FCC RF Test Report

APPLICANT	: Motorola Mobility LLC
EQUIPMENT	: Mobile Cellular Phone
BRAND NAME	: Motorola
MODEL NAME	: XT2113-1, XT2113-1PP
FCC ID	: IHDT56ZF3
STANDARD	: 47 CFR Part 2, 22, 24, 27
CLASSIFICATION	: PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Mar. 08, 2021 and completely tested on Mar. 30, 2021. We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (Kunshan) Inc., the test report shall not be reproduced except in full.

Reviewed by: Jason Jia / Supervisor

Approved by: Alex Wang / Manager

ACCREDITED Cert #5145.02

Sporton International (Kunshan) Inc.
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG082402-06G	Rev. 01	Initial issue of report	Apr. 22, 2021
FG082402-06G	Rev. 02	Delete the information of 5G NR band n78.	Apr. 25, 2021

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§22.913(a)(5)	Effective Radiated Power (5G NR n5)	ERP < 7 Watt		
	§24.232(c)	Equivalent Isotropic Radiated Power (5G NR n2)	EIRP < 2Watt		
	§27.50(d)(4)	Equivalent Isotropic Radiated Power (5G NR n66)	EIRP < 1Watt		
	§27.50(j)(3)	Equivalent Isotropic Radiated Power (5G NR n77)	EIRP < 1Watt		
3.5	§24.232(d) §27.50(j)(4)	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §22.917(a) §24.238(a) §27.53(h) §27.53(l)(2)	Conducted Band Edge Measurement (5G NR n5) (5G NR n2) (5G NR n66) (5G NR n77)	< 43+10log10(P[Watts])	PASS	-
	§27.53(m)(4)	Conducted Band Edge Measurement (5G NR n41, n38)	§27.53(m)(4)		
3.8	§2.1051 §22.917(a) §24.238(a) §27.53(h) §27.53(l)(2)	Conducted Spurious Emission (5G NR n5) (5G NR n2) (5G NR n66) (5G NR n77)	< 43+10log10(P[Watts])	PASS	-
3.9	§2.1055 §22.355	Frequency Stability Temperature & Voltage	< 2.5 ppm for Part 22	PASS	-
	§24.235 §27.54		Within Authorized Band		
4.4	§2.1053 §22.917(a) §24.238(a) §27.53(h) §27.53(l)(2)	Radiated Spurious Emission (5G NR n5) (5G NR n2) (5G NR n66) (5G NR n77)	< 43+10log$_{10}$(P[Watts])	PASS	Under limit 28.87 dB at 11370.000 MHz

1 General Description

1.1 Applicant

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2113-1, XT2113-1PP
FCC ID	IHDT56ZF3
EUT supports Radios application	GSM/WCDMA/LTE/5G NR WLAN 2.4GHz 802.11b/g/n (HT20) WLAN 5GHz 802.11a/n/ac (HT20/HT40/VHT20/VHT40/VHT80) Bluetooth BR / EDR / LE FM Receiver / GNSS / NFC
IMEI Code	Conducted : N/A Radiation : 868869050005346/868869050005378
HW Version	DVT2
SW Version	RRV31.Q2-20
EUT Stage	Identical Prototype

Remark:
Only 5G NR bands are tested in this report, all the other RF bands are tested in the other reports separately.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n77: 3700 MHz ~ 3980 MHz
Rx Frequency	5G NR n2 : 1930 MHz ~ 1990 MHz 5G NR n5 : 869 MHz ~ 894 MHz 5G NR n66 : 2110 MHz~ 2200 MHz 5G NR n77: 3700 MHz ~ 3980 MHz
Bandwidth	n2, n5: 5MHz / 10MHz / 15MHz / 20MHz n66: 5MHz / 10MHz / 15MHz / 20MHz / 30MHz / 40MHz n77: 20MHz / 40MHz / 50MHz / 60MHz / 80MHz / 90MHz / 100MHz
SCS	n2, n5, n66: 15KHz n77: 30kHz
Antenna Gain	n2 : -2.20 dBi n5 : -2.60 dBi n66 : -1.90 dBi n77 : 1.38 dBi
Type of Modulation	CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Specification of Accessory

Specification of Accessory				
AC Adapter	**Brand Name**	Motorola (Chenyang)	**Model Name**	MC-201
Battery	**Brand Name**	Motorola (Amperex)	**Model Name**	MK50
USB Cable 1	**Brand Name**	Motorola (Saibao)	**Model Name**	SC18C24367
USB Cable 2	**Brand Name**	Motorola (Luxshare)	**Model Name**	SC18C24368
USB Cable 3	**Brand Name**	Motorola (I SHENG)	**Model Name**	SC18C28955

1.7 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator

5G NR n2 (EN DC_5A-n2A)		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)
20	1860.0 ~ 1900.0	19M5G7D	0.1349	19M4W7D	0.1109
Frequency Tolerance (ppm)		0.0023			

5G NR n5 (EN DC_2A-n5A)		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)
20	834.0 ~ 839.0	19M3G7D	0.0851	19M3W7D	0.0778
Frequency Tolerance (ppm)		0.0056			

5G NR n66 (EN DC_5A-n66A)		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)
40	1730.0 ~ 1760.0	38M7G7D	0.1611	38M9W7D	0.1285
Frequency Tolerance (ppm)		0.0043			

5G NR n77 (EN DC_2A-n77A)		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)
100	3750.0 ~ 3930.0	97M7G7D	0.5546	97M9W7D	0.5012
Frequency Tolerance (ppm)		0.0042			

Note:

1. Based on engineering evaluation, only the maximum bandwidth and the worst modulation test results are shown in the report.

3. For NSA mode of 5G NR n2/n5/n66/n77, we only show the combination of the maximum power among all EN-DC combinations in the report.

1.8 Testing Location

Sporton International (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International (Kunshan) Inc.		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH04-KS TH01-KS	CN1257	314309

1.9 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH04-KS	AUDIX	E3	6.2009-8-24a

1.10 Applicable Standards

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

- 47 CFR Part 2, 22, 24, 27
- ANSI C63.26-2015
- FCC KDB 971168 D01 Power Meas License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

All test items were verified and recorded according to the standards and without any deviation during the test.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.

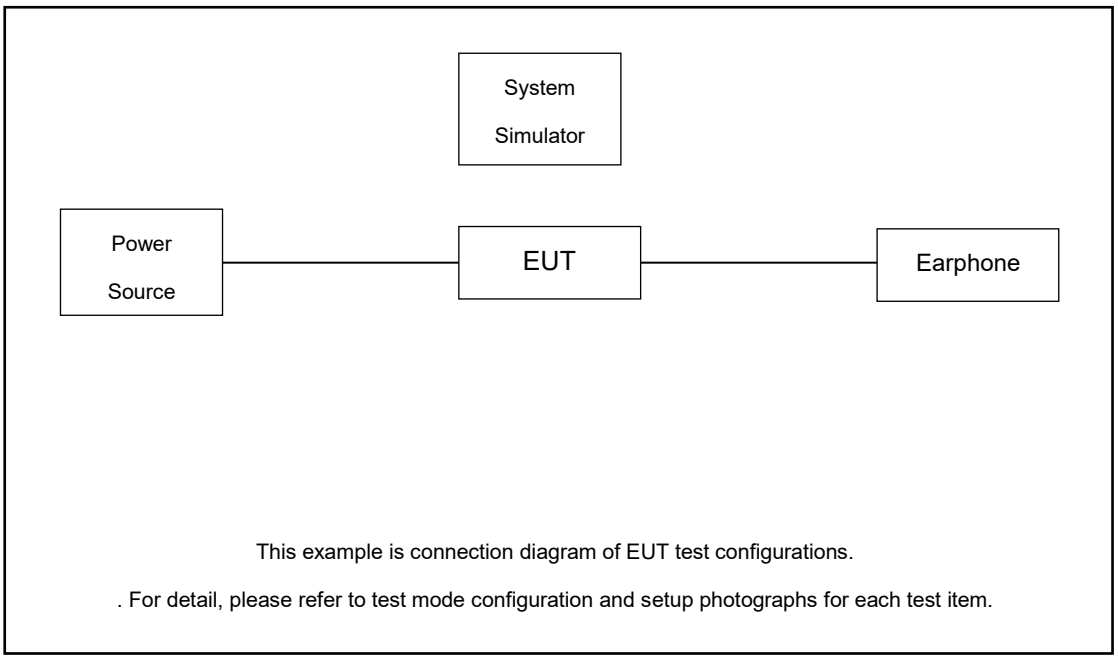
The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.

	X Plane	Y Plane	Z Plane
Orthogonal Planes of EUT			

Test Items	5G NR	Bandwidth (MHz)							Modulation					RB #		Test Channel		
		5	10	15	20	30-40	50-90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	1	Full	L	M	H
Max. Output Power	n2	v	v	v	v	-	-	-	v	v	v	v	v	v	v	v	v	v
	n5	v	v	v	v	-	-	-	v	v	v	v	v	v	v	v	v	v
	n66	v	v	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v
	n77	-	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	n2				v	-	-	-	v	v	v	v	v		v		v	
	n5				v	-	-	-	v	v	v	v	v		v		v	
	n66					v	-	-	v	v	v	v	v		v		v	
	n77	-	-	-				v	v	v	v	v	v		v		v	
26dB and 99% Bandwidth	n2				v	-	-	-		v	v				v		v	
	n5				v	-	-	-		v	v				v		v	
	n66					v	-	-		v	v				v		v	
	n77	-	-	-				v		v	v				v		v	

Test Items	Band	Bandwidth (MHz)							Modulation					RB #		Test Channel		
		5	10	15	20	30-40	50-90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	1	Full	L	M	H
Conducted Band Edge	n2	v	v	v	v	-	-	-	v	v	v	v	v	v	v	v		v
	n5	v	v	v	v	-	-	-	v	v	v	v	v	v	v	v		v
	n66	v	v	v	v	v	-	-	v	v	v	v	v	v	v	v		v
	n77	-	-	-	v	v	v	v	v	v	v	v	v	v	v	v		v
Conducted Spurious Emission	n2	v	v	v	v	-	-	-		v				v		v	v	v
	n5	v	v	v	v	-	-	-		v				v		v	v	v
	n66	v	v	v	v	v	-	-		v				v		v	v	v
	n77	-	-	-	v	v	v	v		v				v		v	v	v
Frequency Stability	n2				v	-	-	-		v					v		v	
	n5				v	-	-	-		v					v		v	
	n66				v		-	-		v					v		v	
	n77	-	-	-	v		-	-		v					v		v	
E.R.P / E.I.R.P	n2	v	v	v	v	-	-	-	v	v	v	v	v	v	v	v	v	v
	n5	v	v	v	v	-	-	-	v	v	v	v	v	v	v	v	v	v
	n66	v	v	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v
	n77	-	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	n2	Worst Case															v	
	n5	Worst Case															v	
	n66	Worst Case															v	
	n77	Worst Case															v	
Note	1. The mark "**v** " means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. 4. For modulation of CP-OFDM and DFT-s-OFDM , the maximum power of CP-OFDM is lower than DFT-s-OFDM modulation, therefore, we chose higher power (DFT-s-OFDM modulation) to perform all tests and show in the report. 5. All modulations (BPSK/QPSK/16QAM/64QAM/256QAM) have been tested, and only the worst test results are shown in the report .																	

2.2 Connection Diagram of Test System



This example is connection diagram of EUT test configurations.

. For detail, please refer to test mode configuration and setup photographs for each test item.

2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	DC Power Supply	GW	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
3.	NR Base Station	Anritsu	MT8000A	N/A	N/A	Unshielded, 1.8 m
4.	Earphone	N/A	N/A	N/A	Unshielded,1.2m	N/A

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss

Offset = RF cable loss

Following shows an offset computation example with cable loss 4.8 dB.

Example :

Offset(dB) = RF cable loss(dB).

= 4.8 (dB)

2.5 Frequency List of Low/Middle/High Channels

5G NR n2 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	372000	376000	380000
	Frequency	1860	1880	1900
15	Channel	371500	376000	380500
	Frequency	1857.5	1880	1902.5
10	Channel	371000	376000	381000
	Frequency	1855	1880	1905
5	Channel	370500	376000	381500
	Frequency	1852.5	1880	1907.5

5G NR n5 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	166800	167300	167800
	Frequency	834	836.5	839
15	Channel	166300	167300	168300
	Frequency	831.5	836.5	841.5
10	Channel	165800	167300	168800
	Frequency	829	836.5	844
5	Channel	165300	167300	169300
	Frequency	826.5	836.5	846.5

5G NR n66 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
40	Channel	346000	349000	352000
	Frequency	1730	1745	1760
30	Channel	345000	349000	353000
	Frequency	1725	1745	1765
20	Channel	344000	349000	354000
	Frequency	1720	1745	1770
15	Channel	343500	349000	354500
	Frequency	1717.5	1745	1772.5
10	Channel	343000	349000	355000
	Frequency	1715	1745	1775
5	Channel	342500	349000	355500
	Frequency	1712.5	1745	1777.5

5G NR n77 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
100	Channel	650000	656000	662000
	Frequency	3750	3840	3930
90	Channel	649668	656000	662334
	Frequency	3745.02	3840	3935.01
80	Channel	649334	656000	662668
	Frequency	3740.01	3840	3940.02
60	Channel	648668	656000	663334
	Frequency	3730.02	3840	3950.01
50	Channel	648334	656000	663668
	Frequency	3725.01	3840	3955.02
40	Channel	648000	656000	664000
	Frequency	3720	3840	3960
20	Channel	647334	656000	664668
	Frequency	3710.01	3840	3970.02

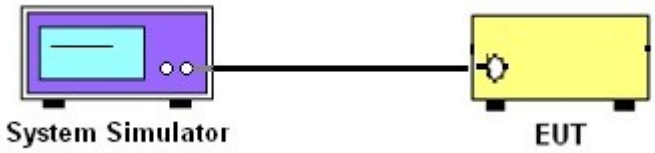
3 Conducted Test Items

3.1 Measuring Instruments

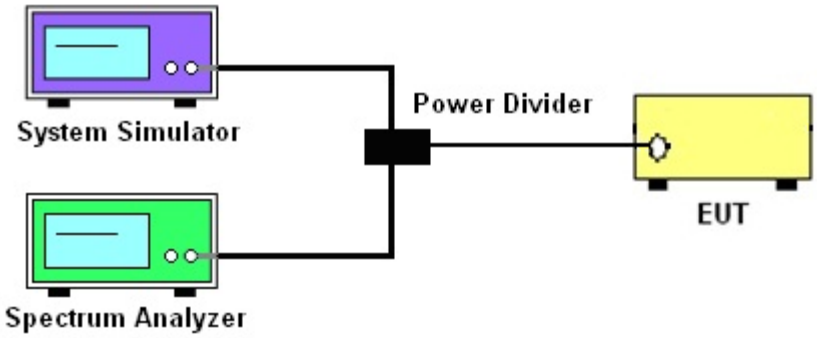
See list of measuring instruments of this test report.

3.2 Test Setup

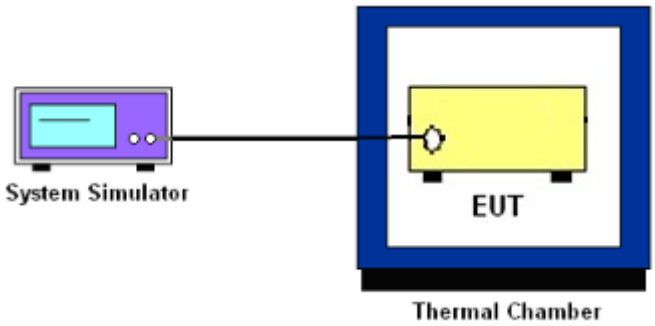
3.2.1 Conducted Output Power



3.2.2 Peak-to-Average Ratio, Occupied Bandwidth ,Conducted Band-Edge and Conducted Spurious Emission



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power and ERP/EIRP

3.4.1 Description of the Conducted Output Power Measurement and ERP/EIRP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts for 5G NR n5.

The EIRP of mobile transmitters must not exceed 2 Watts for 5G NR n2.

The EIRP of mobile transmitters must not exceed 1 Watts for 5G NR n66, n77.

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T – L_C$, $ERP = EIRP - 2.15$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. 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.

3.5.2 Test Procedures

For 5G NR n2, n5:

1. The testing follows ANSI C63.26 Section 5.2.3.4 (CCDF).
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.

For 5G NR n66, n77:

1. The testing follows ANSI C63.26 Section 5.2.6 (PAPR).
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set EUT in maximum power output.
4. Set the RBW = 1MHz, VBW = 3MHz, Detector = Peak, Trace mode = max hold, Set span ≥ 2 × OBW in spectrum analyzer.
5. Set the RBW = 1MHz, VBW = 3MHz, Detector = power averaging, Trace mode = max hold, Set span ≥ 2 × OBW in spectrum analyzer.
6. Add [10 log (1/duty cycle)] to the measured maximum power level to compute the average power during continuous transmission.
7. PAPR (dB) = P_{Pk} (dBm) − P_{Avg} (dBm)
   where
   PAPR peak-to-average power ratio, in dB
   P_{Pk} measured peak power level, in dBm
   P_{Avg} measured average power level, in dBm
8. Record the deviation as Peak to Average Ratio.

3.6 Occupied Bandwidth

3.6.1 Description of Occupied Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.6.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.4
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “–X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.7 Conducted Band Edge

3.7.1 Description of Conducted Band Edge Measurement

22.917(a)

For operations in the 824 – 849 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 100kHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

24.238 (a)

For operations in the 1850-1910 and 1930-1990 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 1MHz bandwidth. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

27.53 (h)

For operations in the 1710 – 1755 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

27.53(l)(2)

For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz. Compliance with this paragraph is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz.

3.7.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. Checked that all the results comply with the emission limit line.

   Example:

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

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

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

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

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.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10^{th} harmonic.

3.8.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
7. Set spectrum analyzer with RMS detector.
8. Taking the record of maximum spurious emission.
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
10. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.

