

 MOTOROLA SOLUTIONS	    CERTIFICATE 2518.08 MS ISO/IEC 17025 TESTING SAMM NO. 0825																												
MOTOROLA PENANG ADV. COMM. LABORATORY Motorola Solutions Malaysia Sdn Bhd, Plot 2A, Medan Bayan Lepas, Mukim 12 S.W.D, 11900 Bayan Lepas, Penang, Malaysia.	FCC / ISED TEST REPORT Report Revision : Rev.A																												
<table><tr><td>Date/s Tested</td><td>: 10-August-2020 - 27-August-2020</td></tr><tr><td>Manufacturer/Location</td><td>: Motorola Solutions Malaysia Sdn Bhd</td></tr><tr><td>Manufacturer Address</td><td>: Plot 2A, Medan Bayan lepas, Mukim 12, S.W.D. 11900 Bayan Lepas, Penang, Malaysia</td></tr><tr><td>Requestor</td><td>: SIEW KHENG TAN</td></tr><tr><td>Product Type</td><td>: Portable</td></tr><tr><td>Product Version (PMN)</td><td>: P2B</td></tr><tr><td>Model Number (HVIN)</td><td>: AAH90ZDU9RH1AN</td></tr><tr><td>Frequency Band</td><td>: Refer to section 1.4</td></tr><tr><td>Applicant Name</td><td>: Motorola Solutions Inc</td></tr><tr><td>Applicant Address</td><td>: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322.</td></tr><tr><td>FCC Registrations</td><td>: 461337</td></tr><tr><td>ISED Registrations</td><td>: MY0001</td></tr><tr><td>Firmware Version (FVIN)</td><td>: I02.21.01.0029 (BP), D00.00.65 (AP)</td></tr></table> The equipment was tested accordance to the requirement listed below: <table><tr><td>(LTE Band 30) FCC 47 CFR Part 2 / 27 ISED RSS GEN / 195</td><td>PASS</td></tr></table>		Date/s Tested	: 10-August-2020 - 27-August-2020	Manufacturer/Location	: Motorola Solutions Malaysia Sdn Bhd	Manufacturer Address	: Plot 2A, Medan Bayan lepas, Mukim 12, S.W.D. 11900 Bayan Lepas, Penang, Malaysia	Requestor	: SIEW KHENG TAN	Product Type	: Portable	Product Version (PMN)	: P2B	Model Number (HVIN)	: AAH90ZDU9RH1AN	Frequency Band	: Refer to section 1.4	Applicant Name	: Motorola Solutions Inc	Applicant Address	: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322.	FCC Registrations	: 461337	ISED Registrations	: MY0001	Firmware Version (FVIN)	: I02.21.01.0029 (BP), D00.00.65 (AP)	(LTE Band 30) FCC 47 CFR Part 2 / 27 ISED RSS GEN / 195	PASS
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Prepared By:  Lim Khay Kwang Technician	Approve Signatory:  Ho Sze Khian Technical Manager																												

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REVISION HISTORY

Revision History	Description	Date	Originator
Rev A.	Initial Report	11-September-2020	Lim Khay Kwang

1.0. Summary of Test Results

FCC Clause	ISED Clause	Test Item	Results	Remarks	Serial Number Tested
2.1046	RSS-Gen 6.12 RSS -195 4.1	Conducted RF Output Power	Pass	Meet the requirement of limit	734TWP0386
27.50	RSS-195 5.5.1	Peak-to-Average Power Ratio	Pass	Meet the requirement of limit	734TWP0386
2.1049 27.53(a)(5)	RSS-Gen 6.7	Occupied Bandwidth (26dBc, 99%)	Pass	Meet the requirement of limit	734TWP0386
2.1055 27.54	RSS-195 5.4	Frequency Stability	Pass	Meet the requirement of limit	734TWP0386
2.1051 27.53(a)(4)	RSS-Gen 6.13 RSS-195 5.6	Band Edge Conducted Spurious Emission	Pass	Meet the requirement of limit	734TWP0386
2.1051 27.53(a)(4)	RSS-Gen 6.13 RSS-195 5.6	Conducted Spurious Emissions	Pass	Meet the requirement of limit	734TWP0386
2.1053 27.53(a)(4)	RSS-195 5.6	Radiated Spurious Emission	Pass	Meet the requirement of limit	734TWP0308
2.1049 27.50(a)(3)	RSS-195 5.5	Equivalent Isotropically Radiated Power (EIRP)	Pass	Meet the requirement of limit	734TWP0386

1.1. Measurement Uncertainty

Measurement	Frequency	Expended Uncertainty (k=1.96) (±dB)
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	5.01
	200MHz ~ 1000MHz	5.01
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.01
	18GHz ~ 25GHz	5.01

1.2. Equipment List

Description	Model	Serial Number	Calibration Date	Calibration Due Date
Broadband ATE 1 (RF Conducted Tests); Test Software Version: CMWRun v1.8.9				
SIGNAL ANALYZER	FSV40	101431	16-Jul-19	16-Jul-21
CHAMBER	SH-641	92003150	25-Sep-19	25-Sep-20
WIDEBAND RADIO COMMUNICATION TESTER	CMW500	154550	23-Jul-19	23-Jul-21
POWER SUPPLY	6652A	3117A00162	16-Mar-20	16-Mar-21
Radiated Spurious Emission (EMC Chamber 1); Test Software Version: EMC_FCC_RE_v1.6.2				
DRG HORN FREQ.	SAS-571	720	21-Mar-19	21-Mar-21
DRG HORN FREQ.	SAS-571	1143	14-Feb-19	14-Feb-21
POWER SUPPLY	6032A	2615A01178	21-MAY-20	21-MAY-21
SIGNAL GENERATOR	SMB 100A	181117	8-Nov-18	8-Nov-21
EMI TEST RECEIVER	ESW44	101750	24-Jul-19	24-Sep-20
EMI TEST RECEIVER	ESIB26	100017	19-Jul-19	19-Sep-20

5m Semi-anechoic Chamber	S800-HX	J2308	Not Required	Not Required
BILOG ANTENNA	CBL6112B	2964	23-Apr-19	23-Apr-21
BILOG ANTENNA	CBL6112B	2950	8-Jul-19	8-Jul-21
DATA LOGGER	SDL500	A.016776	4-Jun-20	4-Jun-21
SYSTEM CONTROLLER	SC104V	050806-1	Not Required	Not Required
TURNTABLE FLUSH MOUNT 2M	FM2011	NA	Not Required	Not Required
ANTENNA POSITIONING TOWER	TLT2	NA	Not Required	Not Required
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170255	27-Jan-20	27-Jan-21
18 - 40GHz PREAMPLIFIER	Miteq Hi Gain Sucoflex	001	Not Required	Not Required
PREAMPLIFIER	PAM-0118	269	24-May-19	24-May-22
LOOP ANTENNA	6502	00208416	5-Sep-19	5-Sep-20

1.3. General Information

General Description of EUT

Product	MACKENZIE UHF NAG MODEL			
Brand	Motorola Solutions			
Test Model	AAH90ZDU9RH1AN			
Power Supply Rating	7.5VDC			
Mode of operation	LTE Band 30			
Modulation Type	QPSK, 16QAM			
Operating Frequency	LTE Band 30	Channel Bandwidth 5MHz	2307.5MHz~2312.5MHz	
		Channel Bandwidth 10MHz	2310.0MHz	
Max. EIRP Power	LTE Band 30 QPSK	Channel Bandwidth 5MHz	25.682dBm (0.370W)	
		Channel Bandwidth 10MHz	25.605dBm (0.363W)	
	LTE Band 30 16QAM	Channel Bandwidth 5MHz	24.771dBm (0.300W)	
		Channel Bandwidth 10MHz	24.745dBm (0.298W)	
Emission Designator	LTE Band 30		QPSK	16QAM
		Channel Bandwidth 5MHz	4M47G7D	4M48D7W
		Channel Bandwidth 10MHz	8M91G7D	8M95D7W
Antenna Type	LTE Band 30	LTE MID-HIGH BAND MAIN ANTENNA (2.84dBi)		
SW Version	I02.21.01.0029 (BP), D00.00.65 (AP)			
HW Version	P2B			

Note:

1. The EUT contains following accessory devices and data cable.

Item	Brand	Model or P/N	Specification
Li-Ion	MOTOROLA	PMNN4804A	BATTERY PACK,BATTERY PACK,IMPRES GEN2, LIION,IP68, 2820T

Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	Product	Brand	Model No.	Serial No.	FCC ID
1	Wideband Radio Communication Tester	R&S	CMW500	154550	NA

NO.	Signal Cable Description of The above Support Units
1	NA

Note:

1. All power cords of the above support units are non-shielded.
2. Item 1 acted as a communication partner to transfer data.

EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency.

General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v03r01

KDB 971168 D02 Misc OOB License Digital Systems v02r01

ANSI C63.26

NOTE: All test items have been performed and recorded as per the above standards.

1.4. Channel number and frequency info

Band	Bandwidth supported	Available Channel Number	Test Channel Number			Test Channel Frequency (MHz)		
			Low Channel	Mid Channel	High Channel	Low Channel	Mid Channel	High Channel
LTE Band 30	5 MHz	27685 ~ 27735	27685	27710	27735	2307.5	2310.0	2312.5
	10 MHz	27710	-	27710	-	-	2310.0	-

1.5. Test Mode Applicability and Tested Channel Detail

LTE Band 30

Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Conducted RF Output Power	27685 ~ 27735	27685, 27710, 27735	5 MHz	QPSK, 16QAM	As per table 1.6.3
	27710	27710	10 MHz		
Peak to Average Power Ratio	27685 ~ 27735	27685, 27710, 27735	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
	27710	27710	10 MHz		50 RB / 0 RB Offset
Occupied Bandwidth	27685 ~ 27735	27685, 27710, 27735	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
	27710	27710	10 MHz		50 RB / 0 RB Offset
Frequency Stability	27685 ~ 27735	27710	5 MHz	QPSK	25 RB / 0 RB Offset
	27710	27710	10 MHz		50 RB / 0 RB Offset
Band Edge Conducted Spurious Emission	27685 ~ 27735	27685, 27735	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
	27710	27710	10 MHz		1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
Conducted Spurious Emission	27685 ~ 27735	27685, 27710, 27735	5 MHz	QPSK	1 RB / 0 RB Offset
	27710	27710	10 MHz		1 RB / 0 RB Offset
Equivalent Isotropically Radiated Power (EIRP)	27685 ~ 27735	27685, 27710, 27735	5 MHz	QPSK, 16QAM	As per table 1.6.4
	27710	27710	10 MHz		
Radiated Spurious Emission	27685 ~ 27735	27685	5 MHz	QPSK	1 RB / 13 RB Offset
	27685 ~ 27735	27710	5 MHz		1 RB / 13 RB Offset
	27685 ~ 27735	27735	5 MHz		1 RB / 0 RB Offset

NOTE:

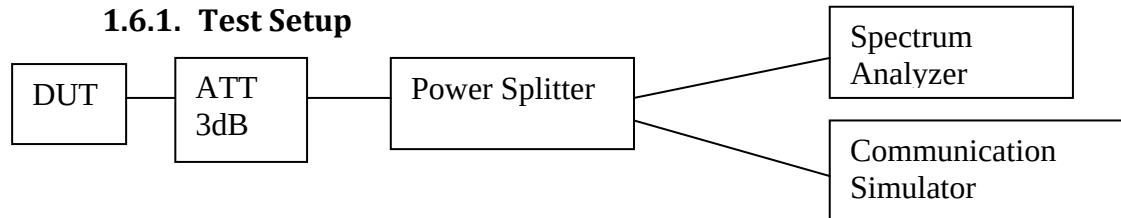
1. The Conducted RF Output Power for QPSK and 16QAM, measured value of QPSK mode is higher than 16QAM mode. Therefore, only Conducted Spurious Emission and Radiated Emission had been tested under QPSK modes.
2. Band Edge was performed with 1 and full Resource Block at the lowest and highest operating frequency band.
3. The Equivalent Isotropically Radiated Power (EIRP) was calculated from Conducted RF Output Power results in QPSK and 16QAM modulation.
4. Peak to Average and Occupied Bandwidth were performed with full Resource Block which is the worst case.
5. Frequency stability was performed with full Resource Block in QPSK modulation.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
Conducted RF Output Power	25°C, 50% RH	7.5V DC	Khay Kwang
Peak-to-Average Power Ratio	25°C, 50% RH	7.5V DC	Khay Kwang
Occupied Bandwidth	25°C, 50% RH	7.5V DC	Khay Kwang
Frequency Stability	25°C, 50% RH	7.5V DC	Khay Kwang
Band Edge Conducted Spurious Emission	25°C, 50% RH	7.5V DC	Khay Kwang
Conducted Spurious Emission	25°C, 50% RH	7.5V DC	Khay Kwang
Radiated Spurious Emission	25°C, 63.7% RH	7.5V DC	Nazrin&Fendi
Equivalent Isotropically Radiated Power (EIRP)	25°C, 63.7% RH	7.5V DC	Khay Kwang

1.6. Conducted RF Output Power

1.6.1. Test Setup



1. The DUT transmitter output port was connected to communication simulator with above setup.
2. Path loss for the measurement included.
3. Set DUT to transmit maximum power through communication simulator
4. All the measurement was done at low, mid, high channel for each band and different modulation.
5. Record the average power into the test report.

1.6.2. Limits

FCC: For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth.

ISED: The e.i.r.p. of mobile or portable equipment transmitting in the band 2305-2315 MHz or the band 2350-2360 MHz, employing 3GPP LTE (Third Generation Partnership Project Long Term Evolution) standards, shall not exceed 250 mW within any 5 MHz bandwidth. For other technologies, the e.i.r.p. shall not exceed 50 mW within any 1 MHz bandwidth.

1.6.3. Conducted RF Output Power – LTE Band 30 (2305-2315MHz)

Conducted Output Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			27685	27710	27735	27685	27710	27735
			2307.5MHz	2310.0 MHz	2312.5 MHz	2307.5 MHz	2310.0 MHz	2312.5 MHz
Band 30 / 5MHz	1	0	22.767	22.734	22.842	21.88	21.812	21.931
	1	13	22.796	22.77	22.778	21.917	21.814	21.836
	1	24	22.74	22.684	22.764	21.894	21.657	21.843
	12	0	21.788	21.809	21.817	20.787	21.03	20.819
	12	6	21.782	21.83	21.85	20.775	20.879	20.806
	12	13	21.765	21.809	21.73	20.757	20.861	20.715
	25	0	21.796	21.798	21.827	20.829	20.838	20.905

Conducted Output Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
				27710			27710	
				2310.0 MHz			2310.0 MHz	
Band 30 / 10MHz	1	0		22.765			21.905	
	1	25		22.737			21.872	
	1	49		22.709			21.8	
	25	0		21.811			20.931	
	25	13		21.834			20.96	
	25	25		21.824			20.936	
	50	0		21.842			20.899	

1.6.4 Equivalent Isotropically Radiated Power (EIRP) - LTE Band 30 (2305-2315MHz)

Equivalent Isotropically Radiated Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			27685	27710	27735	27685	27710	27735
			2307.5MHz	2310.0 MHz	2312.5 MHz	2307.5 MHz	2310.0 MHz	2312.5 MHz
Band 30 / 5MHz	1	0	25.607	25.574	25.682	24.72	24.652	24.771
	1	13	25.636	25.61	25.618	24.757	24.654	24.676
	1	24	25.58	25.524	25.604	24.734	24.497	24.683
	12	0	24.628	24.649	24.657	23.627	23.87	23.659
	12	6	24.622	24.67	24.69	23.615	23.719	23.646
	12	13	24.605	24.649	24.57	23.597	23.701	23.555
	25	0	24.636	24.638	24.667	23.669	23.678	23.745

Equivalent Isotropically Radiated Power (dBm)								
LTE Band/BW	RB Size	RB Offset	QPSK Modulation			16QAM Modulation		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
				27710			27710	
				2310.0 MHz			2310.0 MHz	
Band 30 / 10MHz	1	0		25.605			24.745	
	1	25		25.577			24.712	
	1	49		25.549			24.64	
	25	0		24.651			23.771	
	25	13		24.674			23.8	
	25	25		24.664			23.776	
	50	0		24.682			23.739	

The maximum ERP/EIRP from the measured RF output power is given in Equation as follows:

$$\mathbf{EIRP} = \mathbf{P_{Meas}} + \mathbf{GT}$$

$$\mathbf{ERP} = \mathbf{EIRP} - 2.15$$

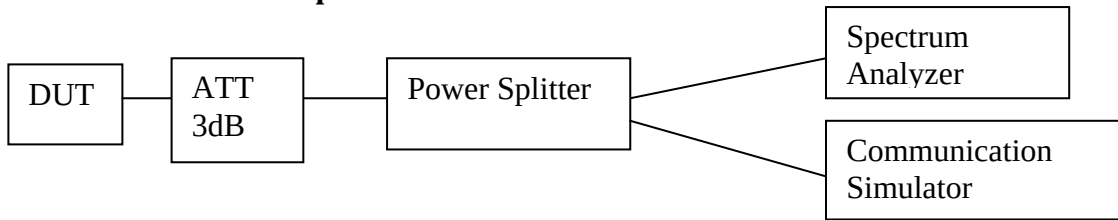
Where, ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively
(Expressed in the same units as P_{Meas}, e.g., dBm)

P_{Meas} measured transmitter output power, in dBm

GT gain of the transmitting antenna, in dBi (EIRP)

1.7. Peak-to-Average Power Ratio

1.7.1. Test Setup



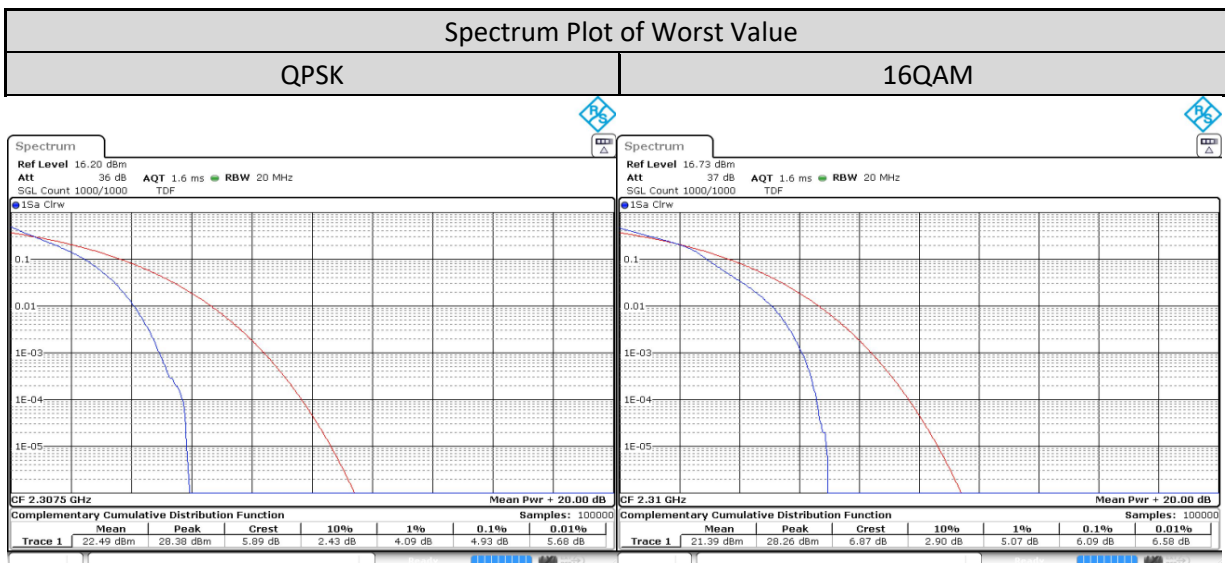
1. The DUT transmitter output port was connected to communication simulator with above setup.
2. Path loss for the measurement included.
3. Set DUT to transmit maximum power through communication simulator
4. Set the CCDF (Complementary Cumulative Distribution Function) option in the spectrum analyzer.
5. Spectrum Analyzer setting, RBW = 20MHz.
6. Recorded the maximum PAR level associated with a probability of 0.1% as Peak to Average Ratio.
7. All the measurement was done at low, mid, high channel for each band and different modulation.

