



中认信通
CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)



TEST REPORT

Applicant: SoKaSe Inc

Address: 1801 W Romney Dr Suite 607, Anaheim, CA 92801, United States

FCC ID: 2BC3R-INCEPTION23

Product Name: Inception Mobile

Model Number: Inception 23

Standard(s): 47 CFR Part 2, 47 CFR Part 22, Subpart H
47 CFR Part 24, Subpart E
47 CFR Part 27
ANSI C63.26-2015
KDB 971168 D01 Power Meas License Digital Systems
v03r01

The above equipment has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: CR230954515-00E

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Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol “▲”. Customer model name, addresses, names, trademarks etc. are not considered data.

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR230954515-00E	Original Report	2023/10/18

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Inception Mobile
EUT Model:	Inception 23
Operation Bands and modes:	GSM/GPRS/EDGE: 850/1900 WCDMA: Band 2/5 LTE: Band 2/4/7/17/66/71
Modulation Type:	GMSK, 8PSK, BPSK, QPSK, 16QAM
Rated Input Voltage:	DC 5V from adapter or DC 3.85V from battery
Serial Number:	2BF3-1 (for RF Conducted Test) 2BBS-2 (for Emissions Test)
EUT Received Date:	2023/9/18
EUT Received Status:	Good

Operation Voltage (V_{DC}) ▲:

Lowest:	3.5	Normal:	3.85	Highest:	4.45
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Transmission Antenna Information ▲:

Antenna Type	Operation Bands	Antenna Frequency Range (MHz)	Antenna Gain (G_T) (dBi)	L_c (dB)
FPC	GSM850	824-849	-4.27	0.1
	PCS1900	1850-1910	1.83	0.2
	WCDMA B2	1850-1910	1.83	0.2
	WCDMA B5	824-849	-4.27	0.1
	LTE B2	1850-1910	1.83	0.2
	LTE B4	1710-1755	-2.31	0.2
	LTE B7	2500-2570	-3.96	0
	LTE B17	704-716	-0.92	0.1
	LTE B66	1710-1780	-2.31	0.2
	LTE B71	663-698	-0.96	0.1

Note:

1. L_c = Signal Attenuation in the connecting cable between the transmitter and antenna, in dB.
2. The GSM/WCDMA/LTE Main Antenna is used in the following frequency bands: GSM 850/ WCDMA Band 5/ LTE Band 17/ LTE Band 71/PCS 1900/ WCDMA Band 2/LTE Band 2/ LTE Band 66&4.
3. The GSM/WCDMA/LTE Div Antenna is used in the following frequency bands: LTE Band 7.

Accessory Information:

Accessory Description	Manufacturer	Model	Parameters
Adapter	SHENZHEN BAOCHANGTONG TECHNOLOGY CO., LTD	BCT050200-078EU	Input: 100-240V~50/60Hz 0.3A Output: 5.0V = 2000mA 10W
USB Cable	/	/	/
Earphone	/	/	/

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition:

EUT Operation Mode:	The system was configured for testing in each operation mode.
Equipment Modifications:	No
EUT Exercise Software:	No
The maximum power was configured per 3GPP Standard for each operation modes as below setting:	
GSM/GPRS/EGPRS	
Function: Menu select > GSM Mobile Station > GSM 850/1900	
Press Connection control to choose the different menus	
Press RESET > choose all the reset all settings	
Connection Press Signal Off to turn off the signal and change settings	
Network Support > GSM + GPRS or GSM + EGSM	
Main Service > Packet Data	
Service selection > Test Mode A – Auto Slot Config. off	
MS Signal Press Slot Config Bottom on the right twice to select and change the number of time slots and power setting	
> Slot configuration > Uplink/Gamma > 33 dBm for GPRS 850 > 30 dBm for GPRS 1900 > 27 dBm for EGPRS 850 > 26 dBm for EGPRS 1900	
BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel	
Frequency Offset > + 0 Hz	
Mode > BCCH and TCH	
BCCH Level > -85 dBm (May need to adjust if link is not stable)	
BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]	
Channel Type > Off	
P0 > 4 dB	
Slot Config > Unchanged (if already set under MS signal)	
TCH > choose desired test channel	
Hopping > Off	
Main Timeslot > 3	
Network Coding Scheme > CS4 (GPRS) and MCS5 (EGPRS)	
Bit Stream > 2E9-1 PSR Bit Stream	
AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input	
Connection Press Signal on to turn on the signal and change settings	

WCDMA

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

	Mode	HSUPA	HSUPA	HSUPA	HSUPA	HSUPA
	Subset	1	2		4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	β_c	11/15	6/15	15/15	2/15	15/15
	β_d	15/15	15/15	9/15	15/ 5	0
	β_{ec}	209/225	12/15	30 15	2/15	5/15
	β_c / β_d	11/15	6/15	15/9	2/15	-
	β_{hs}	22/15	12/15	30/15	4/15	5/15
HSDPA Specific Settings	CM(dB)	1.0	3.0	2.0	3.0	1.0
	PR(dB)	0	2	1	2	0
	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback	4ms				
	CQI Repetition Factor	2				
HSUPA Specific Settings	$A_{hs} = \beta_{hs} / \beta_c$	30/15				
	DE-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI	75	67	92	71	81
	Associated Max UL Data Rate k ps	242.1	174.9	482.8	205.8	308.9
	Reference E_FCI	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27	E-TFCI 11 E-TFCI PO4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27		

LTE (FDD):

The following tests were conducted according to the test requirements in 3GPP TS36.101

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signalling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4, 10, 23, 25, 35, 96	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3	13	10	Table 6.2.4-2	Table 6.2.4-2
	6.6.3.3.2				
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23 ¹	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

LTE(TDD):

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$		
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-		
9	$13168 \cdot T_s$			-		

Table 4.2-2: Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Calculated Duty Cycle

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33

Calculated Duty Cycle = Extended cyclic prefix in uplink $\times (T_s) \times \#$ of S + $\#$ of U

Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:

Calculated Duty Cycle = $5120 \times [1/(15000 \times 2048)] \times 2 + 6 \text{ ms} = 63.33\%$

where

$T_s = 1/(15000 \times 2048)$ seconds

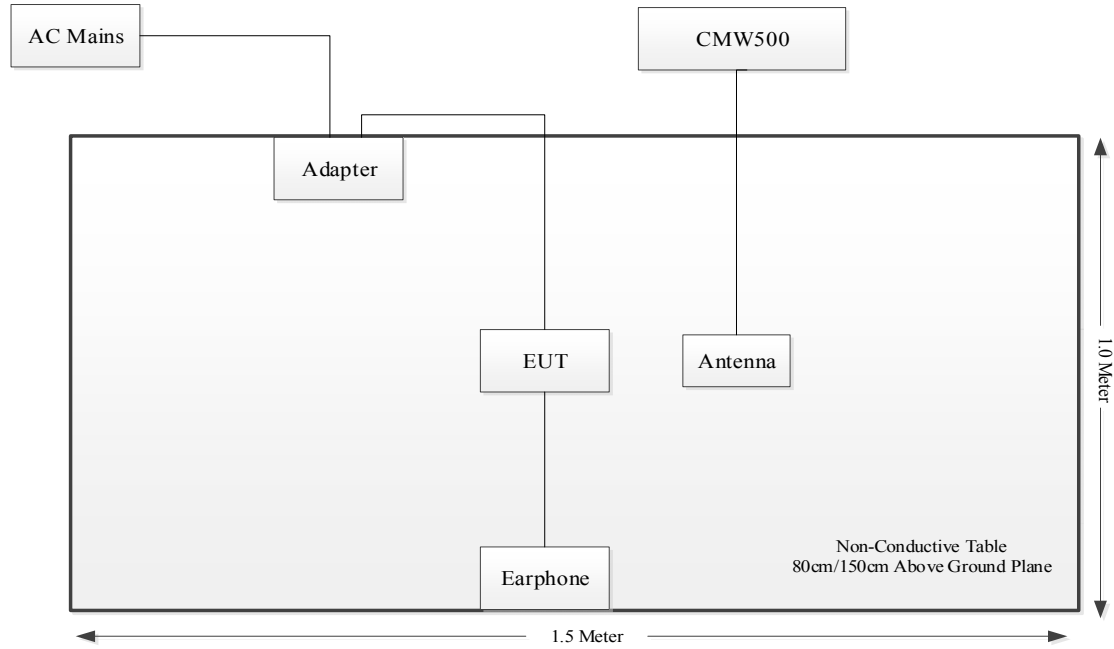
1.2.2 Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
R&S	Wideband Radio Communication Tester	CMW500	143458
Unknown	Antenna	Unknown	Unknown

1.2.3 Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Coaxial-Cable	NO	NO	10	CMW500	Antenna

1.2.4 Block Diagram of Test Setup



1.3 Measurement Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	30M~200MHz: 4.15 dB,200M~1GHz: 5.61 dB,1G~6GHz: 5.14 dB, 6G~18GHz: 5.93 dB,18G~26.5G:5.47 dB,26.5G~40G:5.63 dB
Unwanted Emissions, conducted	±1.26 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
RF Frequency	±0.082×10 ⁻⁶

2. SUMMARY OF TEST RESULTS

Rules	Description of Test	Result
FCC§2.1046; § 22.913; § 24.232; §27.50;	RF Output Power	Compliant
FCC§ 2.1047	Modulation Characteristics	Not Applicable
FCC§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53;	Occupied Bandwidth	Compliant
FCC§ 2.1051; § 22.917; § 24.238; §27.53;	Spurious Emissions at Antenna Terminal	Compliant
FCC§ 22.917; § 24.238; §27.53;	Out of band emission, Band Edge	Compliant
FCC§ 2.1055; § 22.355; § 24.235; §27.54;	Frequency stability vs. temperature Frequency stability vs. voltage	Compliant
FCC§ 2.1053; § 22.917; § 24.238; §27.53;	Field Strength of Spurious Radiation	Compliant

3. REQUIREMENTS AND TEST PROCEDURES

3.1 Applicable Standard For Part 22 Subpart H:

3.1.1 RF Output Power

FCC §22.913

(a)(5) The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7watts.