3.9 Frequency Stability

3.9.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

3.9.2 Test Procedures for Temperature Variation

1. The testing follows ANSI C63.26 section 5.6.4
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.9.3 Test Procedures for Voltage Variation

1. The testing follows ANSI C63.26 section 5.6.5
2. The EUT was placed in a temperature chamber at 20±5°C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value for other than hand carried battery equipment.
4. For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.
5. The variation in frequency was measured for the worst case.

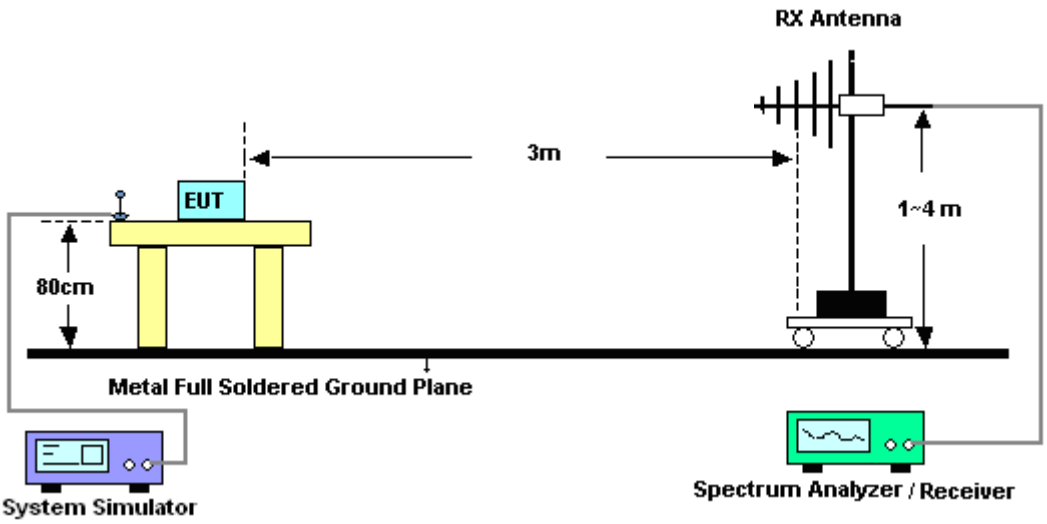
4 Radiated Test Items

4.1 Measuring Instruments

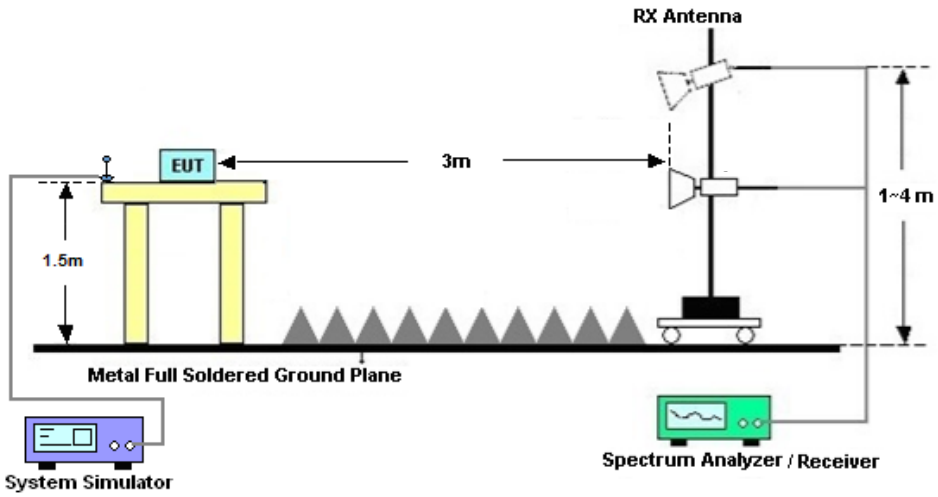
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI C63.26. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.5
2. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
8. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
9. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
10. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (dBm) = EIRP - 2.15
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Nov. 01, 2020	Mar. 12, 2021~ Mar. 30, 2021	Oct. 31, 2021	Conducted (TH01-KS)
Temperature & humidity chamber	Hongzhan	LP-150U	H2014011440	-40~+150°C 20%~95%RH	Jul. 03, 2020	Mar. 12, 2021~ Mar. 30, 2021	Jul. 02, 2021	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44G,MAX 30dB	Apr. 15, 2020	Mar. 27, 2021	Apr. 14, 2021	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	Jun. 08, 2020	Mar. 27, 2021	Jun. 07, 2021	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1356	1GHz~18GHz	Apr. 20, 2020	Mar. 27, 2021	Apr. 19, 2021	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Jan. 06, 2021	Mar. 27, 2021	Jan. 05, 2022	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Jan. 06, 2021	Mar. 27, 2021	Jan. 05, 2022	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 07, 2021	Mar. 27, 2021	Jan. 06, 2022	Radiation (03CH04-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2025788	1Ghz-18Ghz	Jan. 06, 2021	Mar. 27, 2021	Jan. 05, 2022	Radiation (03CH04-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5GHz	Oct. 14, 2020	Mar. 27, 2021	Oct. 13, 2021	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Mar. 27, 2021	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Mar. 27, 2021	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Mar. 27, 2021	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required

6 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.3dB**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.8dB**

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.8dB**

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power and EIRP)

5G NR n2

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Gain	EIRP	EIRP	EIRP
Channel				372000	376000	380000		L	M	H
Frequency (MHz)				1860	1880	1900				
20	PI/2 BPSK	1	1	23.15	23.16	23.05	-2.2	0.1245	0.1247	0.1216
20	QPSK	1	1	23.50	23.38	23.42	-2.2	0.1349	0.1312	0.1324
20	QPSK	1	53	22.05	21.96	21.85	-2.2	0.0966	0.0946	0.0923
20	QPSK	1	104	22.10	22.18	22.10	-2.2	0.0977	0.0995	0.0977
20	QPSK	50	0	20.31	20.51	20.30	-2.2	0.0647	0.0678	0.0646
20	QPSK	50	28	22.42	22.18	22.04	-2.2	0.1052	0.0995	0.0964
20	QPSK	50	56	22.01	22.11	22.03	-2.2	0.0957	0.0979	0.0962
20	QPSK	100	0	21.34	21.26	21.16	-2.2	0.0820	0.0805	0.0787
20	16QAM	1	1	22.58	22.65	22.53	-2.2	0.1091	0.1109	0.1079
20	64QAM	1	1	21.09	21.25	21.19	-2.2	0.0774	0.0804	0.0793
20	256QAM	1	1	19.14	18.99	18.78	-2.2	0.0494	0.0478	0.0455
Channel				371500	376000	380500	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1857.5	1880	1902.5				
15	QPSK	1	1	23.36	23.21	23.31	-2.2	0.1306	0.1262	0.1291
15	16QAM	1	1	22.40	22.52	22.39	-2.2	0.1047	0.1076	0.1045
Channel				371000	376000	381000	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1855	1880	1905				
10	QPSK	1	1	23.42	23.16	23.28	-2.2	0.1324	0.1247	0.1282
10	16QAM	1	1	22.34	22.40	22.31	-2.2	0.1033	0.1047	0.1026
Channel				370500	376000	381500	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1852.5	1880	1907.5				
5	QPSK	1	1	23.16	23.21	23.32	-2.2	0.1247	0.1262	0.1294
5	16QAM	1	1	22.49	22.38	22.25	-2.2	0.1069	0.1042	0.1012

5G NR n5

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Gain	ERP	ERP	ERP
Channel				166800	167300	167800		L	M	H
Frequency (MHz)				834	836.5	839				
20	PI/2 BPSK	1	1	23.86	24.03	23.96	-2.6	0.0815	0.0847	0.0834
20	QPSK	1	1	23.93	24.05	23.99	-2.6	0.0828	0.0851	0.0839
20	QPSK	1	53	23.75	23.92	23.82	-2.6	0.0794	0.0826	0.0807
20	QPSK	1	104	23.52	23.59	23.65	-2.6	0.0753	0.0766	0.0776
20	QPSK	50	0	23.62	23.96	23.81	-2.6	0.0771	0.0834	0.0805
20	QPSK	50	28	23.91	23.98	23.99	-2.6	0.0824	0.0838	0.0839
20	QPSK	50	56	23.69	23.93	23.92	-2.6	0.0783	0.0828	0.0826
20	QPSK	100	0	23.45	23.62	23.75	-2.6	0.0741	0.0771	0.0794
20	16QAM	1	1	23.62	23.65	23.66	-2.6	0.0771	0.0776	0.0778
20	64QAM	1	1	21.63	22.44	22.06	-2.6	0.0488	0.0587	0.0538
20	256QAM	1	1	20.32	20.26	20.59	-2.6	0.0361	0.0356	0.0384
Channel				166300	167300	168300	Gain	ERP	ERP	ERP
Frequency (MHz)				831.5	836.5	841.5				
15	QPSK	1	1	23.89	24.03	23.92	-2.6	0.0820	0.0847	0.0826
15	16QAM	1	1	23.11	23.55	23.63	-2.6	0.0685	0.0759	0.0773
Channel				165800	167300	168800	Gain	ERP	ERP	ERP
Frequency (MHz)				829	836.5	844				
10	QPSK	1	1	23.88	23.85	23.89	-2.6	0.0818	0.0813	0.0820
10	16QAM	1	1	23.28	23.56	23.28	-2.6	0.0713	0.0760	0.0713
Channel				165300	167300	169300	Gain	ERP	ERP	ERP
Frequency (MHz)				826.5	836.5	846.5				
5	QPSK	1	1	23.91	24.02	23.89	-2.6	0.0824	0.0845	0.0820
5	16QAM	1	1	23.32	23.58	23.56	-2.6	0.0719	0.0764	0.0760

5G NR n66

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Gain	EIRP	EIRP	EIRP
Channel				346000	349000	352000		L	M	H
Frequency (MHz)				1730	1745	1760				
40	PI/2 BPSK	1	1	23.69	23.75	23.79	-1.90	0.1510	0.1531	0.1545
40	QPSK	1	1	23.95	23.92	23.97	-1.90	0.1603	0.1592	0.1611
40	QPSK	1	108	23.41	23.32	23.51	-1.90	0.1416	0.1387	0.1449
40	QPSK	1	214	23.12	23.12	23.35	-1.90	0.1324	0.1324	0.1396
40	QPSK	108	0	23.77	22.69	22.79	-1.90	0.1538	0.1199	0.1227
40	QPSK	108	54	23.22	23.26	23.39	-1.90	0.1355	0.1368	0.1409
40	QPSK	108	108	23.31	23.36	23.55	-1.90	0.1384	0.1400	0.1462
40	QPSK	216	0	22.88	22.85	23.01	-1.90	0.1253	0.1245	0.1291
40	16QAM	1	1	22.89	22.81	22.99	-1.90	0.1256	0.1233	0.1285
40	64QAM	1	1	22.19	22.35	22.52	-1.90	0.1069	0.1109	0.1153
40	256QAM	1	1	20.41	20.59	20.66	-1.90	0.0710	0.0740	0.0752
Channel				345000	349000	353000	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1725	1745	1765				
30	QPSK	1	1	23.81	23.77	23.75	-1.90	0.1552	0.1538	0.1531
30	16QAM	1	1	22.51	22.69	22.65	-1.90	0.1151	0.1199	0.1189
Channel				344000	349000	354000	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1720	1745	1770				
20	QPSK	1	1	23.89	23.81	23.75	-1.90	0.1581	0.1552	0.1531
20	16QAM	1	1	22.87	22.75	22.91	-1.90	0.1250	0.1216	0.1262
Channel				343500	349000	354500	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1717.5	1745	1772.5				
15	QPSK	1	1	23.66	23.62	23.59	-1.90	0.1500	0.1486	0.1476
15	16QAM	1	1	22.66	22.52	22.41	-1.90	0.1191	0.1153	0.1125
Channel				343000	349000	355000	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1715	1745	1775				
10	QPSK	1	1	23.89	23.81	23.75	-1.90	0.1581	0.1552	0.1531
10	16QAM	1	1	22.61	22.54	22.56	-1.90	0.1178	0.1159	0.1164
Channel				342500	349000	355500	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1712.5	1745	1777.5				
5	QPSK	1	1	23.89	23.81	23.75	-1.90	0.1581	0.1552	0.1531
5	16QAM	1	1	22.44	22.53	22.58	-1.90	0.1132	0.1156	0.1169

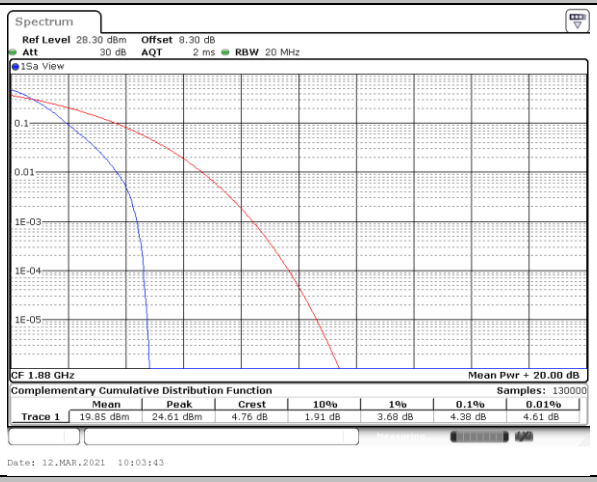
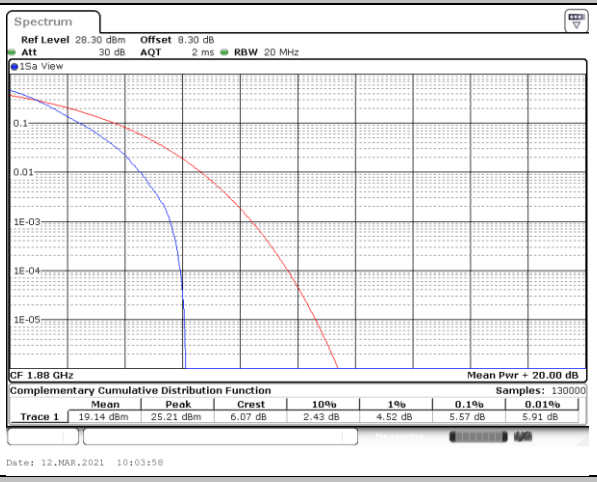
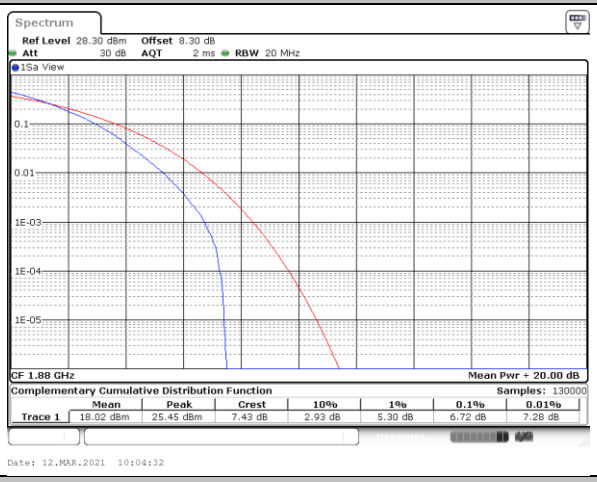
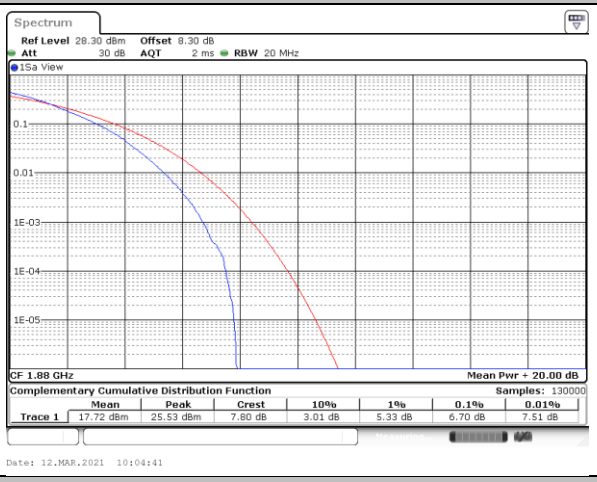
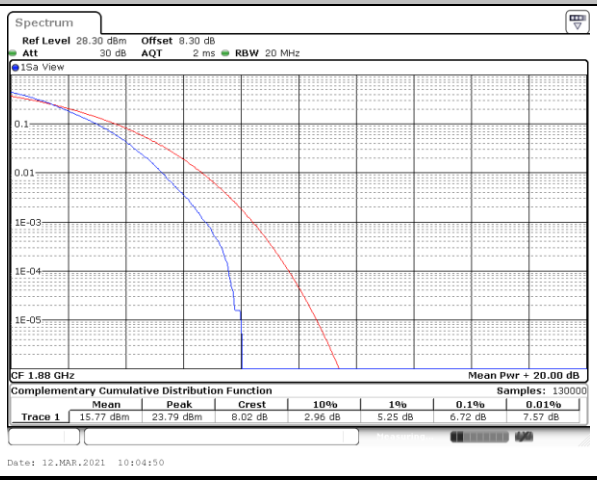
5G NR n77

