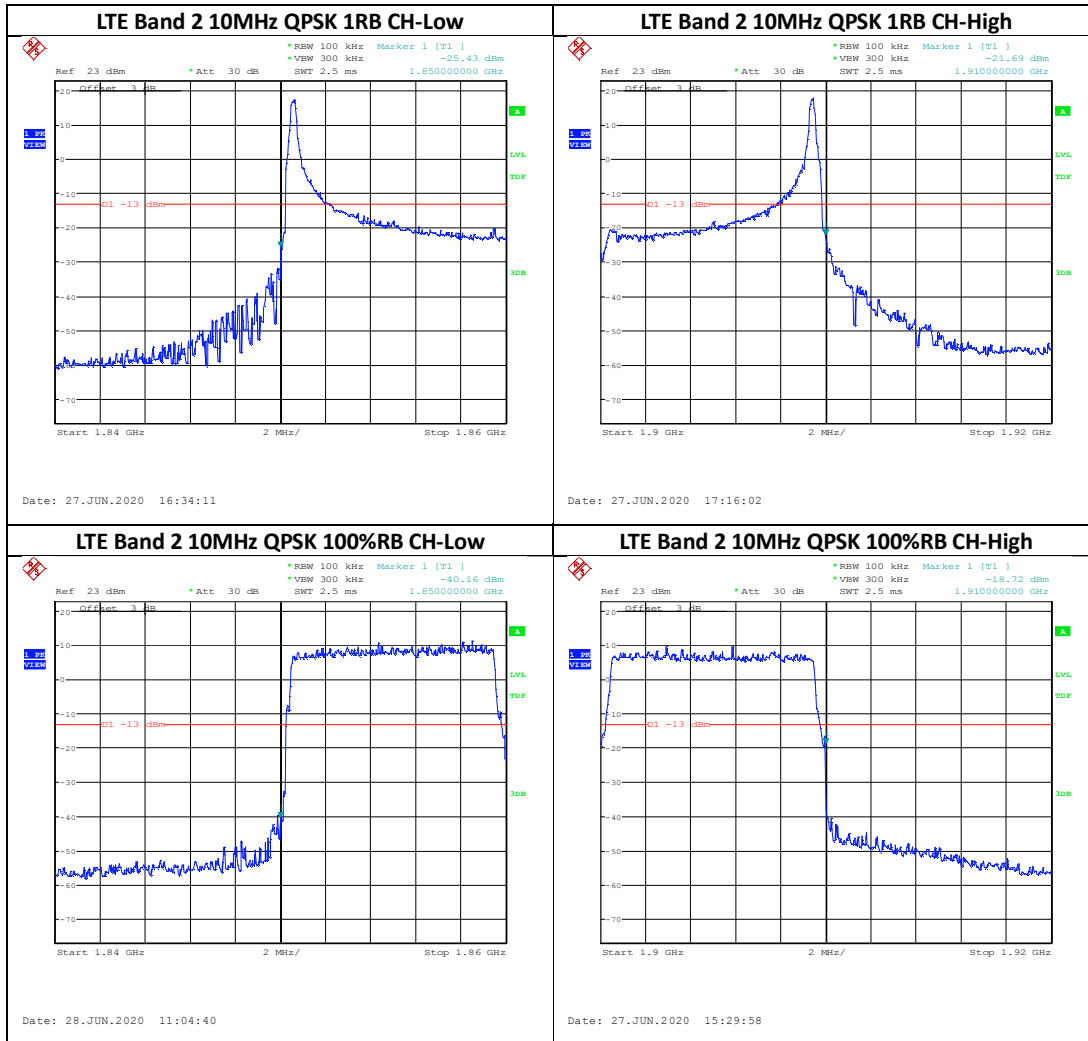


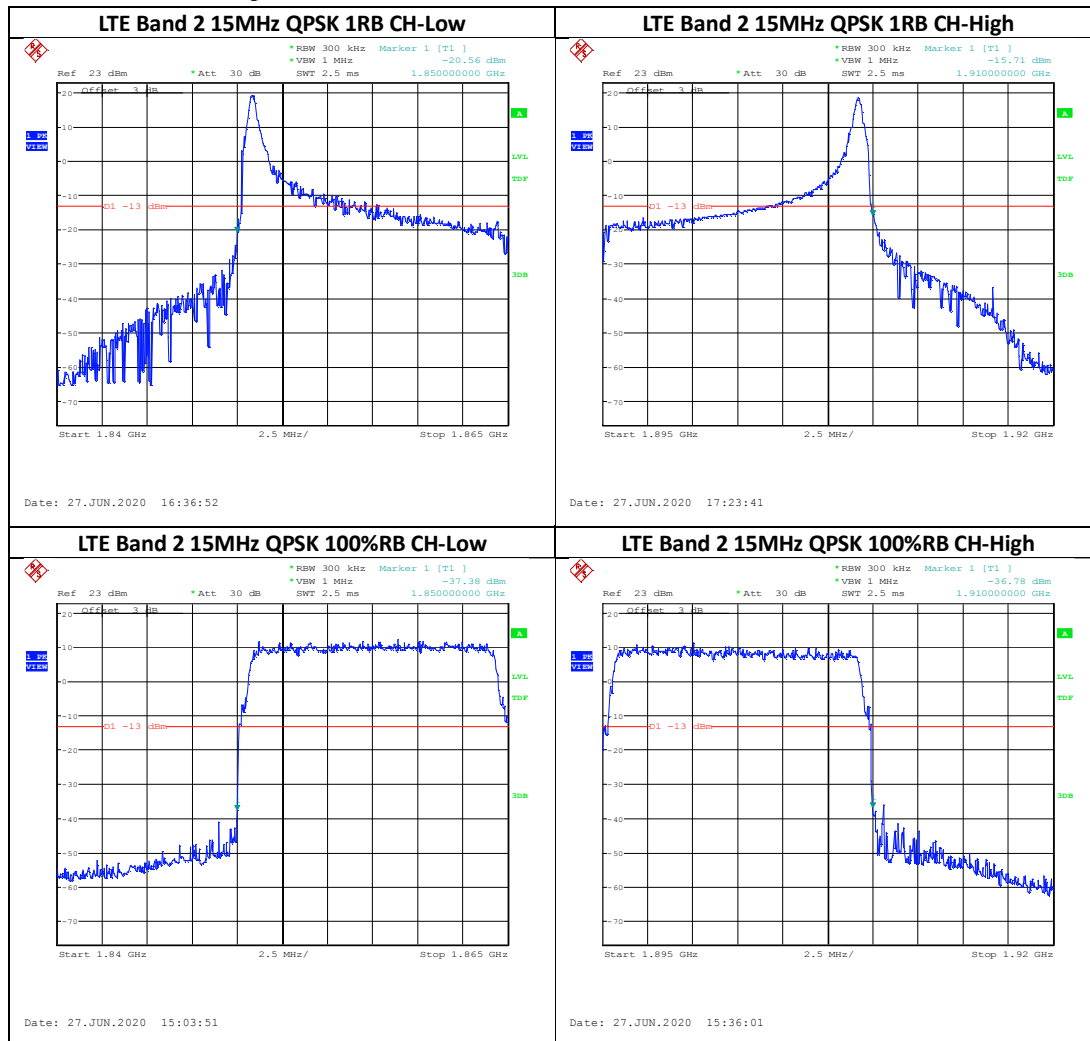


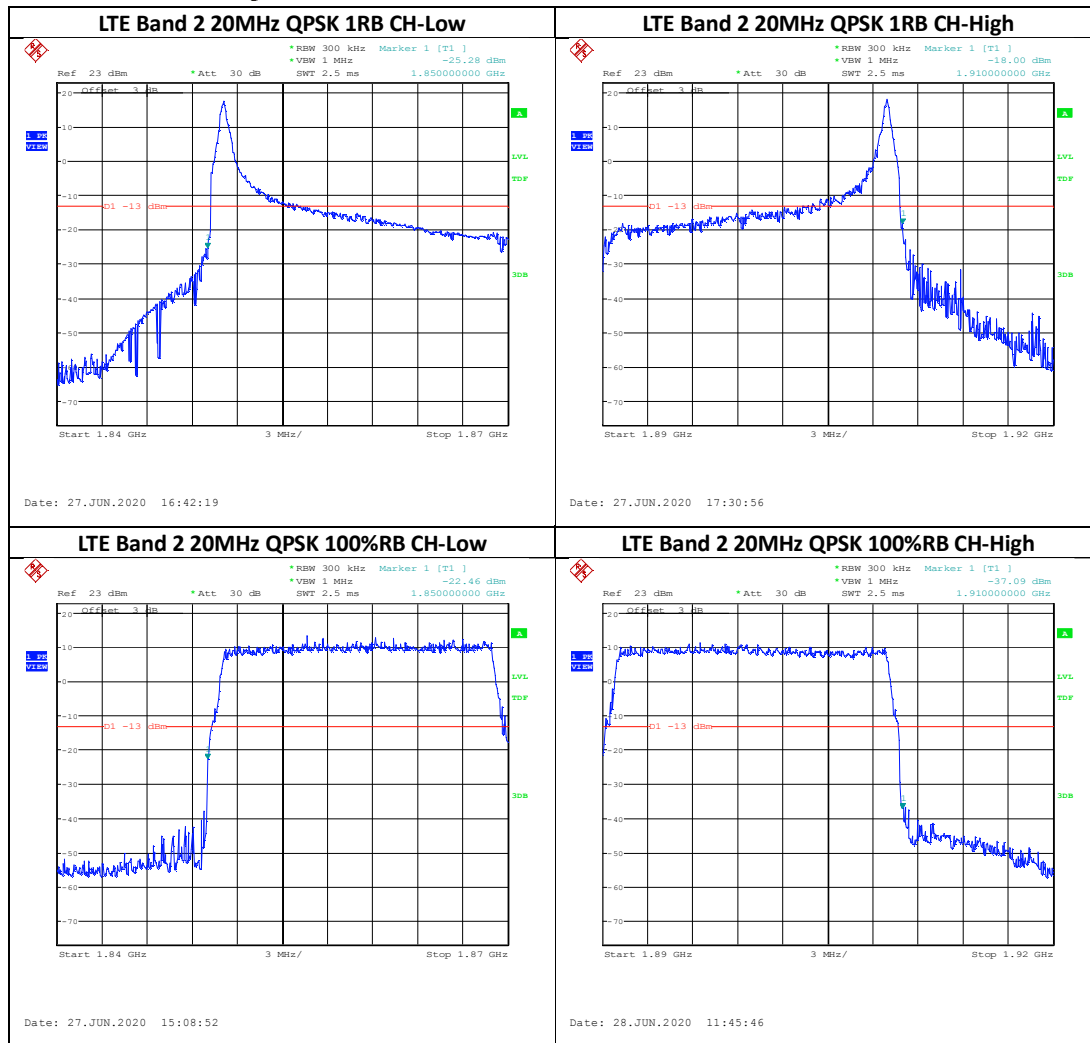


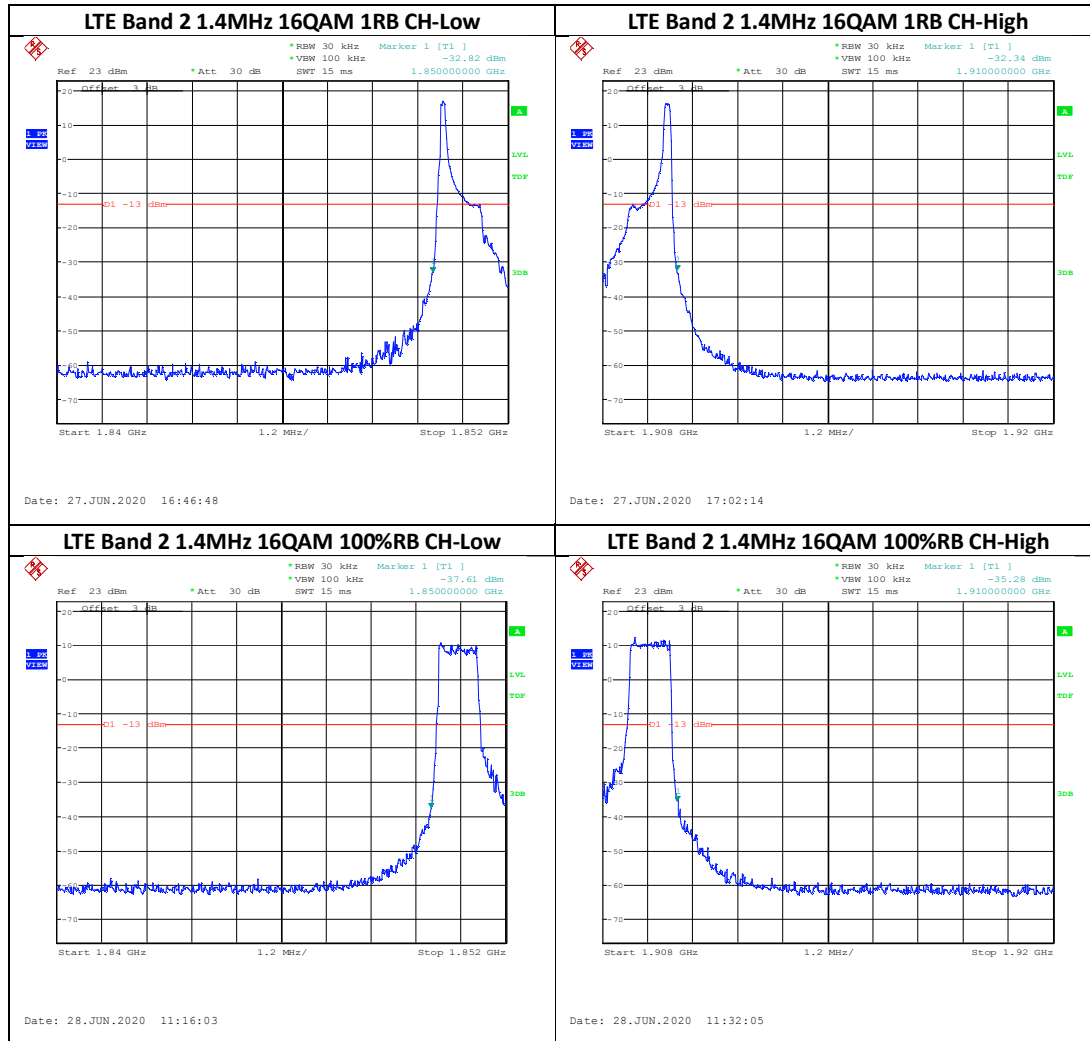


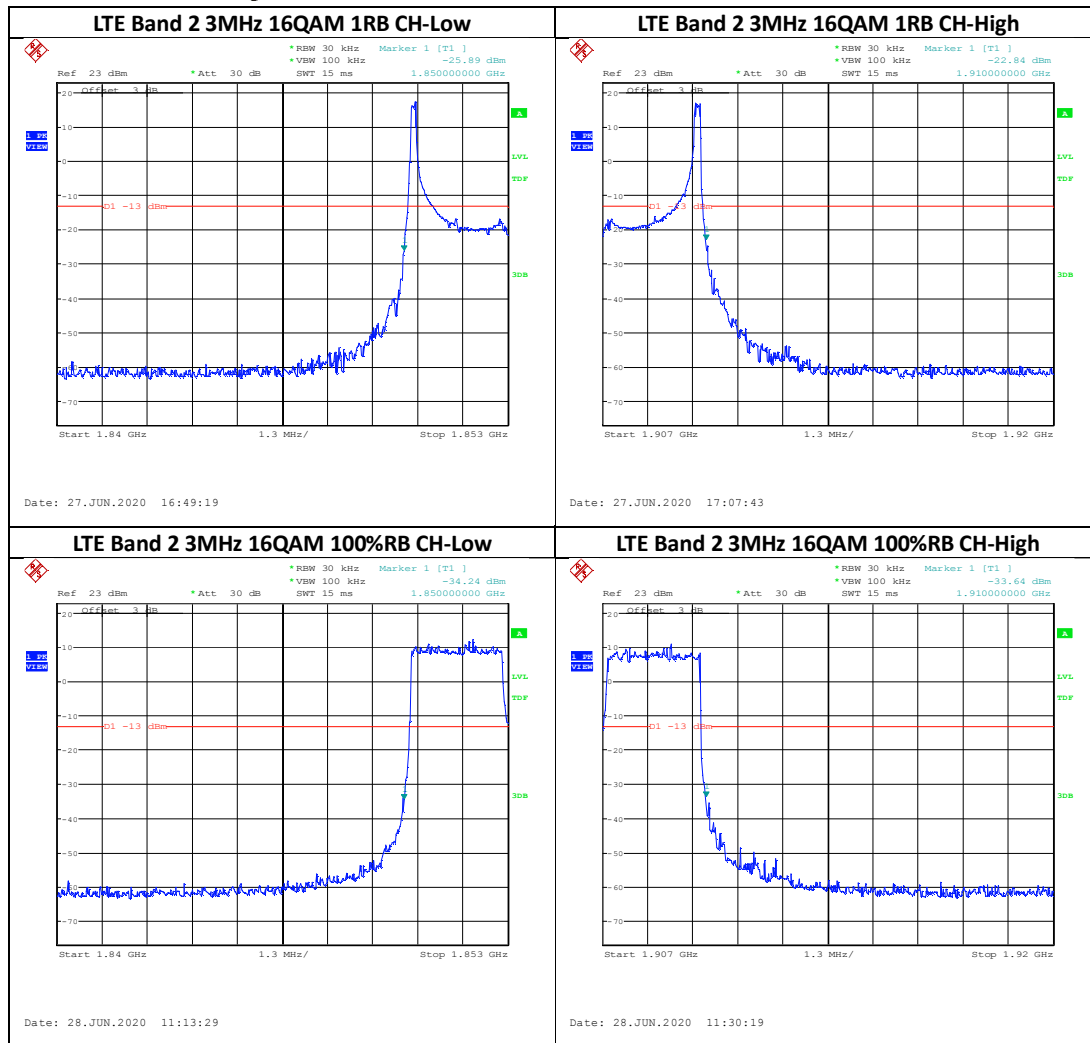


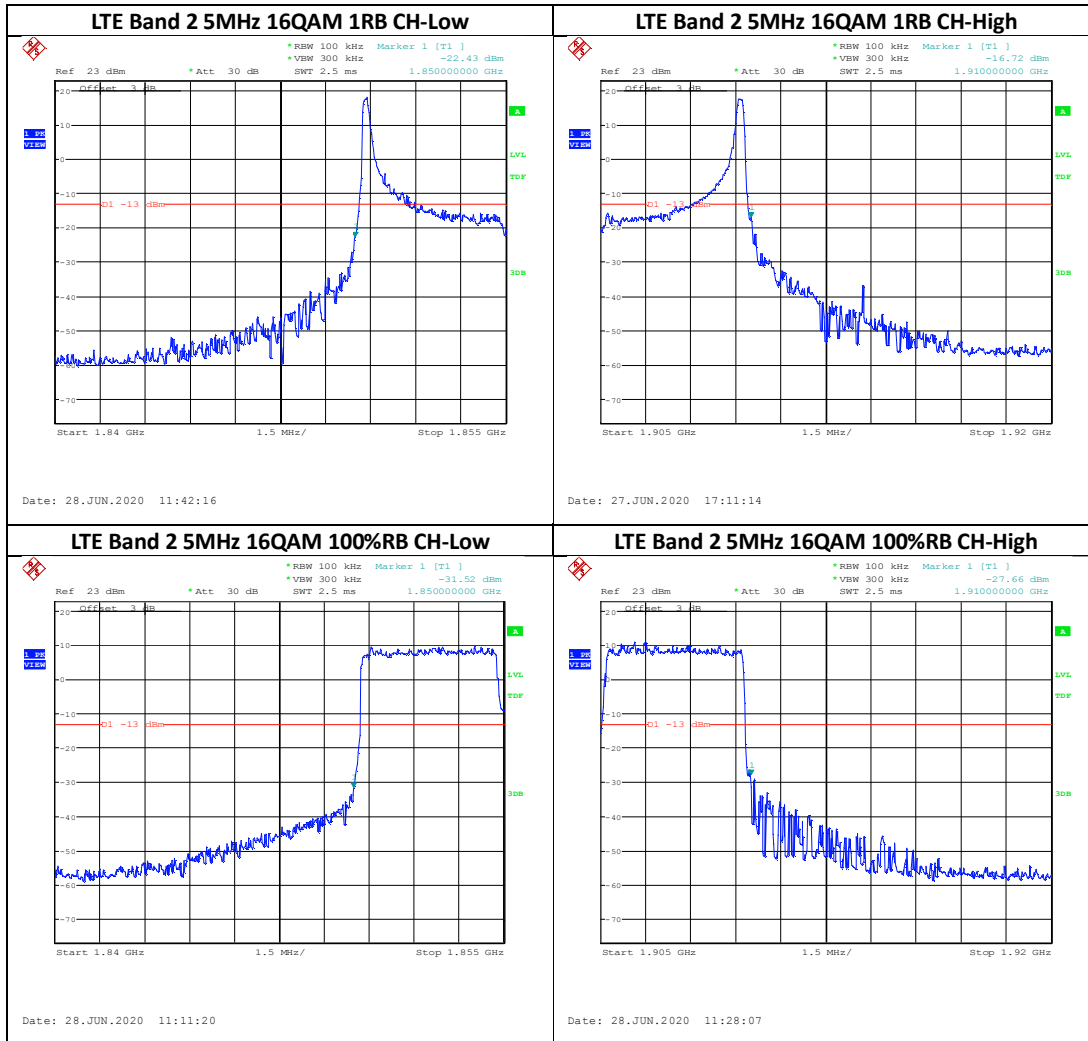


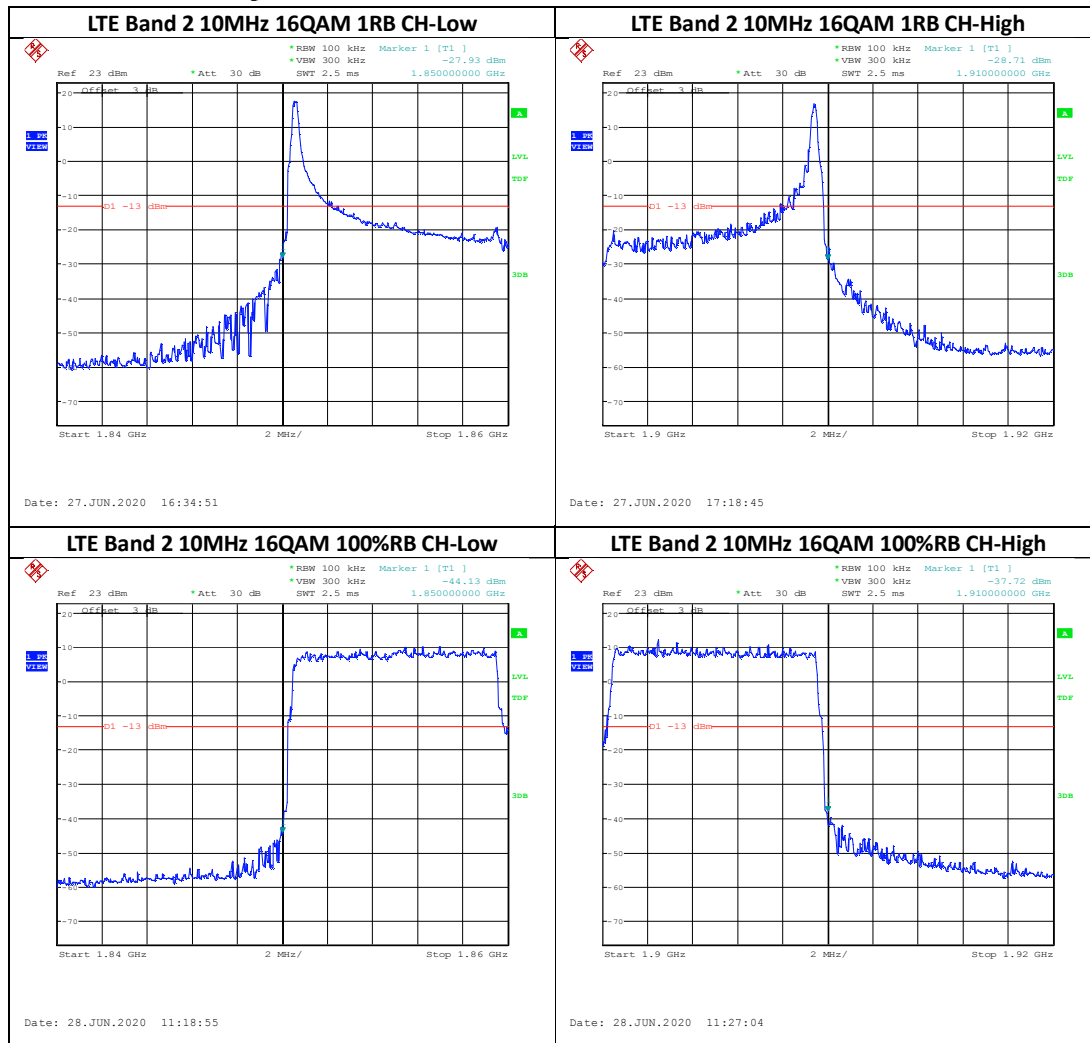


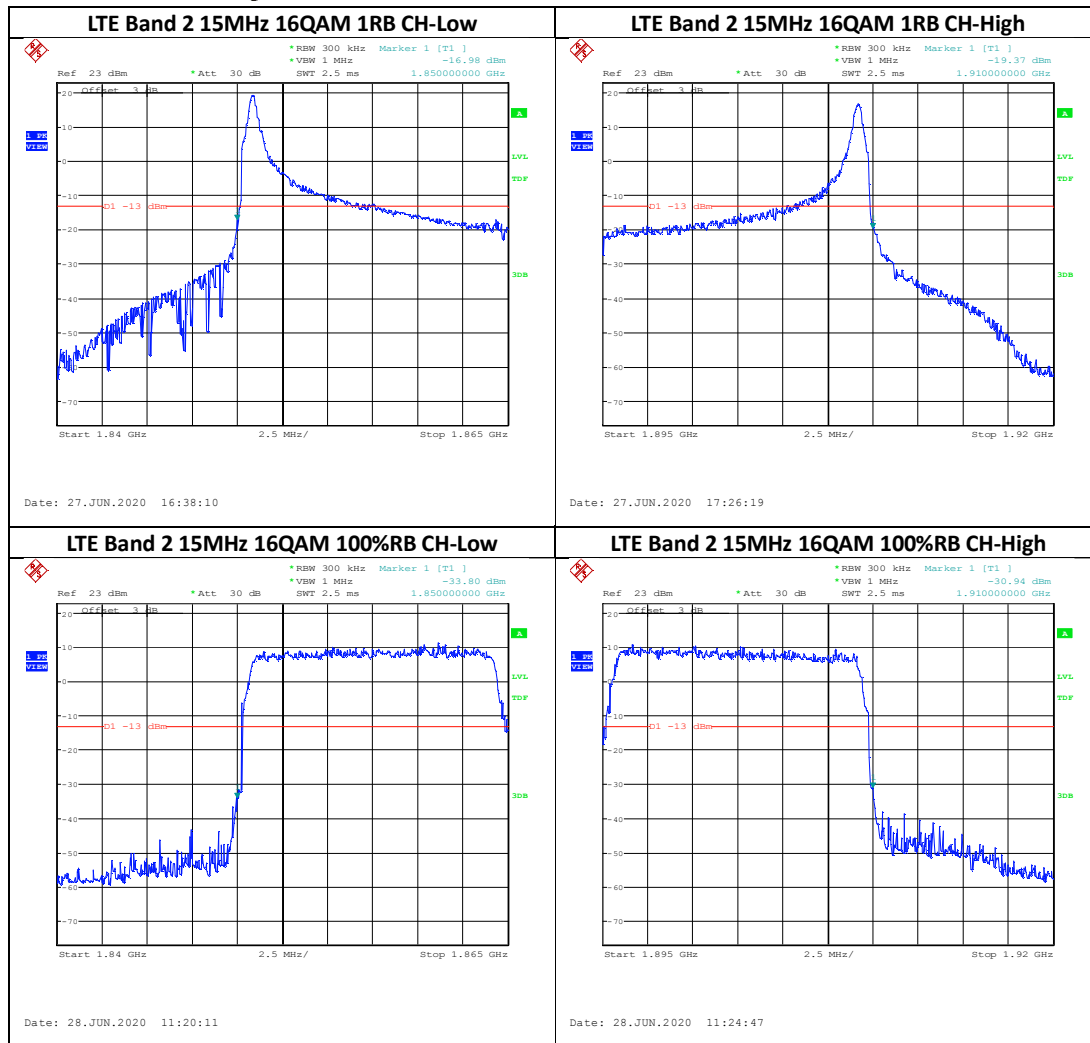


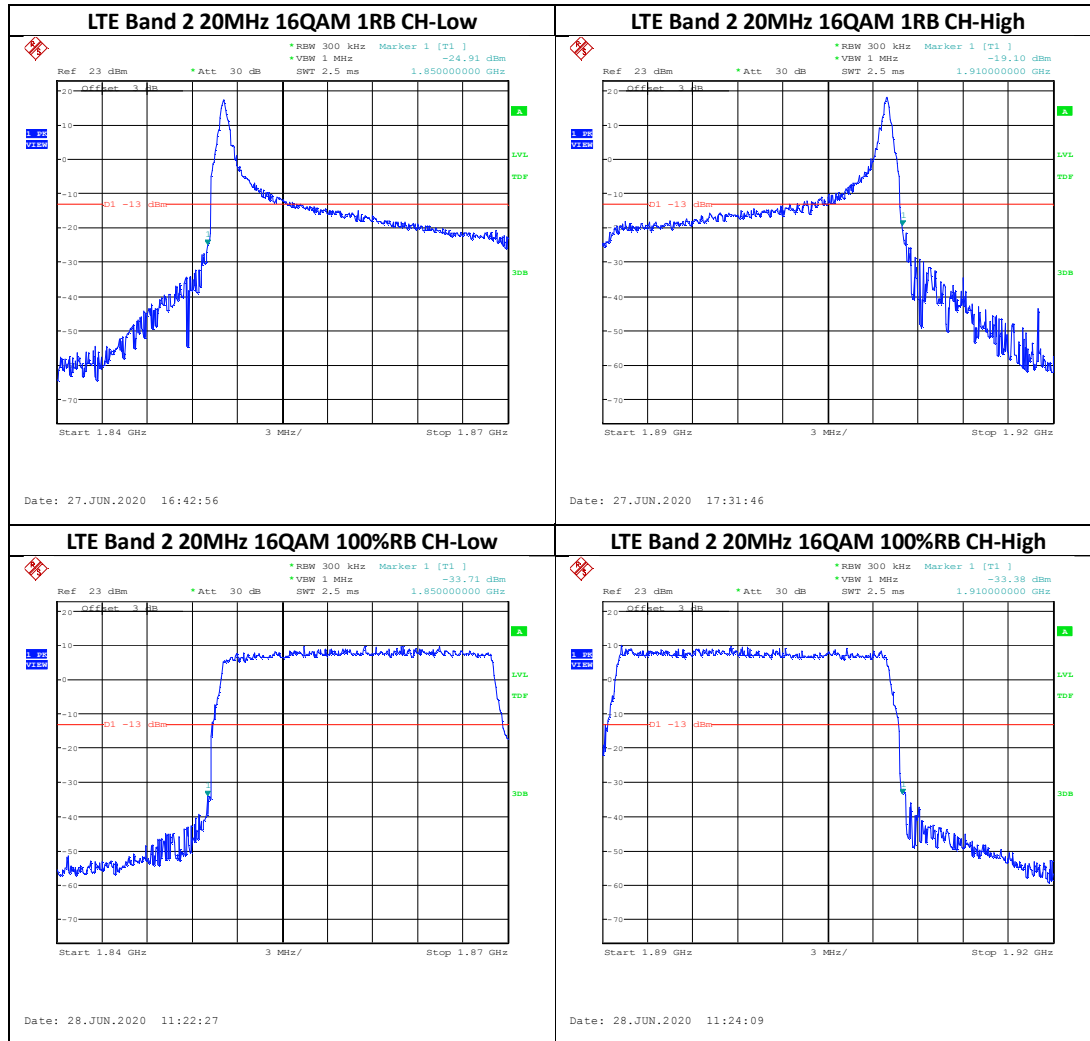


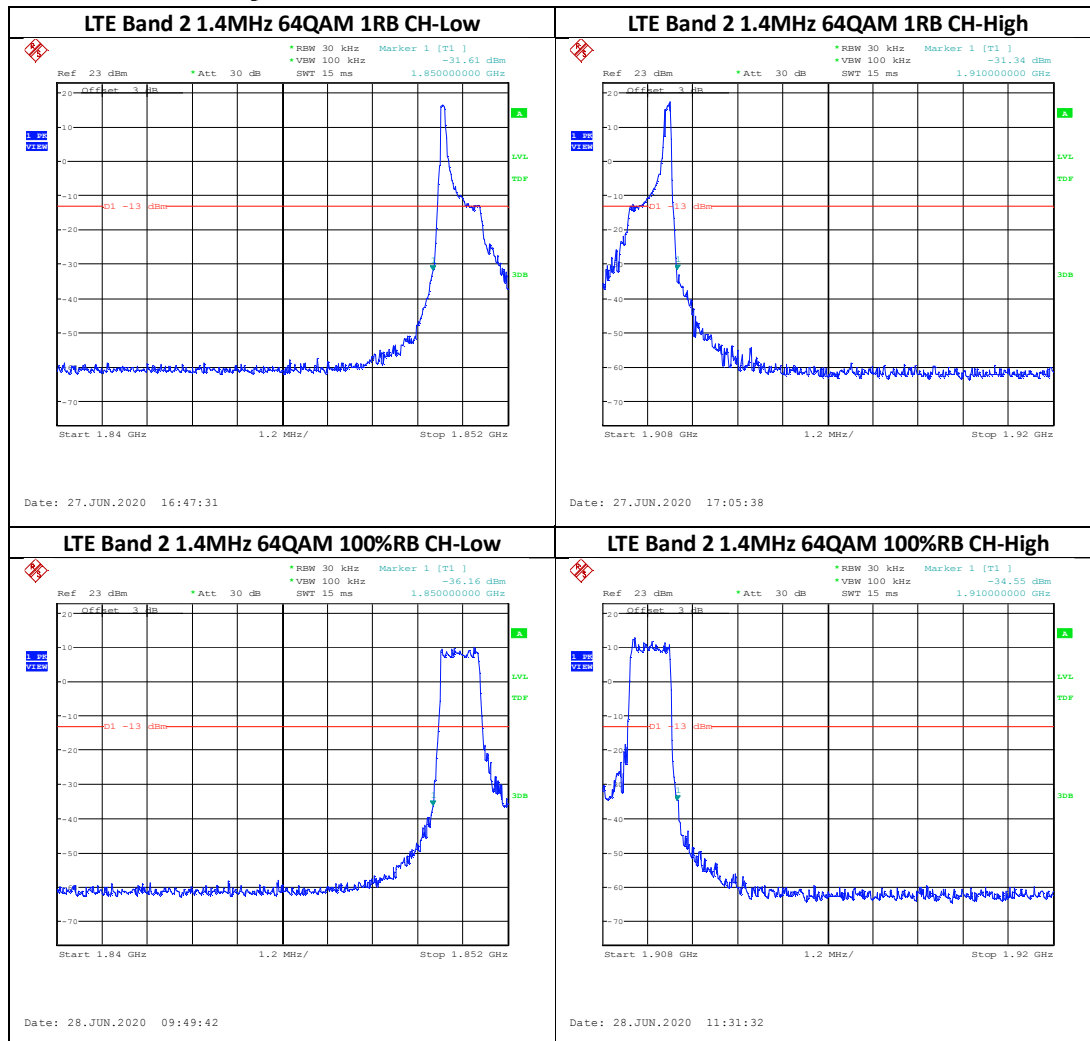


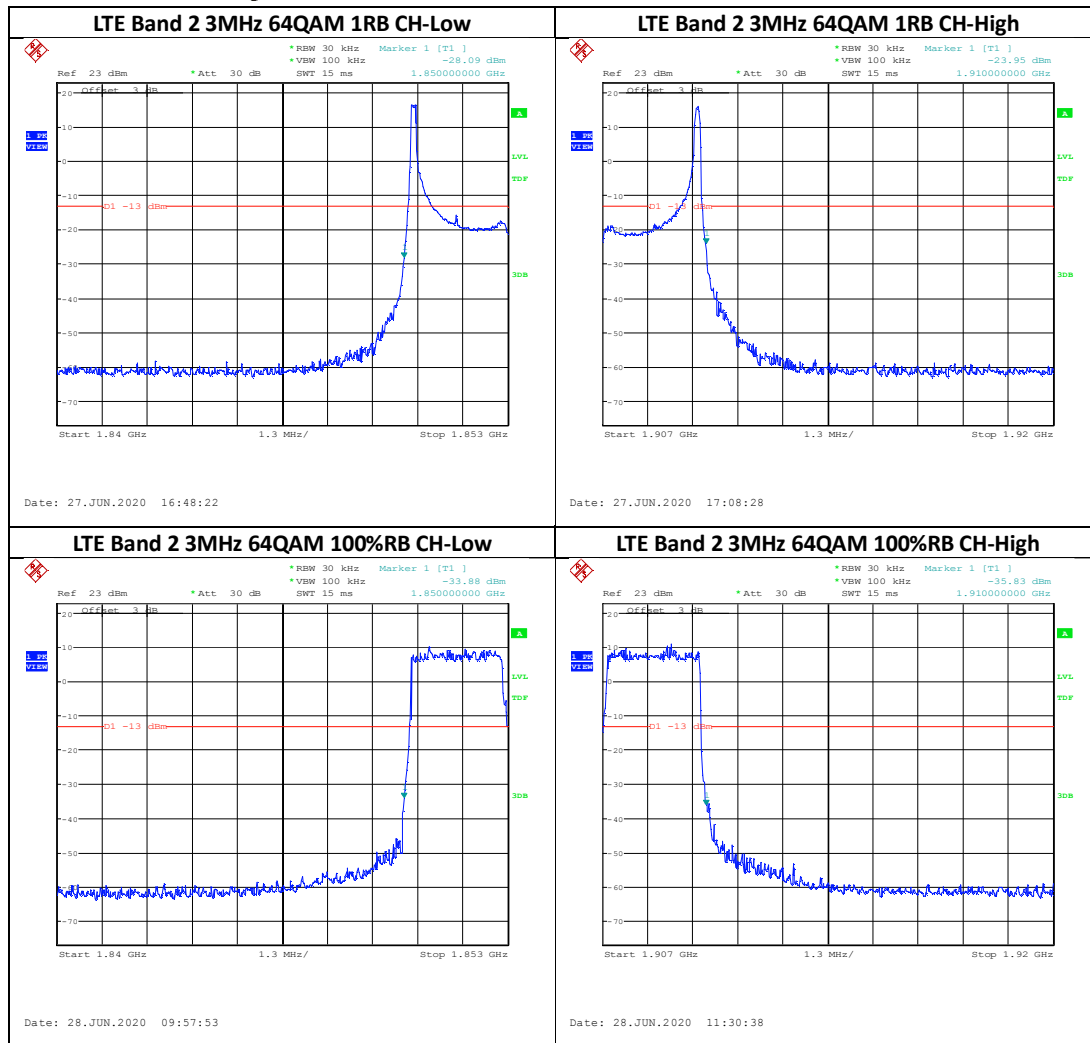


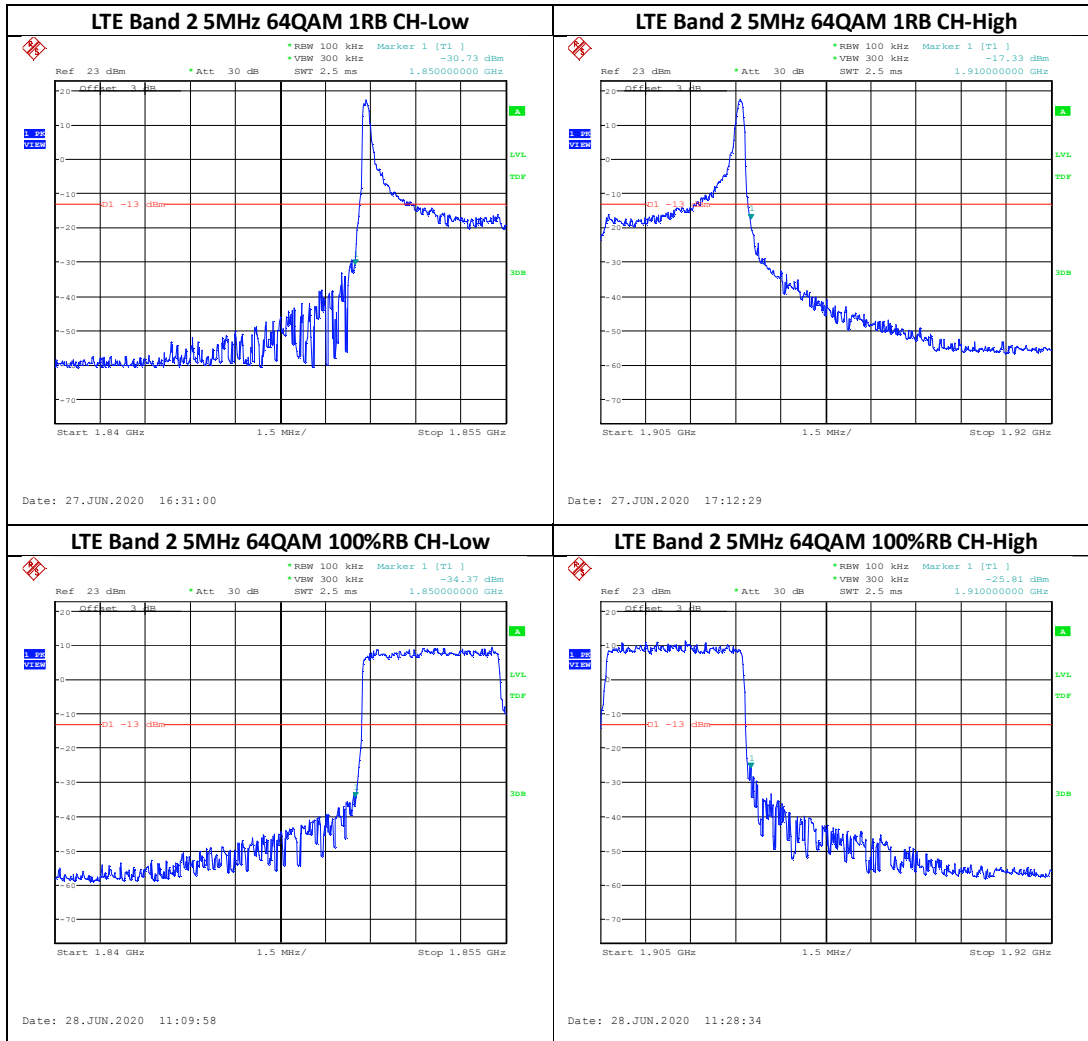


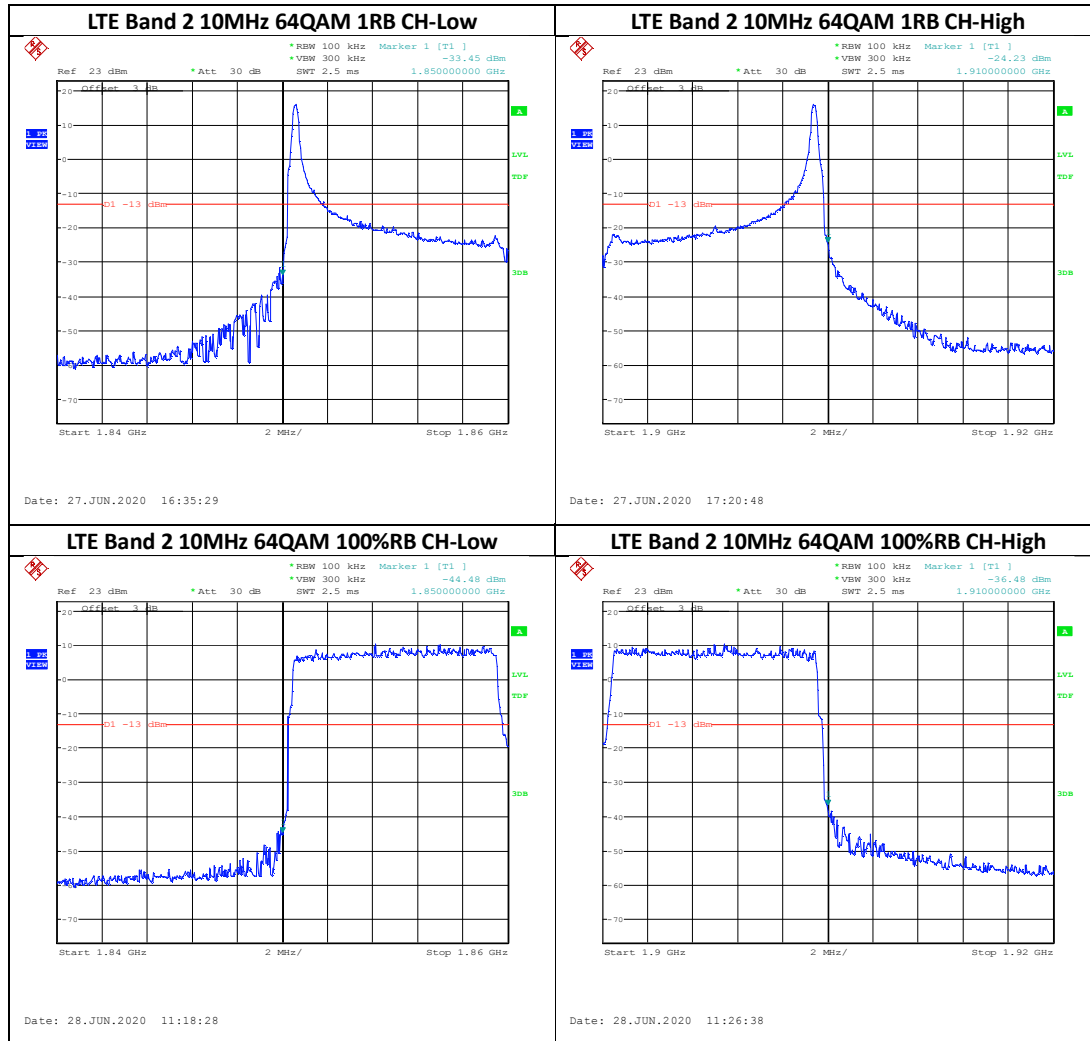


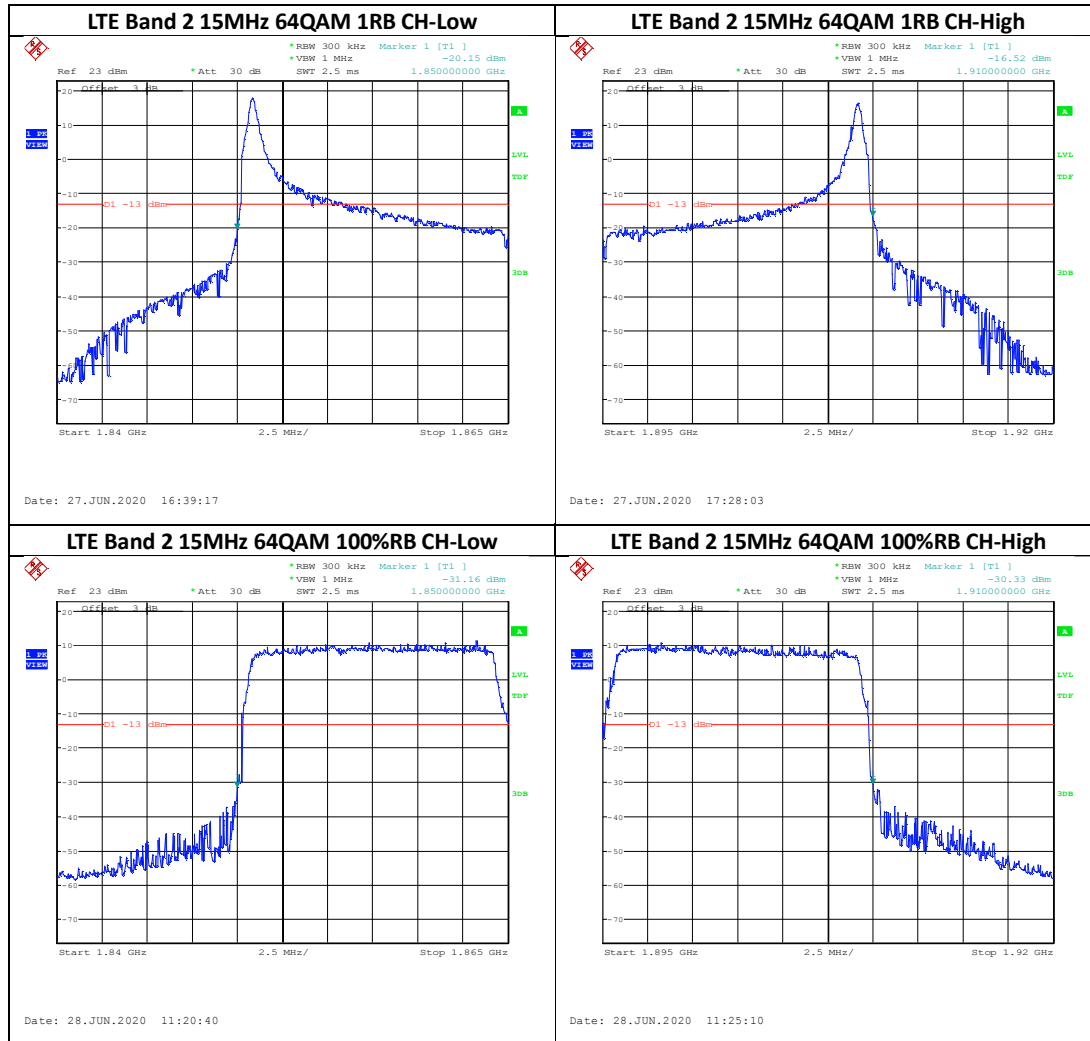


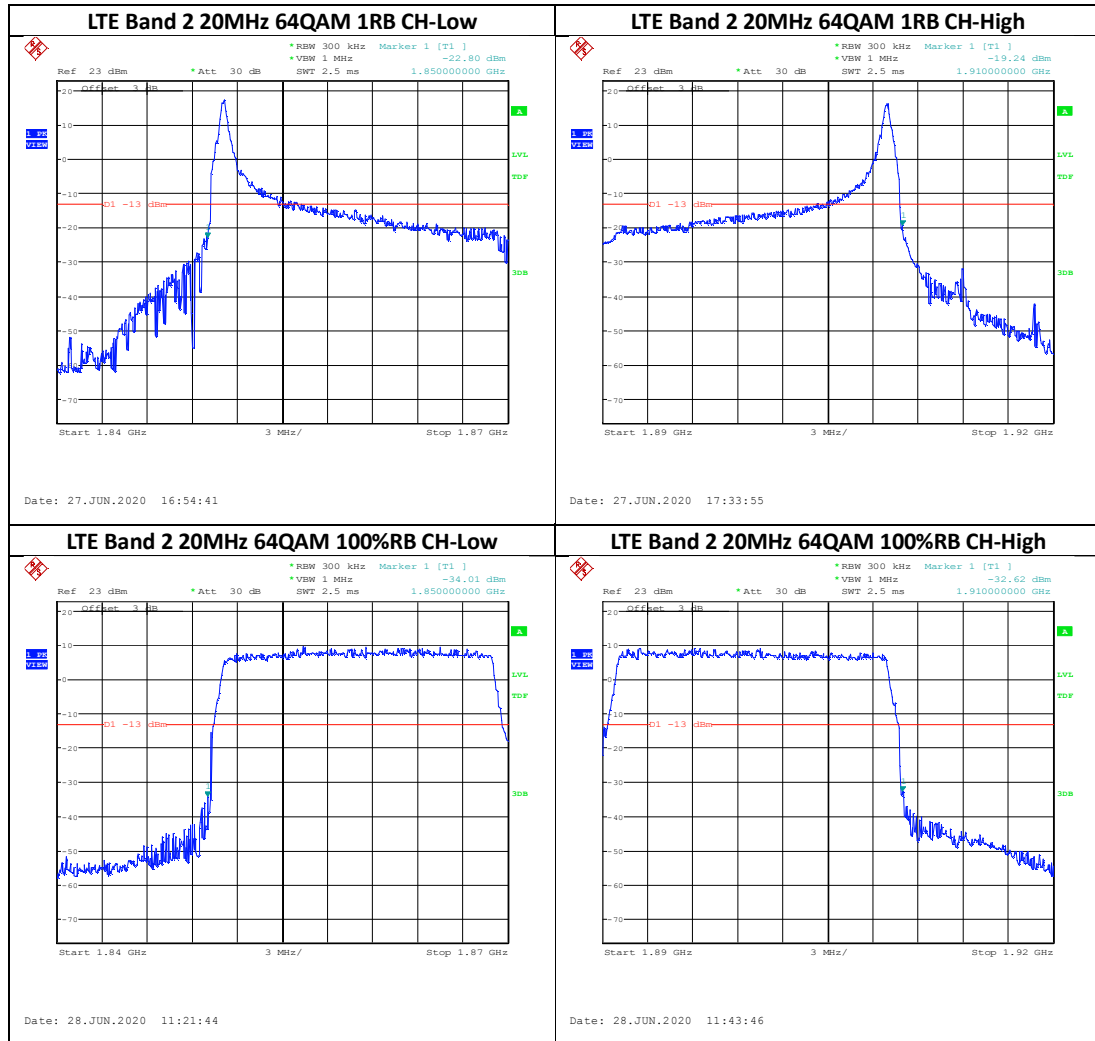














Ke Mei Ou Lab Corp.

AppendixE: Peak-to-Average Ratio

Test Result

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
GSM 1900MHz (GSM)	512	1850.2	7.68	13
	661	1880	7.72	13
	810	1909.8	7.56	13
GPRS 1900MHz (GMSK)	512	1850.2	7.72	13
	661	1880	7.56	13
	810	1909.8	7.64	13
EGPRS 1900 (8-PSK)	512	1850.2	10.40	13
	661	1880	10.48	13
	810	1909.8	10.52	13
WCDMA Band II (RMC)	9262	1852.4	3.04	13
	9400	1880	3.02	13
	9538	1907.6	3.04	13

LTE Band 2							
Modulation	Bandwidth (MHz)	RB	Channel	Frequency (MHz)	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
QPSK	20	1RB	18700	1860	-	13	PASS
			18900	1880	4.68	13	PASS