(d) *Power measurement.* Measurement of the ERP of Cellular base transmitters and repeaters must be made using an average power measurement technique. The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB. Power measurements for base transmitters and repeaters must be made in accordance with either of the following:

- (1) A Commission-approved average power technique (see FCC Laboratory's Knowledge Database); or
- (2) For purposes of this section, peak transmit power must be measured over an interval of continuous transmission using instrumentation calibrated in terms of an rms equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

3.1.2 Spurious Emissions

FCC §22.917

(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

(b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a reference bandwidth as follows:

- (1) In the spectrum below 1 GHz, instrumentation should employ a reference bandwidth of 100 kHz or greater. 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. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy, provided that the measured power is integrated over the full required reference bandwidth (i.e., 100 kHz or 1 percent of emission bandwidth, as specified). 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.
- (2) In the spectrum above 1 GHz, instrumentation should employ a reference bandwidth of 1 MHz

3.1.3 Frequency stability

FCC §22.355

Except as otherwise provided in this part, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table C-1 of this section.

Table C-1 – Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency range (MHz)	Base, fixed (ppm)	Mobile >3 watts (ppm)	Mobile ≤3 watts (ppm)
25 to 50	20	20	50
50 to 450	5	5	50
450 to 512	2.5	5	5
821 to 896	1.5	2.5	2.5
928 to 929	5	n/a	n/a
929 to 960	1.5	n/a	n/a
2110 to 2220	10	n/a	n/a

3.2 Applicable Standard For Part 24 Subpart E:

3.2.1 RF Output Power

FCC §24.232

IMobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

(d)Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of § 24.51. 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.

3.2.2 Spurious Emissions

FCC §24.238

The rules in this section govern the spectral characteristics of emissions in the Broadband Personal Communications Service.

(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

(b) 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 frequency block a resolution bandwidth of at least one 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 or 1 percent of emission bandwidth, as specified). 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.

I Alternative out of band emission limit. Licensees in this service may establish an alternative out of band emission limit to be used at specified band edge(s) in specified geographical areas, in lieu of that set forth in this section, pursuant to a private contractual arrangement of all affected licensees and applicants. In this event, each party to such contract shall maintain a copy of the contract in their station files and disclose it to prospective assignees or transferees and, upon request, to the FCC.

(d) Interference caused by out of band emissions. If any emission from a transmitter operating in this service results in interference to users of another radio service, the FCC may require a greater attenuation of that emission than specified in this section.

3.2.3 Frequency stability

FCC §24.235

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

3.3 Applicable Standard For Part 27:

3.3.1 RF Output Power

FCC §27.50

(a)(3) *Mobile and portable stations.*

(i) 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. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305-2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.

(ii) Mobile and portable stations are not permitted to transmit in the 2315-2320 MHz and 2345-2350 MHz bands.

(iii) *Automatic transmit power control.* Mobile and portable stations transmitting in the 2305-2315 MHz band or in the 2350-2360 MHz band must employ automatic transmit power control when operating so the stations operate with the minimum power necessary for successful communications.

(iv) *Prohibition on external vehicle-mounted antennas.* The use of external vehicle-mounted antennas for mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band is prohibited.

(b)(10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

I(10) Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

(d)(4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

(h) The following power limits shall apply in the BRS and EBS:

(2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

3.3.2 Spurious Emissions

FCC §27.53

(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 2365 MHz.

For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;

(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;

(3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $76 + 10 \log (P)$ dB in a 6.25 kHz band segment, for base and fixed stations;

(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;

(5) Compliance with the provisions of paragraphs I(1) and I(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

(6) Compliance with the provisions of paragraphs I(3) and I(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to – 70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and – 80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

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

(h) AWS emission limits

(1) **General protection levels.** Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB.

(m)(4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

3.3.3 Frequency stability

FCC §27.54

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

3.5 Test Method:

3.5.1 Transmitter output power, e.r.p. and e.i.r.p

According to CFR Part 2.1046, ANSI C63.26-2015 Section 5.2.5.5 and KDB 971168 D01 Power Meas License Digital Systems v03r01:

The relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_T - L_C$$

where:

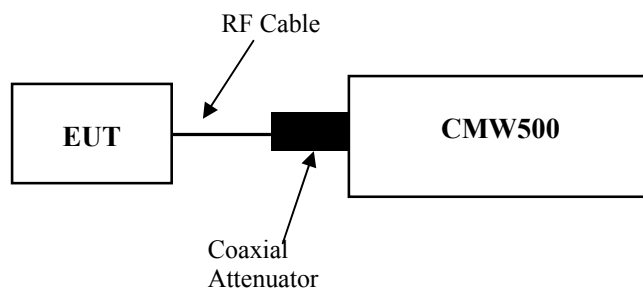
ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively
(expressed in the same units as P_{Meas} , typically dBW or dBm);

P_{Meas} = measured transmitter output power or PSD, in dBm or dBW;

G_T = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

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

Test Setup Block:



Note: The Insertion loss of the RF cable and coaxial Attenuator was offset into the Reading of CMW500.

3.5.2 Occupied Bandwidth

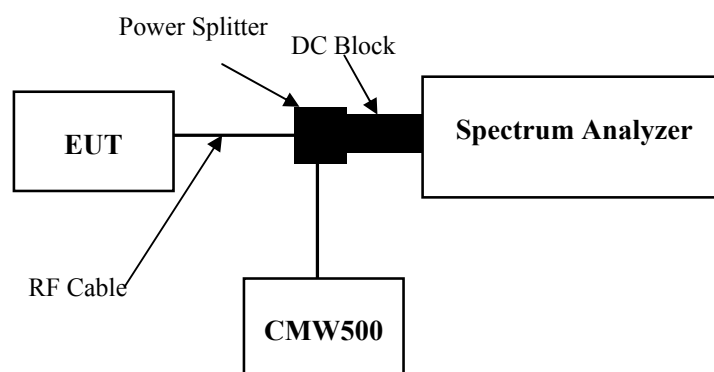
According to ANSI C63.26-2015 Section 5.4.4

The OBW is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.

The following procedure shall be used for measuring (99%) power bandwidth:

- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (typically a span of $1.5 \times \text{OBW}$ is sufficient).
- b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times \text{RBW}$.
- c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.
NOTE—Step a), step b), and step c) may require iteration to adjust within the specified tolerances.
- d) Set the detection mode to peak, and the trace mode to max-hold.
- e) If the instrument does not have a 99% OBW function, recover the trace data points and sum directly in linear power terms. Place the recovered amplitude data points, beginning at the lowest frequency, in a running sum until 0.5% of the total is reached. Record that frequency as the lower OBW frequency. Repeat the process until 99.5% of the total is reached and record that frequency as the upper OBW frequency. The 99% power OBW can be determined by computing the difference these two frequencies.
- f) The OBW shall be reported and plot(s) of the measuring instrument display shall be provided with the test report. The frequency and amplitude axis and scale shall be clearly labeled. Tabular data can be reported in addition to the plot(s).

Test Setup Block:

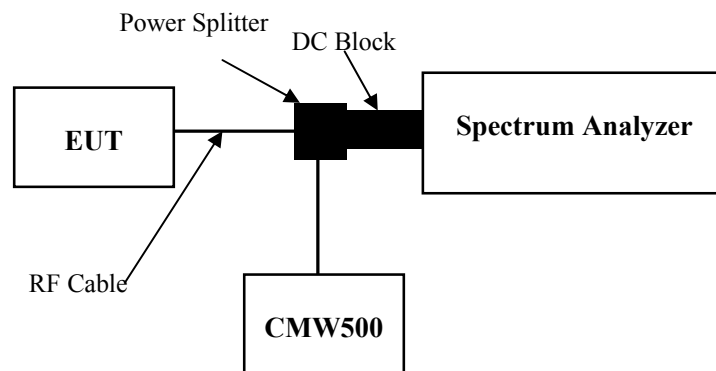


3.5.3 Transmitter unwanted emissions-at antenna terminals

According to ANSI C63.26-2015 Section 5.7.4, KDB 971168 D01 Power Meas License Digital Systems v03r01:

the applicable rule part specifies the reference bandwidth for measuring unwanted emission levels (typically, 100 kHz if the authorized frequency band/block is at or below 1 GHz and 1 MHz if the authorized frequency band/block is above 1 GHz),⁸ effectively depicting the unwanted emission limit in terms of a power spectral density. In those cases where no reference bandwidth is explicitly specified, the values in the preceding sentence should be used.

Test Setup Block:

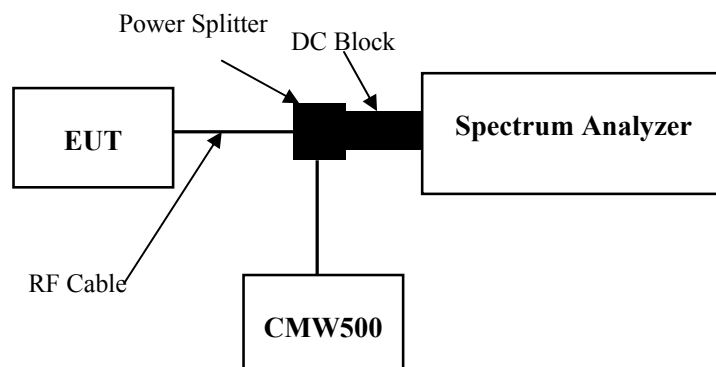


3.5.4 Transmitter unwanted emissions-Out of band emission

According to ANSI C63.26-2015 Section 5.7.3, KDB 971168 D01 Power Meas License Digital Systems v03r01:

Typically, a measurement (resolution) bandwidth smaller than the reference bandwidth is allowed for measurements within a specified frequency range at the edge of the authorized frequency block/band (e.g., within the first Y MHz outside of the authorized frequency band/block, where the value of Y is specified in the relevant rule part). Some FCC out-of-band emission rules permit the use of a narrower RBW (typically limited to a minimum RBW of 1 % of the OBW) for measuring the out-of-band emissions without a requirement to integrate the result over the full reference bandwidth. Beyond the specified frequency range in which this relaxation of the uniform reference bandwidth is permitted, it typically is also acceptable to use a narrower RBW (again limited to a minimum of 1 % of OBW) to increase accuracy, but the measurement result must subsequently be integrated over the full reference bandwidth.