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Gain	EIRP	EIRP	EIRP
Channel				650000	656000	662000		L	M	H
Frequency (MHz)				3750	3840	3930				
100	PI/2 BPSK	1	1	25.67	25.56	25.78	1.38	0.5070	0.4943	0.5200
100	QPSK	1	1	25.72	26.06	25.85	1.38	0.5129	0.5546	0.5284
100	QPSK	1	137	25.12	25.44	24.56	1.38	0.4467	0.4808	0.3926
100	QPSK	1	271	25.71	26.02	25.66	1.38	0.5117	0.5495	0.5058
100	QPSK	135	0	25.64	25.16	24.96	1.38	0.5035	0.4508	0.4305
100	QPSK	135	69	25.06	24.76	25.06	1.38	0.4406	0.4111	0.4406
100	QPSK	135	138	25.51	25.53	25.01	1.38	0.4887	0.4909	0.4355
100	QPSK	270	0	25.25	25.65	25.13	1.38	0.4603	0.5047	0.4477
100	16QAM	1	1	25.36	25.62	25.52	1.38	0.4721	0.5012	0.4898
100	64QAM	1	1	25.32	25.39	25.36	1.38	0.4677	0.4753	0.4721
100	256QAM	1	1	23.36	23.63	23.33	1.38	0.2979	0.3170	0.2958
Channel				649668	656000	662334	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				3745.02	3840	3935.01				
90	QPSK	1	1	25.32	25.16	25.65	1.38	0.4677	0.4508	0.5047
90	16QAM	1	1	25.13	25.12	25.38	1.38	0.4477	0.4467	0.4742
Channel				649334	656000	662668	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				3740.01	3840	3940.02				
80	QPSK	1	1	25.62	25.33	25.89	1.38	0.5012	0.4688	0.5333
80	16QAM	1	1	25.25	25.22	25.09	1.38	0.4603	0.4571	0.4436
Channel				648668	656000	663334	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				3730.02	3840	3950.01				
60	QPSK	1	1	24.96	25.56	25.26	1.38	0.4305	0.4943	0.4613
60	16QAM	1	1	24.85	25.53	25.03	1.38	0.4198	0.4909	0.4375
Channel				648334	656000	663668	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				3725.01	3840	3955.02				
50	QPSK	1	1	24.86	25.63	25.09	1.38	0.4207	0.5023	0.4436
50	16QAM	1	1	24.62	24.82	25.12	1.38	0.3981	0.4169	0.4467
Channel				648000	656000	664000	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				3720	3840	3960				
40	QPSK	1	1	25.22	25.51	25.32	1.38	0.4571	0.4887	0.4677
40	16QAM	1	1	25.36	24.52	25.12	1.38	0.4721	0.3890	0.4467
Channel				647334	656000	664668	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				3710.01	3840	3970.02				
20	QPSK	1	1	24.77	24.95	24.52	1.38	0.4121	0.4295	0.3890
20	16QAM	1	1	24.56	24.62	24.21	1.38	0.3926	0.3981	0.3622

5G NR n2

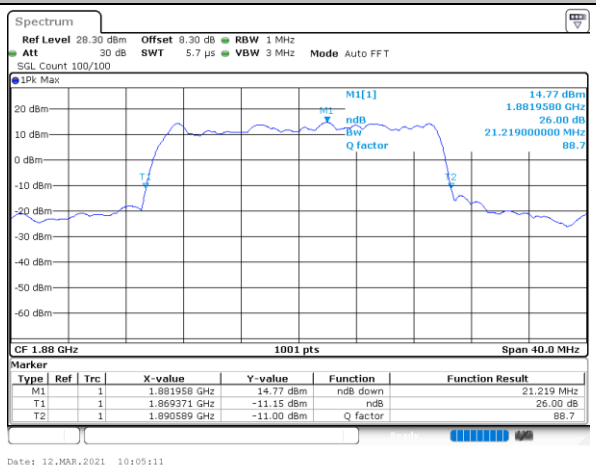
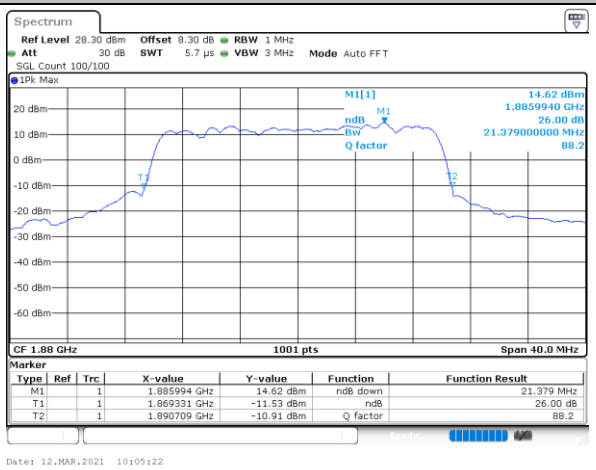
Peak-to-Average Ratio

Mode	FR1 n2 / 20MHz / DFT-S OFDM				
Mod.	PI/2 BPSK	QPSK	16QAM	64QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Full RB	Result
Middle CH	4.38	5.57	6.72	6.70	PASS
Mode	FR1 n2 / 20MHz / DFT-S OFDM				
Mod.	256QAM				Limit: 13dB
RB Size	Full RB				Result
Middle CH	6.72				PASS

20M-CCDF	
PI/2 BPSK	QPSK
	
16QAM	64QAM
	
256QAM	
	

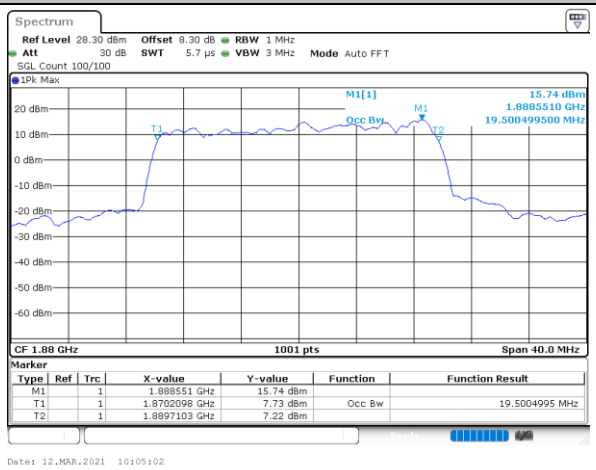
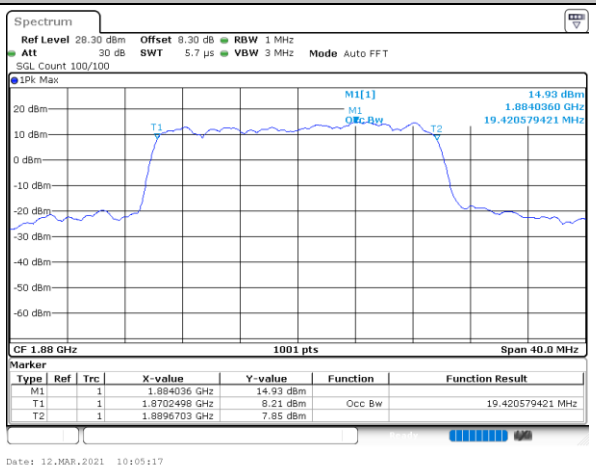
26dB Bandwidth

Mode	FR1 n2 : 26dB BW(MHz) / DFT-S OFDM	
BW	20M	
Mod.	QPSK	16QAM
Middle CH	21.219	21.379

QPSK	16QAM
	

Occupied Bandwidth

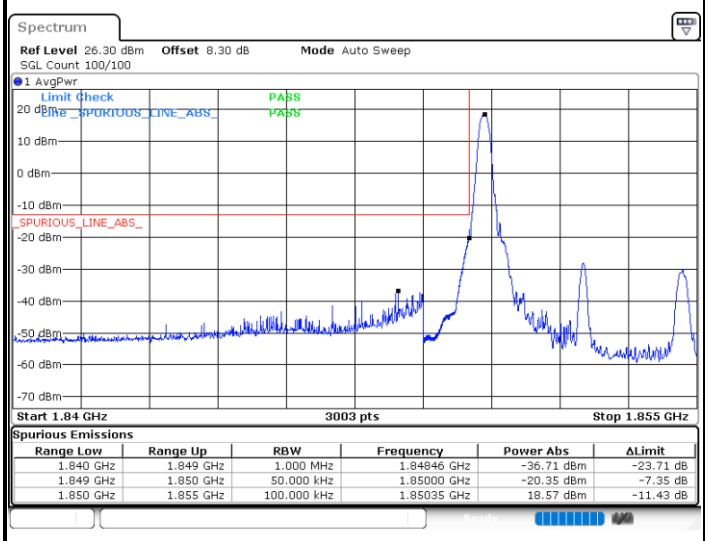
Mode	FR1 n2 : 99%OBW(MHz) / DFT-S OFDM	
BW	20M	
Mod.	QPSK	16QAM
Middle CH	19.500	19.421

QPSK	16QAM
	

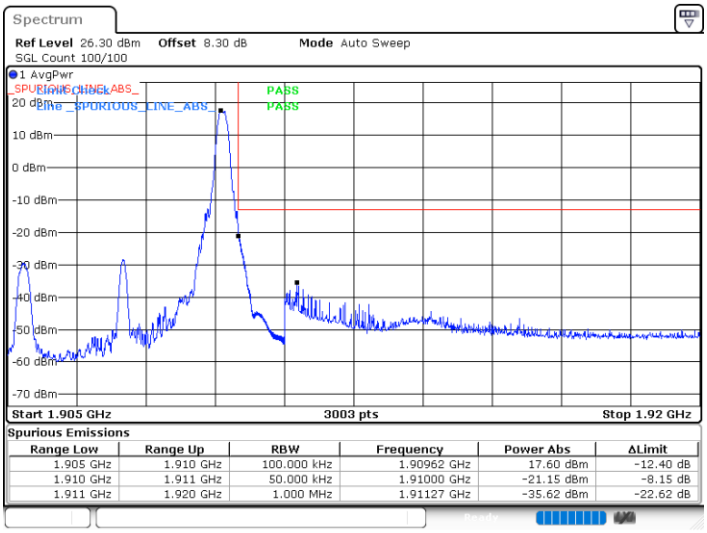
Conducted Band Edge

5M-BPSK

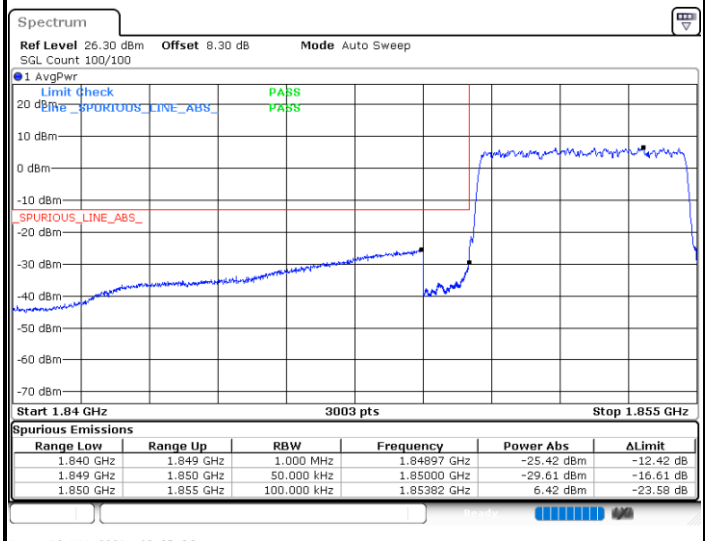
L-1RB



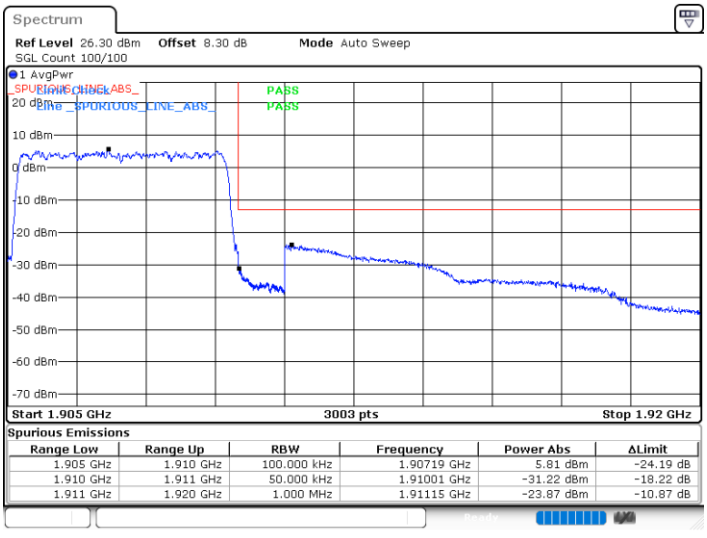
H-1RB



L-FULLRB

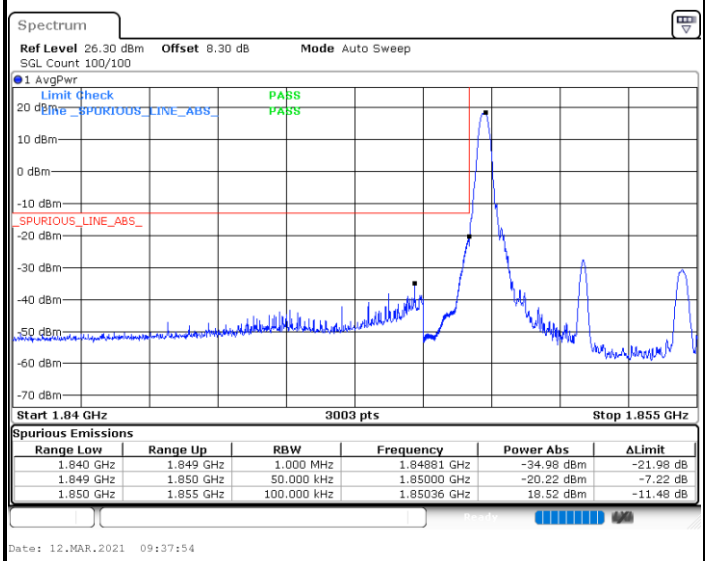


H-FULLRB



5M-QPSK

L-1RB



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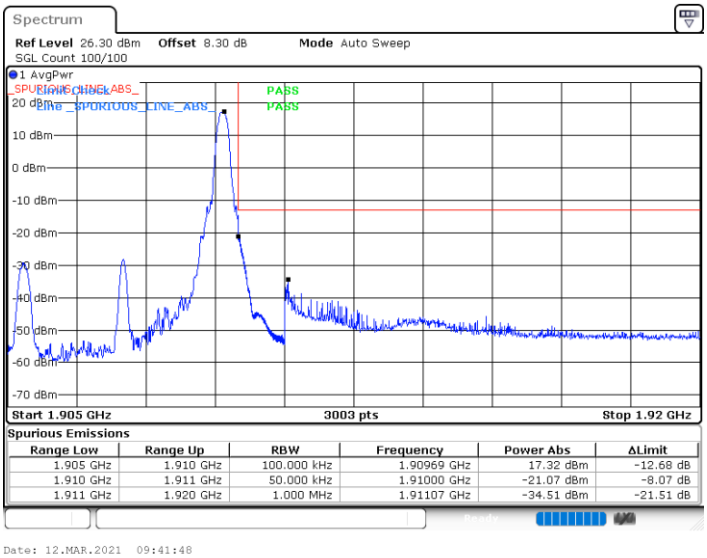

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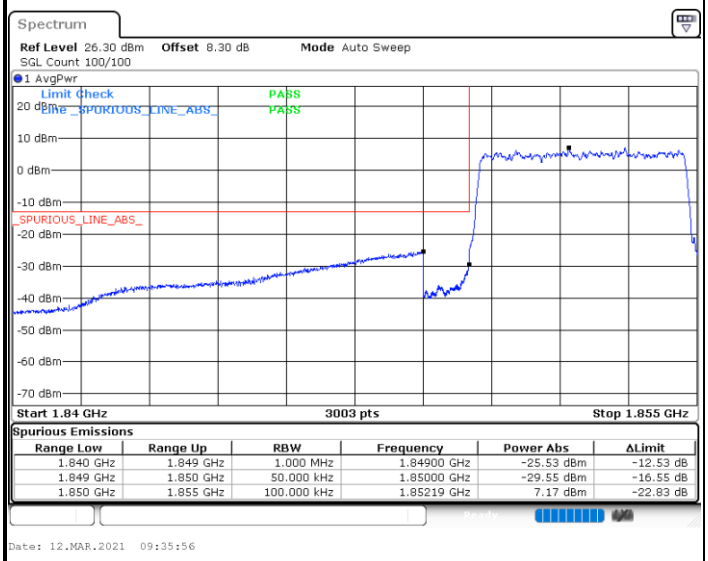

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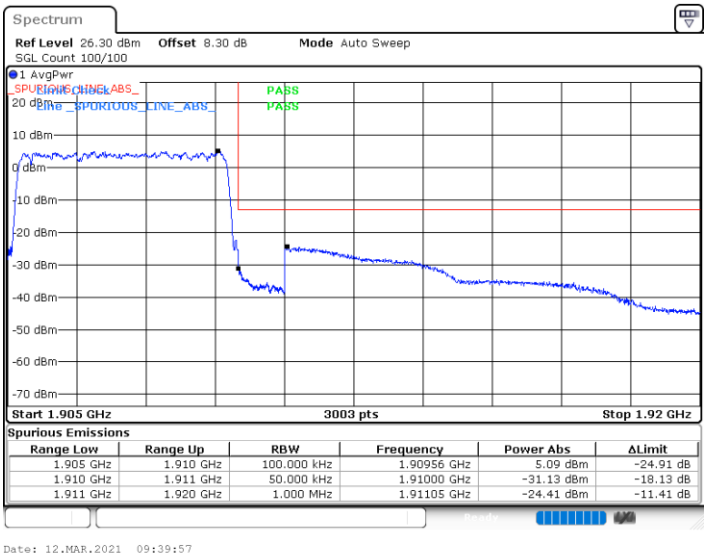
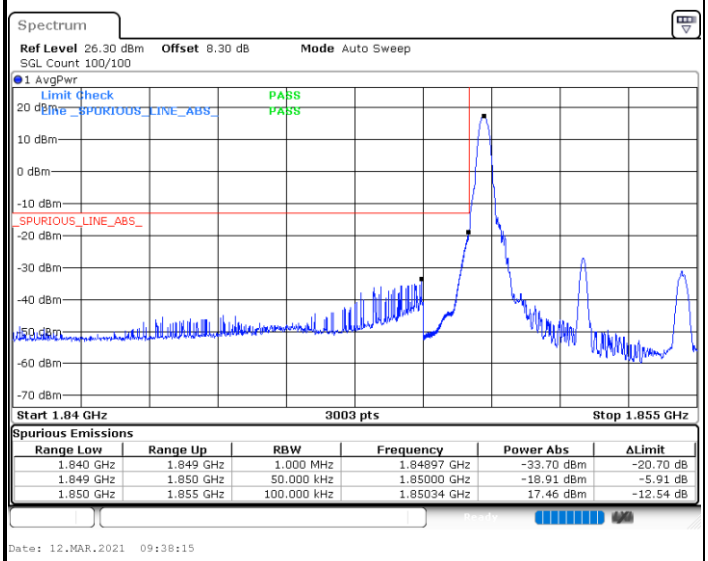