			19100	1900	-	13	PASS
		100%RB	18700	1860	-	13	PASS
			18900	1880	5.52	13	PASS
			19100	1900	-	13	PASS
16QAM	20	1RB	18700	1860	-	13	PASS
			18900	1880	5.72	13	PASS
			19100	1900	-	13	PASS
		100%RB	18700	1860	-	13	PASS
			18900	1880	6.40	13	PASS
			19100	1900	-	13	PASS
64QAM	20	1RB	18700	1860	-	13	PASS
			18900	1880	6.68	13	PASS
			19100	1900	-	13	PASS
		100%RB	18700	1860	-	13	PASS
			18900	1880	7.12	13	PASS
			19100	1900	-	13	PASS

AppendixF: Frequency Stability

Test Result

GSM1900						
Condition		Frequency Error (Hz)		Frequency Stability (ppm)		Verdict
Temperature	Voltage	GMSK	8PSK	GMSK	8PSK	
25℃	Normal	5.22	16.01	0.00278	0.00852	PASS
55℃		12.87	13.53	0.00685	0.00720	PASS
50℃		13.59	13.55	0.00723	0.00721	PASS
40℃		5.70	7.52	0.00303	0.00400	PASS
30℃		6.03	12.32	0.00321	0.00655	PASS
20℃		17.42	9.84	0.00927	0.00523	PASS
10℃		14.96	6.43	0.00796	0.00342	PASS
0℃		12.11	2.64	0.00644	0.00140	PASS
-10℃		11.59	13.76	0.00616	0.00732	PASS
-20℃		9.61	6.36	0.00511	0.00338	PASS
-30℃		10.29	16.27	0.00547	0.00865	PASS
25℃	LV	16.74	6.06	0.00890	0.00322	PASS
	HV	14.13	4.56	0.00752	0.00243	PASS

WCDMA Band II						
Condition		Frequency Error (Hz)		Frequency Stability (ppm)		Verdict
Temperature	Voltage	QPSK	BPSK	QPSK	BPSK	
25℃	Normal	9.33	9.01	0.00496	0.00479	PASS