Test Setup Block:



3.5.5 Frequency stability

According to ANSI C63.26-2015 Section 5.6, KDB 971168 D01 Power Meas License Digital Systems v03r01:

Frequency stability is a measure of the frequency drift due to temperature and supply voltage variations, with reference to the frequency measured at +20 °C and rated supply voltage.

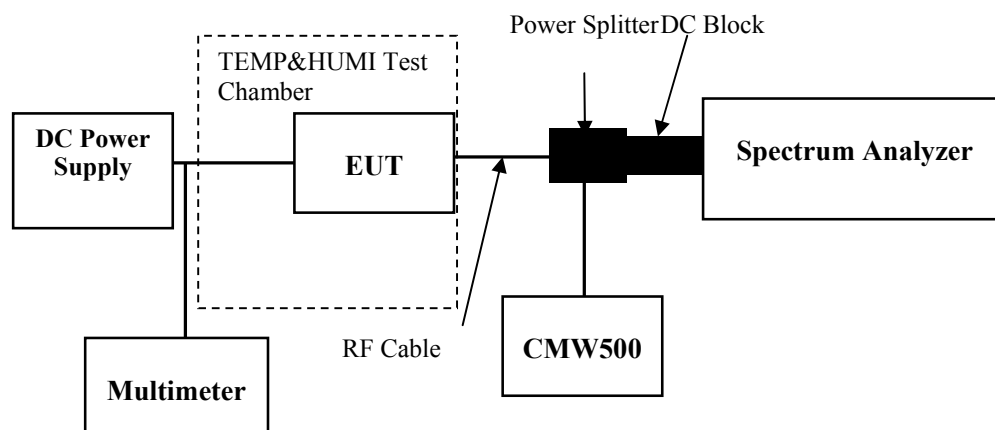
The operating carrier frequency shall be set up in accordance with the manufacturer's published operation and instruction manual prior to the commencement of these tests. No adjustment of any frequency determining circuit element shall be made subsequent to this initial set-up. Frequency stability is tested:

- a) At 10 °C intervals of temperatures between –30 °C and +50 °C at the manufacturer's rated supply voltage, and
- b) At +20 °C temperature and ±15% supply voltage variations. If a product is specified to operate over a range of input voltage then the –15% variation is applied to the lowermost voltage and the +15% is applied to the uppermost voltage.

During the test all necessary settings, adjustments and control of the EUT have to be performed without disturbing the test environment, i.e., without opening the environmental chamber. The frequency stabilities can be maintained to a lesser temperature range provided that the transmitter is automatically inhibited from operating outside the lesser temperature range. For handheld equipment that is only capable of operating from internal batteries and the supply voltage cannot be varied, the frequency stability tests shall be performed at the nominal battery voltage and the battery end point voltage specified by the manufacturer. An external supply voltage can be used and set at the internal battery nominal voltage, and again at the battery operating end point voltage which shall be specified by the equipment manufacturer.

If an unmodulated carrier is not available, the mean frequency of a modulated carrier can be obtained by using a frequency counter with gating time set to an appropriately large multiple of bit periods (gating time depending on the required accuracy). Full details on the choice of values shall be included in the test report.

Test Setup Block:



3.5.6 Transmitter unwanted emissions- Radiated Spurious emissions

According to ANSI C63.26-2015 Section 5.5.3:

Test setup:

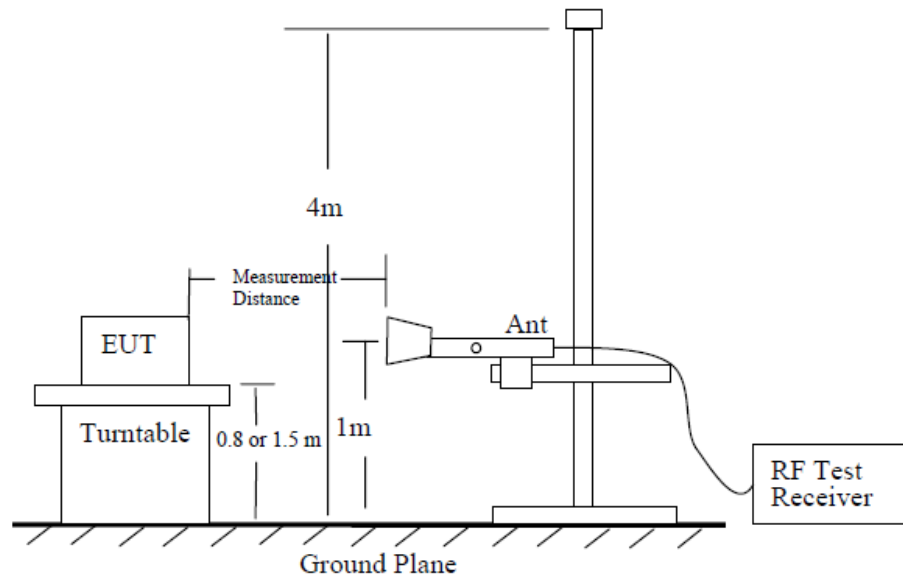


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

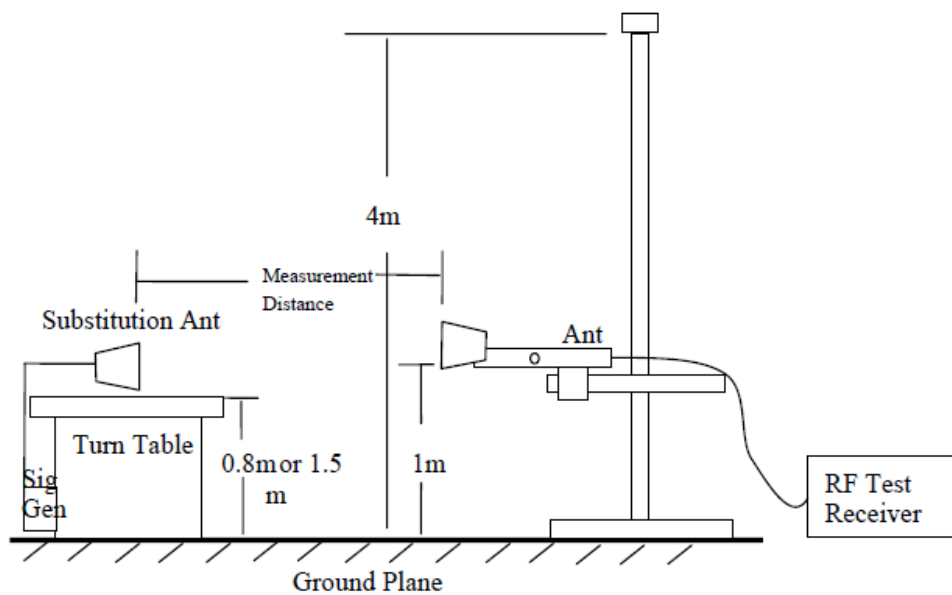


Figure 7—Substitution method set-up for radiated emission

Test Procedure:

- a) Place the EUT in the center of the turntable. The EUT shall be configured to transmit into the standard non-radiating load (for measuring radiated spurious emissions), connected with cables of minimal length unless specified otherwise. If the EUT uses an adjustable antenna, the antenna shall be positioned to the length that produces the worst case emission at the fundamental operating frequency.
- b) Each emission under consideration shall be evaluated:
 - 1) Raise and lower the measurement antenna in accordance 5.5.2, as necessary to enable detection of the maximum emission amplitude relative to measurement antenna height.
 - 2) Rotate the EUT through 360° to determine the maximum emission level relative to the axial position.
 - 3) Return the turntable to the azimuth where the highest emission amplitude level was observed.
 - 4) Vary the measurement antenna height again through 1 m to 4 m again to find the height associated with the maximum emission amplitude.
 - 5) Record the measured emission amplitude level and frequency using the appropriate RBW.
- c) Repeat step b) for each emission frequency with the measurement antenna oriented in both the horizontal and vertical polarizations to determine the orientation that gives the maximum emissions amplitude.
- d) Set-up the substitution measurement with the reference point of the substitution antenna located as near as possible to where the center of the EUT radiating element was located during the initial EUT measurement.
- e) Maintain the previous measurement instrument settings and test set-up, with the exception that the EUT is removed and replaced by the substitution antenna.
- f) Connect a signal generator to the substitution antenna; locate the signal generator so as to minimize any potential influences on the measurement results. Set the signal generator to the frequency where emissions are detected, and set an output power level such that the radiated signal can be detected by the measurement instrument, with sufficient dynamic range relative to the noise floor.
- g) For each emission that was detected and measured in the initial test [i.e., in step b) and step c)]:
 - 1) Vary the measurement antenna height between 1 m to 4 m to maximize the received (measured) signal amplitude.
 - 2) Adjust the signal generator output power level until the amplitude detected by the measurement instrument equals the amplitude level of the emission previously measured directly in step b) and step c).
 - 3) Record the output power level of the signal generator when equivalence is achieved in step 2).
- h) Repeat step e) through step g) with the measurement antenna oriented in the opposite polarization.
- i) Calculate the emission power in dBm referenced to a half-wave dipole using the following equation:

$$P_e = P_s(\text{dBm}) - \text{cable loss (dB)} + \text{antenna gain (dBd)}$$
 where

P_e = equivalent emission power in dBm
 P_s = source (signal generator) power in dBm

NOTE—dBd refers to the measured antenna gain in decibels relative to a half-wave dipole.
- j) Correct the antenna gain of the substitution antenna if necessary to reference the emission power to a half-wave dipole. When using measurement antennas with the gain specified in dBi, the equivalent dipole-referenced gain can be determined from: $\text{gain (dBd)} = \text{gain (dBi)} - 2.15 \text{ dB}$. If necessary, the antenna gain can be calculated from calibrated antenna factor information
- k) Provide the complete measurement results as a part of the test report.