5M-16QAM

L-1RB



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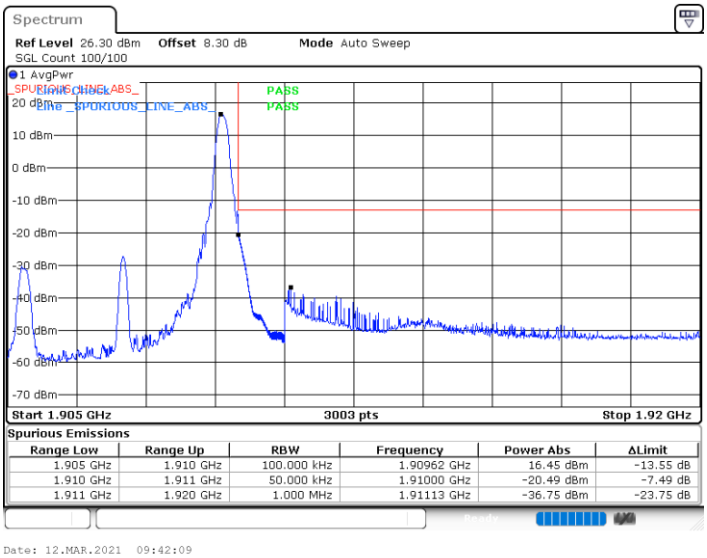

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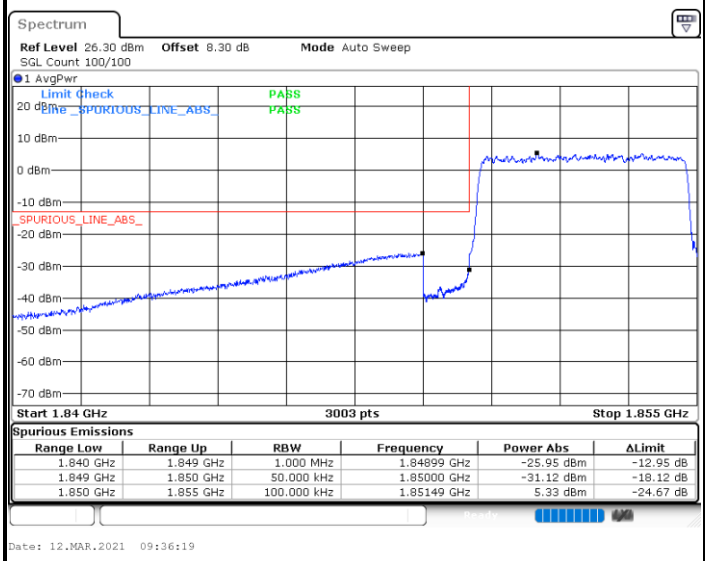
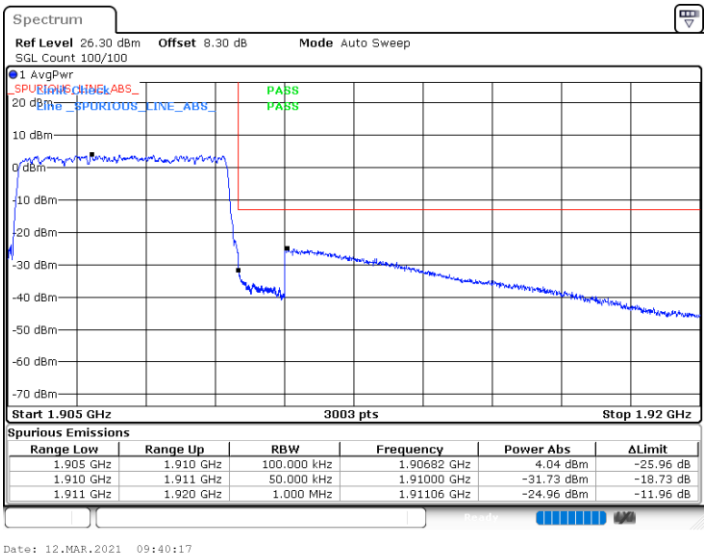
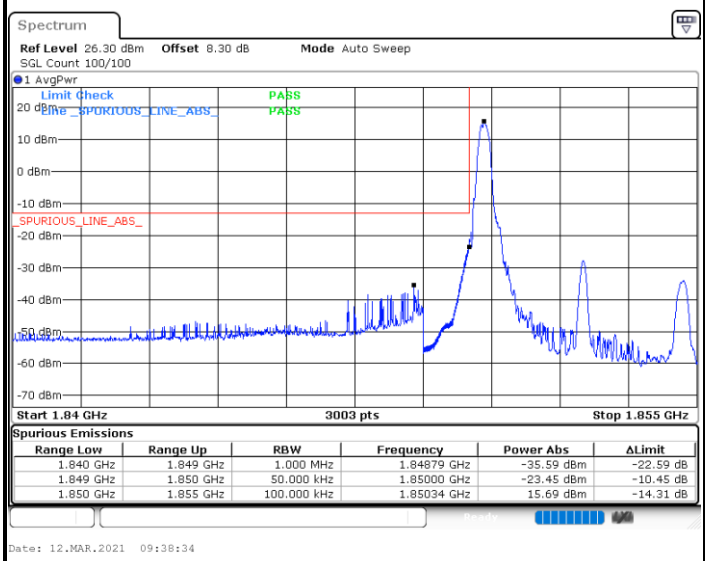


H-FULLRB



5M-64QAM

L-1RB



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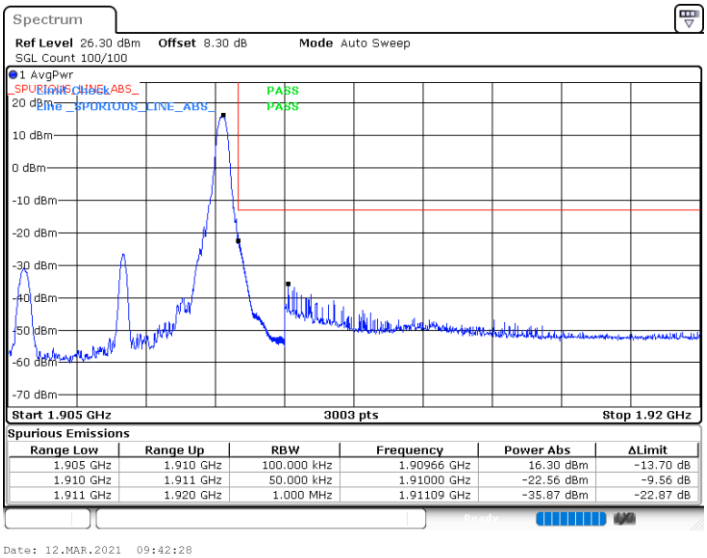

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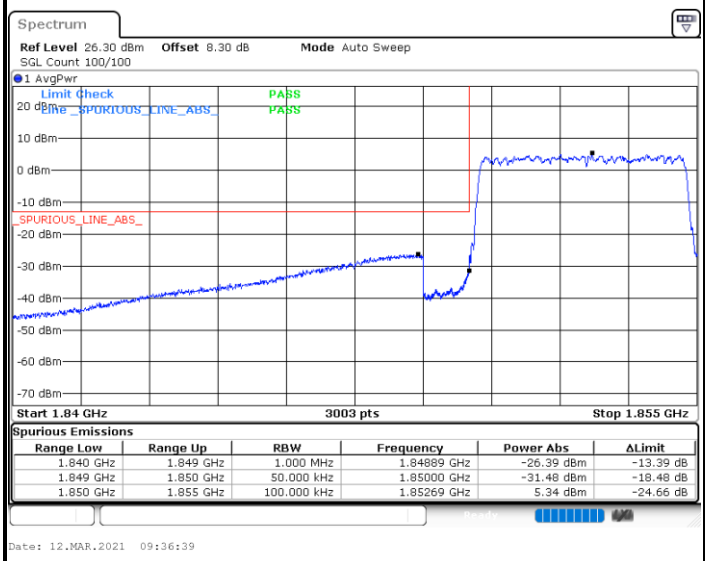

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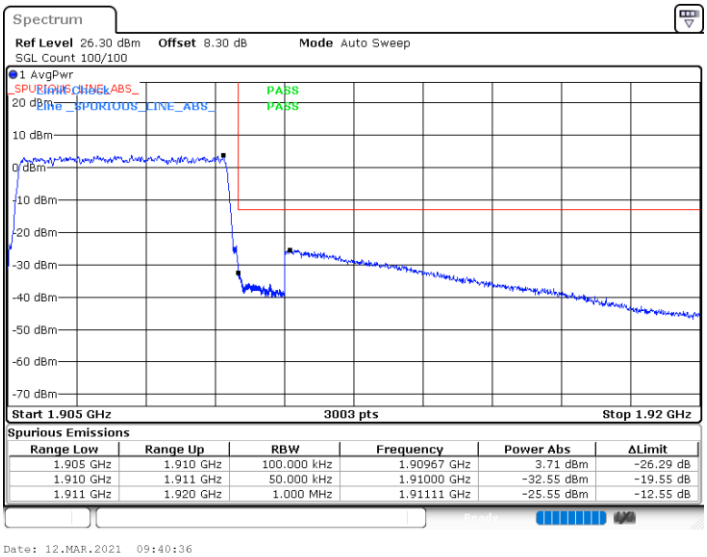
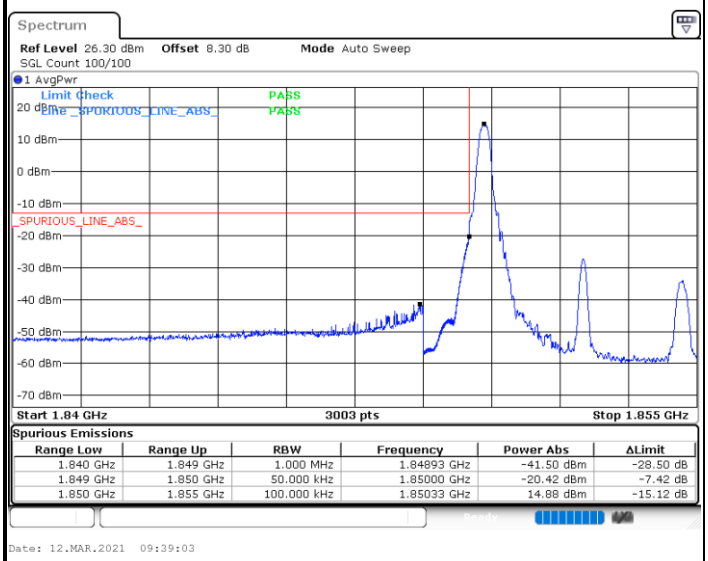


5M-256QAM

L-1RB



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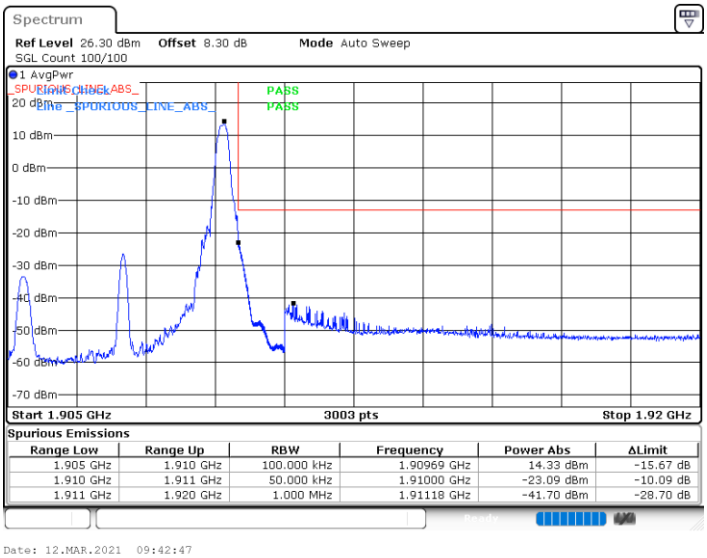

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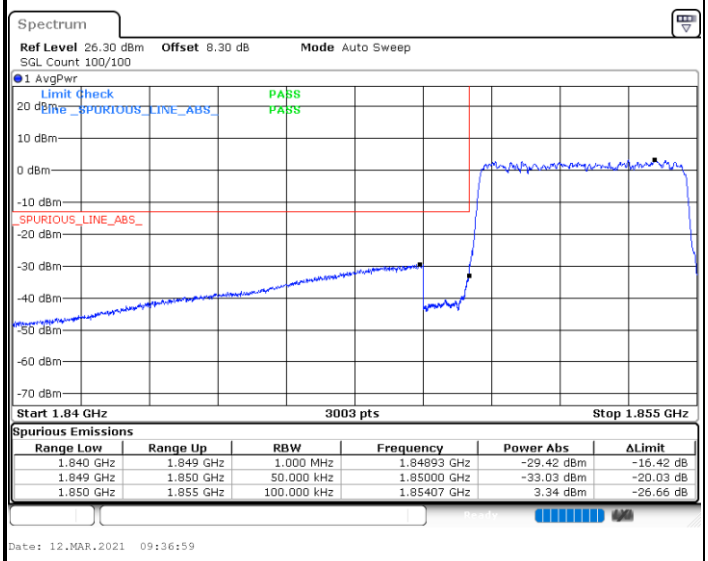
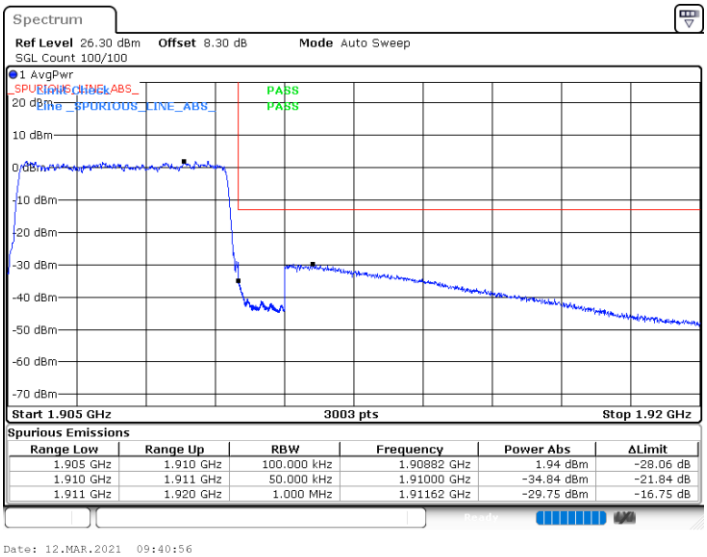
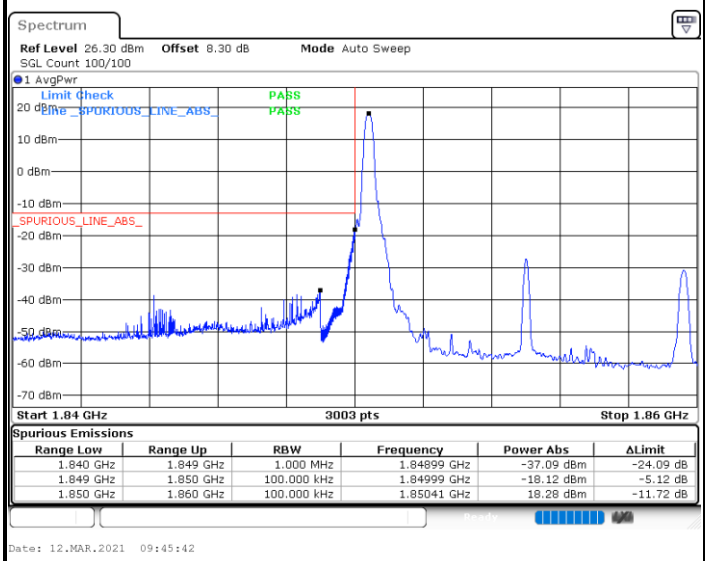
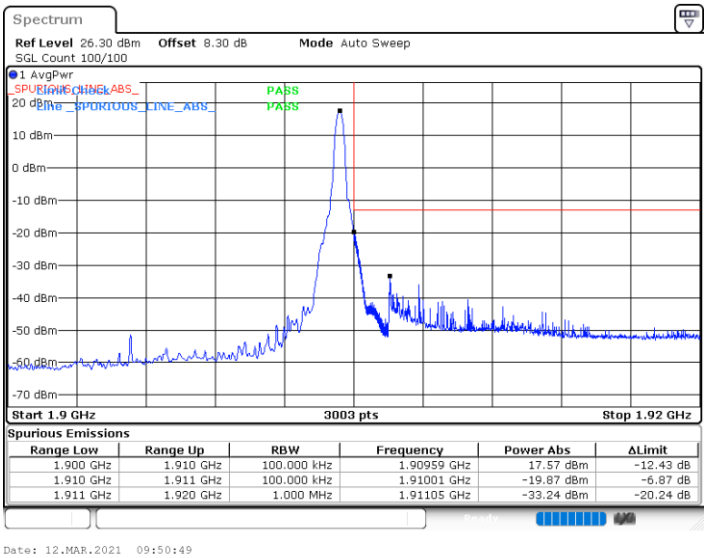
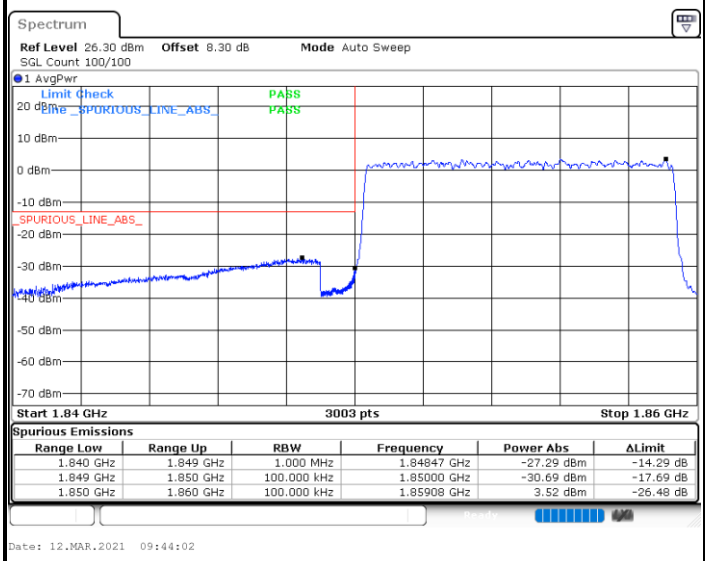
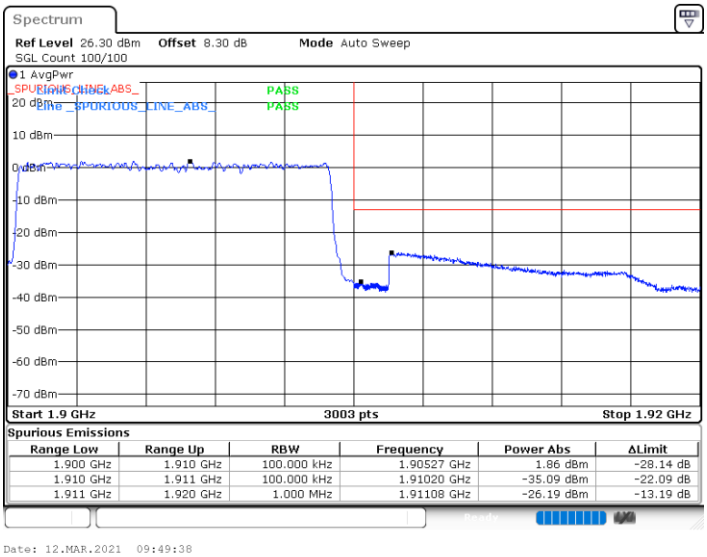