55℃		11.08	16.73	0.00589	0.00890	PASS
50℃		6.15	7.95	0.00327	0.00423	PASS
40℃		3.56	5.67	0.00189	0.00302	PASS
30℃		19.64	11.18	0.01045	0.00595	PASS
20℃		13.41	18.02	0.00713	0.00959	PASS
10℃		6.64	4.97	0.00353	0.00264	PASS
0℃		16.43	5.28	0.00874	0.00281	PASS
-10℃		3.10	14.37	0.00165	0.00764	PASS
-20℃		6.46	13.91	0.00344	0.00740	PASS
-30℃		8.89	10.92	0.00473	0.00581	PASS
25℃	LV	19.23	13.86	0.01023	0.00737	PASS
	HV	11.47	12.98	0.00610	0.00690	PASS

LTE Band 2(BANDWIDTH, 1.4MHz)								
Condition		Frequency Error (Hz)			Frequency Stability (ppm)			Verdict
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
25℃	Normal	8.63	19.73	13.49	0.00459	0.01049	0.00718	PASS
55℃		11.62	5.36	14.99	0.00618	0.00285	0.00797	PASS
50℃		12.06	14.63	19.61	0.00641	0.00778	0.01043	PASS
40℃		13.42	5.71	7.16	0.00714	0.00304	0.00381	PASS
30℃		16.37	13.10	16.85	0.00871	0.00697	0.00896	PASS
20℃		16.93	10.41	15.98	0.00901	0.00554	0.00850	PASS
10℃		15.19	8.82	15.54	0.00808	0.00469	0.00827	PASS
0℃		10.74	16.14	16.13	0.00571	0.00859	0.00858	PASS
-10℃		16.64	5.86	19.91	0.00885	0.00312	0.01059	PASS
-20℃		10.66	11.14	4.41	0.00567	0.00593	0.00235	PASS
-30℃		5.29	7.46	12.49	0.00281	0.00397	0.00664	PASS
25℃	LV	12.50	8.06	5.39	0.00665	0.00429	0.00287	PASS
	HV	11.34	7.47	3.73	0.00603	0.00397	0.00198	PASS