1.7.2. Test 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.

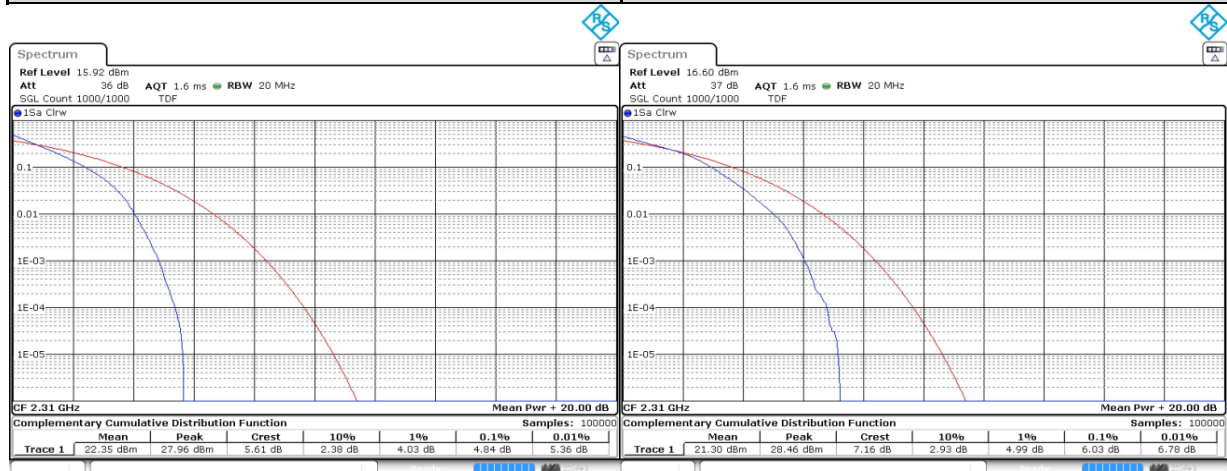
1.7.3. Peak-to-Average Power Ratio - LTE Band 30 (2305-2315MHz)

LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
Band 30/5MHz/25/0	Low CH 27685	2307.5 MHz	4.928	6
	Mid CH 27710	2310 MHz	4.928	6.087
	High CH 27735	2312.5 MHz	4.406	5.333



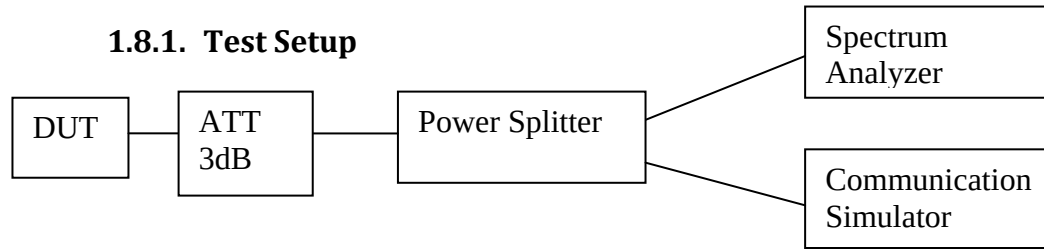
LTE Band/BW/RB Size/RB Offset	Channel Number	Tx Frequency	Peak To Average (dB)	
			QPSK Modulation	16QAM Modulation
Band 30/10MHz/50/0	Low CH			
	Mid CH 27710	2310 MHz	4.841	6.029
	High CH			

Spectrum Plot of Worst Value	
QPSK	16QAM



1.8. Occupied Bandwidth

1.8.1. Test Setup



- 1) The DUT transmitter output port was connected to communication simulator with above setup.
- 2) Path loss for the measurement included.
- 3) For LTE measurement, set DUT to transmit maximum power & full RB size through communication simulator.
- 4) For LTE measurement, set DUT to transmit maximum power through communication simulator.
- 5) Spectrum Analyzer setting, RBW is 1% of OBW and VBW is 3 times of RBW.
- 6) Measure & record -26dBc and 99% occupied bandwidth (BW).
- 7) All the measurement was done at low, mid, high channel for each band and different modulation.

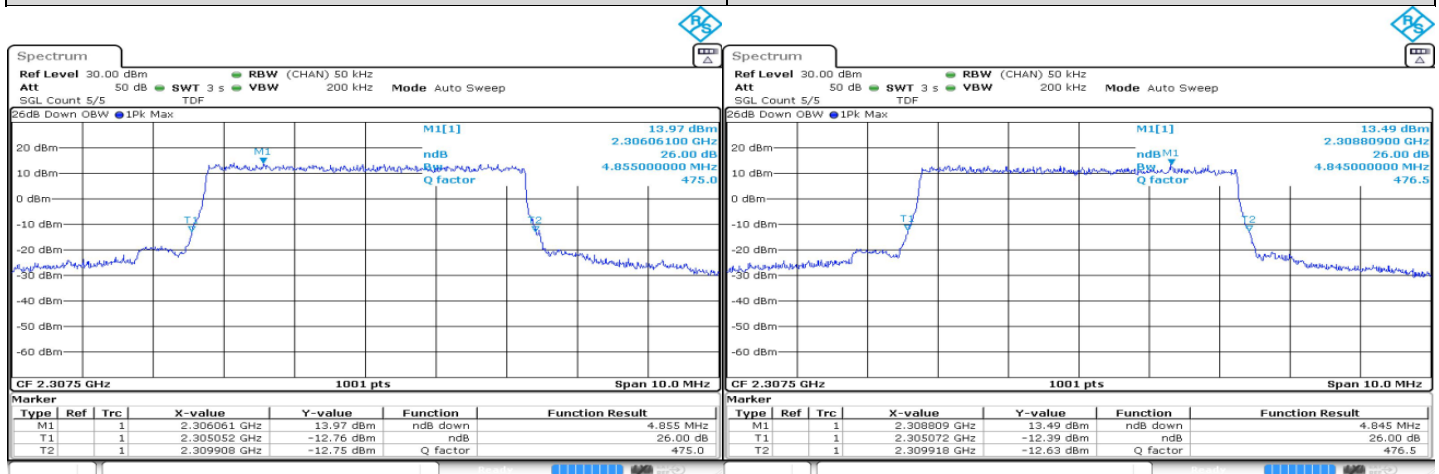
1.8.2. Test Limit

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

1.8.3. Occupied Bandwidth - LTE Band 30 (2305-2315MHz)

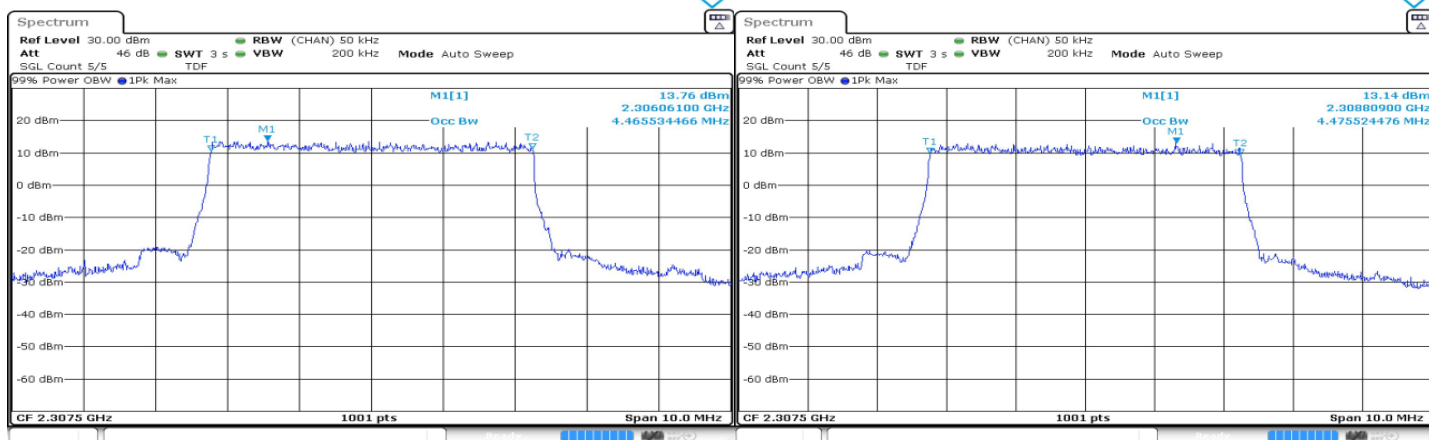
LTE Band/ BW/ RB Size/ RB Offset	Channel Number	Tx Frequency (MHz)	-26 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 30/5MHz/25/0	Low CH 27685	2307.5 MHz	4.855	4.845
	Mid CH 27710	2310 MHz	4.855	4.825
	High CH 27735	2312.5 MHz	4.795	4.765

Spectrum Plot of Worst Value	
-26 dBc Bandwidth	
QPSK	16QAM



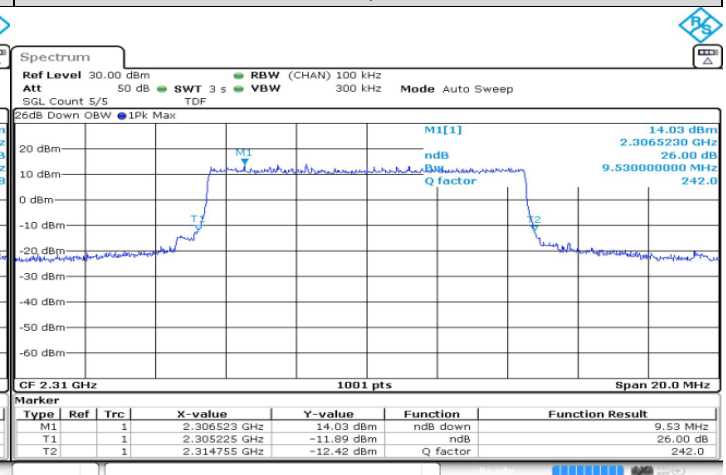
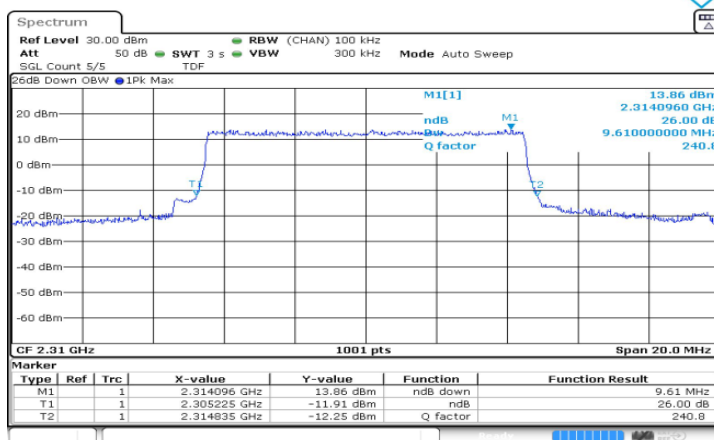
LTE Band/ BW/ RB Size/ RB Offset	Channel Number	Tx Frequency (MHz)	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 30/5MHz/25/0	Low CH 27685	2307.5 MHz	4.466	4.476
	Mid CH 27710	2310 MHz	4.466	4.476
	High CH 27735	2312.5 MHz	4.466	4.466