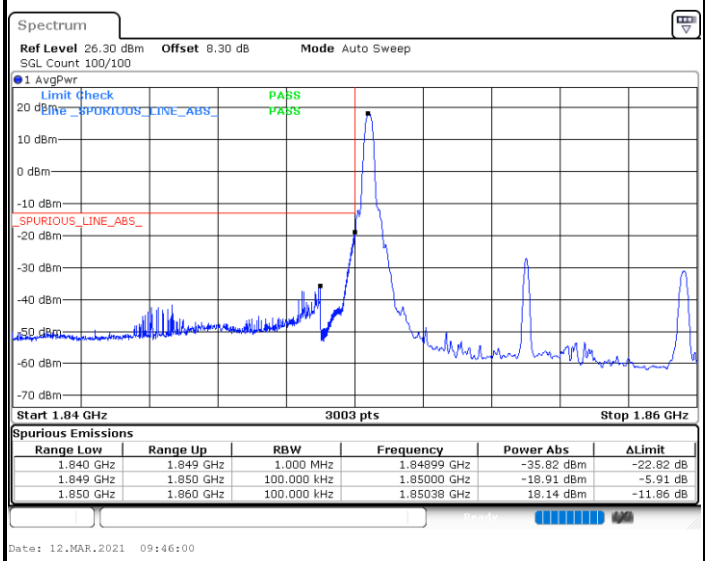
H-FULLRB



10M-BPSK	
L-1RB	**H-1RB**
	
L-FULLRB	**H-FULLRB**
	

10M-QPSK

L-1RB



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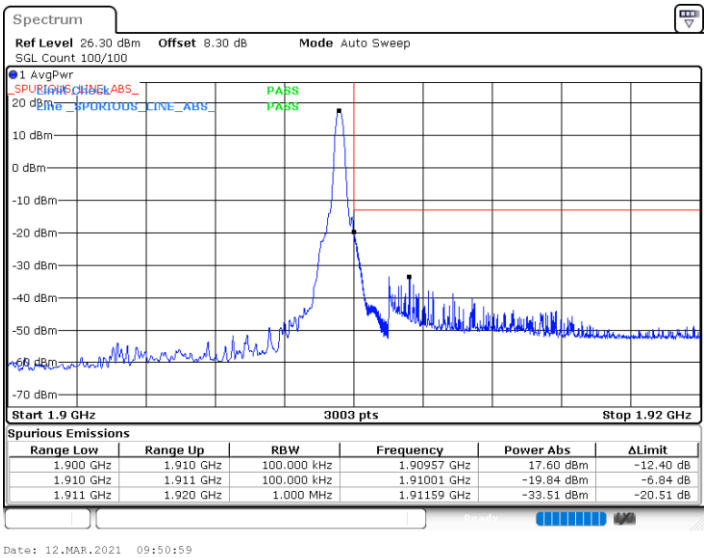
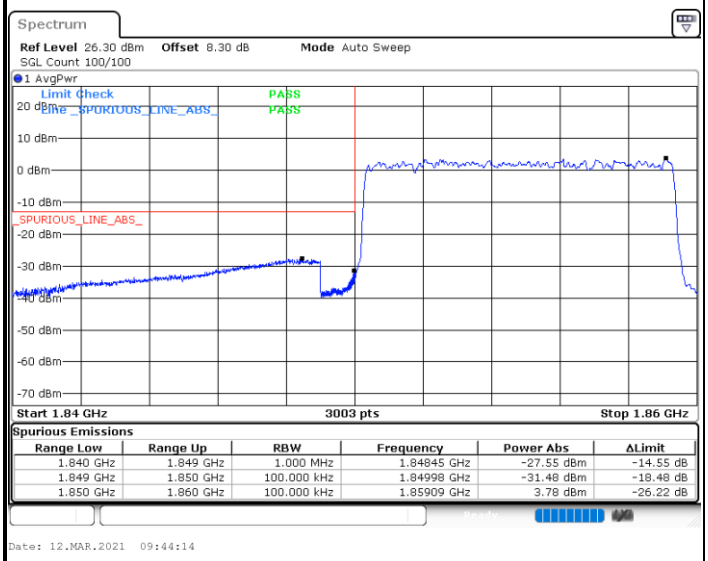


L-FULLRB



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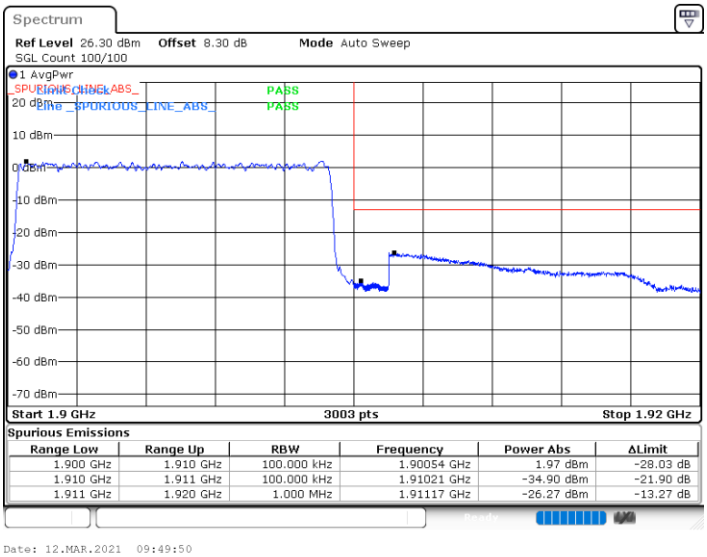
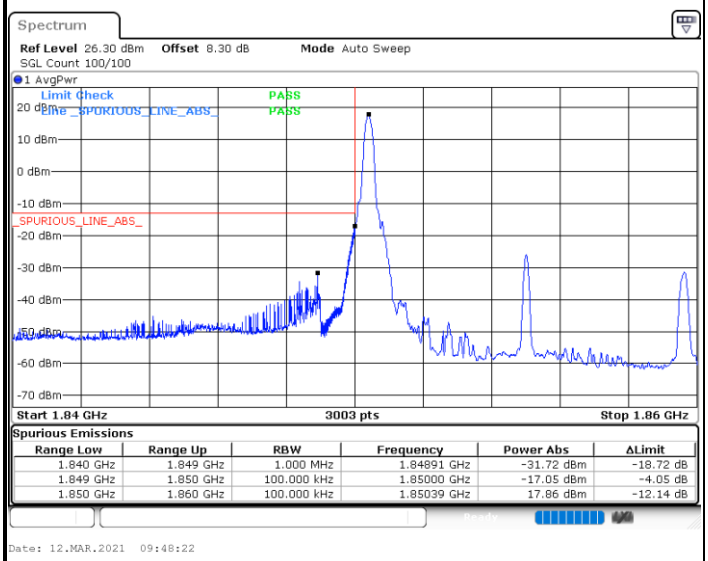


10M-16QAM

L-1RB



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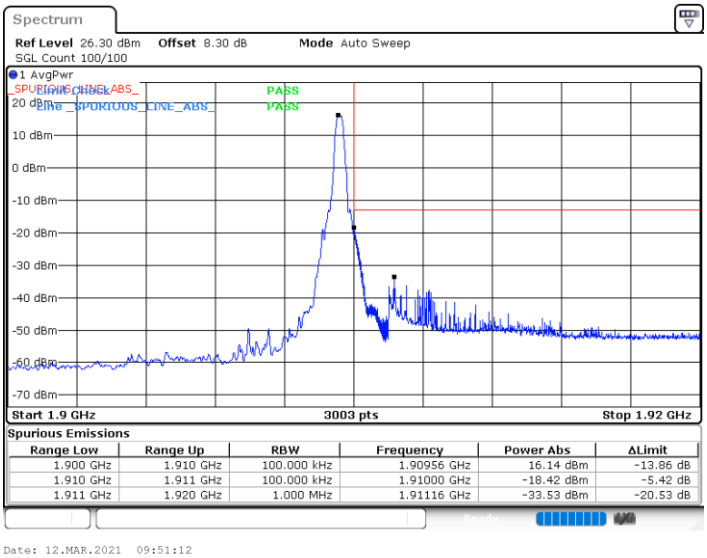

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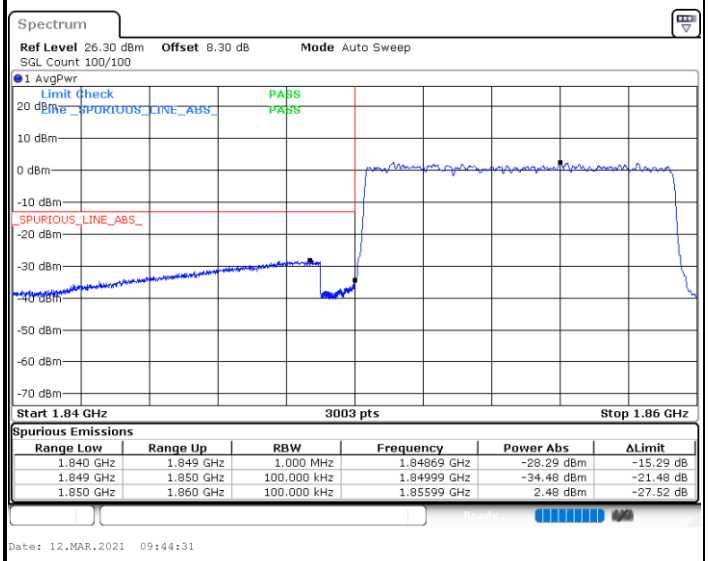
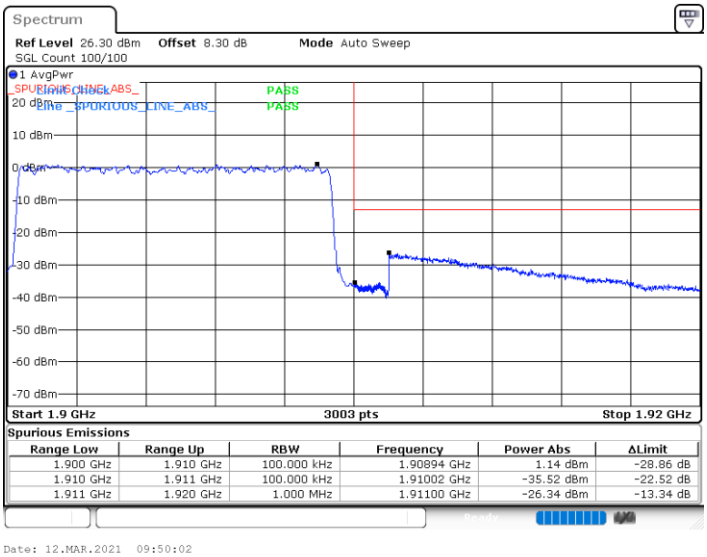
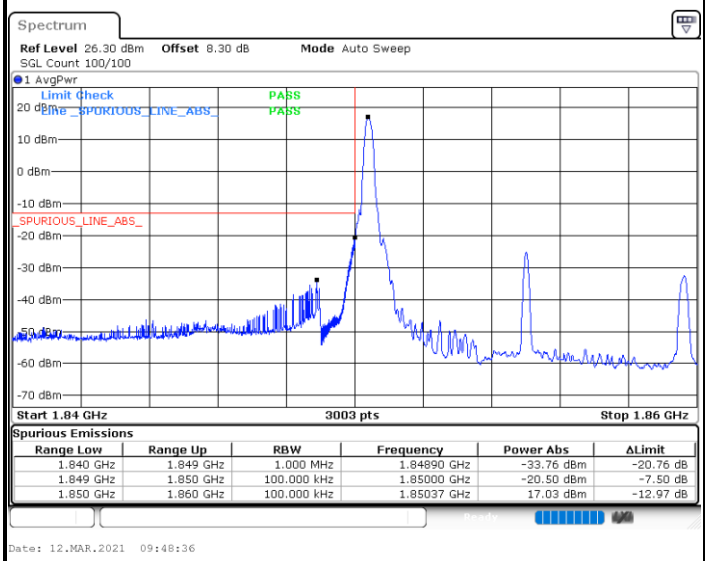


H-FULLRB



10M-64QAM

L-1RB

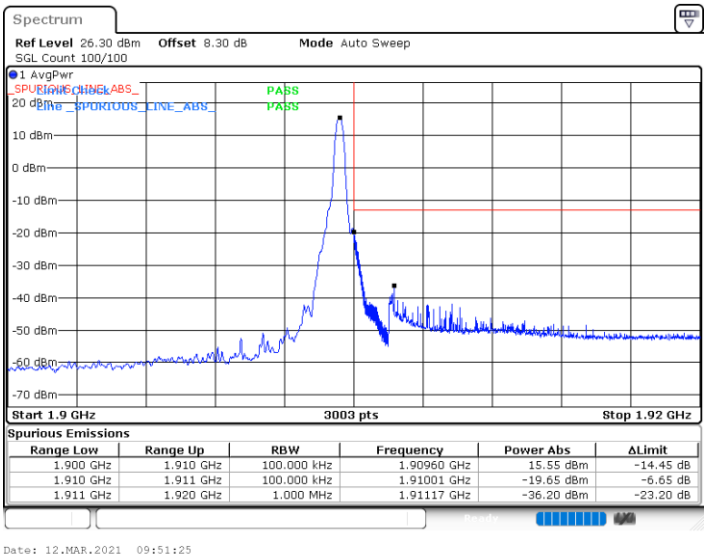


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84890 GHz	-33.76 dBm	-20.76 dB
1.849 GHz	1.850 GHz	100.000 kHz	1.85000 GHz	-20.50 dBm	-7.50 dB
1.850 GHz	1.860 GHz	100.000 kHz	1.85037 GHz	17.03 dBm	-12.97 dB

Date: 12.MAR.2021 09:48:36

H-1RB

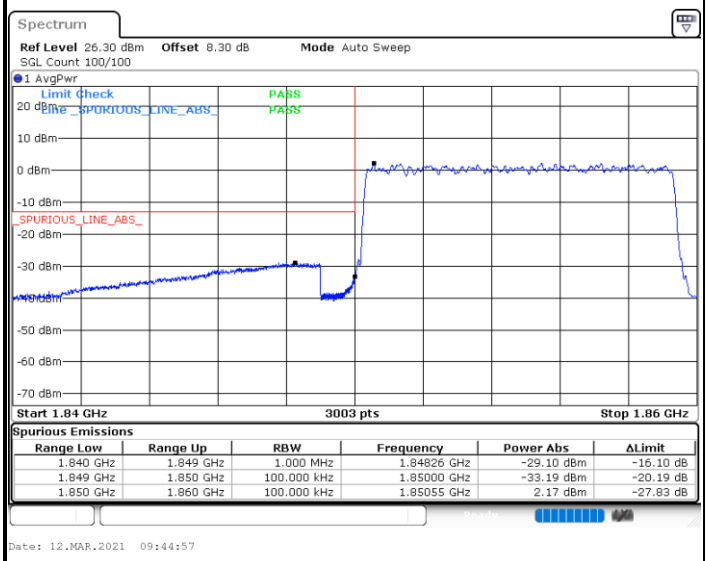


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.900 GHz	1.910 GHz	100.000 kHz	1.90960 GHz	15.55 dBm	-14.45 dB
1.910 GHz	1.911 GHz	100.000 kHz	1.91001 GHz	-19.65 dBm	-6.65 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91117 GHz	-36.20 dBm	-23.20 dB