LTE Band 2(BANDWIDTH, 3MHz)								
Condition		Frequency Error (Hz)			Frequency Stability (ppm)			Verdict
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
25℃	Normal	15.36	14.63	17.41	0.00817	0.00778	0.00926	PASS
55℃		12.58	6.01	9.53	0.00669	0.00320	0.00507	PASS
50℃		3.16	12.70	12.85	0.00168	0.00676	0.00684	PASS
40℃		11.81	11.67	8.48	0.00628	0.00621	0.00451	PASS
30℃		18.52	13.01	17.54	0.00985	0.00692	0.00933	PASS
20℃		19.40	11.45	14.02	0.01032	0.00609	0.00746	PASS
10℃		6.37	17.07	15.16	0.00339	0.00908	0.00806	PASS
0℃		16.64	6.43	5.80	0.00885	0.00342	0.00309	PASS
-10℃		4.50	3.49	8.04	0.00239	0.00186	0.00428	PASS
-20℃		5.95	15.27	5.10	0.00316	0.00812	0.00271	PASS
-30℃		16.26	13.00	18.11	0.00865	0.00691	0.00963	PASS
25℃	LV	14.78	7.07	18.27	0.00786	0.00376	0.00972	PASS
	HV	15.55	11.19	18.28	0.00827	0.00595	0.00972	PASS

LTE Band 2(BANDWIDTH, 5MHz)								
Condition		Frequency Error (Hz)			Frequency Stability (ppm)			Verdict
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
25℃	Normal	14.52	8.87	16.20	0.00772	0.00472	0.00862	PASS
55℃		6.70	9.40	4.88	0.00356	0.00500	0.00260	PASS
50℃		12.25	6.20	15.69	0.00652	0.00330	0.00835	PASS
40℃		15.01	10.43	2.54	0.00798	0.00555	0.00135	PASS
30℃		14.26	2.43	15.67	0.00759	0.00129	0.00834	PASS