Spectrum Plot of Worst Value	
99% Occupied Bandwidth	
QPSK	16QAM



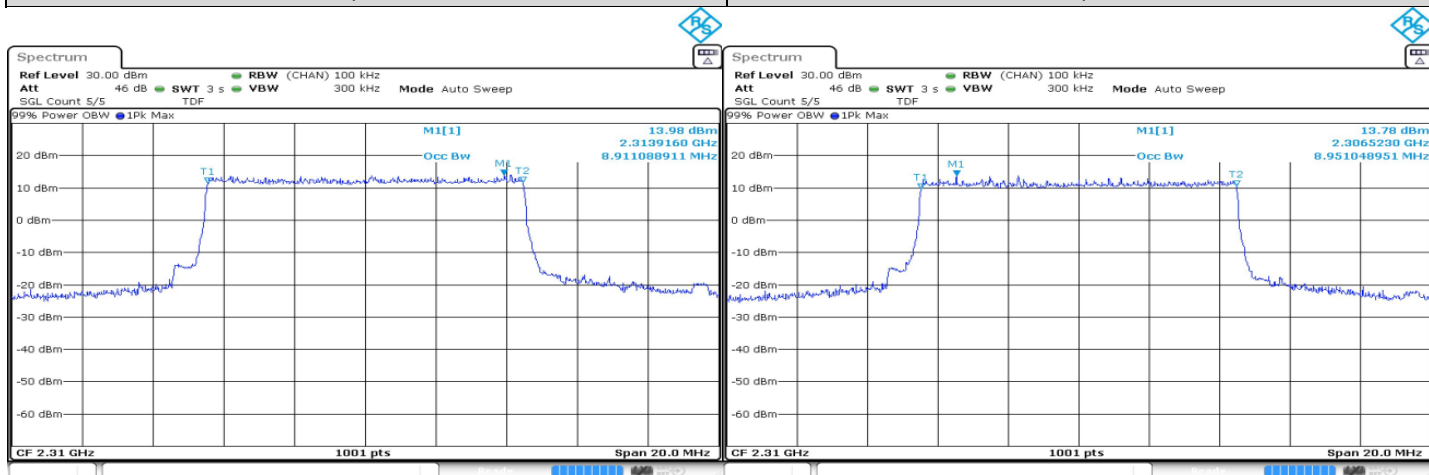
LTE Band/ BW/ RB Size/ RB Offset	Channel Number	Tx Frequency (MHz)	-26 dBc Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 30/10MHz/50/0	Low CH			
	Mid CH 27710	2310 MHz	9.61	9.53
	High CH			

Spectrum Plot of Worst Value	
-26 dBc Bandwidth	
QPSK	16QAM



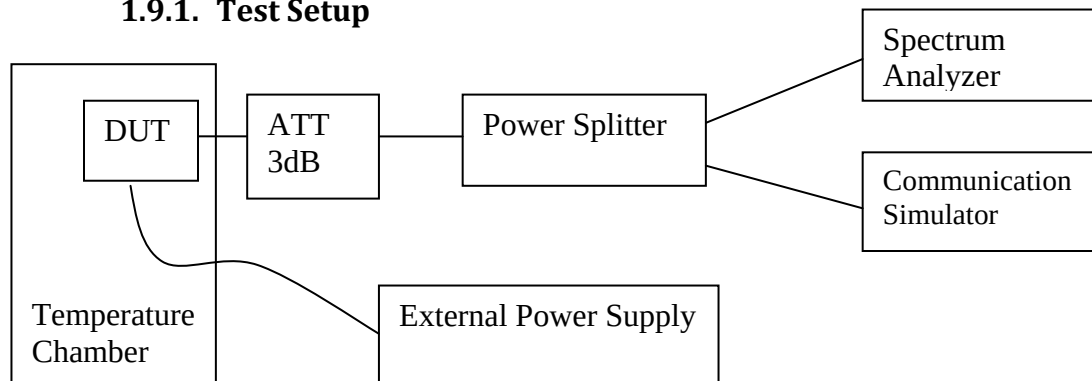
LTE Band/ BW/ RB Size/ RB Offset	Channel Number	Tx Frequency (MHz)	99% Occupied Bandwidth (MHz)	
			QPSK Modulation	16QAM Modulation
Band 30/10MHz/50/0	Low CH			
	Mid CH 27710	2310 MHz	8.911	8.951
	High CH			

Spectrum Plot of Worst Value	
99% Occupied Bandwidth	
QPSK	16QAM



1.9. Frequency Stability

1.9.1. Test Setup



- 1) The DUT is placed in the temperature chamber and DUT is power up by external power supply to control the DC input voltage.
- 2) The temperature chamber could control the temperature and humidity and external power supply could control the test voltage range from minimum to maximum operating voltage.
- 3) Measured frequency error from the communication simulator by vary below step :
 - i. Vary temperature of the temperature chamber from -20 ~ 60 deg C (10 deg C / Step) and set external supply voltage constant at nominal voltage.
 - ii. Vary external supply voltage from minimum to maximum operation voltage support by DUT and set temperature chamber constant at room temp.
- 4) All the measurement was done at mid channel for each band.

1.9.2. Test Limit

As per manufacturer declared product operating at -20 to 60 deg C with spec of +/- 0.1ppm.

1.9.3. Frequency Stability – LTE Band 30 (2305-2315MHz)

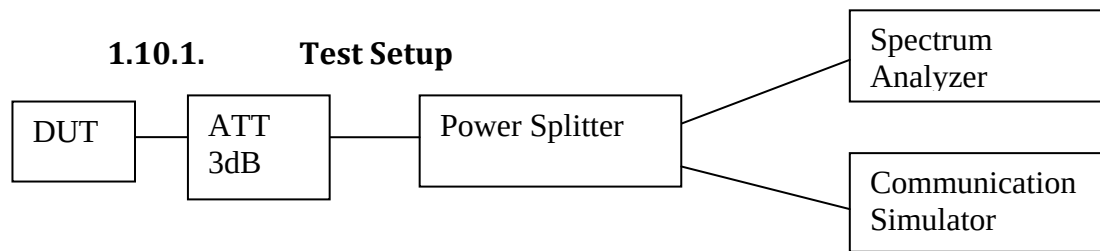
Band	Temp (Deg C)	Frequency Error VS Temperature			
		Channel Bandwidth: 5 MHz			
		Low Channel		High Channel	
		2307.5MHz		2312.5MHz	
LTE Band 30		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	60	2307.499976	-0.01057	2312.500022	0.009471
	50	2307.49998	-0.008828	2312.500021	0.008976
	40	2307.499981	-0.008041	2312.500025	0.01072
	30	2307.499983	-0.007297	2312.500023	0.010139
	20	2307.499981	-0.008177	2312.500023	0.009786
	10	2307.499969	-0.013397	2312.50002	0.008568
	0	2307.499983	-0.007538	2312.500036	0.015459
	-10	2307.499984	-0.006993	2312.500022	0.00931
	-20	2307.499981	-0.008158	2312.500021	0.009254

Band	Voltage (V)	Frequency Error VS Voltage			
		Channel Bandwidth: 5 MHz			
		Low Channel		High Channel	
		2307.5MHz		2312.5MHz	
LTE Band 30		Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
	9V	2307.499987	-0.005629	2312.500024	0.010368
	7.5V	2307.499983	-0.007526	2312.500022	0.009483
	6V	2307.499979	-0.009045	2312.500015	0.006415

Band	Temp (Deg C)	Frequency Error VS Temperature	
		Channel Bandwidth: 10 MHz	
		Mid Channel	
		2310MHz	
LTE Band 30		Frequency (MHz)	Frequency Error (ppm)
	60	2310.000016	0.006967
	50	2309.99998	-0.008558
	40	2309.999986	-0.005951
	30	2310.000014	0.006217
	20	2309.999985	-0.006676
	10	2310.000018	0.00784
	0	2310.000017	0.007214
	-10	2309.999989	-0.004836
	-20	2310.000023	0.009976

Band	Voltage (V)	Frequency Error VS Voltage	
		Channel Bandwidth: 10 MHz	
		Mid Channel	
		2310MHz	
LTE Band 30		Frequency (MHz)	Frequency Error (ppm)
	9V	2310.000014	0.006131
	7.5V	2310.000012	0.005183
	6V	2309.999977	-0.01015

1.10. Band Edge Conducted Spurious Emission



- 1) The DUT transmitter output port was connected to communication simulator with above setup.
- 2) Path loss for the measurement included.
- 3) Set DUT to transmit maximum power through communication simulator.
- 4) The band edges of lowest and highest channels with the highest RF powers were measured.
- 5) The center frequency of spectrum is the band edge frequency, span is 3MHz, RBW is 1~3% of EBW and VBW is at least 3 times of RBW
- 6) Record the maximum trace plot into the test report.

1.10.2. Test Limit

(a) For operations in the 2305-2320 MHz band and the 2345-2360 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power P (with averaging performed only during periods of transmission) within the licensed band(s) of operation, in watts, by the following amounts:

(4) For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

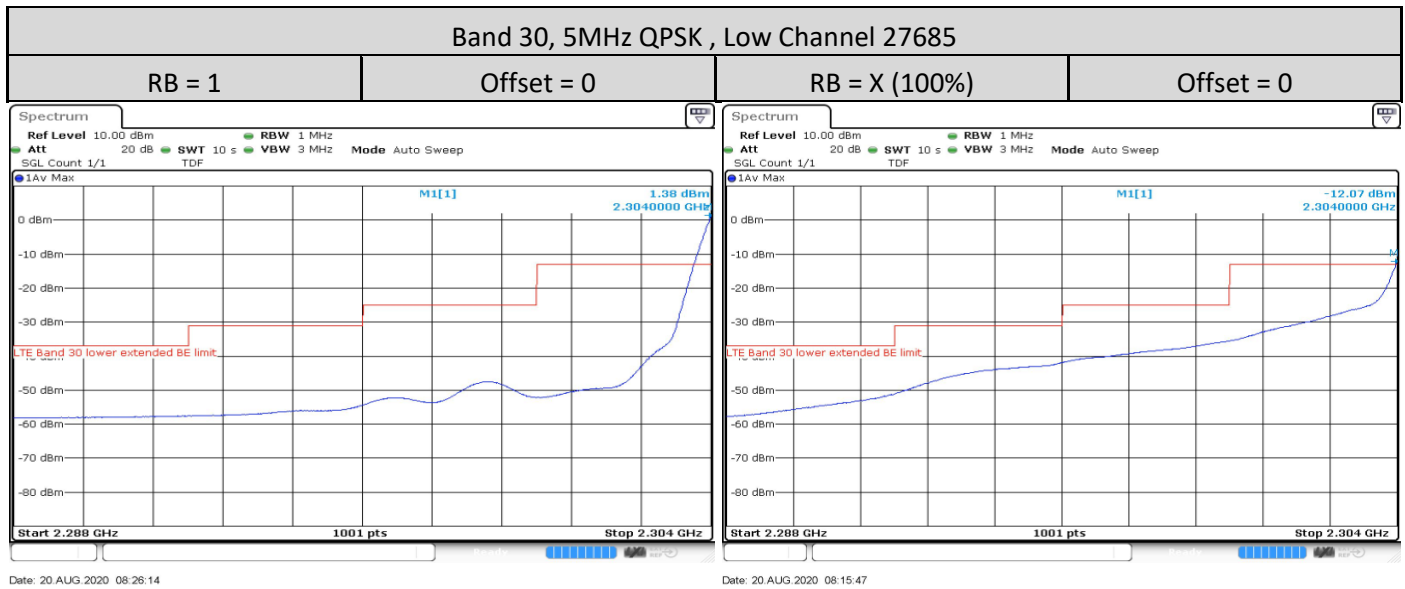
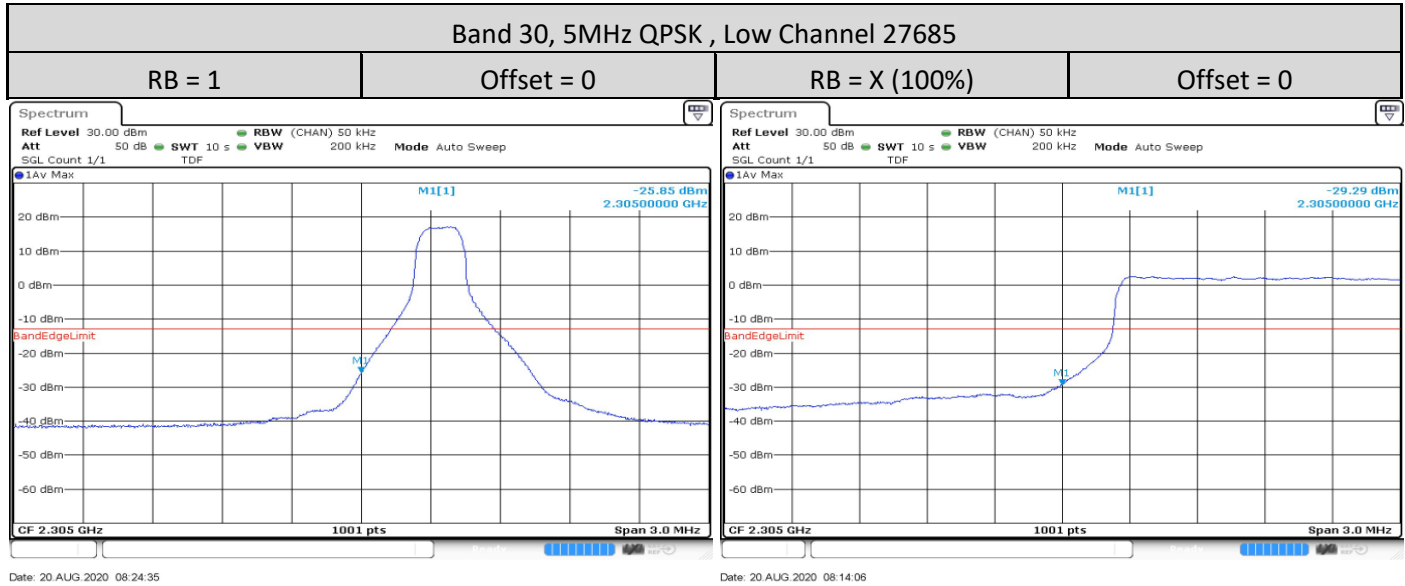
(i) By a factor of not less than: $43 + 10 \log (P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log (P)$ dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log (P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than $67 + 10 \log (P)$ dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log (P)$ dB on all frequencies between 2296 and 2300 MHz, $61 + 10 \log (P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log (P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log (P)$ dB below 2288 MHz;