Date: 12.MAR.2021 09:51:25

L-FULLRB

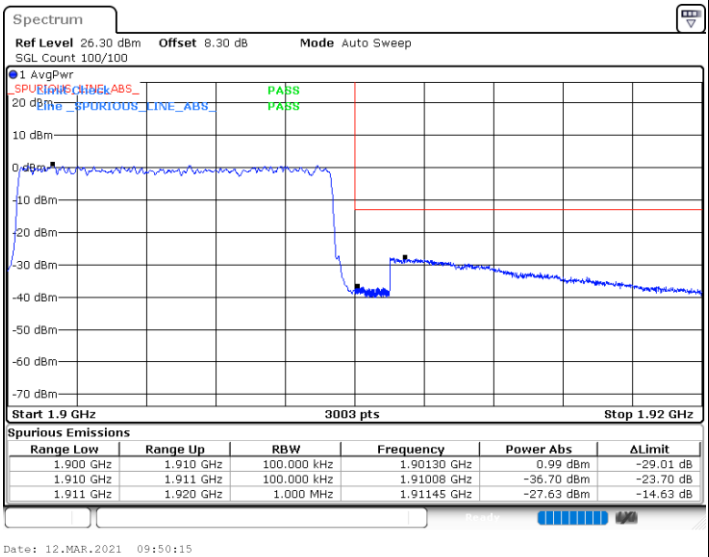


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84826 GHz	-29.10 dBm	-16.10 dB
1.849 GHz	1.850 GHz	100.000 kHz	1.85000 GHz	-33.19 dBm	-20.19 dB
1.850 GHz	1.860 GHz	100.000 kHz	1.85055 GHz	2.17 dBm	-27.83 dB

Date: 12.MAR.2021 09:44:57

H-FULLRB



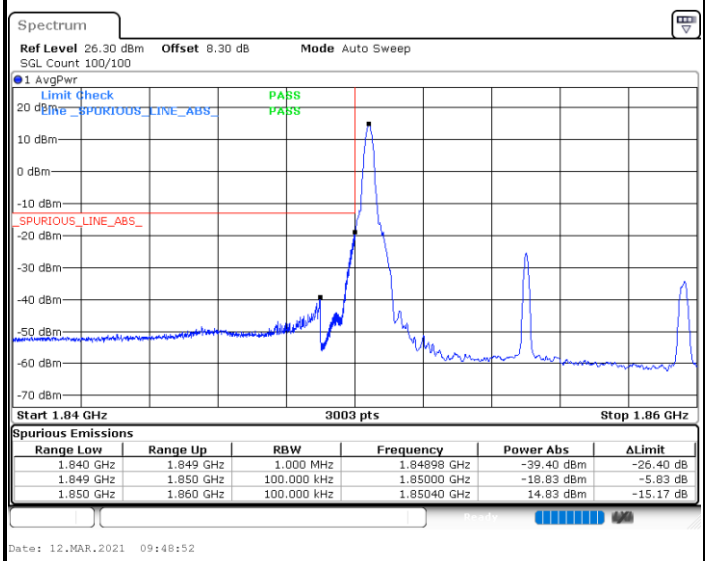
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.900 GHz	1.910 GHz	100.000 kHz	1.90130 GHz	0.99 dBm	-29.01 dB
1.910 GHz	1.911 GHz	100.000 kHz	1.91008 GHz	-36.70 dBm	-23.70 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91145 GHz	-27.63 dBm	-14.63 dB

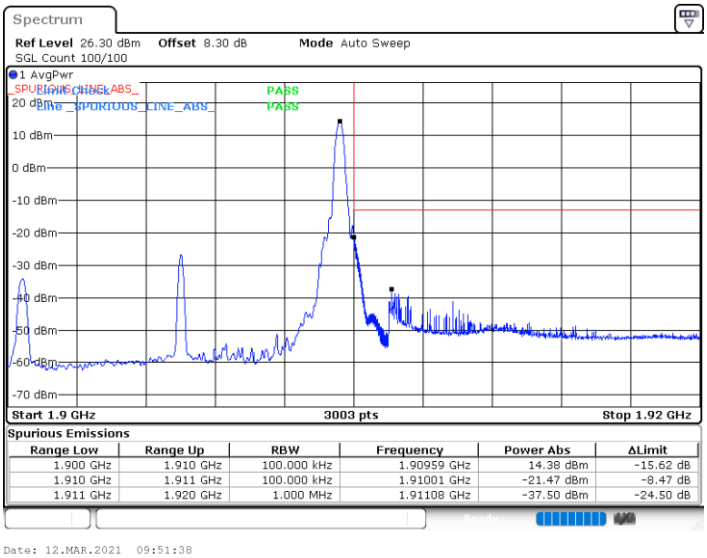
Date: 12.MAR.2021 09:50:15

10M-256QAM

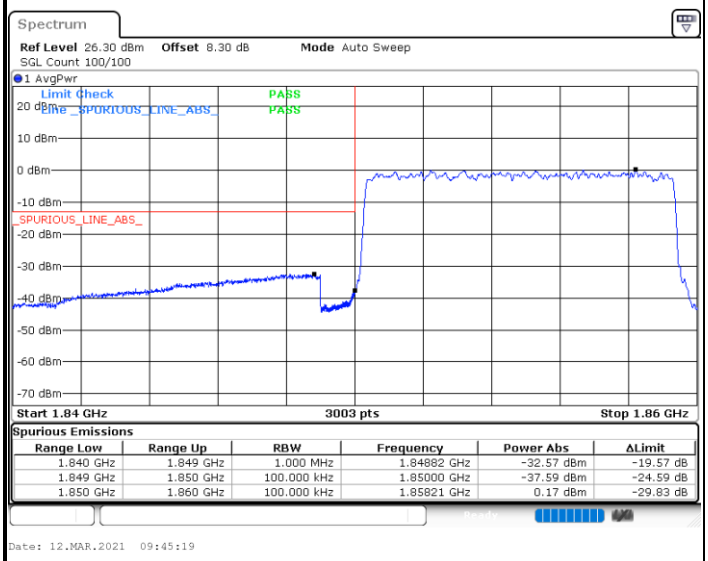
L-1RB



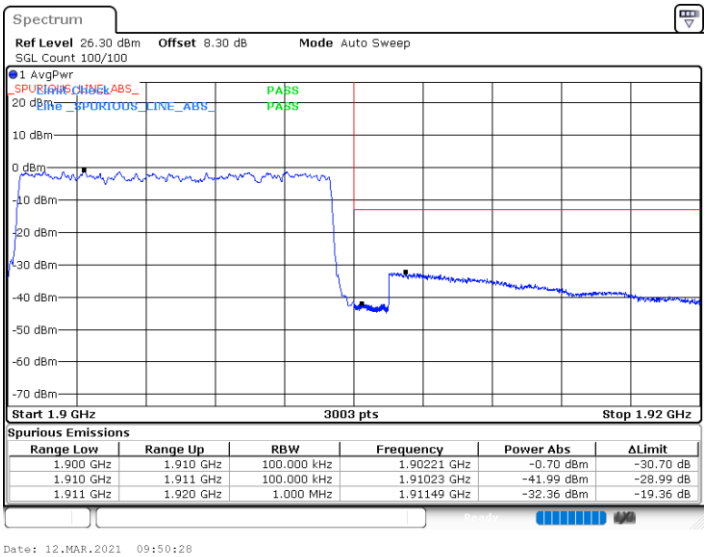
H-1RB



L-FULLRB

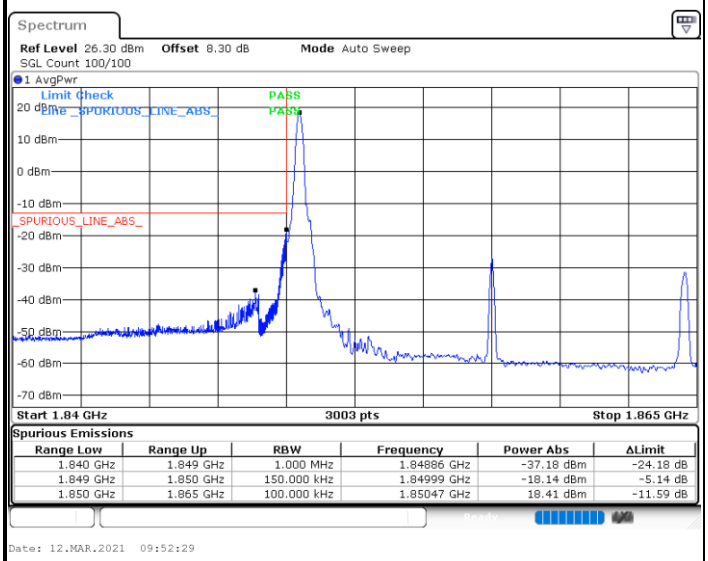


H-FULLRB

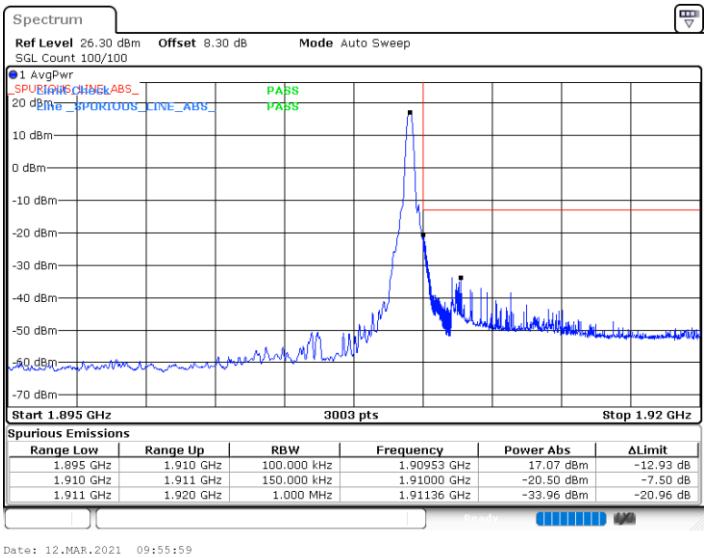


15M-BPSK

L-1RB



H-1RB



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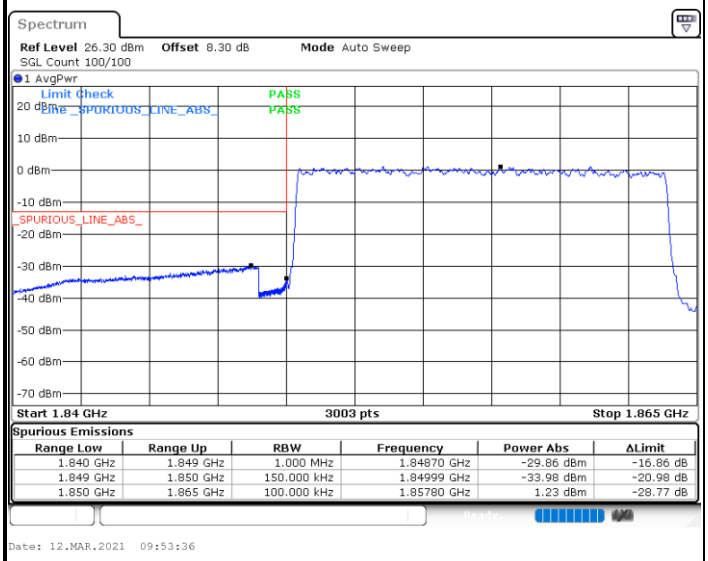
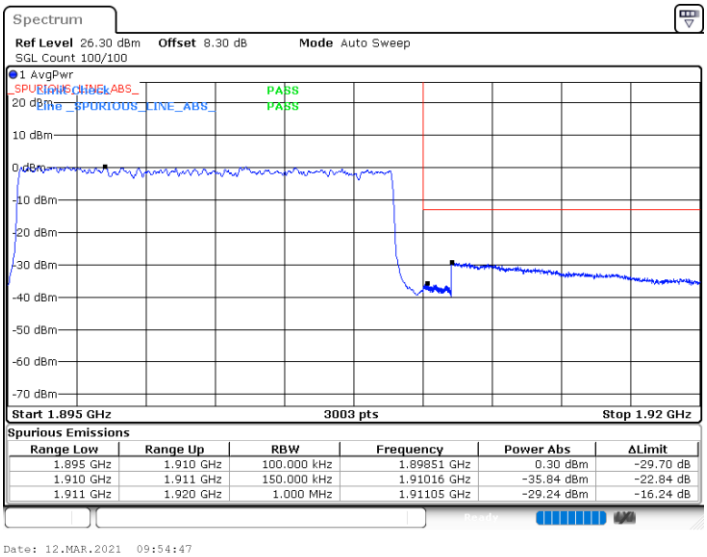
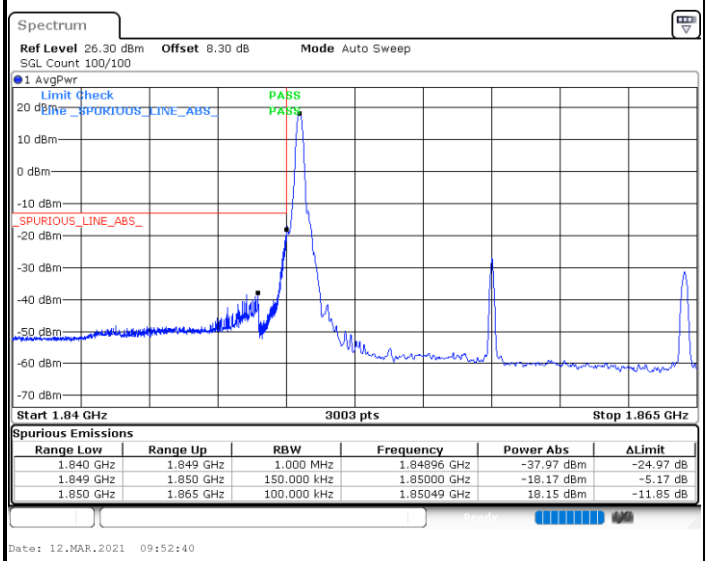