4. Test DATA AND RESULTS

4.1 Antenna Port Test Data and Results for GSM 850 band:

Serial Number:	2BF3-1	Test Date:	2023/9/23-2023/9/25
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu/Arthur Su	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.3-25.8	Relative Humidity: (%)	41-59	ATM Pressure: (kPa)	100.2-100.4
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
Unknown	Coaxial tee connector	Unknown	2204005	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Frequency for Each Mode:

Operation Modes	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
GSM	824.2	836.6	848.8
GPRS	824.2	836.6	848.8
EDGE	824.2	836.6	848.8

Test Data:

RF Output Power					
Test Mode	Conducted Peak Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
	Lowest Channel	Middle Channel	Highest Channel		
GSM	34.89	34.88	34.87	28.37	38.45
GPRS 1 Slot	34.81	34.76	34.69	28.29	38.45
GPRS 2 Slots	34.21	33.89	33.69	27.69	38.45
GPRS 3 Slots	30.87	30.24	29.94	24.35	38.45
GPRS 4 Slots	29.54	28.9	28.65	23.02	38.45
EDGE 1 Slot	27.92	27.78	27.78	21.4	38.45
EDGE 2 Slots	26.59	26.28	26.45	20.07	38.45
EDGE 3 Slots	24.24	23.93	24.03	17.72	38.45
EDGE 4 Slots	22.92	22.76	22.77	16.4	38.45
Note: ERP= Conducted Power(dBm) - Lc(dB) + Gr(dBd) Gr(dBd)=Gr(dBi)-2.15					
				Result:	Pass

Occupied Bandwidth						
Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
GSM	0.238	0.24	0.238	0.262	0.266	0.268
EDGE	0.254	0.25	0.252	0.328	0.32	0.317
Note: The test plots please refer to the Plots of Occupied Bandwidth						

Spurious Emissions at Antenna Terminal	
Result:	Pass, please refer to the test plots of Spurious Emissions at Antenna Terminal.

Out of band emission, Band Edge	
Result:	Pass, please refer to the test plots of Out of band emission, Band Edge.

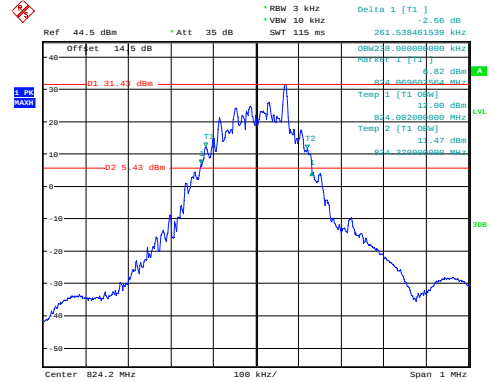
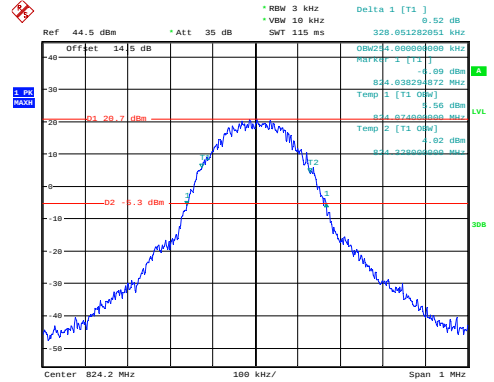
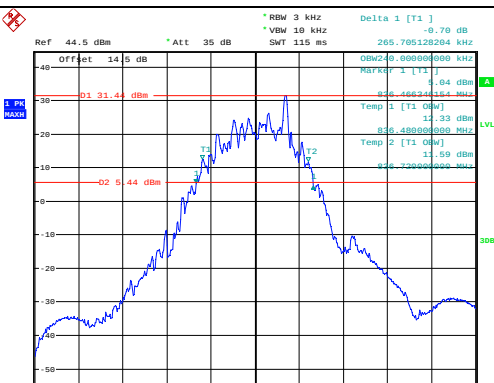
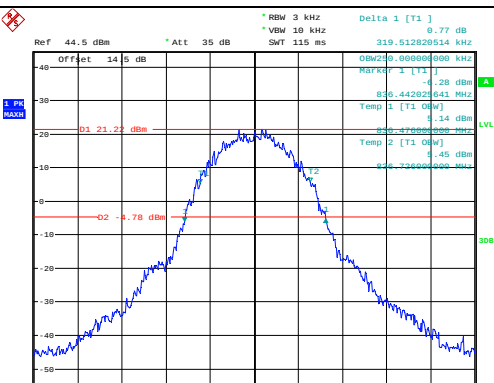
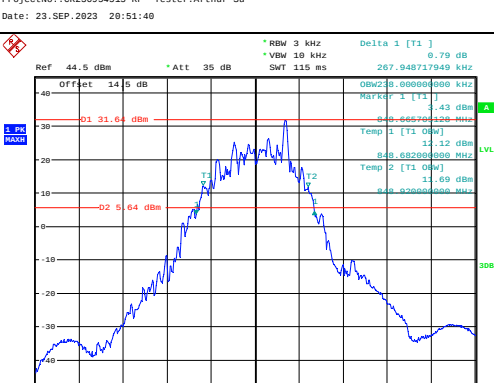
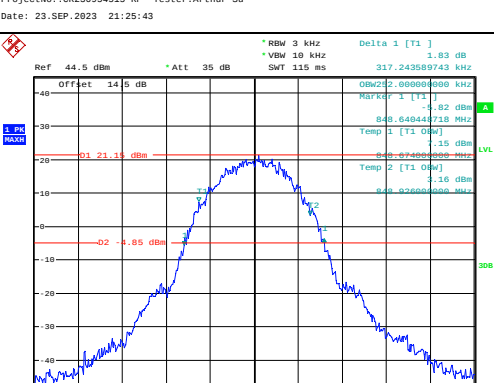
Frequency Stability					
Test Modulation:	GMSK		Test Channel:	836.6	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.85	22	0.026	2.5
	-20	3.85	28	0.033	2.5
	-10	3.85	7	0.008	2.5
	0	3.85	4	0.004	2.5
	10	3.85	10	0.012	2.5

	20	3.85	10	0.012	2.5
	30	3.85	13	0.015	2.5
	40	3.85	1	0.001	2.5
	50	3.85	11	0.013	2.5
Frequency Stability vs. Voltage	20	3.5	30	0.036	2.5
	20	4.45	10	0.011	2.5
				Result:	Pass

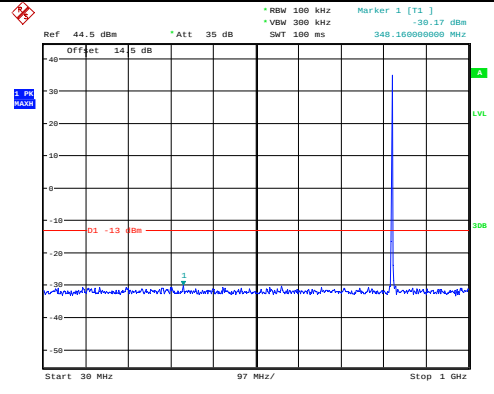
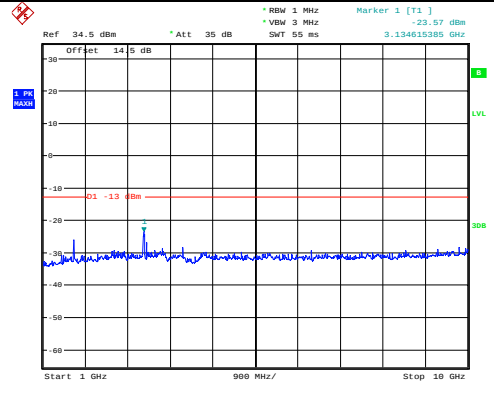
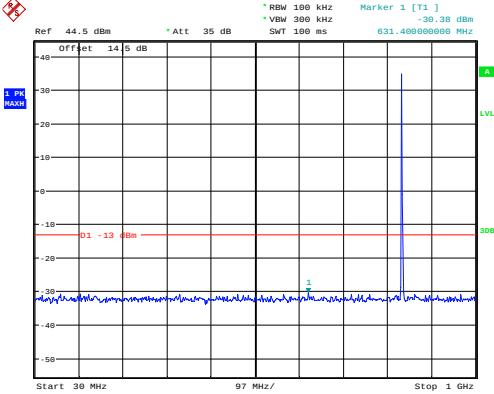
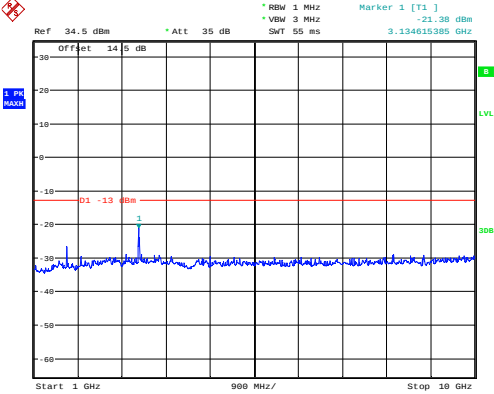
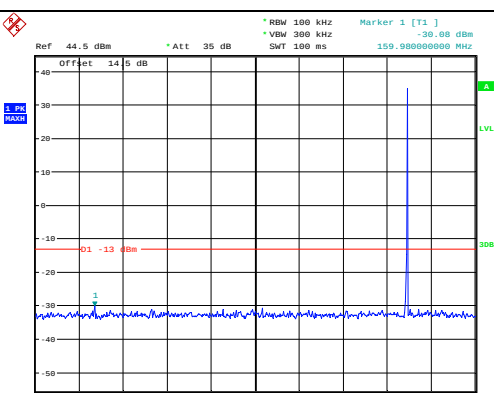
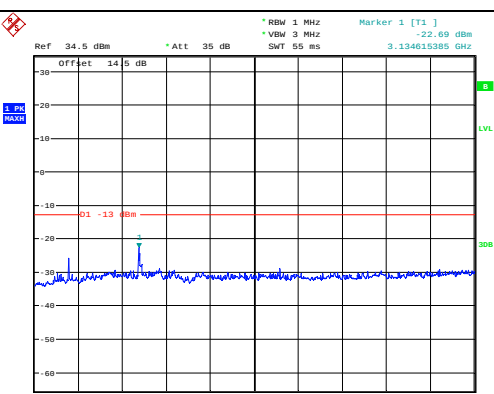
Test Modulation:	8PSK		Test Channel:	836.6	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.85	24	0.029	2.5
	-20	3.85	45	0.054	2.5
	-10	3.85	22	0.026	2.5
	0	3.85	18	0.022	2.5
	10	3.85	4	0.005	2.5
	20	3.85	27	0.032	2.5
	30	3.85	9	0.011	2.5
	40	3.85	21	0.025	2.5
	50	3.85	42	0.050	2.5
Frequency Stability vs. Voltage	20	3.5	17	0.020	2.5
	20	4.45	7	0.008	2.5
				Result:	Pass