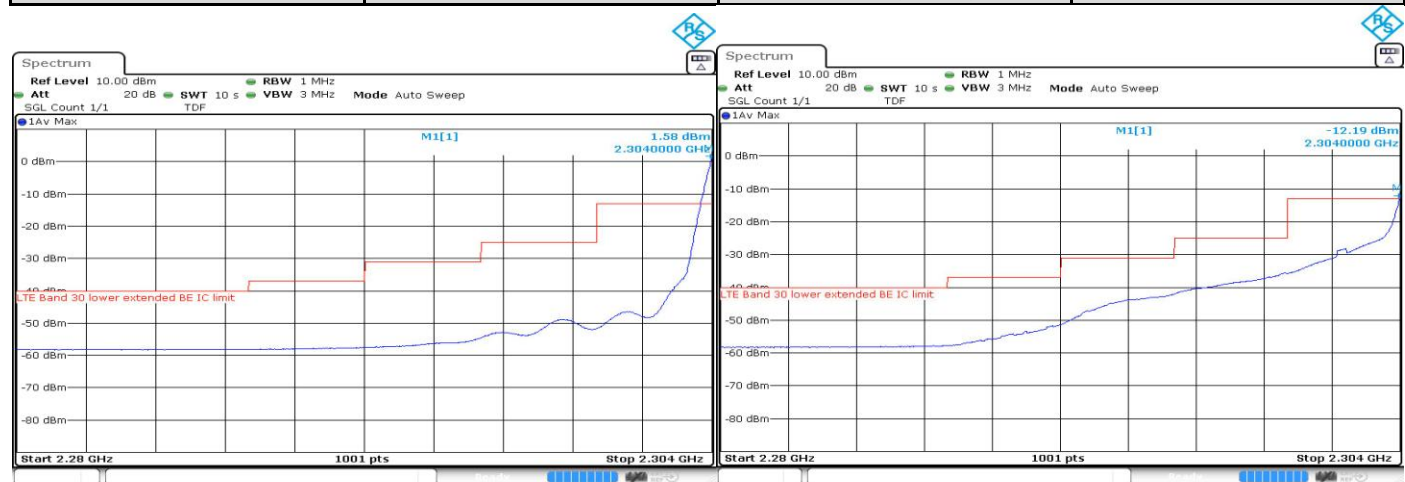
(iii) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log (P)$ dB above 2365MHz.

(5) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e., 1 MHz).

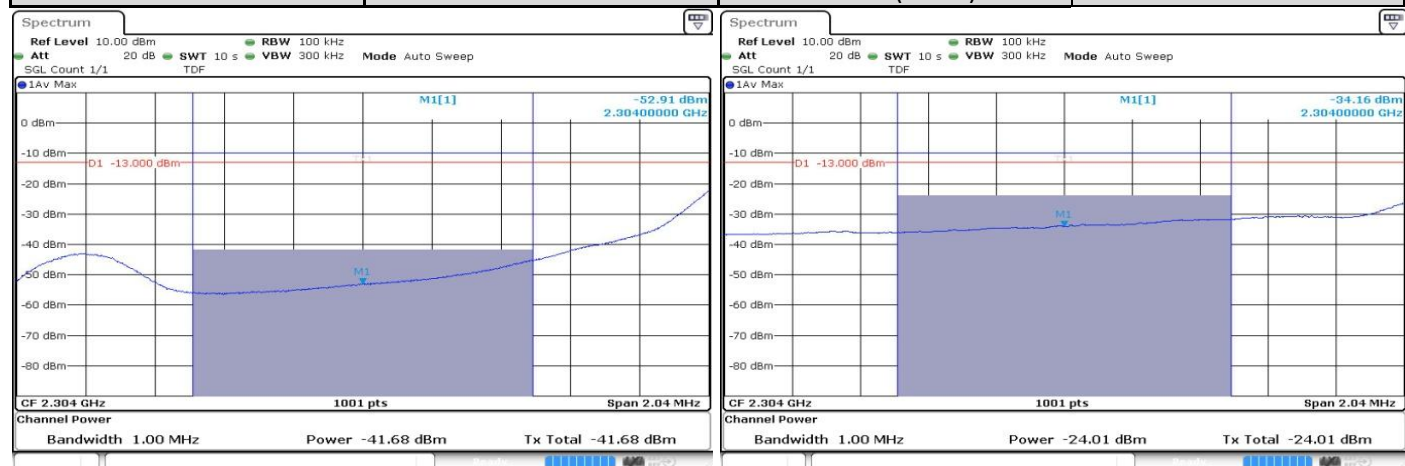
1.10.3. Band Edge Conducted Spurious Emission – LTE Band 30 (2305-2315MHz)



Band 30, 5MHz QPSK , Low Channel 27685			
RB = 1	Offset = 0	RB = X (100%)	Offset = 0

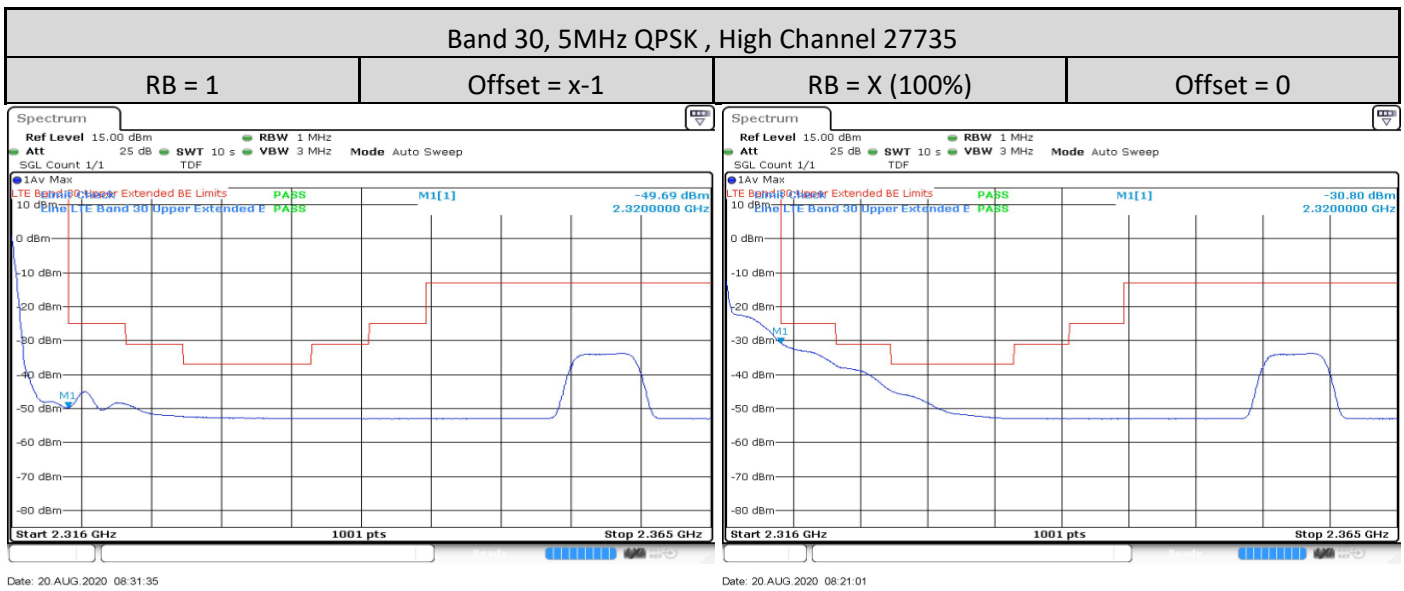
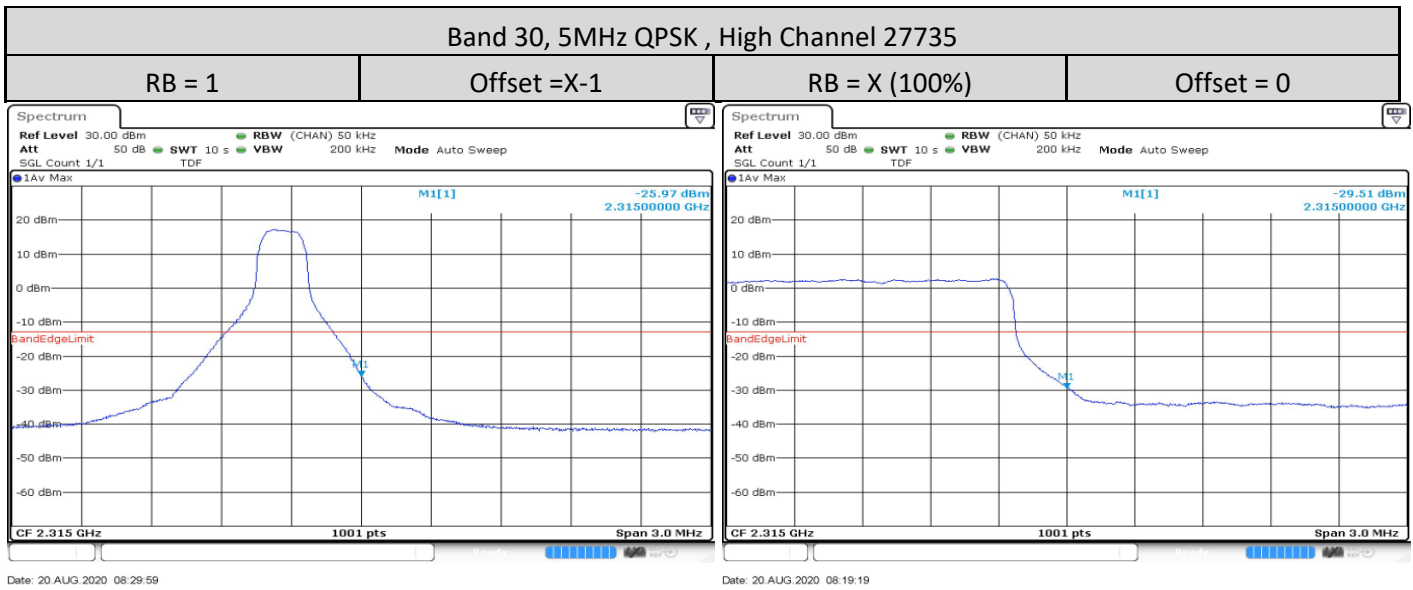