H-FULLRB

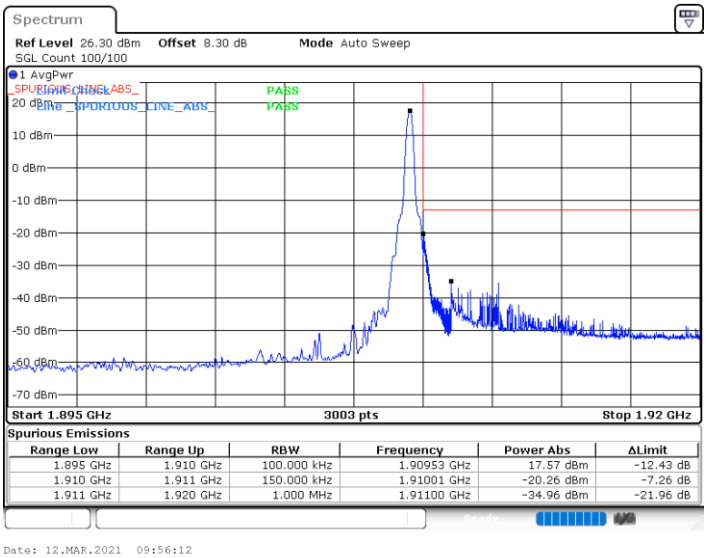


15M-QPSK

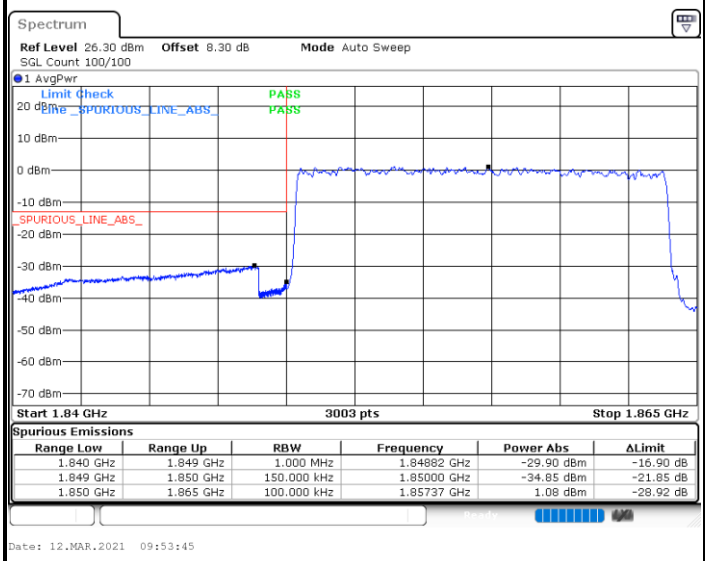
L-1RB



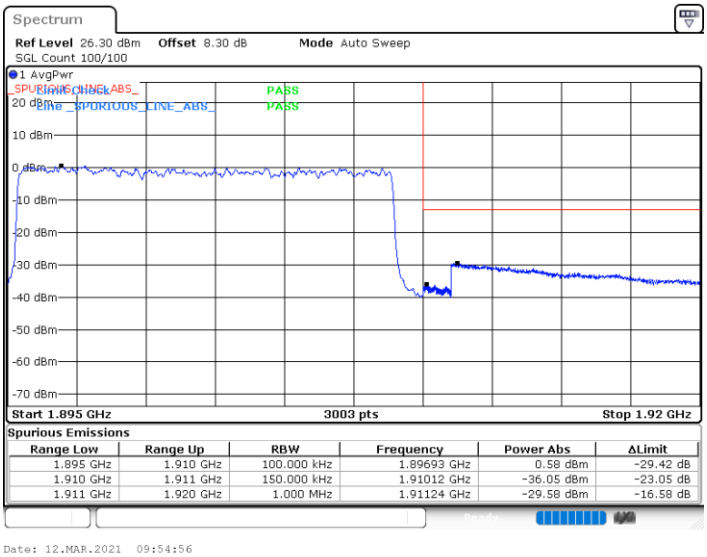
H-1RB



L-FULLRB

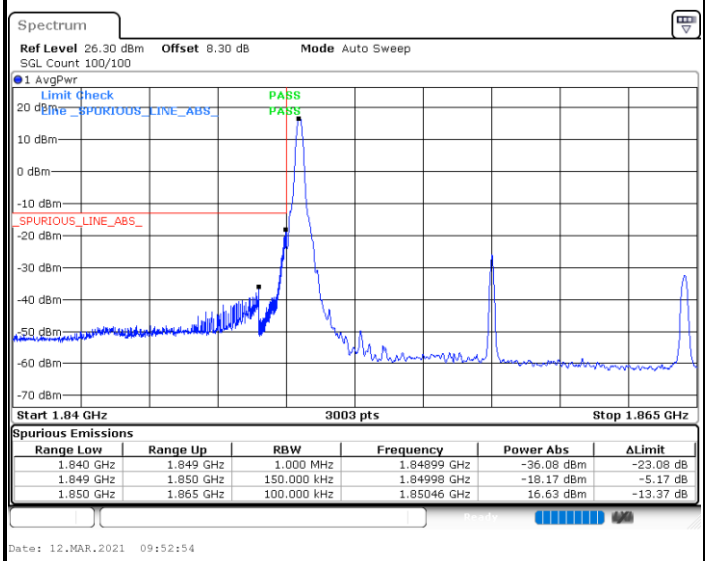


H-FULLRB

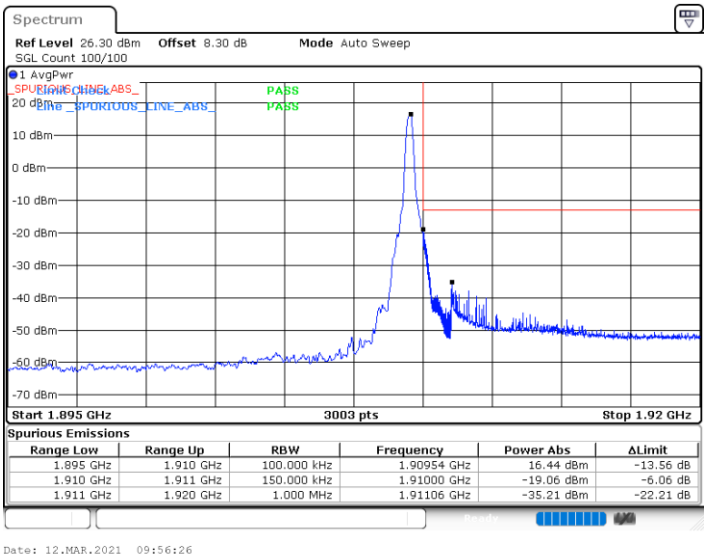


15M-16QAM

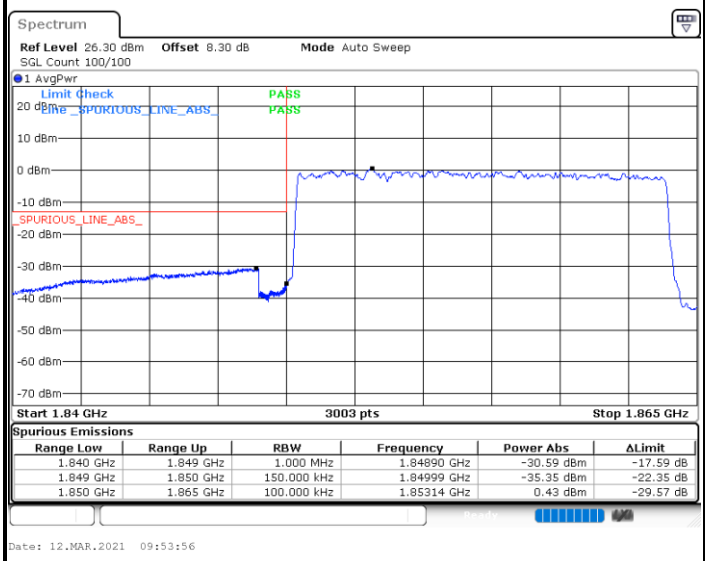
L-1RB



H-1RB



L-FULLRB



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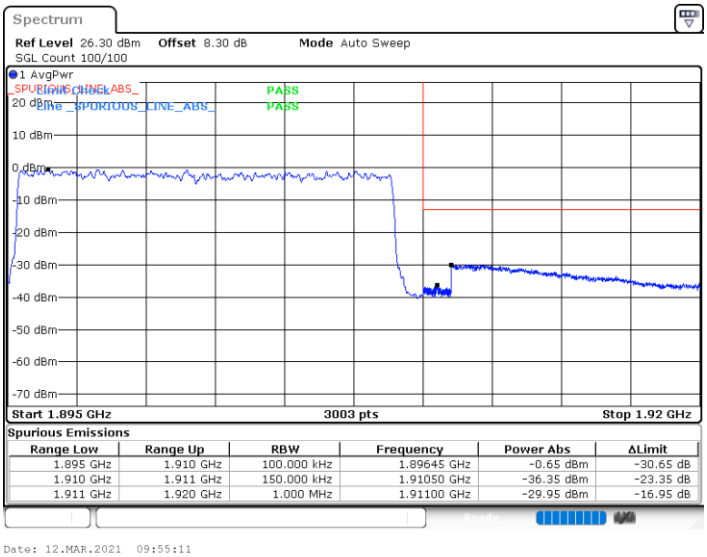

15M-64QAM

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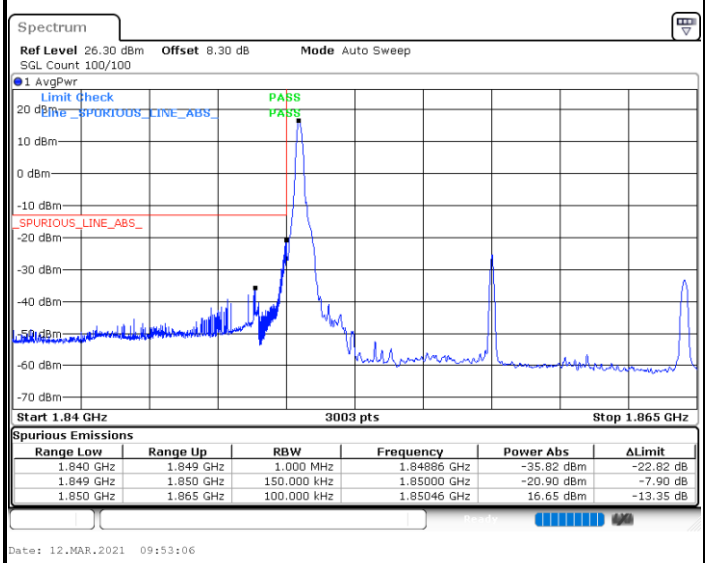

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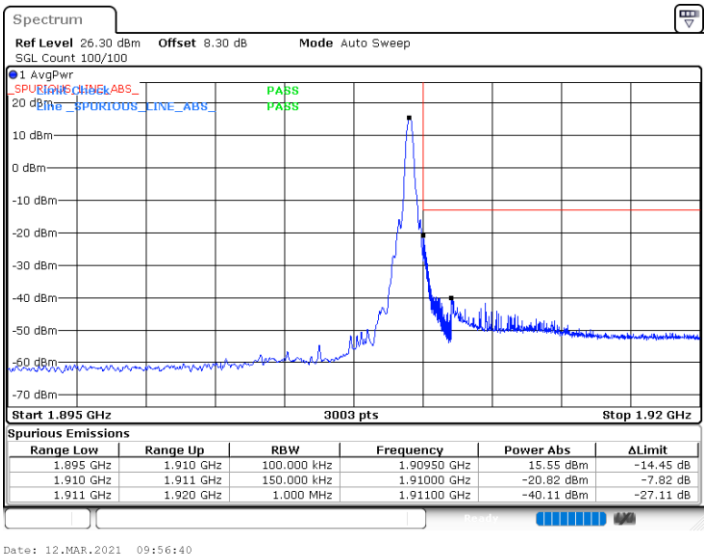

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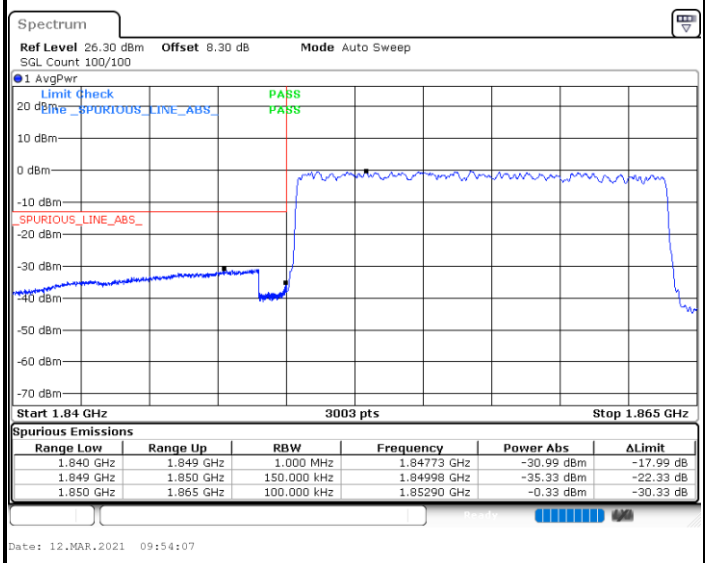

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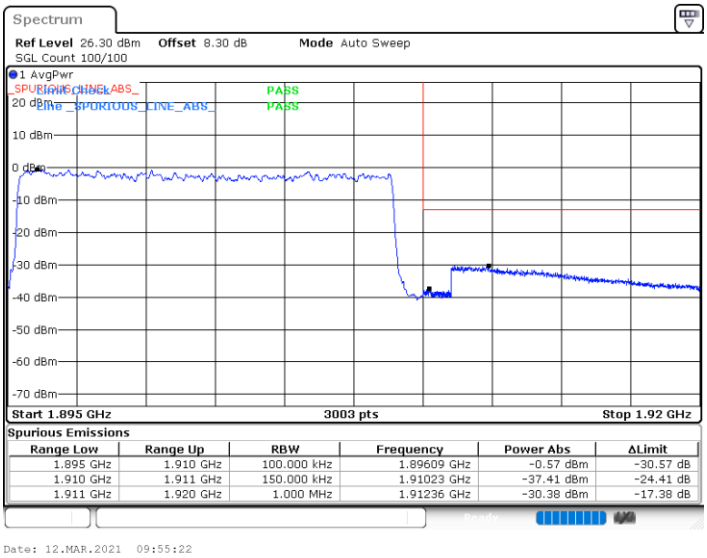

15M-256QAM

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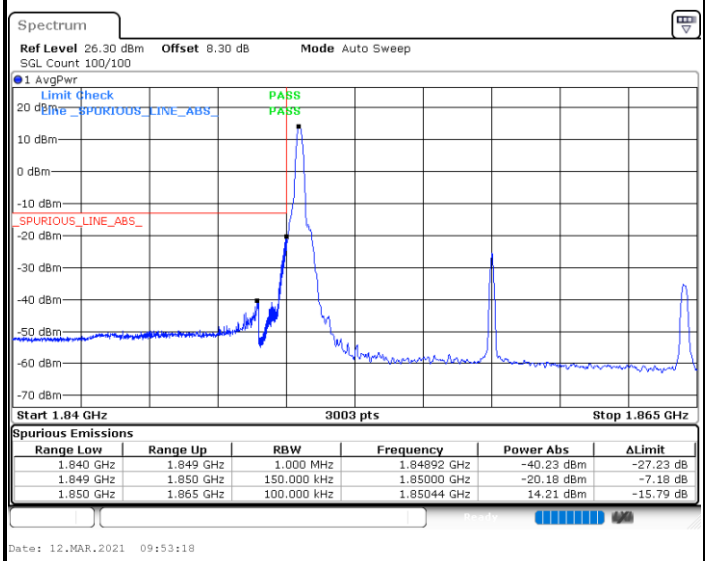

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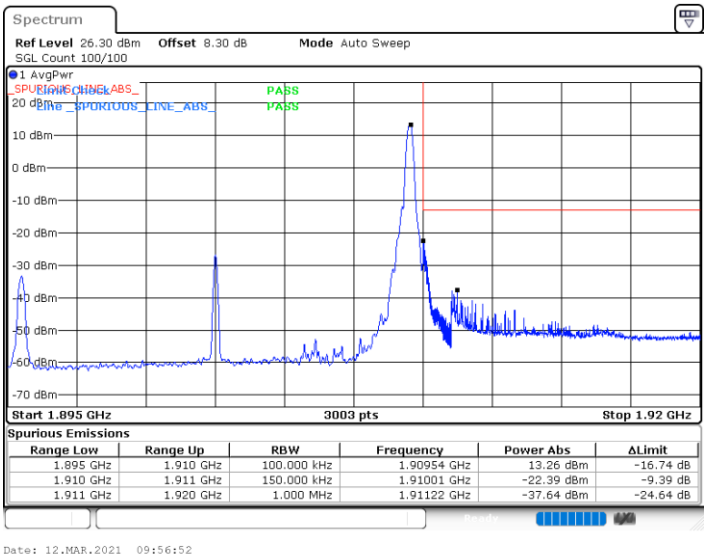

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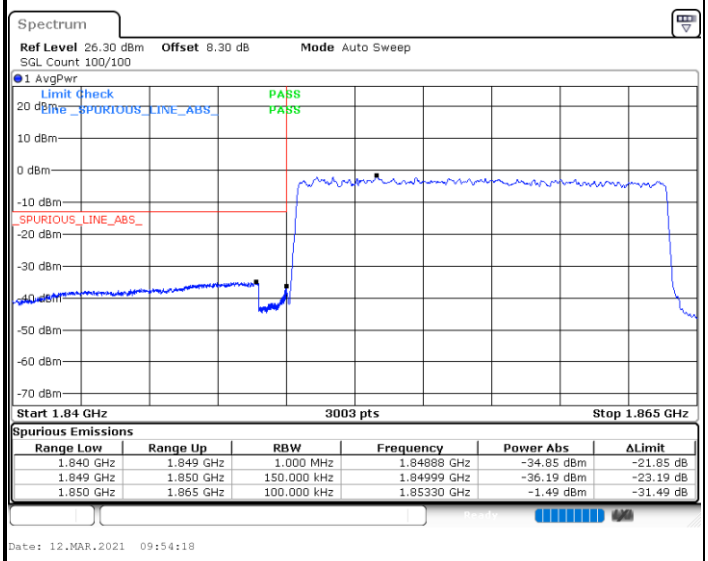

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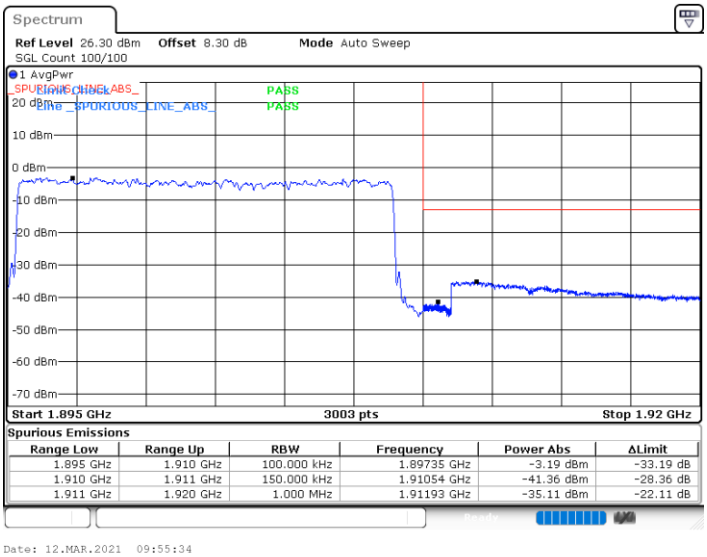
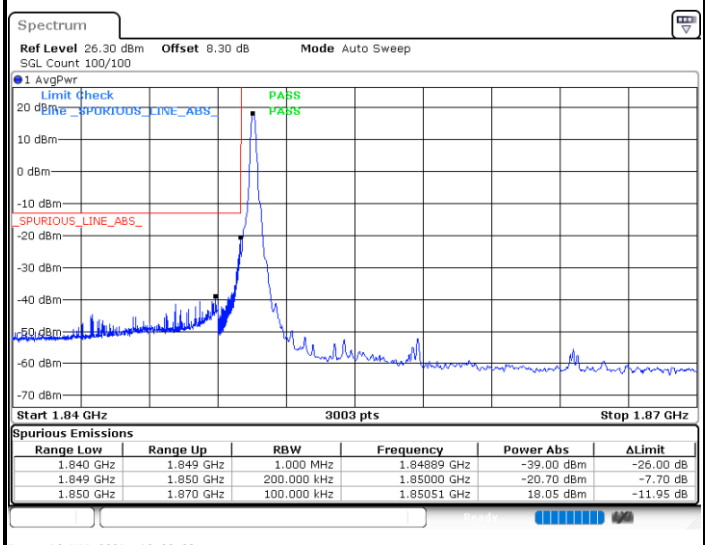


20M-BPSK

L-1RB



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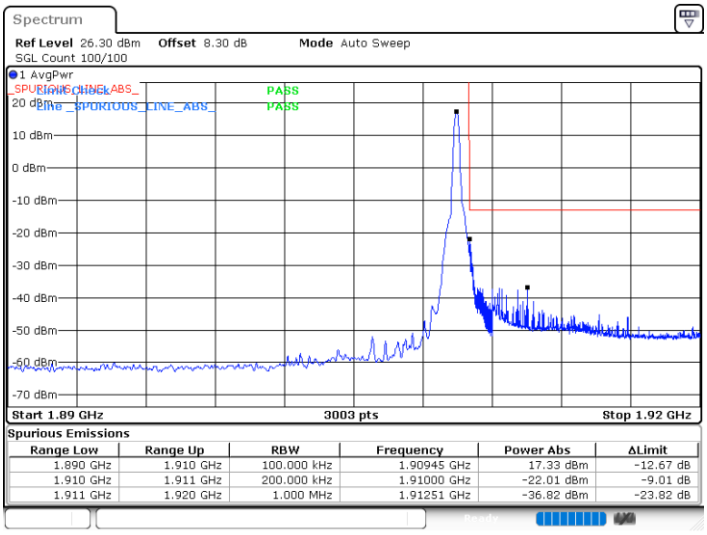