Test Plots (Note: The 14.5 dB is the Insertion loss of the RF cable and Power Splitter, which was offset into the Spectrum Analyzer):

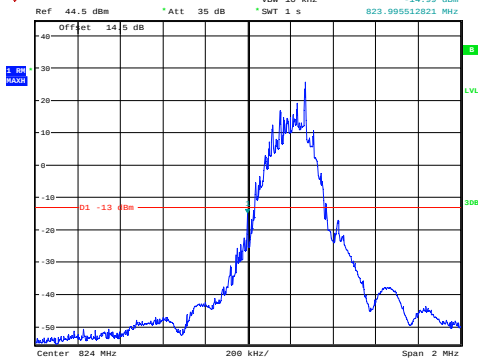
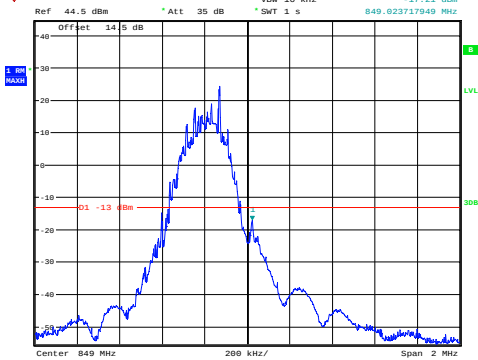
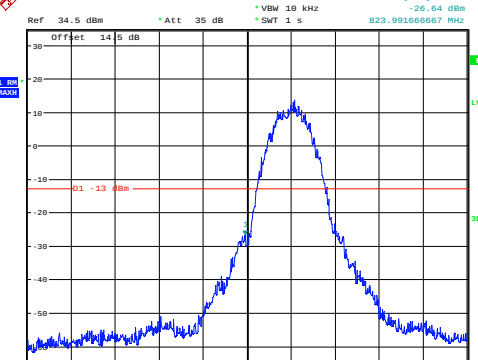
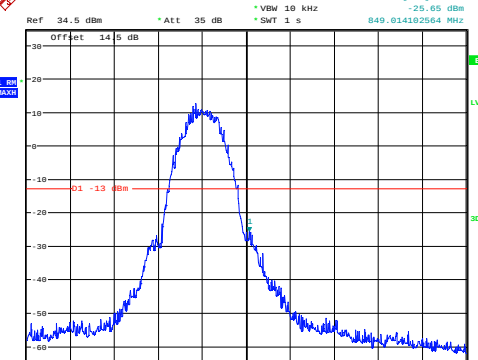
Occupied Bandwidth

Channel	GSM	EDGE
Lowest	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 20:45:18	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:23:54
Middle	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 20:51:40	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:25:43
Highest	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 20:53:55	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:27:39

Spurious Emissions at Antenna Terminal

Channel	GSM	
Lowest	 Ref 44.5 dBm * Att 35 dB * RBW 100 kHz * VBW 300 kHz * SWT 100 ms * Marker 1 [T1] -20.17 dBm Start 30 MHz 97 MHz/ Stop 1 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:41:25	 Ref 34.5 dBm * Att 35 dB * RBW 1 MHz * VBW 3 MHz * SWT 55 ms * Marker 1 [T1] -23.57 dBm Start 1 GHz 900 MHz/ Stop 10 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:42:02
	 Ref 44.5 dBm * Att 35 dB * RBW 100 kHz * VBW 300 kHz * SWT 100 ms * Marker 1 [T1] -30.38 dBm Start 30 MHz 97 MHz/ Stop 1 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:43:16	 Ref 34.5 dBm * Att 35 dB * RBW 1 MHz * VBW 3 MHz * SWT 55 ms * Marker 1 [T1] -21.38 dBm Start 1 GHz 900 MHz/ Stop 10 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:43:36
Highest	 Ref 44.5 dBm * Att 35 dB * RBW 100 kHz * VBW 300 kHz * SWT 100 ms * Marker 1 [T1] -30.68 dBm Center 515 MHz 97 MHz/ Span 970 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:44:15	 Ref 34.5 dBm * Att 35 dB * RBW 1 MHz * VBW 3 MHz * SWT 55 ms * Marker 1 [T1] -22.69 dBm Center 5.5 GHz 900 MHz/ Span 9 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:44:40

Out of band emission, Band Edge

Mode	Lowest	Highest
GSM	Ref 44.5 dBm *Att 35 dB *RBW 3 kHz *VBW 10 kHz *SWT 1 s Marker 1 [T1] -14.59 dBm 823.995512821 MHz  ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 20:49:32	Ref 44.5 dBm *Att 35 dB *RBW 3 kHz *VBW 10 kHz *SWT 1 s Marker 1 [T1] -17.21 dBm 849.023717949 MHz  ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 20:55:01
EDGE	Ref 34.5 dBm *Att 35 dB *RBW 3 kHz *VBW 10 kHz *SWT 1 s Marker 1 [T1] -26.64 dBm 823.991666667 MHz  ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:19:53	Ref 34.5 dBm *Att 35 dB *RBW 3 kHz *VBW 10 kHz *SWT 1 s Marker 1 [T1] -25.65 dBm 849.014102564 MHz  ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:28:35

4.2 Antenna Port Test Data and Results for GSM 1900 band:

Serial Number:	2BF3-1	Test Date:	2023/9/23-2023/9/25
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu/Arthur Su	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.3-25.8	Relative Humidity: (%)	41-59	ATM Pressure: (kPa)	100.2-100.4
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
Unknown	Coaxial tee connector	Unknown	2204005	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Frequency for Each Mode:

Operation Modes	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
GSM	1850.2	1880	1909.8
GPRS	1850.2	1880	1909.8
EDGE	1850.2	1880	1909.8

Test Data:**RF Output Power**

Test Mode	Conducted Peak Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
	Lowest Channel	Middle Channel	Highest Channel		
GSM	31.36	30.94	30.43	32.99	33
GPRS 1 Slot	31.22	30.72	30.34	32.85	33
GPRS 2 Slots	30.35	29.63	29.18	31.98	33
GPRS 3 Slots	28.19	27.35	26.88	29.82	33
GPRS 4 Slots	26.81	26.1	25.52	28.44	33
EDGE 1 Slot	27.99	27.26	27.18	29.62	33
EDGE 2 Slots	26.71	25.84	25.92	28.34	33
EDGE 3 Slots	24.33	23.57	23.76	25.96	33
EDGE 4 Slots	22.85	22.21	22.16	24.48	33
Note: EIRP=Conducted Power(dBm) - Lc(dB) + G _T (dBi)					
				Result:	Fail

Occupied Bandwidth

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
GSM	0.238	0.238	0.238	0.264	0.263	0.264
EDGE	0.252	0.248	0.252	0.321	0.324	0.319
Note: The test plots please refer to the Plots of Occupied Bandwidth						

Spurious Emissions at Antenna Terminal

Result:	Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.
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Out of band emission, Band Edge

Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
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Frequency Stability

Test Mode:	GMSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1850.079	1850.000	1909.940	1910.000
	-20	3.85	1850.064	1850.000	1909.921	1910.000
	-10	3.85	1850.079	1850.000	1909.946	1910.000
	0	3.85	1850.070	1850.000	1909.924	1910.000
	10	3.85	1850.063	1850.000	1909.928	1910.000

	20	3.85	1850.082	1850.000	1909.920	1910.000
	30	3.85	1850.067	1850.000	1909.939	1910.000
	40	3.85	1850.067	1850.000	1909.921	1910.000
	50	3.85	1850.064	1850.000	1909.938	1910.000
Frequency Stability vs. Voltage	20	3.5	1850.057	1850.000	1909.923	1910.000
	20	4.45	1850.078	1850.000	1909.935	1910.000
Result:					Pass	