Band 30, 5MHz QPSK , Low Channel 27685			
RB = 1	Offset = 0	RB = X (100%)	Offset = 0

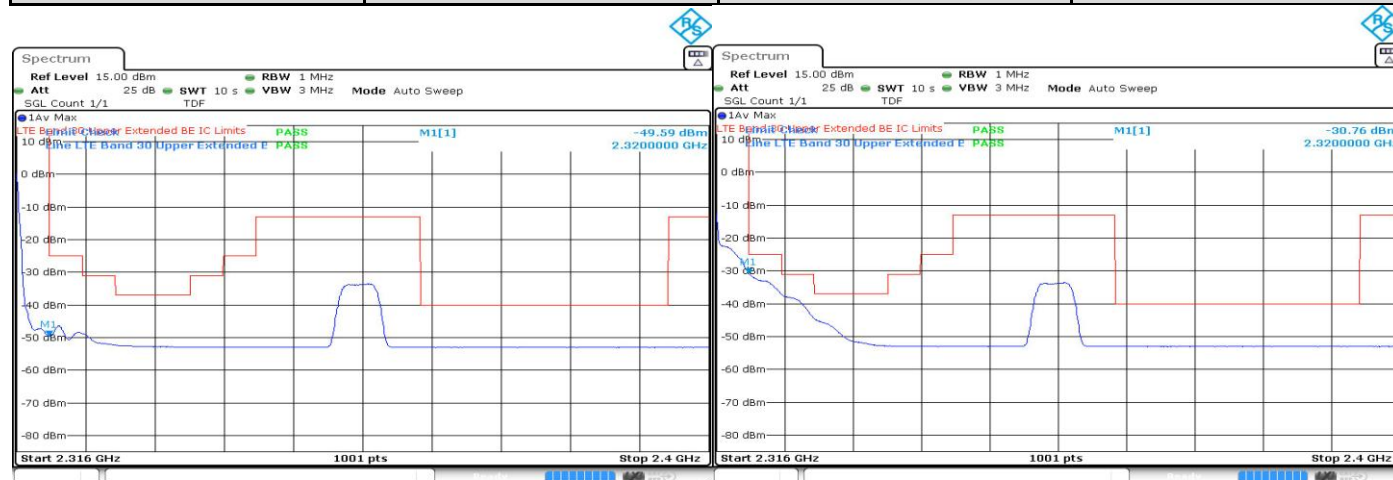


Date: 1 SEP. 2020 19:13:45

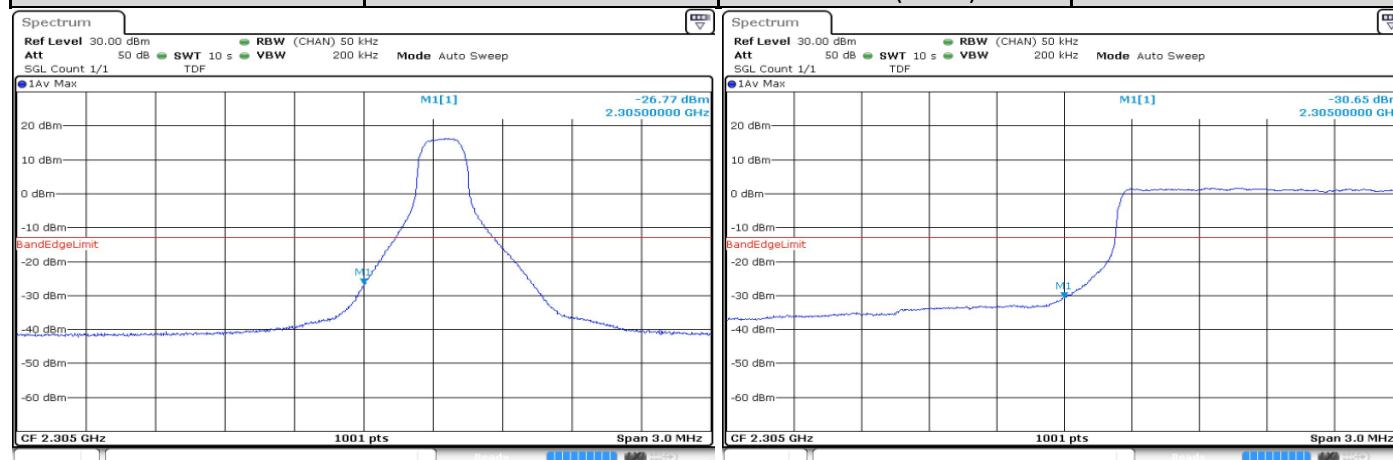
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Band 30, 5MHz QPSK , High Channel 27735			
RB = 1	Offset = x-1	RB = X (100%)	Offset = 0

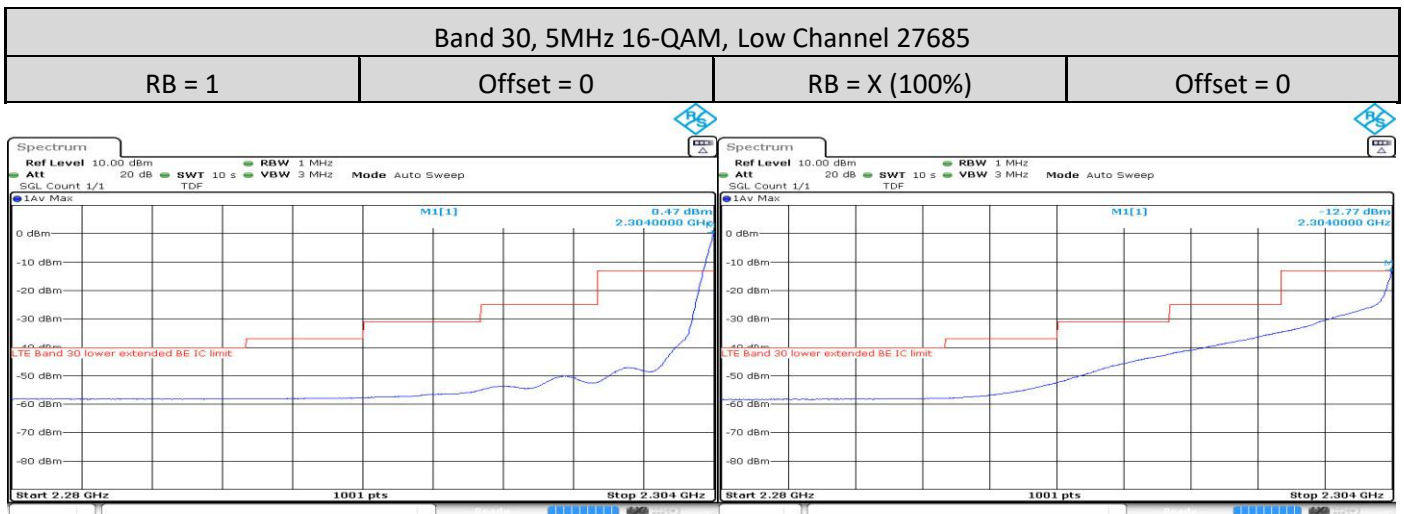
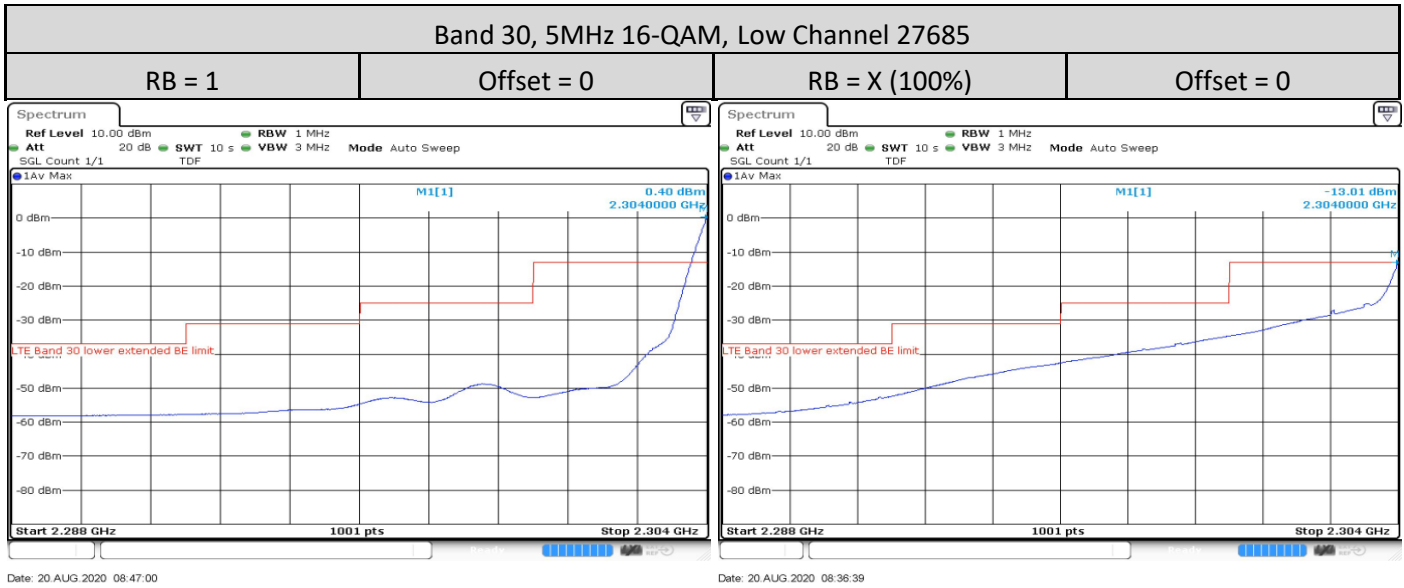