20℃		15.88	4.99	15.78	0.00845	0.00265	0.00839	PASS
10℃		9.20	19.84	19.26	0.00489	0.01055	0.01024	PASS
0℃		13.68	10.09	16.87	0.00728	0.00537	0.00897	PASS
-10℃		14.01	6.47	8.05	0.00745	0.00344	0.00428	PASS
-20℃		4.60	2.11	10.06	0.00245	0.00112	0.00535	PASS
-30℃		7.73	2.79	11.29	0.00411	0.00148	0.00601	PASS
25℃	LV	12.00	14.44	8.83	0.00638	0.00768	0.00470	PASS
	HV	7.71	3.65	11.89	0.00410	0.00194	0.00632	PASS

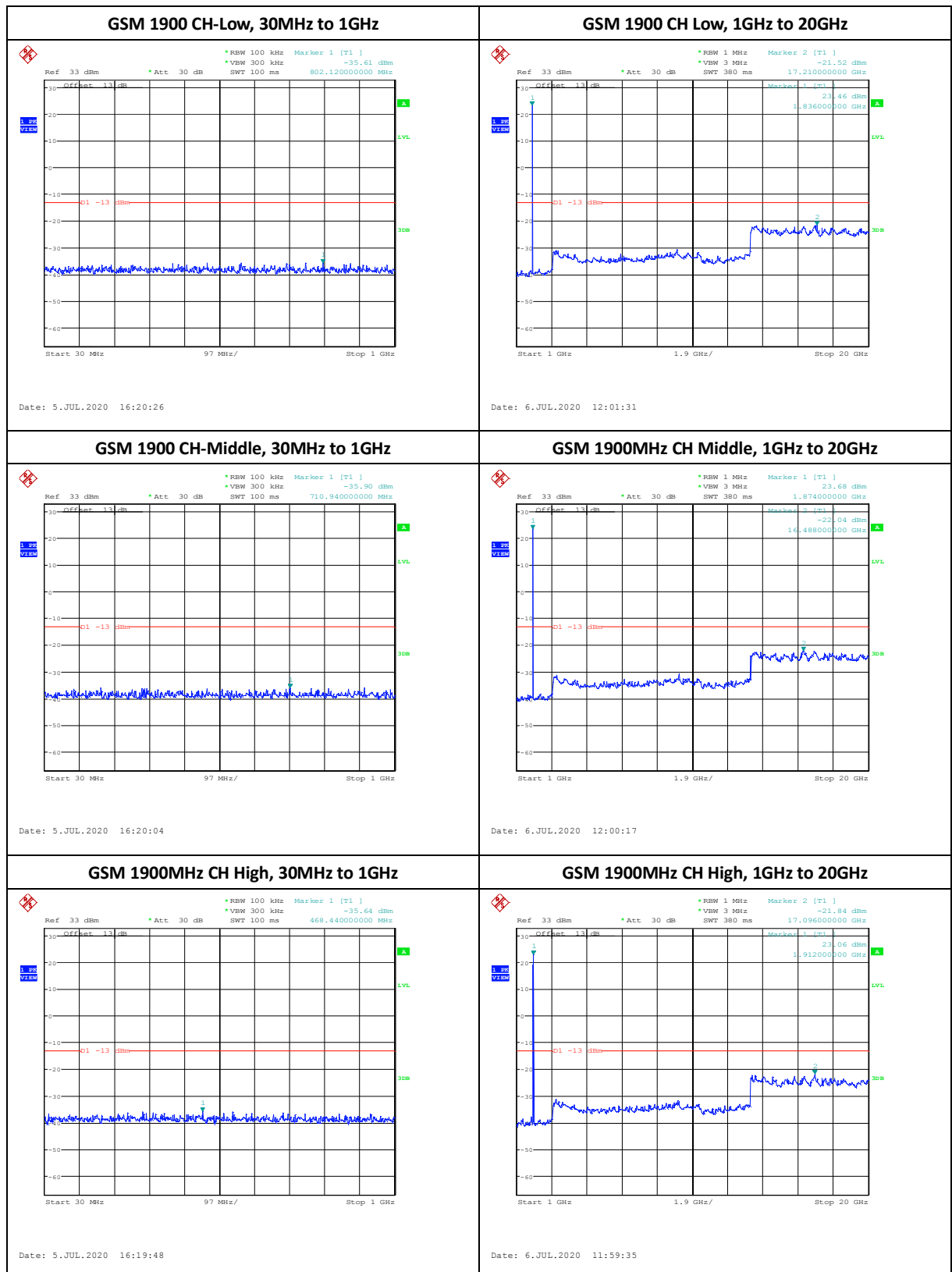
LTE Band 2(BANDWIDTH, 10MHz)								
Condition		Frequency Error (Hz)			Frequency Stability (ppm)			Verdict
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
25℃	Normal	10.02	10.95	10.27	0.00533	0.00582	0.00546	PASS
55℃		15.09	2.11	7.93	0.00803	0.00112	0.00422	PASS
50℃		11.73	7.10	16.81	0.00624	0.00378	0.00894	PASS
40℃		18.78	7.07	15.45	0.00999	0.00376	0.00822	PASS
30℃		19.87	11.76	17.14	0.01057	0.00626	0.00912	PASS
20℃		6.14	5.33	5.20	0.00327	0.00284	0.00277	PASS
10℃		14.18	13.82	2.72	0.00754	0.00735	0.00145	PASS
0℃		19.56	16.48	17.81	0.01040	0.00877	0.00947	PASS
-10℃		3.59	4.32	14.37	0.00191	0.00230	0.00764	PASS
-20℃		12.44	14.06	4.89	0.00662	0.00748	0.00260	PASS
-30℃		4.99	2.08	6.00	0.00265	0.00111	0.00319	PASS
25℃	LV	18.83	15.93	3.00	0.01002	0.00847	0.00160	PASS
	HV	8.08	5.25	13.36	0.00430	0.00279	0.00711	PASS