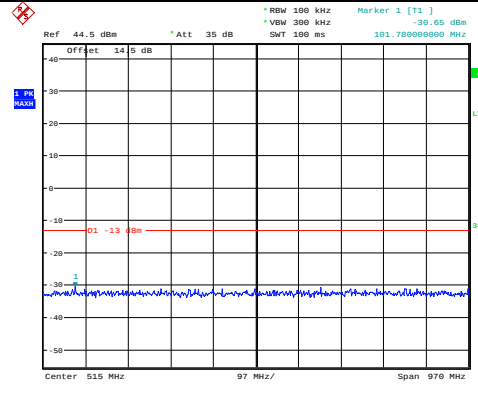
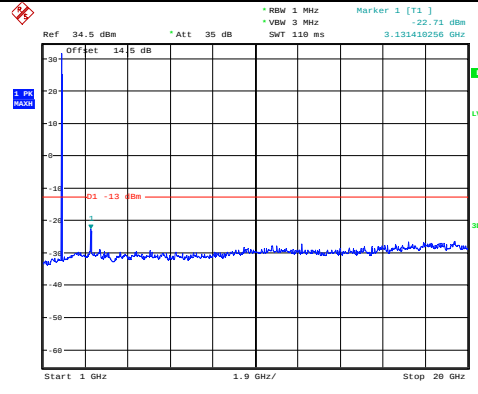
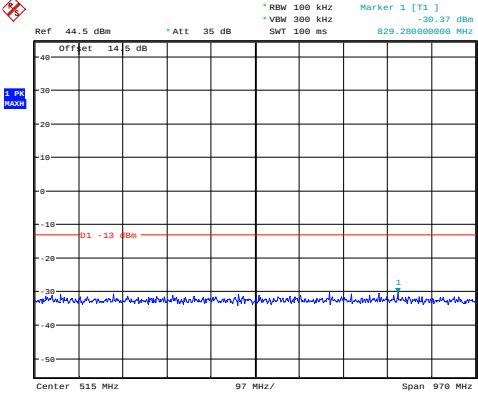
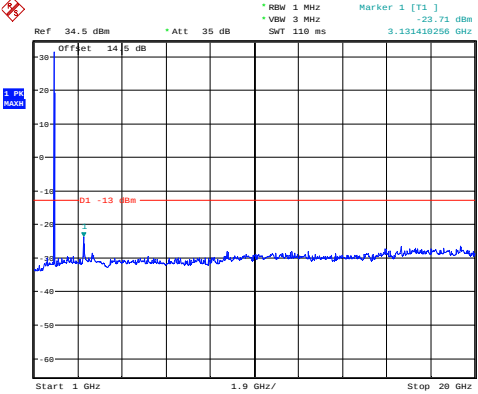
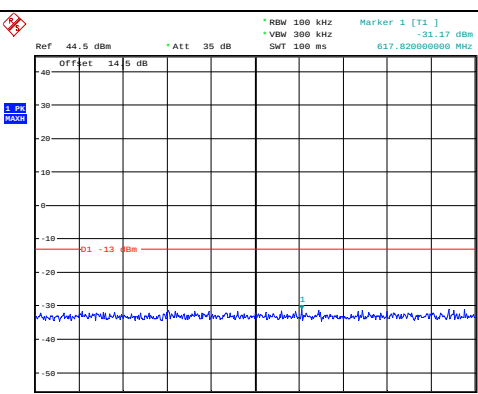
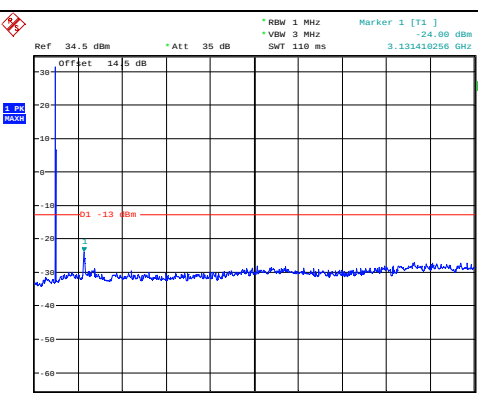
Test Mode:	8PSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1850.052	1850.000	1909.942	1910.000
	-20	3.85	1850.054	1850.000	1909.946	1910.000
	-10	3.85	1850.074	1850.000	1909.942	1910.000
	0	3.85	1850.072	1850.000	1909.942	1910.000
	10	3.85	1850.049	1850.000	1909.943	1910.000
	20	3.85	1850.074	1850.000	1909.928	1910.000
	30	3.85	1850.067	1850.000	1909.942	1910.000
	40	3.85	1850.068	1850.000	1909.938	1910.000
	50	3.85	1850.059	1850.000	1909.932	1910.000
Frequency Stability vs. Voltage	20	3.5	1850.047	1850.000	1909.938	1910.000
	20	4.45	1850.061	1850.000	1909.940	1910.000
Result:					Pass	

Test Plots (Note: The 14.5 dB is the Insertion loss of the RF cable and Power Splitter, which was offset into the Spectrum Analyzer):

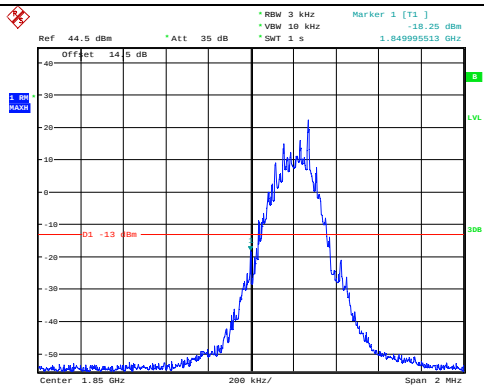
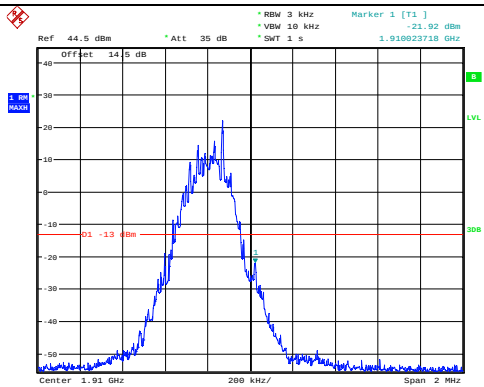
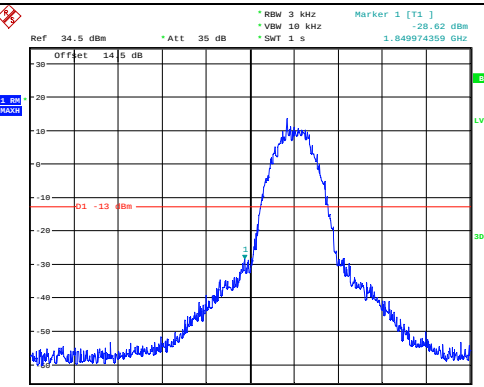
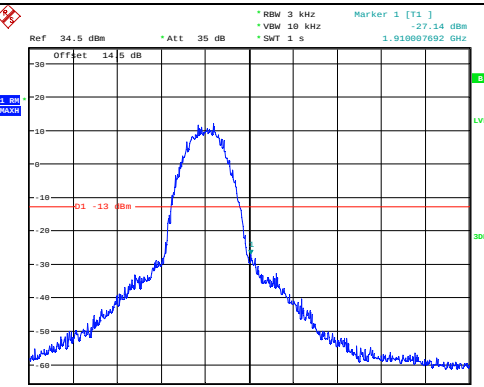
Occupied Bandwidth

Channel	GSM	EDGE
Lowest	ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 20:59:15	ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:08:30
Middle	ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:02:29	ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:11:56
Highest	ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:04:04	ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:14:18

Spurious Emissions at Antenna Terminal

Channel	GSM	
Lowest	 Ref 44.5 dBm * Att 35 dB * RBW 100 kHz * VBW 300 kHz * SWT 100 ms * Marker 1 [T1] -30.65 dBm 101.78000000 MHz Center 515 MHz 97 MHz/ Span 970 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:46:22	 Ref 34.5 dBm * Att 35 dB * RBW 1 MHz * VBW 3 MHz * SWT 110 ms * Marker 1 [T1] -22.71 dBm 3.131410256 GHz Start 1 GHz 1.9 GHz/ Stop 20 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:46:52
	 Ref 44.5 dBm * Att 35 dB * RBW 100 kHz * VBW 300 kHz * SWT 100 ms * Marker 1 [T1] -30.37 dBm 829.280000000 MHz Center 515 MHz 97 MHz/ Span 970 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:47:38	 Ref 34.5 dBm * Att 35 dB * RBW 1 MHz * VBW 3 MHz * SWT 110 ms * Marker 1 [T1] -23.71 dBm 3.131410256 GHz Start 1 GHz 1.9 GHz/ Stop 20 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:48:06
Middle	 Ref 44.5 dBm * Att 35 dB * RBW 100 kHz * VBW 300 kHz * SWT 100 ms * Marker 1 [T1] -31.17 dBm 617.820000000 MHz Start 30 MHz 97 MHz/ Stop 1 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:48:30	 Ref 34.5 dBm * Att 35 dB * RBW 1 MHz * VBW 3 MHz * SWT 110 ms * Marker 1 [T1] -24.00 dBm 3.131410256 GHz Start 1 GHz 1.9 GHz/ Stop 20 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:48:54
Highest		

Out of band emission, Band Edge

Channel	Lowest	Highest
GSM	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:00:18	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:04:57
EDGE	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:09:57	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 21:15:44

4.3 Antenna Port Test Data and Results for WCDMA Band 2:

Serial Number:	2BF3-1	Test Date:	2023/9/23-2023/10/18
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu/Arthur Su	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.3-26.2	Relative Humidity: (%)	41-60	ATM Pressure: (kPa)	100.2-101
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
Unknown	Coaxial tee connector	Unknown	2204005	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Frequency for Each Mode:

Operation Modes	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
WCDMA	1852.4	1880	1907.6

Test Data:

RF Output Power					
Test Mode	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
	Lowest Channel	Middle Channel	Highest Channel		
WCDMA R99	23.93	23.89	23.91	25.56	33
HSDPA Subtest 1	22.91	22.91	22.92	24.55	33
HSDPA Subtest 2	22.94	22.93	22.9	24.57	33
HSDPA Subtest 3	22.91	22.94	22.92	24.57	33
HSDPA Subtest 4	22.87	22.93	22.93	24.56	33
HSUPA Subtest 1	22.98	22.99	22.95	24.62	33
HSUPA Subtest 2	22.94	22.92	22.97	24.6	33
HSUPA Subtest 3	22.95	22.97	22.97	24.6	33
HSUPA Subtest 4	22.98	22.98	22.96	24.61	33
HSUPA Subtest 5	22.97	22.98	22.98	24.61	33

Note: EIRP=Conducted Power(dBm) - Lc(dB) + Gr(dBi)

Result:	Pass
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Peak-to-average Ratio (PAR)				
Test Mode	Peak-to-average Ratio(dB)			Limit (dB)
	Lowest Channel	Middle Channel	Highest Channel	
WCDMA R99	3.01	3.01	2.92	13
HSDPA	3.81	3.72	3.94	13
HSUPA	4.04	4.13	3.91	13

Result:	Pass
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Occupied Bandwidth						
Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
WCDMA R99	4.16	4.2	4.18	4.75	4.74	4.74
HSDPA	4.24	4.2	4.24	6.02	4.74	5.25
HSUPA	4.22	4.2	4.24	5.31	4.73	5.76

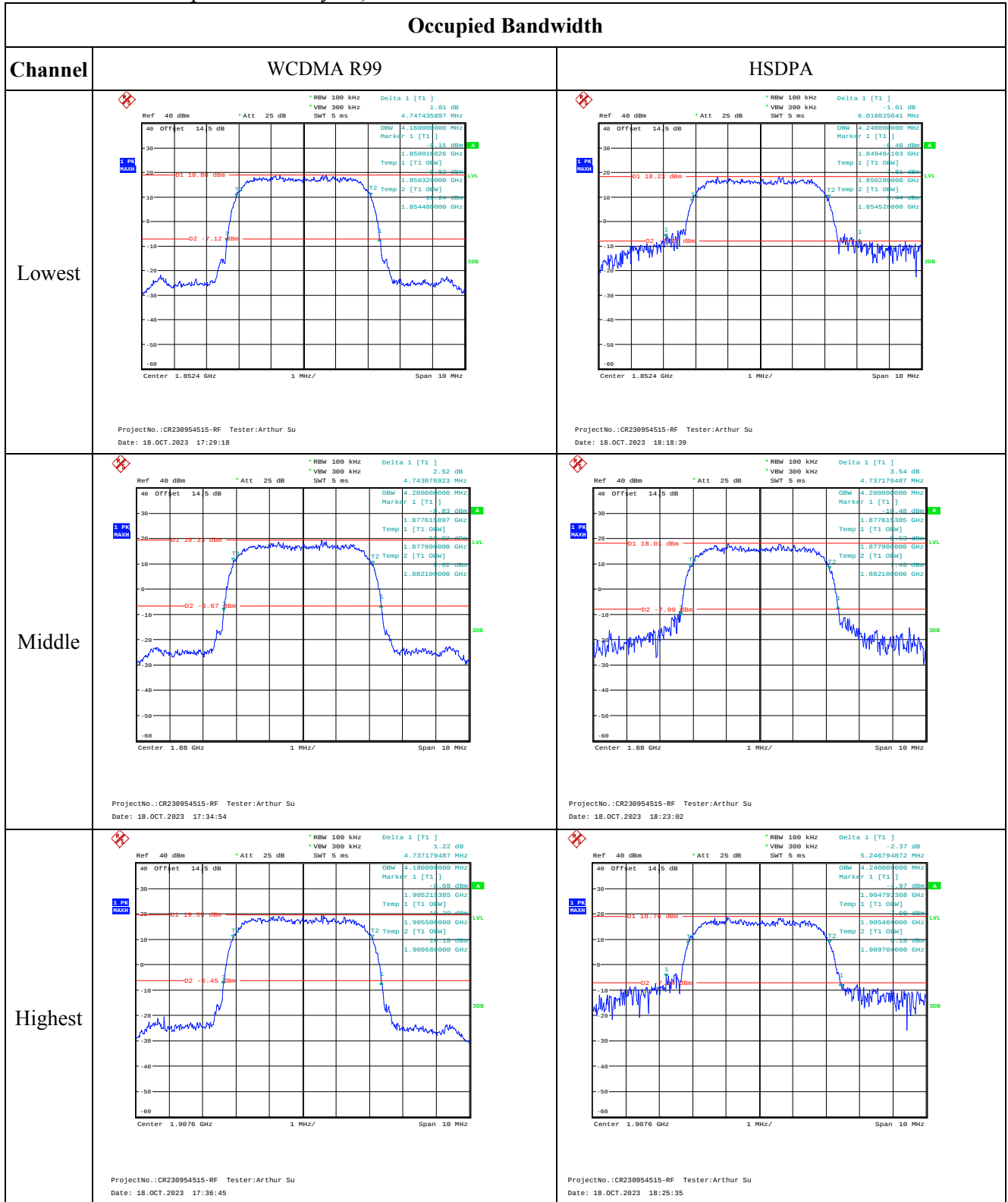
Note: The test plots please refer to the Plots of Occupied Bandwidth

Spurious Emissions at Antenna Terminal	
Result:	Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.

Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

Frequency Stability						
Test Mode:	WCDMA R99	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1850.314	1850.000	1909.685	1910.000
	-20	3.85	1850.314	1850.000	1909.683	1910.000
	-10	3.85	1850.301	1850.000	1909.697	1910.000
	0	3.85	1850.311	1850.000	1909.690	1910.000
	10	3.85	1850.308	1850.000	1909.686	1910.000
	20	3.85	1850.317	1850.000	1909.683	1910.000
	30	3.85	1850.309	1850.000	1909.698	1910.000
	40	3.85	1850.292	1850.000	1909.699	1910.000
	50	3.85	1850.303	1850.000	1909.684	1910.000
Frequency Stability vs. Voltage	20	3.5	1850.314	1850.000	1909.707	1910.000
	20	4.45	1850.304	1850.000	1909.692	1910.000
					Result:	Pass

Test Plots (Note: The 14.5 dB is the Insertion loss of the RF cable and Power Splitter, which was offset into the Spectrum Analyzer):

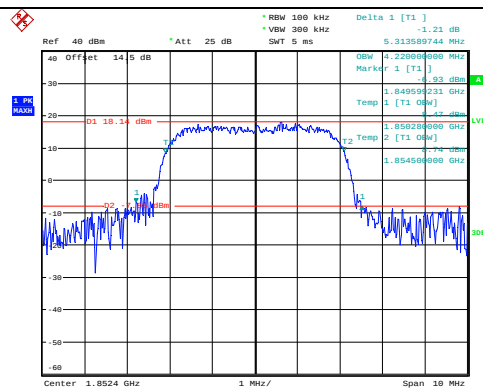


Occupied Bandwidth

Channel

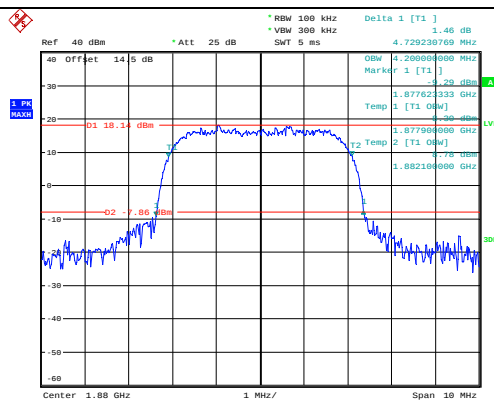
HSUPA

Lowest



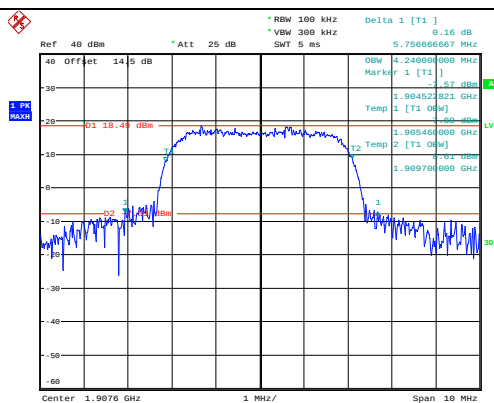
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Date: 18.OCT.2023 18:34:54

Middle



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 18.OCT.2023 18:31:08

Highest



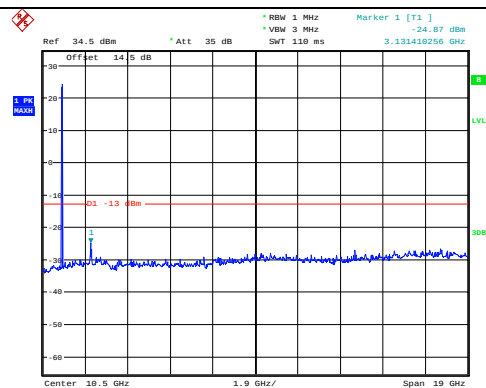
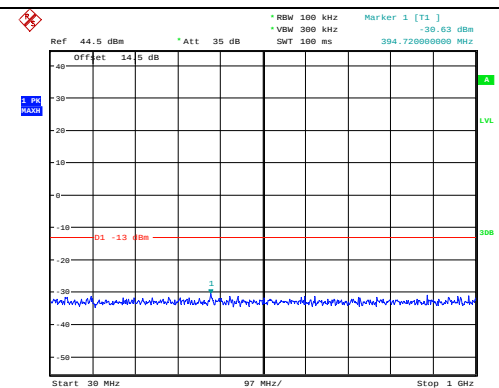
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Spurious Emissions at Antenna Terminal