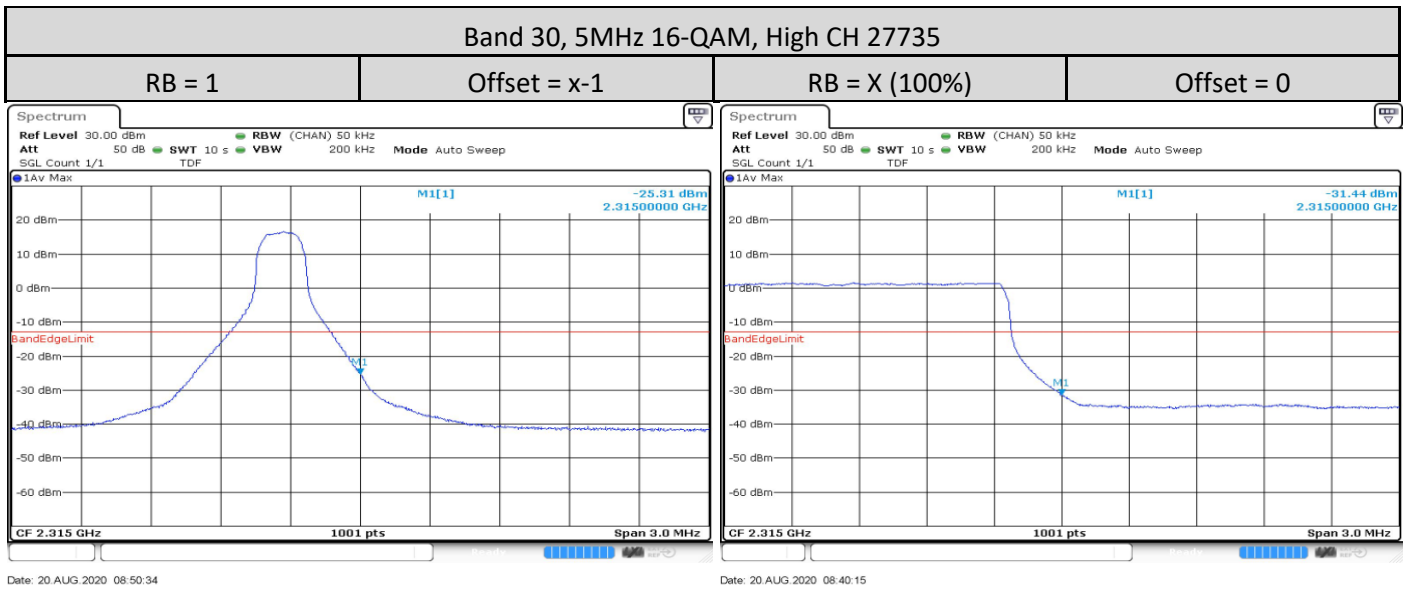
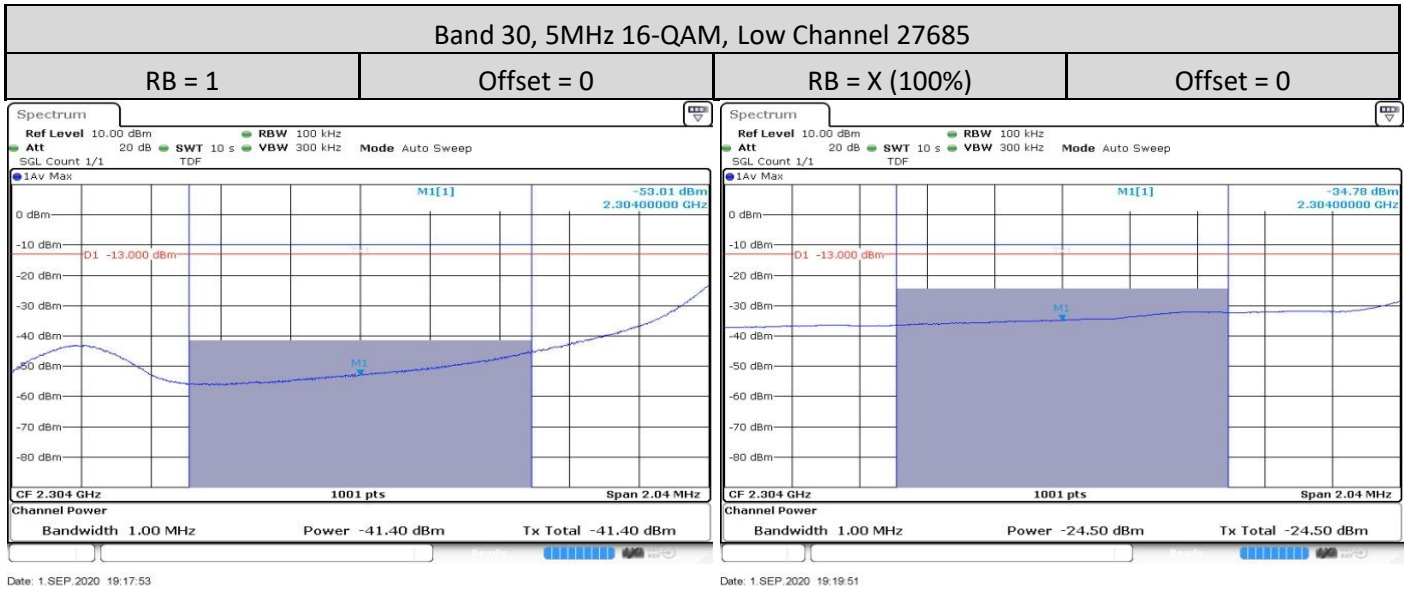
Band 30, 5MHz 16-QAM, Low Channel 27685			
RB = 1	Offset = 0	RB = X (100%)	Offset = 0

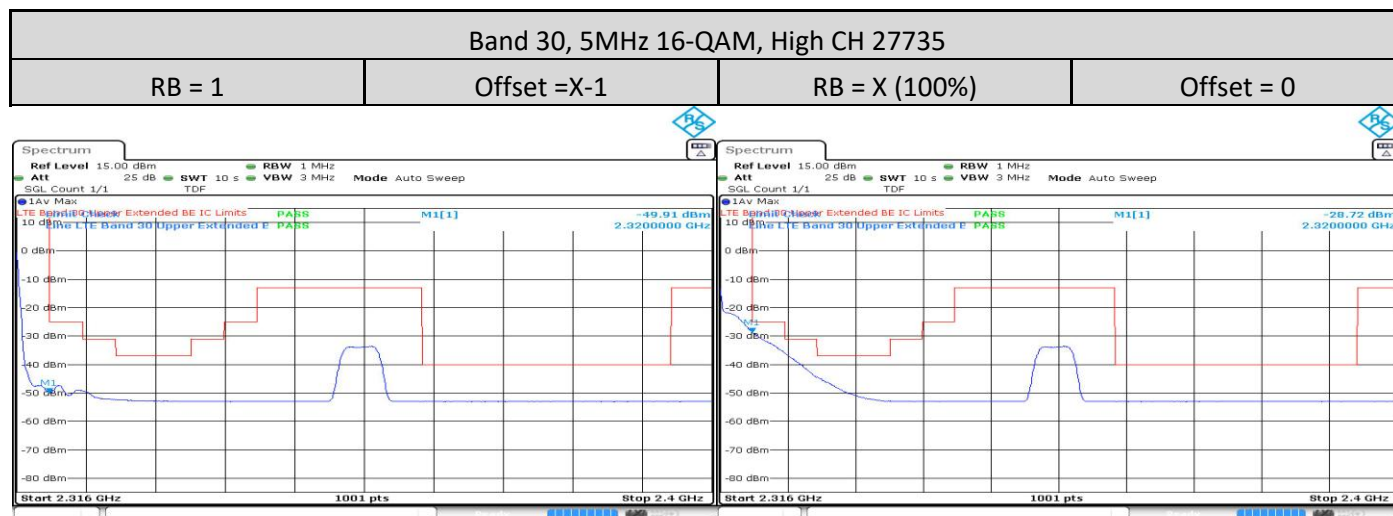
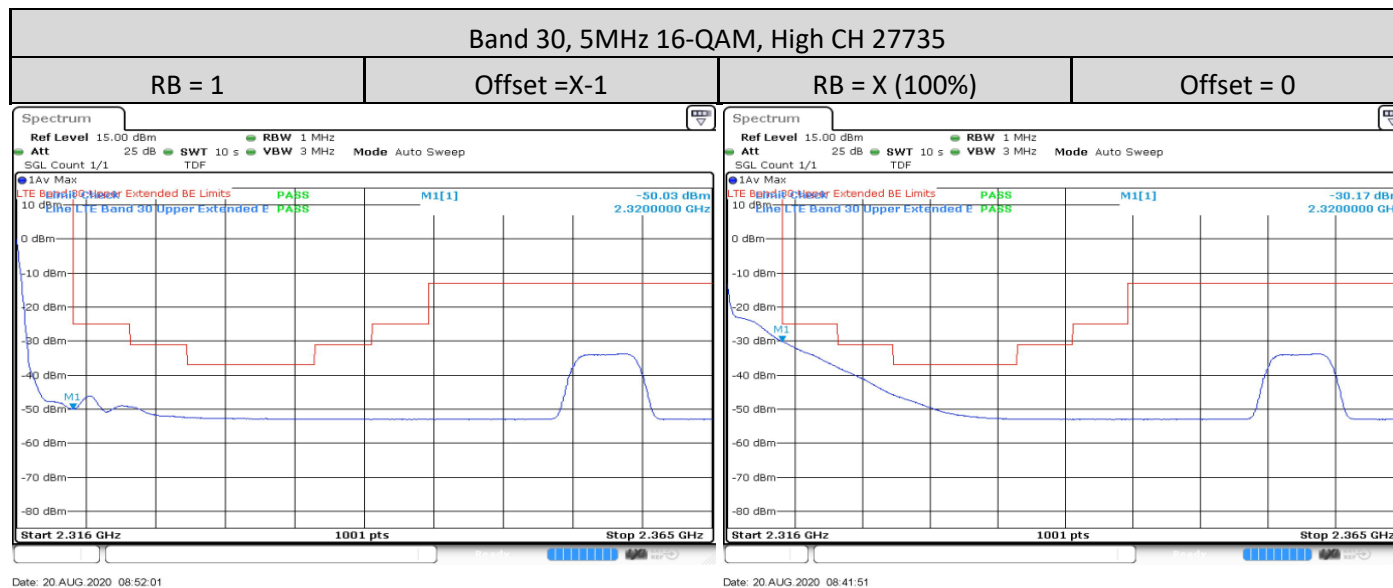