LTE Band 2(BANDWIDTH, 15MHz)								
Condition		Frequency Error (Hz)			Frequency Stability (ppm)			Verdict
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
25℃	Normal	13.31	4.61	18.91	0.00708	0.00245	0.01006	PASS
55℃		10.90	10.03	11.37	0.00580	0.00534	0.00605	PASS
50℃		14.60	19.06	4.28	0.00777	0.01014	0.00228	PASS
40℃		14.65	6.42	15.83	0.00779	0.00341	0.00842	PASS
30℃		17.34	15.73	5.02	0.00922	0.00837	0.00267	PASS
20℃		6.67	4.58	11.21	0.00355	0.00244	0.00596	PASS
10℃		9.40	7.28	9.41	0.00500	0.00387	0.00501	PASS
0℃		4.94	11.28	11.33	0.00263	0.00600	0.00603	PASS
-10℃		7.15	12.03	19.24	0.00380	0.00640	0.01023	PASS
-20℃		11.70	14.99	11.44	0.00622	0.00797	0.00609	PASS
-30℃		9.77	7.68	16.08	0.00520	0.00409	0.00855	PASS
25℃	LV	6.02	17.01	9.75	0.00320	0.00905	0.00519	PASS
	HV	3.71	15.47	15.31	0.00197	0.00823	0.00814	PASS

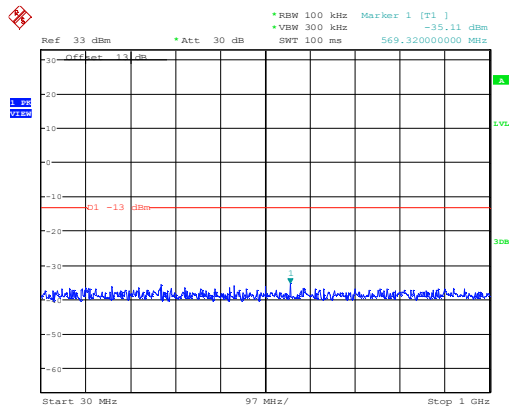
LTE Band 2(BANDWIDTH, 20MHz)								
Condition		Frequency Error (Hz)			Frequency Stability (ppm)			Verdict
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
25℃	Normal	8.37	8.98	2.72	0.00445	0.00478	0.00145	PASS
55℃		3.60	15.15	15.52	0.00191	0.00806	0.00826	PASS
50℃		18.58	10.27	6.32	0.00988	0.00546	0.00336	PASS
40℃		7.52	4.66	16.39	0.00400	0.00248	0.00872	PASS
30℃		9.40	18.55	10.58	0.00500	0.00987	0.00563	PASS
20℃		9.21	6.88	3.61	0.00490	0.00366	0.00192	PASS
10℃		13.09	17.05	13.31	0.00696	0.00907	0.00708	PASS
0℃		11.00	16.57	17.41	0.00585	0.00881	0.00926	PASS
-10℃		12.40	2.60	14.70	0.00660	0.00138	0.00782	PASS
-20℃		3.17	11.80	2.61	0.00169	0.00628	0.00139	PASS
-30℃		13.94	4.97	16.48	0.00741	0.00264	0.00877	PASS
25℃	LV	8.95	4.03	3.17	0.00476	0.00214	0.00169	PASS
	HV	10.48	17.91	5.32	0.00557	0.00953	0.00283	PASS

AppendixG: Conducted Spurious Emission Measurement

Test Result

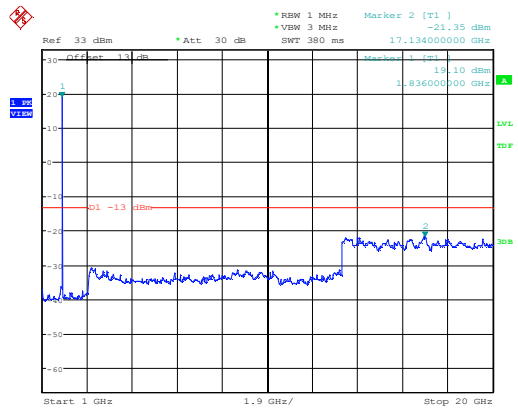


WCDMA Band II CH Low, 30MHz to 1GHz



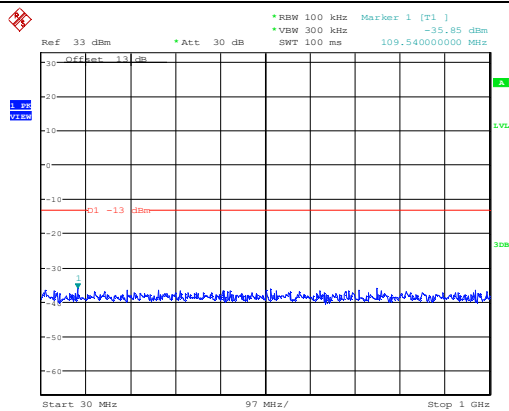
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WCDMA Band II CH Low, 1GHz to 20GHz



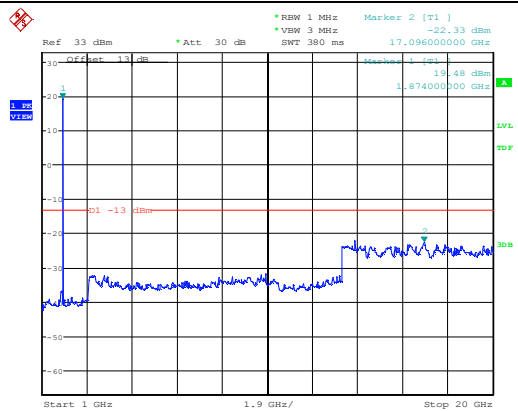
Date: 6.JUL.2020 12:10:49

WCDMA Band II CH Middle, 30MHz to 1GHz



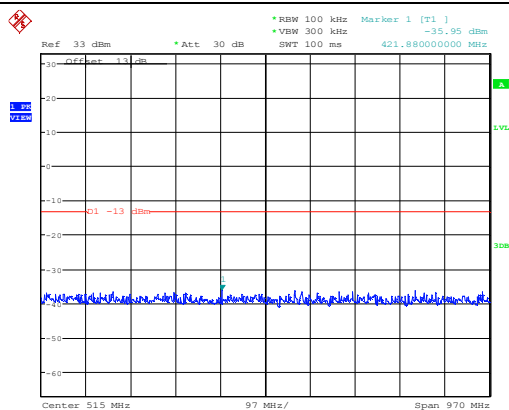
Date: 5.JUL.2020 17:11:47

WCDMA Band II CH Middle, 1GHz to 20GHz



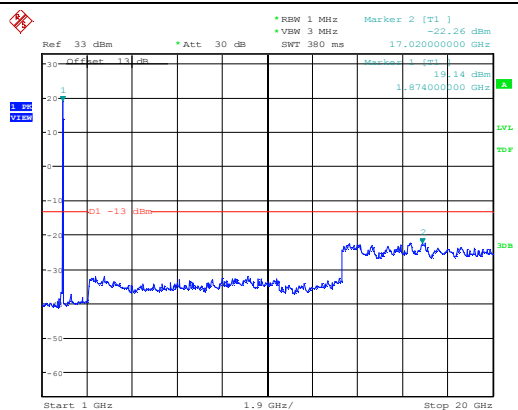
Date: 6.JUL.2020 12:12:47

WCDMA Band II CH High, 30MHz to 1GHz

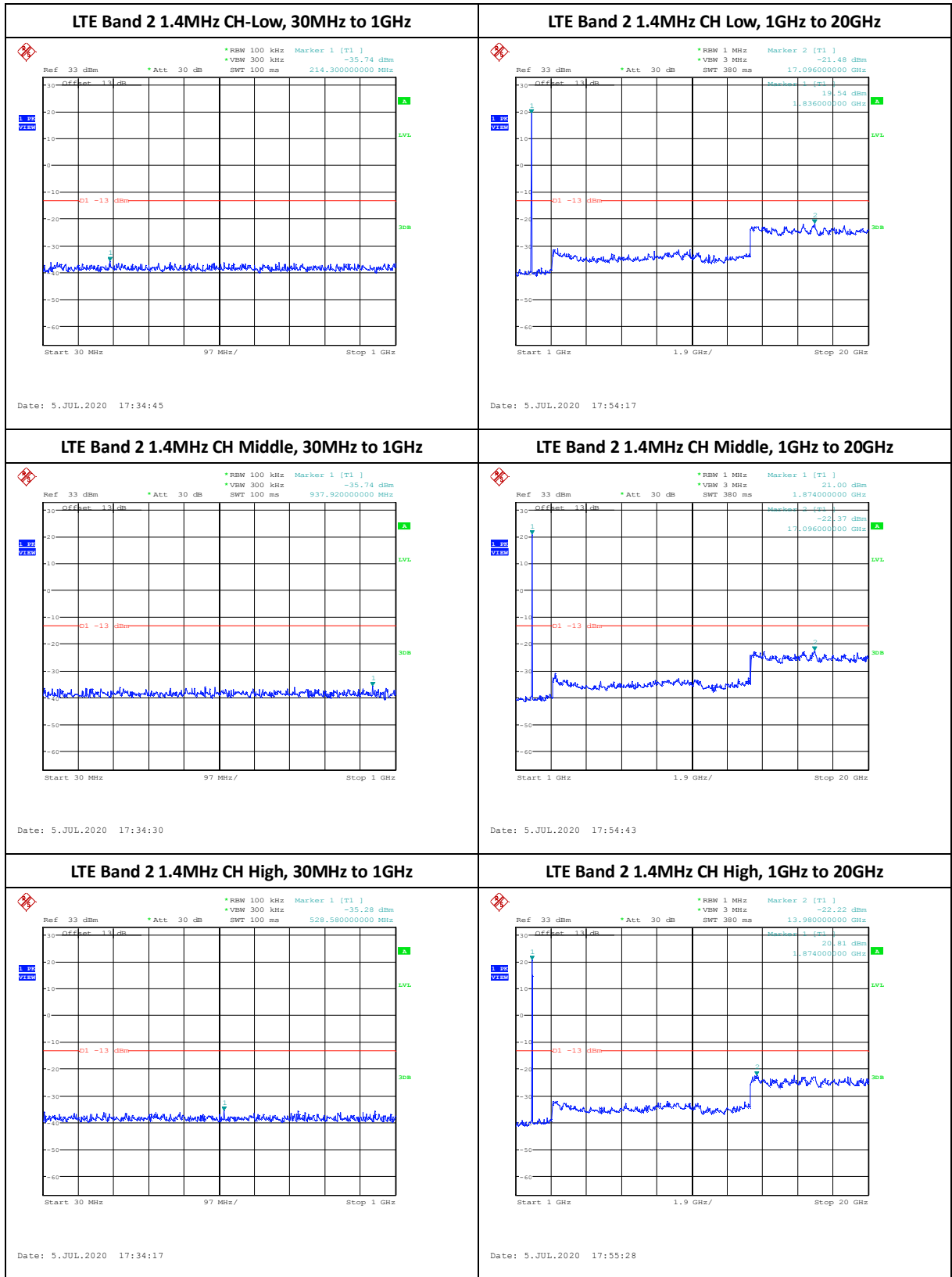


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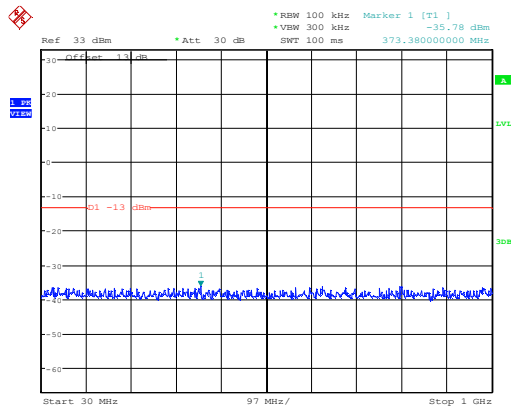
WCDMA Band II CH High, 1GHz to 20GHz