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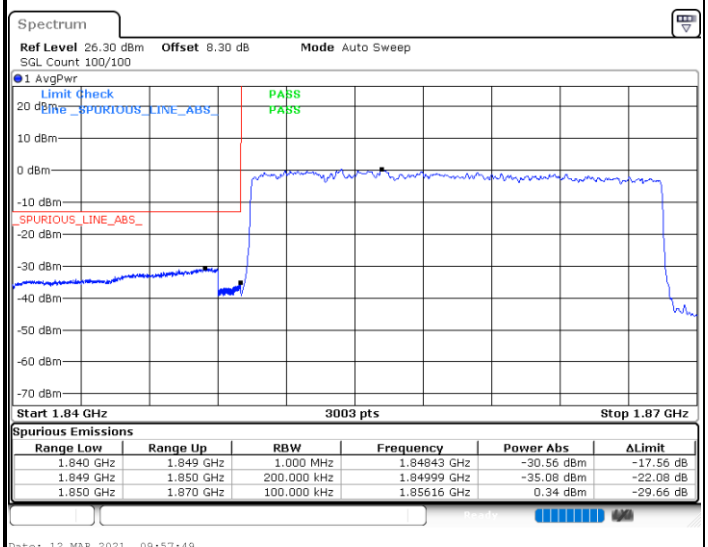

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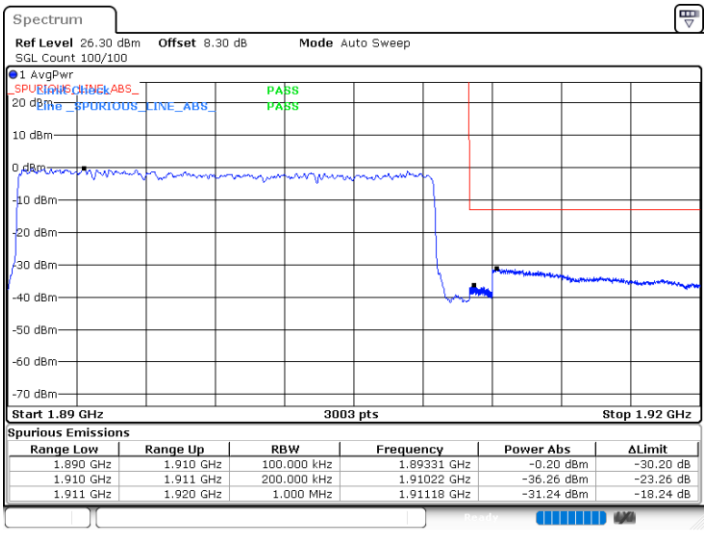

20M-QPSK

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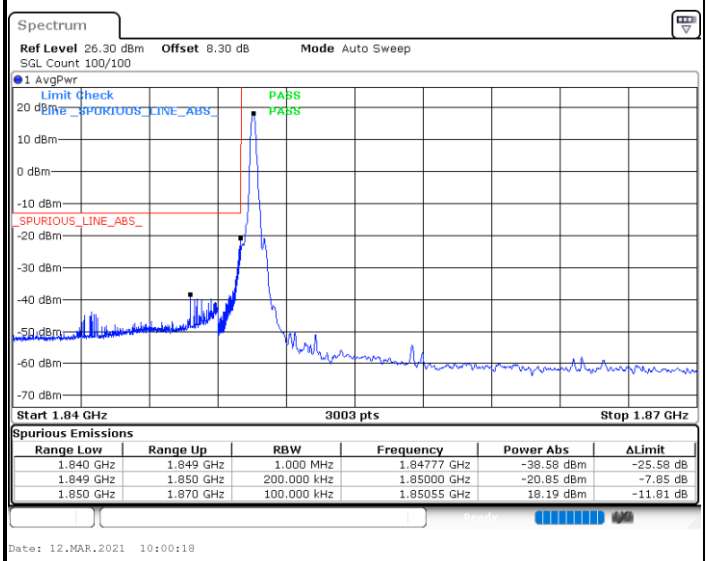
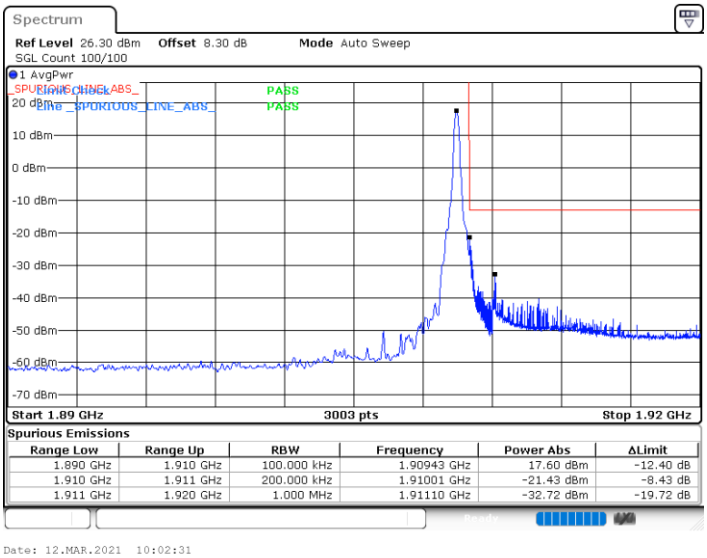


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84777 GHz	-38.58 dBm	-25.58 dB
1.849 GHz	1.850 GHz	200.000 kHz	1.85000 GHz	-20.85 dBm	-7.85 dB
1.850 GHz	1.870 GHz	100.000 kHz	1.85055 GHz	18.19 dBm	-11.81 dB

Date: 12.MAR.2021 10:00:18

H-1RB

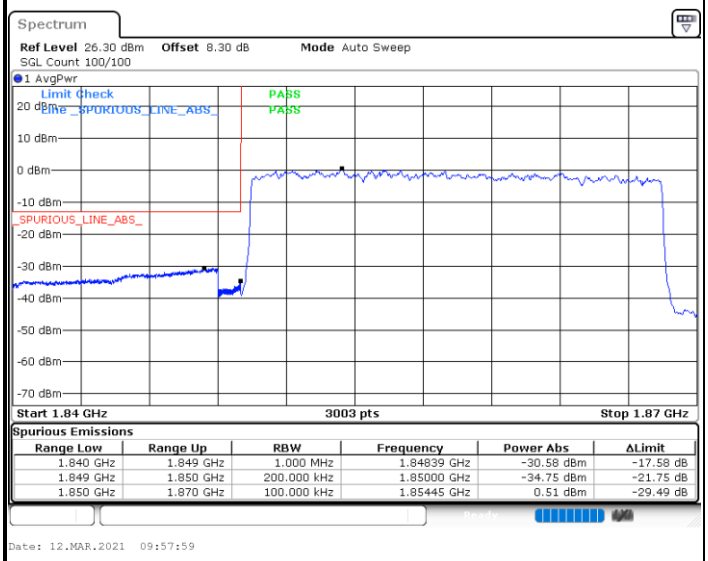


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.890 GHz	1.910 GHz	100.000 kHz	1.90943 GHz	17.60 dBm	-12.40 dB
1.910 GHz	1.911 GHz	200.000 kHz	1.91001 GHz	-21.43 dBm	-8.43 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91110 GHz	-32.72 dBm	-19.72 dB

Date: 12.MAR.2021 10:02:31

L-FULLRB

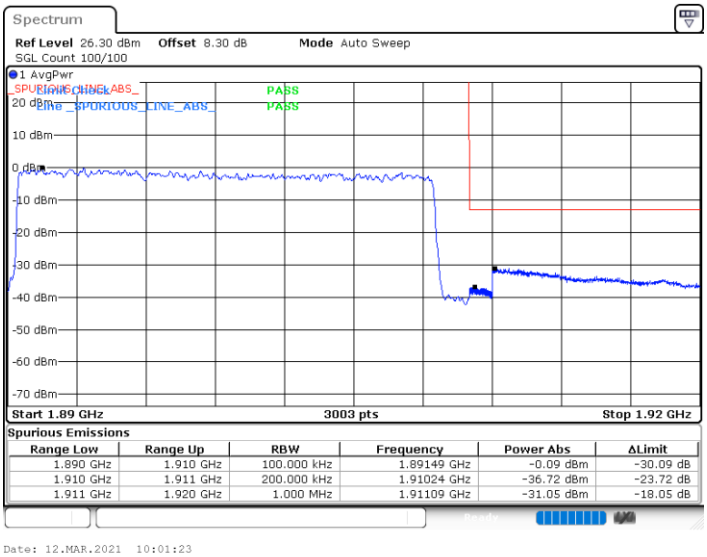


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84839 GHz	-30.58 dBm	-17.58 dB
1.849 GHz	1.850 GHz	200.000 kHz	1.85000 GHz	-34.75 dBm	-21.75 dB
1.850 GHz	1.870 GHz	100.000 kHz	1.85445 GHz	0.51 dBm	-29.49 dB

Date: 12.MAR.2021 09:57:59

H-FULLRB



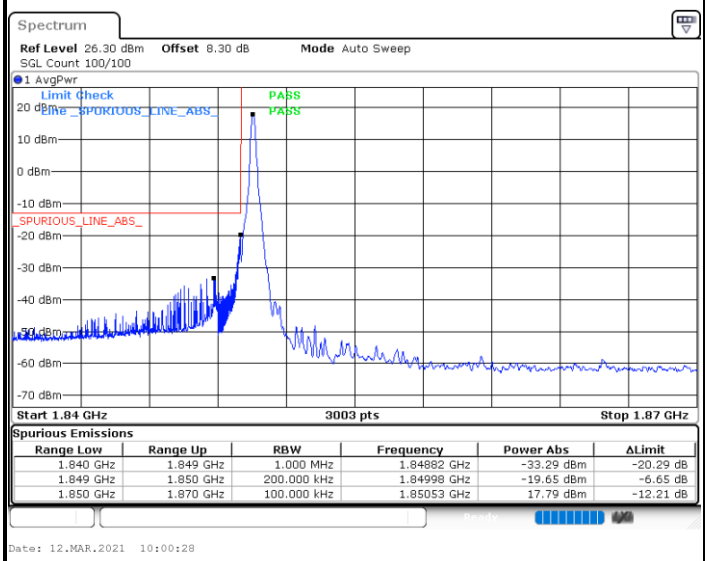
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.890 GHz	1.910 GHz	100.000 kHz	1.89149 GHz	-0.09 dBm	-30.09 dB
1.910 GHz	1.911 GHz	200.000 kHz	1.91024 GHz	-36.72 dBm	-23.72 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91109 GHz	-31.05 dBm	-18.05 dB

Date: 12.MAR.2021 10:01:23

20M-16QAM

L-1RB



Date: 12.MAR.2021 10:00:28

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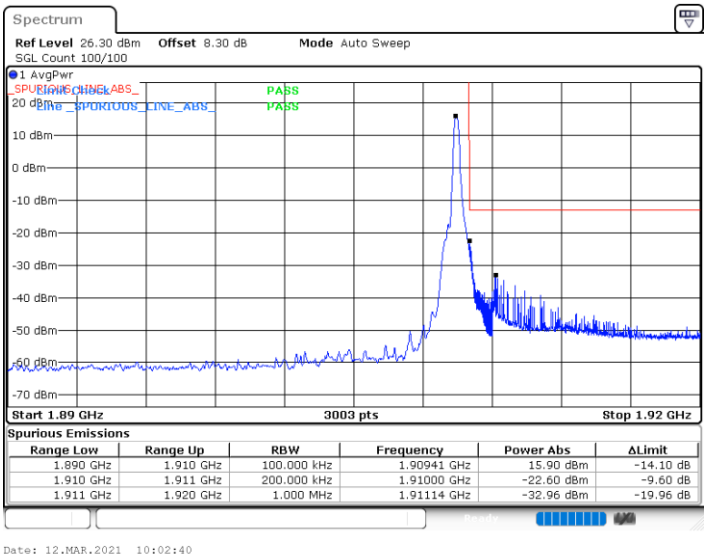

Date: 12.MAR.2021 10:02:40

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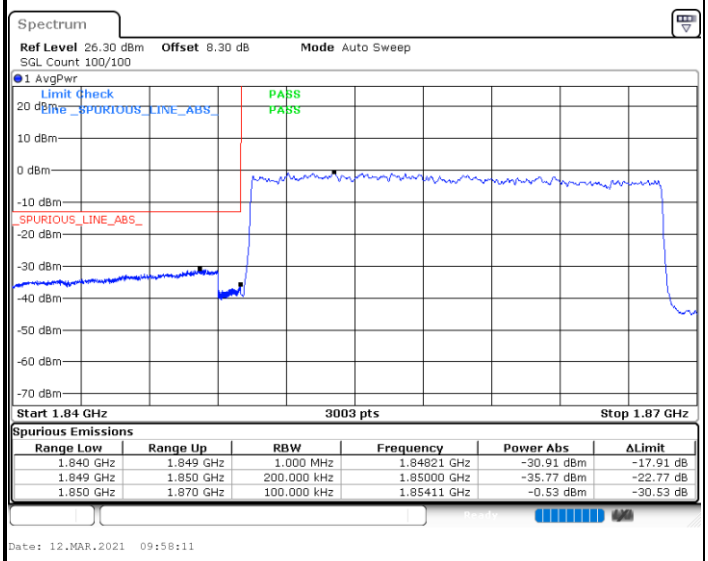

Date: 12.MAR.2021 09:58:11

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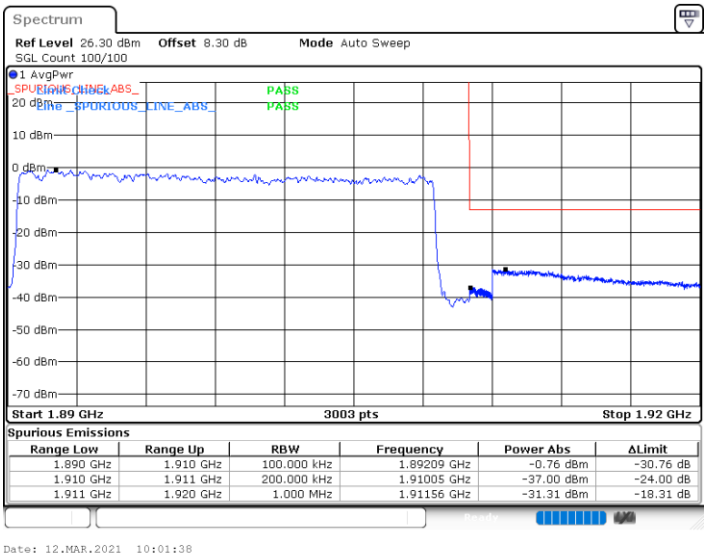
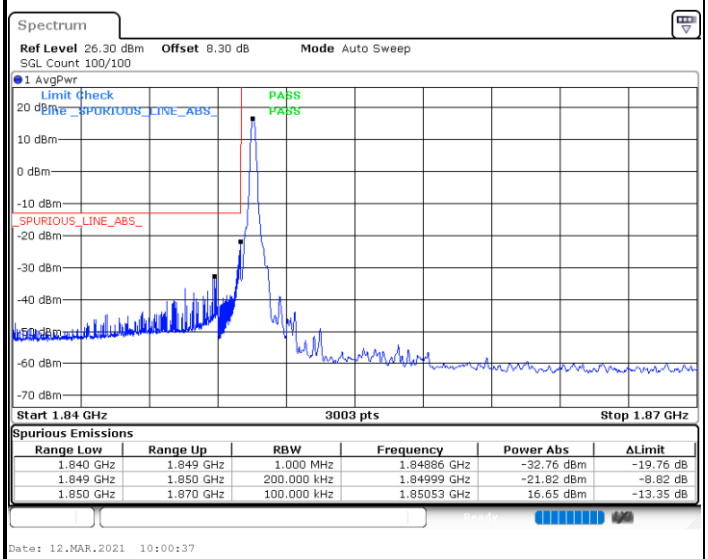


Date: 12.MAR.2021 10:01:38

20M-64AM

L-1RB



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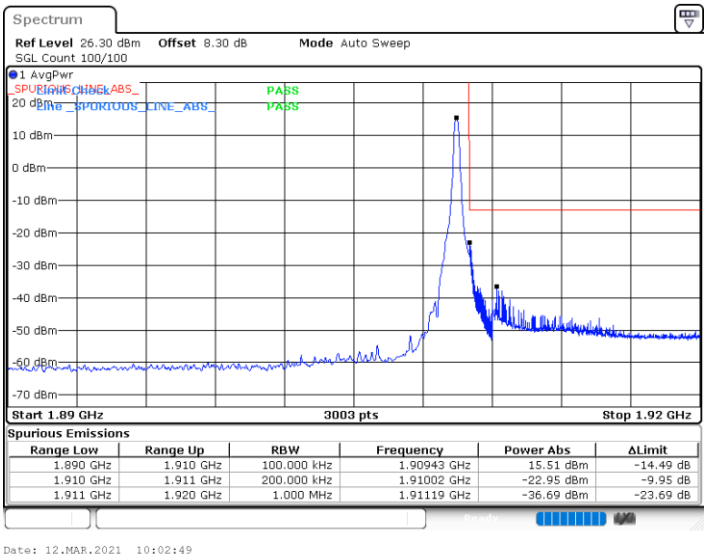

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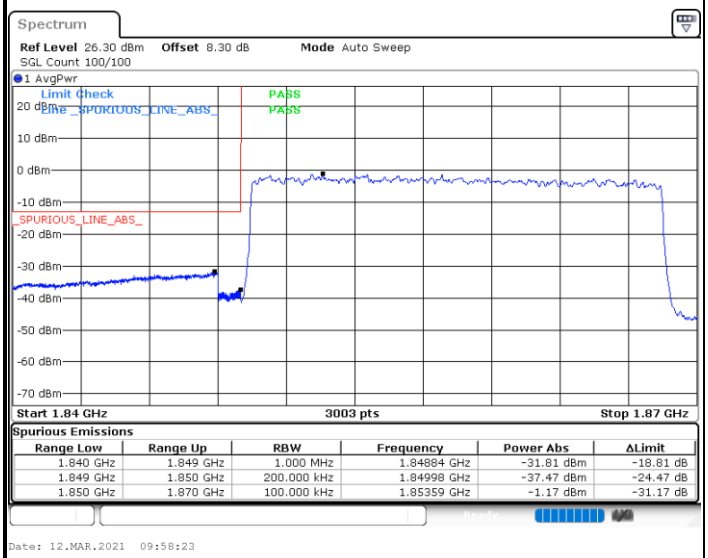

H-FULLRB