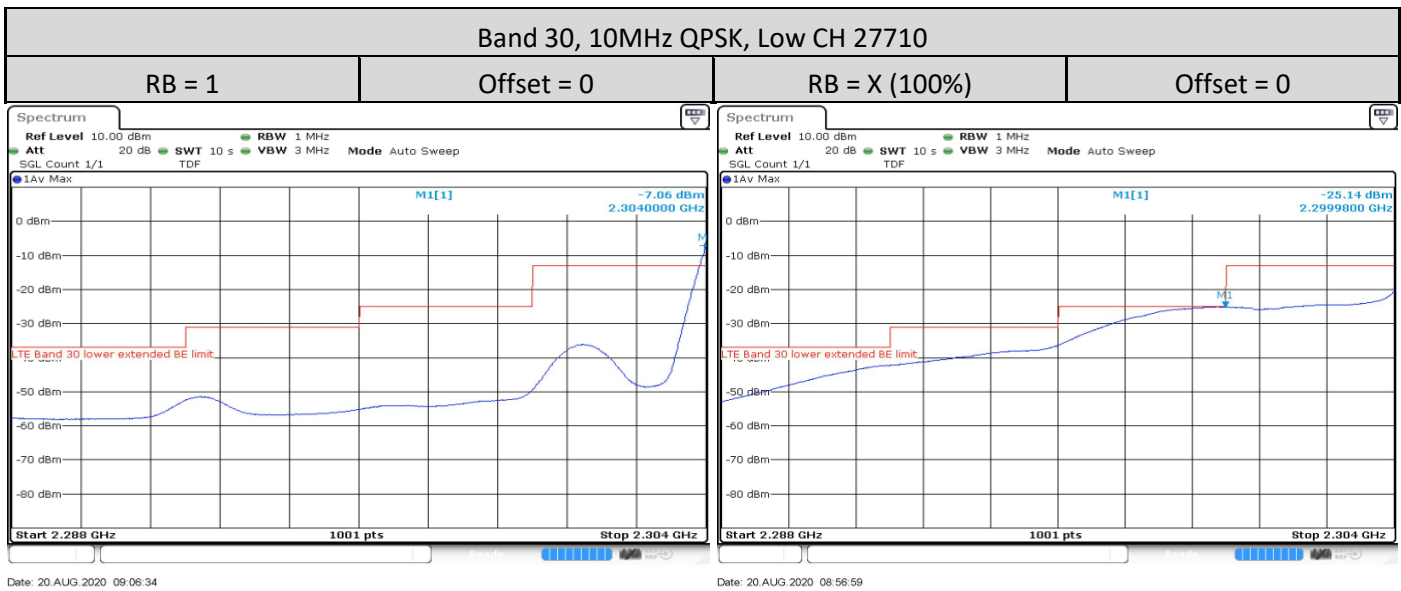
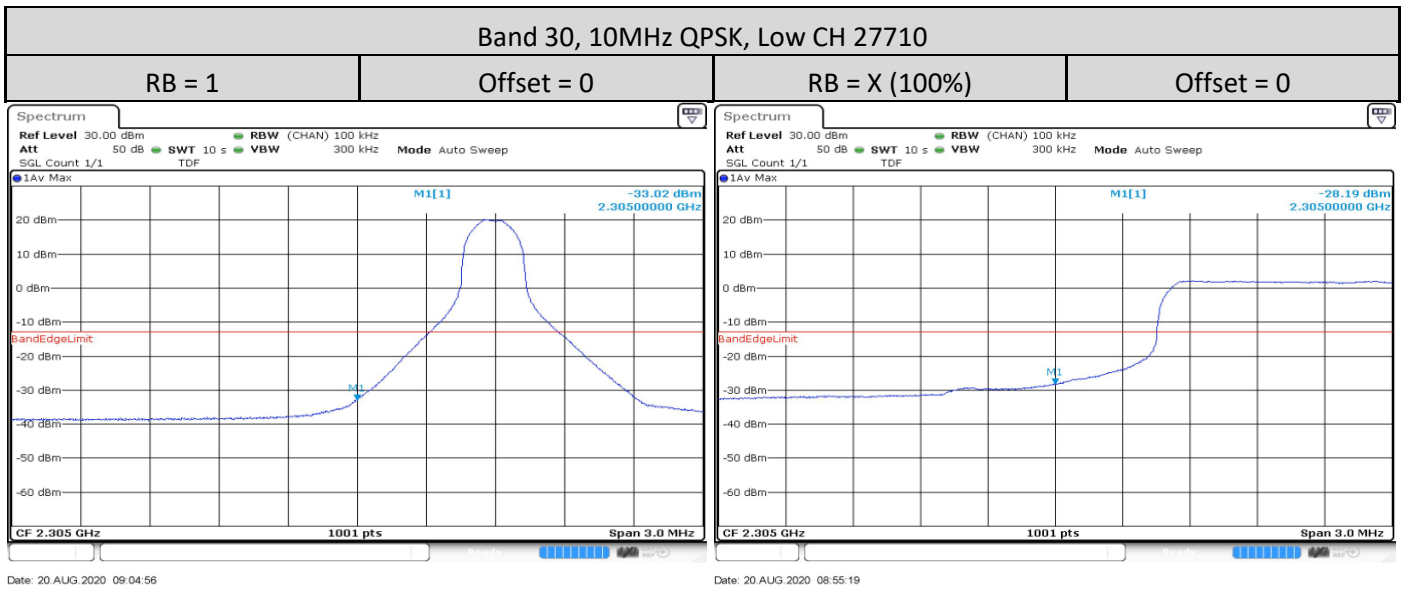
Date: 20 AUG 2020 08:45:23

Date: 20 AUG 2020 08:35:03

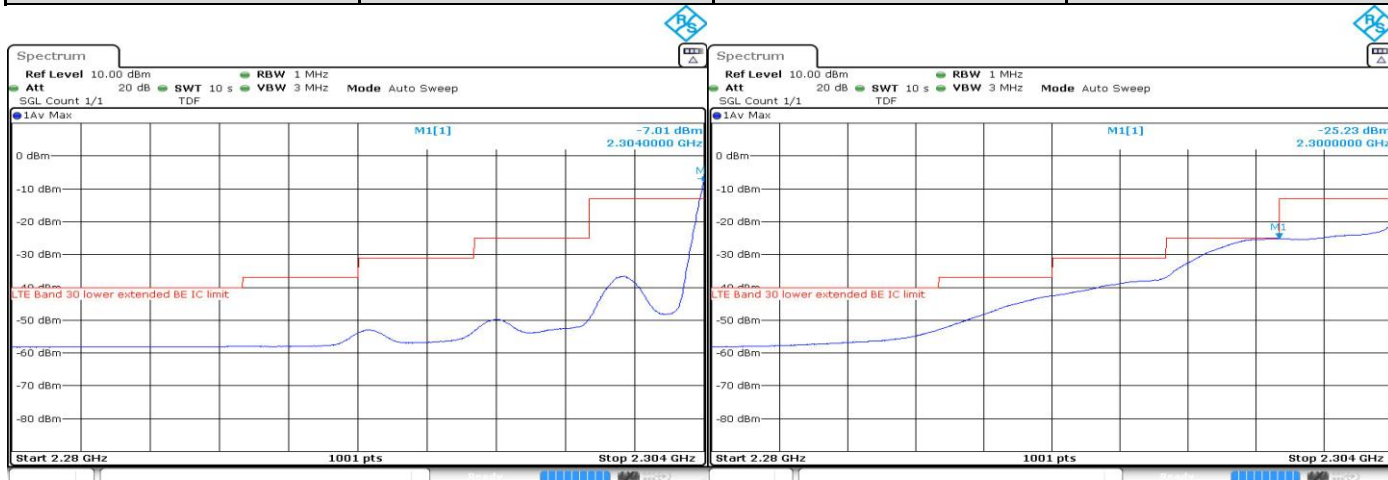




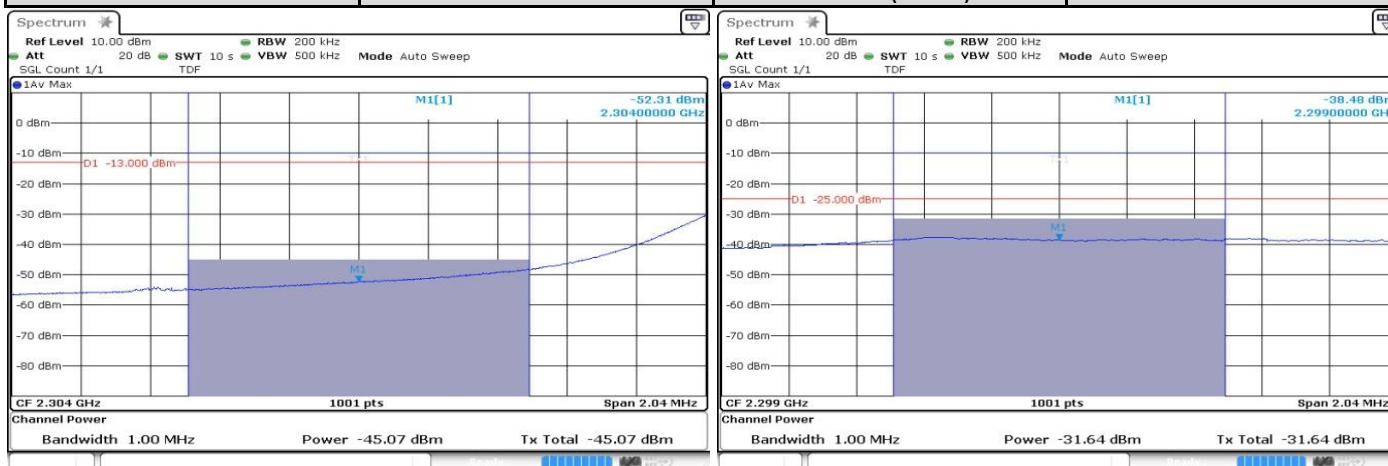




Band 30, 10MHz QPSK, Low CH 27710			
RB = 1	Offset = 0	RB = X (100%)	Offset = 0



Band 30, 10MHz QPSK, Low CH 27710			
RB = 1	Offset = 0	RB = X (100%)	Offset = 0



Date: 2 SEP. 2020 20:14:16

Date: 2 SEP. 2020 20:07:24