Date: 6.JUL.2020 12:13:17

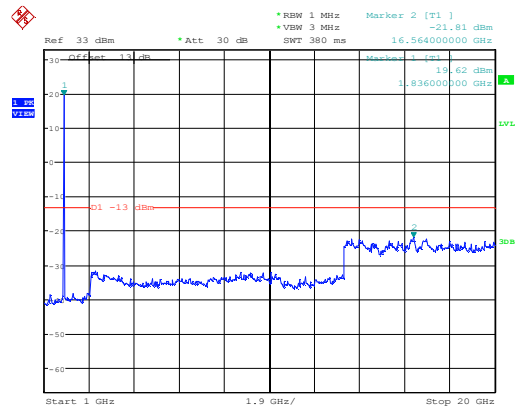


LTE Band 2 3MHz CH Low, 30MHz to 1GHz



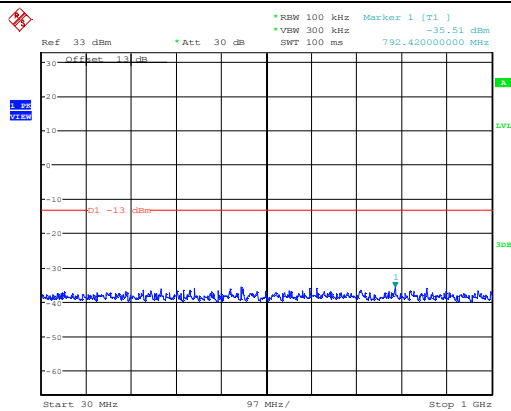
Date: 5.JUL.2020 17:34:01

LTE Band 2 3MHz CH Low, 1GHz to 20GHz



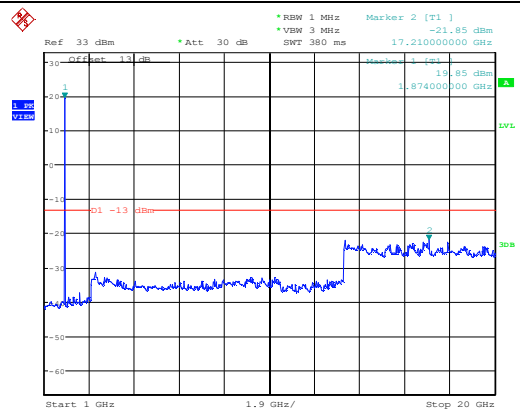
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LTE Band 2 3MHz CH Middle, 30MHz to 1GHz



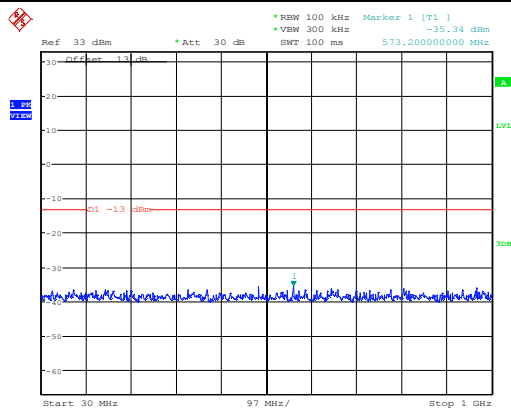
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LTE Band 2 3MHz CH Middle, 1GHz to 20GHz



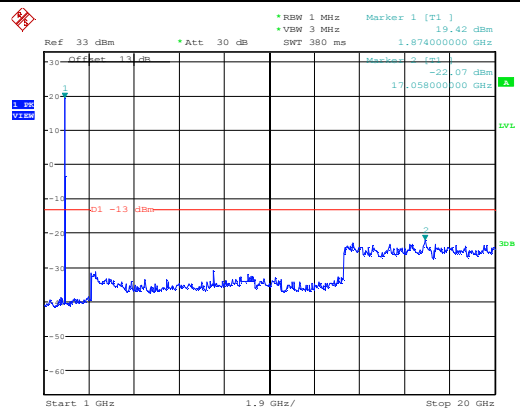
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LTE Band 2 3MHz CH High, 30MHz to 1GHz

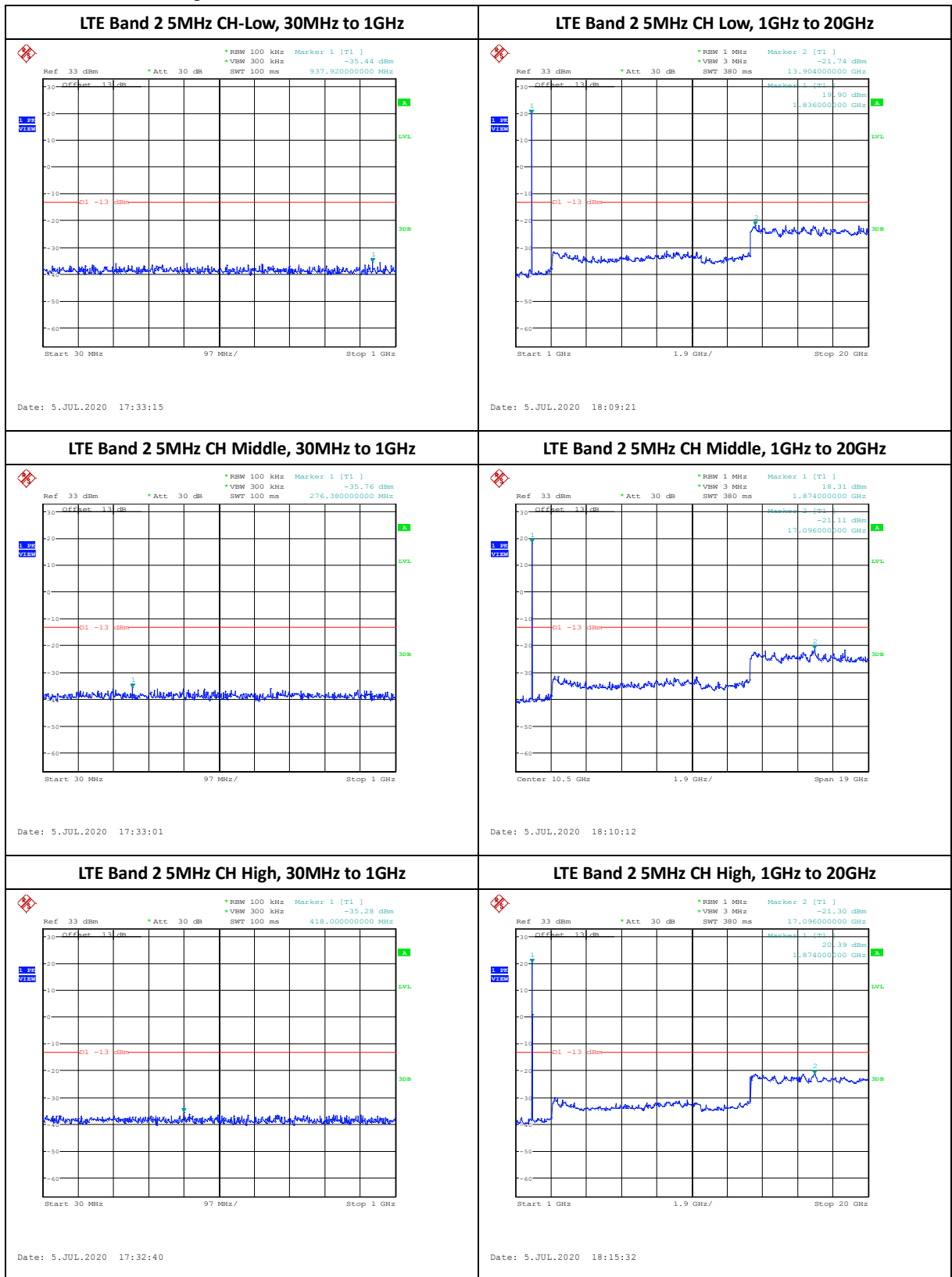


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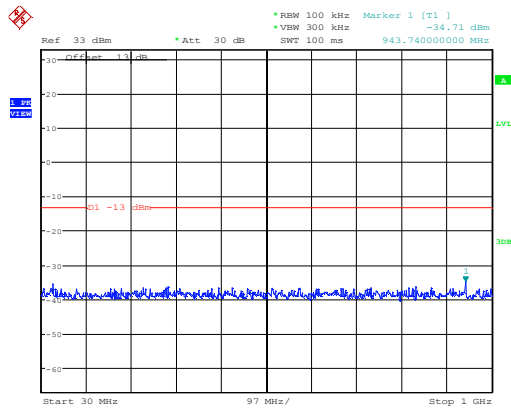
LTE Band 2 3MHz CH High, 1GHz to 20GHz



Date: 5.JUL.2020 17:58:20

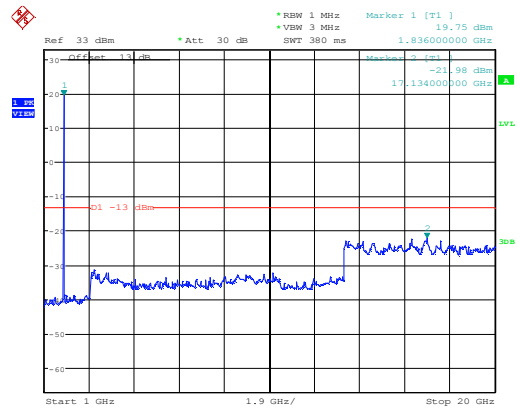


LTE Band 2 10MHz CH-Low, 30MHz to 1GHz



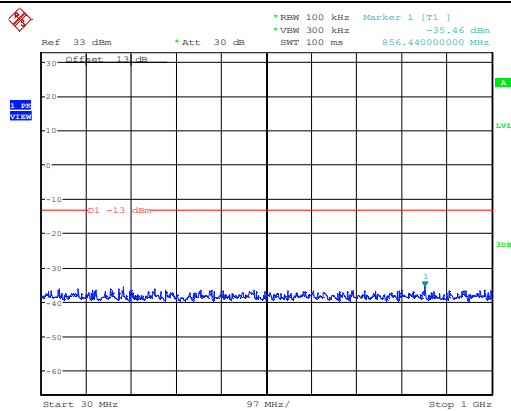
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LTE Band 2 10MHz CH Low, 1GHz to 20GHz



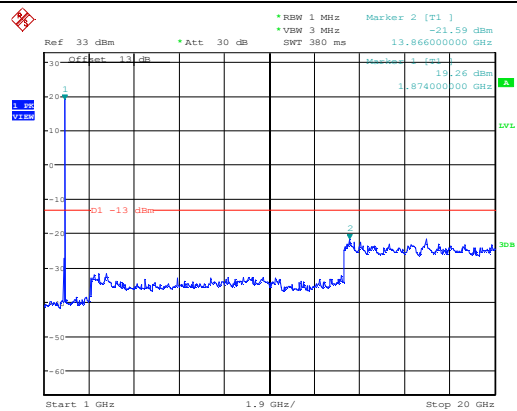
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LTE Band 2 10MHz CH Middle, 30MHz to 1GHz



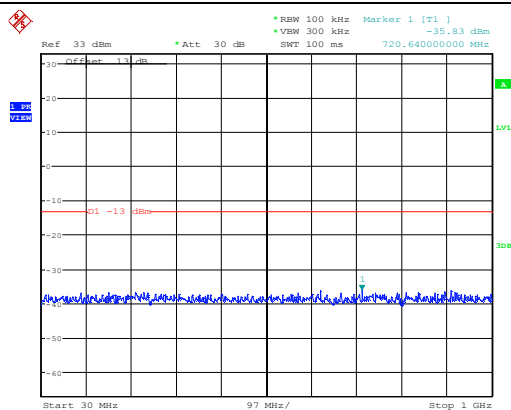
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LTE Band 2 10MHz CH Middle, 1GHz to 20GHz



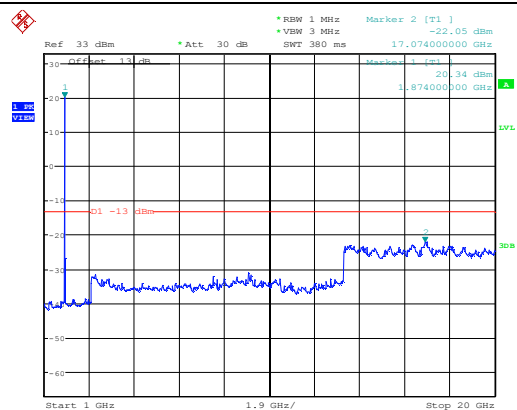
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LTE Band 2 10MHz CH High, 30MHz to 1GHz

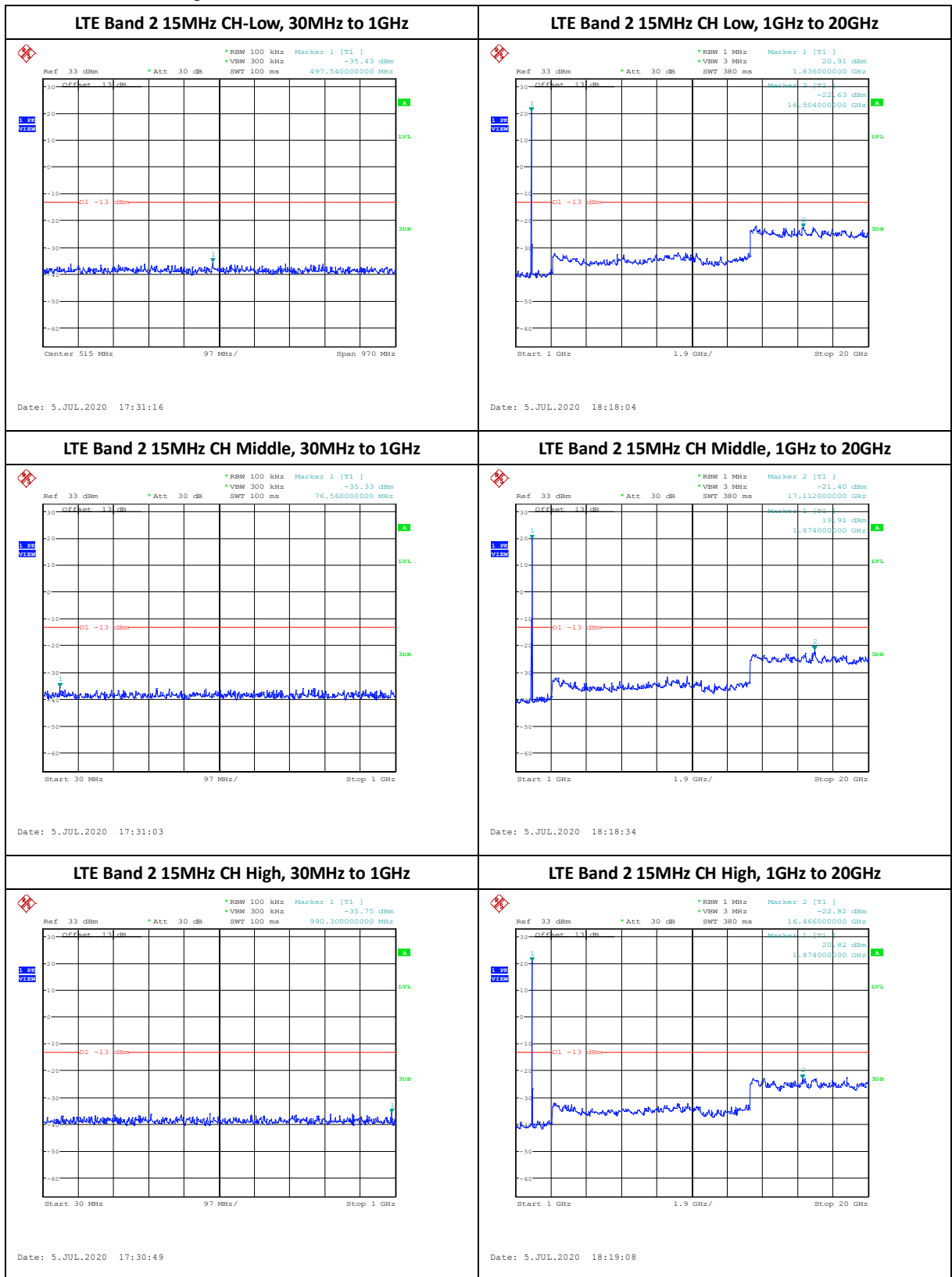


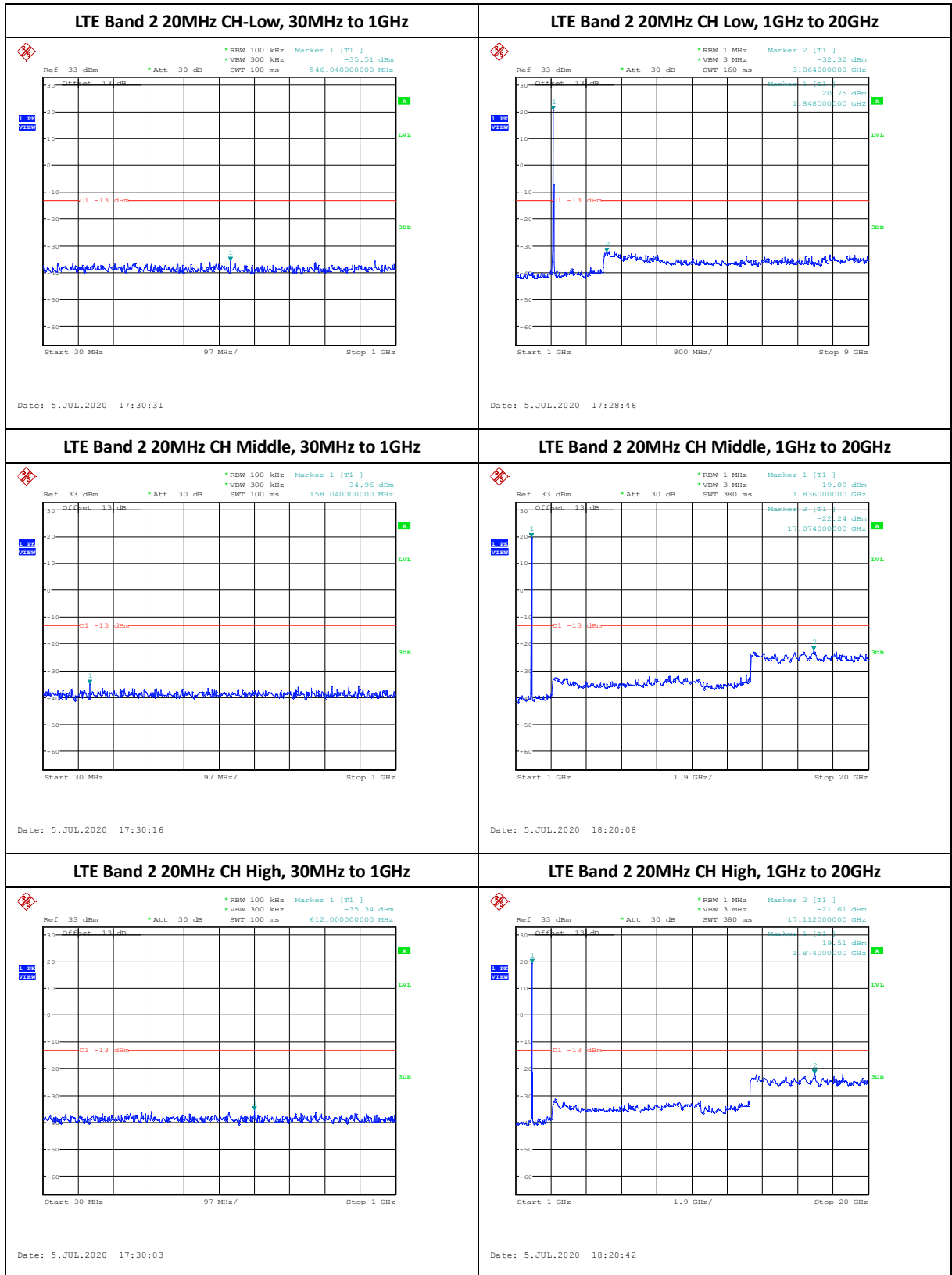
Date: 5.JUL.2020 17:32:01

LTE Band 2 10MHz CH High, 1GHz to 20GHz



Date: 5.JUL.2020 18:17:29





AppendixH: Radiated Spurious Emission

Test Result

GSM 1900 CH-Middle						
Frequency (MHz)	Read Level (dBm)	Factor (dB)	Emission (dBm)	Horiz./ Vert.	Limit (dBm)	Margin (dB)
3759.900	-60.29	7.70	-54.74	Horiz./	-13.00	-41.74
5640.200	-59.25	2.32	-59.08	Horiz./	-13.00	-46.08
7519.500	-60.12	2.32	-59.95	Horiz./	-13.00	-46.95
9402.800	-60.34	-0.73	-63.22	Horiz./	-13.00	-50.22
11279.300	-59.23	-1.87	-63.25	Horiz./	-13.00	-50.25
13159.100	-60.23	-2.27	-64.65	Horiz./	-13.00	-51.65
15041.300	-57.29	-2.88	-62.32	Horiz./	-13.00	-49.32
16922.300	-55.68	-1.56	-59.39	Horiz./	-13.00	-46.39
18800.000	-	-	-	-	-	-
Note:						
a. The other Spurious RF Radiated emissions level is no more than noise floor.						
b. The worst emission was found in the antenna is Horizontal position.						

WCDMA Band II CH-Middle						
Frequency (MHz)	Read Level (dBm)	Factor (dB)	Emission (dBm)	Horiz./ Vert.	Limit (dBm)	Margin (dB)
3760.000	-60.26	7.70	-54.71	Horiz./	-13.00	-41.71
5640.000	-60.28	2.32	-60.11	Horiz./	-13.00	-47.11
7520.000	-59.22	2.32	-59.05	Horiz./	-13.00	-46.05
9400.000	-60.21	-0.73	-63.09	Horiz./	-13.00	-50.09
11280.000	-58.26	-1.87	-62.28	Horiz./	-13.00	-49.28
13160.000	-60.87	-2.27	-65.29	Horiz./	-13.00	-52.29
15040.000	-54.63	-2.88	-59.66	Horiz./	-13.00	-46.66
16920.000	-55.24	-1.56	-58.95	Horiz./	-13.00	-45.95
18800.000	-	-	-	-	-	-
Note:						
a. The other Spurious RF Radiated emissions level is no more than noise floor.						
b. The worst emission was found in the antenna is Horizontal position.						

LTE Band 2 1.4MHz CH-Middle						
Frequency (MHz)	Read Level (dBm)	Factor (dB)	Emission (dBm)	Horiz./ Vert.	Limit (dBm)	Margin (dB)
3759.000	-56.28	7.70	-50.73	Horiz./	-13.00	-37.73
5638.000	-62.42	2.32	-62.25	Horiz./	-13.00	-49.25
7520.000	-58.39	2.32	-58.22	Horiz./	-13.00	-45.22
9400.000	-59.23	-0.73	-62.11	Horiz./	-13.00	-49.11
11280.000	-58.54	-1.87	-62.56	Horiz./	-13.00	-49.56
13160.000	-58.69	-2.27	-63.11	Horiz./	-13.00	-50.11
15040.000	-56.27	-2.88	-61.30	Horiz./	-13.00	-48.30
16920.000	-54.62	-1.56	-58.33	Horiz./	-13.00	-45.33
18800.000	-	-	-	-	-	-
Note:						
a. The other Spurious RF Radiated emissions level is no more than noise floor.						
b. The worst emission was found in the antenna is Horizontal position.						

LTE Band 2 5MHz CH-Middle						
Frequency (MHz)	Read Level (dBm)	Factor (dB)	Emission (dBm)	Horiz./ Vert.	Limit (dBm)	Margin (dB)
3760.000	-56.62	7.70	-51.07	Horiz./	-13.00	-38.07
5640.000	-62.45	2.32	-62.28	Horiz./	-13.00	-49.28
7520.000	-59.47	2.32	-59.30	Horiz./	-13.00	-46.30
9400.000	-59.64	-0.73	-62.52	Horiz./	-13.00	-49.52
11280.000	-57.13	-1.87	-61.15	Horiz./	-13.00	-48.15
13160.000	-60.28	-2.27	-64.70	Horiz./	-13.00	-51.70
15040.000	-58.23	-2.88	-63.26	Horiz./	-13.00	-50.26
16920.000	-55.12	-1.56	-58.83	Horiz./	-13.00	-45.83
18800.000	-	-	-	-	-	-
Note:						
a. The other Spurious RF Radiated emissions level is no more than noise floor.						
b. The worst emission was found in the antenna is Horizontal position.						

LTE Band 2 20MHz CH-Middle						
Frequency (MHz)	Read Level (dBm)	Factor (dB)	Emission (dBm)	Horiz./ Vert.	Limit (dBm)	Margin (dB)
3760.000	-56.39	7.70	-50.84	Horiz./	-13.00	-37.84
5640.000	-62.47	2.32	-62.30	Horiz./	-13.00	-49.30
7520.000	-58.12	2.32	-57.95	Horiz./	-13.00	-44.95
9400.000	-56.11	-0.73	-58.99	Horiz./	-13.00	-45.99
11280.000	-57.78	-1.87	-61.80	Horiz./	-13.00	-48.80
13160.000	-56.38	-2.27	-60.80	Horiz./	-13.00	-47.80
15040.000	-55.74	-2.88	-60.77	Horiz./	-13.00	-47.77
16920.000	-54.87	-1.56	-58.58	Horiz./	-13.00	-45.58
18800.000	-	-	-	-	-	-
Note:						
a. The other Spurious RF Radiated emissions level is no more than noise floor.						
b. The worst emission was found in the antenna is Horizontal position.						