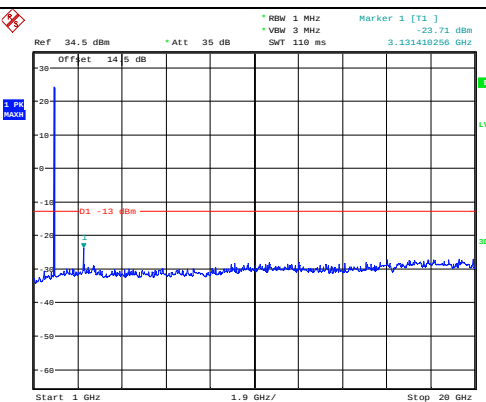
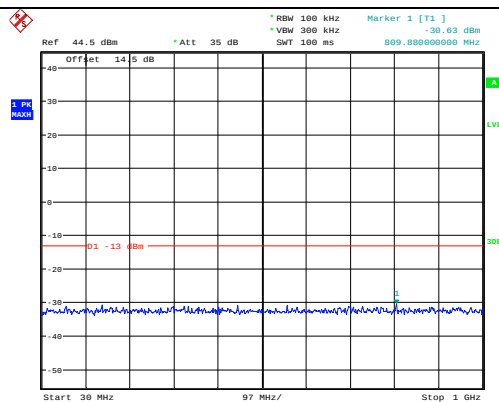
Channel

WCDMA R99

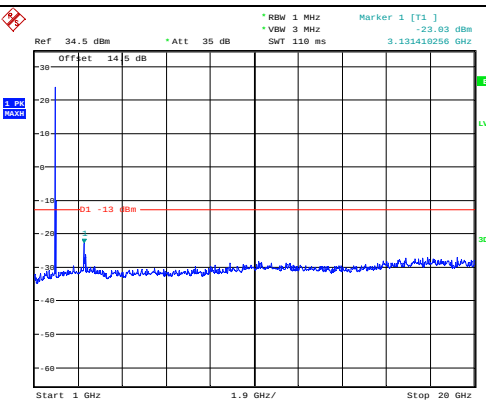
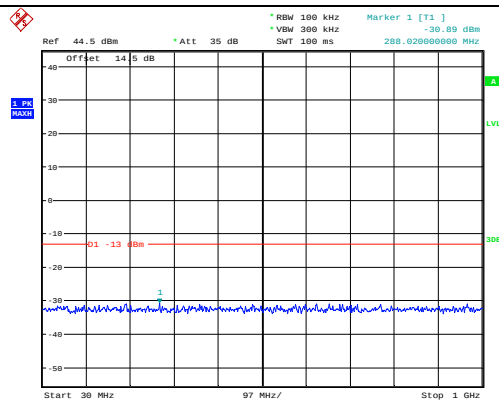
Lowest



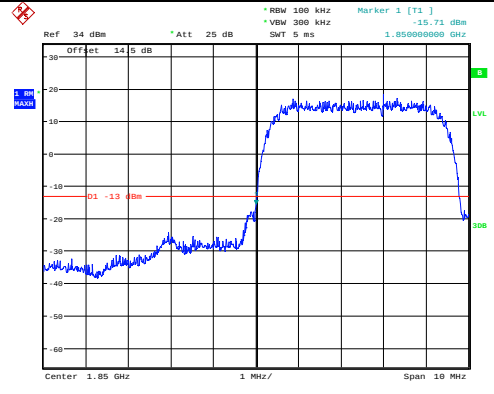
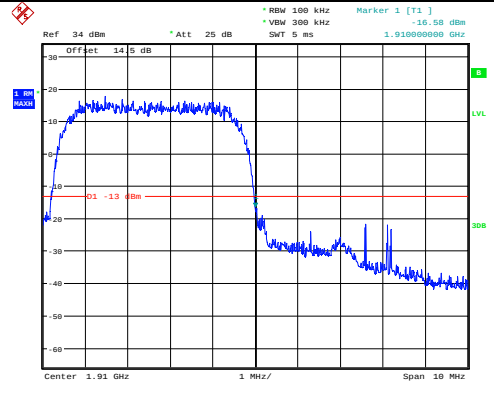
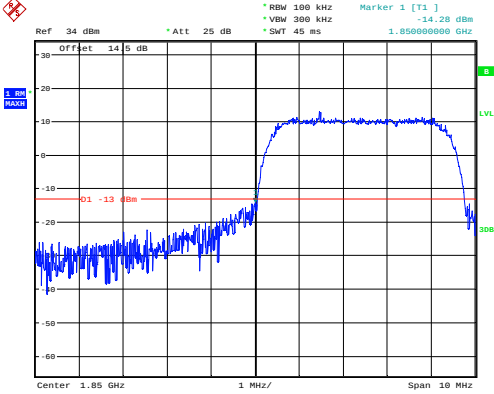
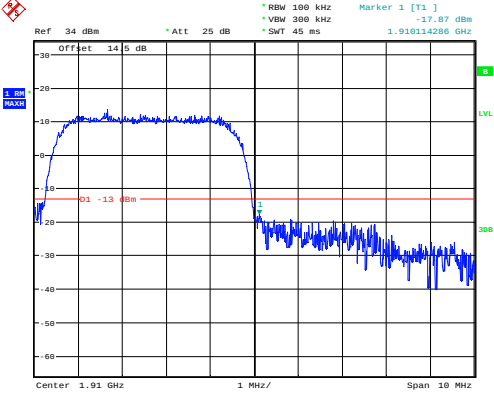
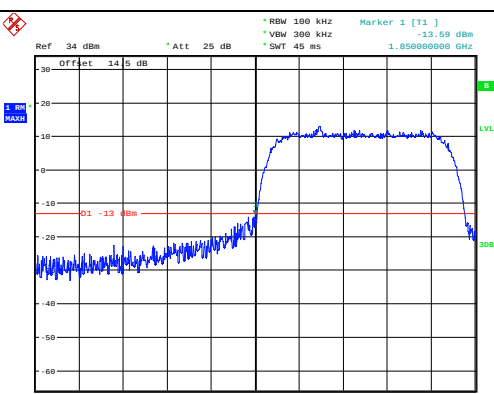
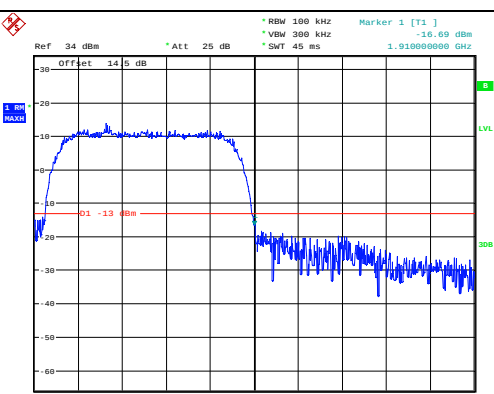
Middle



Highest



Out of band emission, Band Edge

Mode	Lowest	Highest
R99	 ProjectNo.: CR230954515-RF Tester: Arthur Su Date: 18.OCT.2023 17:30:06	 ProjectNo.: CR230954515-RF Tester: Arthur Su Date: 18.OCT.2023 17:37:22
HSUPA	 ProjectNo.: CR230954515-RF Tester: Arthur Su Date: 18.OCT.2023 18:29:25	 ProjectNo.: CR230954515-RF Tester: Arthur Su Date: 18.OCT.2023 18:26:18
HSDPA	 ProjectNo.: CR230954515-RF Tester: Arthur Su Date: 18.OCT.2023 18:35:37	 ProjectNo.: CR230954515-RF Tester: Arthur Su Date: 18.OCT.2023 18:27:37

4.5 Antenna Port Test Data and Results for WCDMA Band 5:

Serial Number:	2BF3-1	Test Date:	2023/9/23-2023/10/18
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu/Arthur Su	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.3-26.2	Relative Humidity: (%)	41-60	ATM Pressure: (kPa)	100.2-101
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
Unknown	Coaxial tee connector	Unknown	2204005	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D091238 6	N/A	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Frequency:

Operation Modes	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
WCDMA	826.4	836.6	846.6

Test Data:

RF Output Power					
Test Mode	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
	Lowest Channel	Middle Channel	Highest Channel		
WCDMA R99	24.31	24.32	24.31	17.8	38.45
HSDPA Subtest 1	23.35	23.31	23.34	16.83	38.45
HSDPA Subtest 2	23.32	23.32	23.32	16.8	38.45
HSDPA Subtest 3	23.36	23.36	23.36	16.84	38.45
HSDPA Subtest 4	23.33	23.31	23.33	16.81	38.45
HSUPA Subtest 1	23.34	23.36	23.35	16.84	38.45
HSUPA Subtest 2	23.36	23.32	23.33	16.84	38.45
HSUPA Subtest 3	23.34	23.35	23.34	16.83	38.45
HSUPA Subtest 4	23.33	23.32	23.35	16.83	38.45
HSUPA Subtest 5	23.37	23.34	23.34	16.85	38.45
Note: ERP= Conducted Power(dBm) - Lc(dB) + G _T (dBd) G _T (dBd)=G _T (dBi)-2.15					
				Result:	Pass

Peak-to-average Ratio(PAR)					
Test Mode	Peak-to-average Ratio(dB)			Limit (dB)	
	Lowest Channel	Middle Channel	Highest Channel		
WCDMA R99	3.04	2.79	3.04	13	
HSDPA	3.91	3.78	3.81	13	
HSUPA	4.29	4.07	4.07	13	
				Result:	Pass

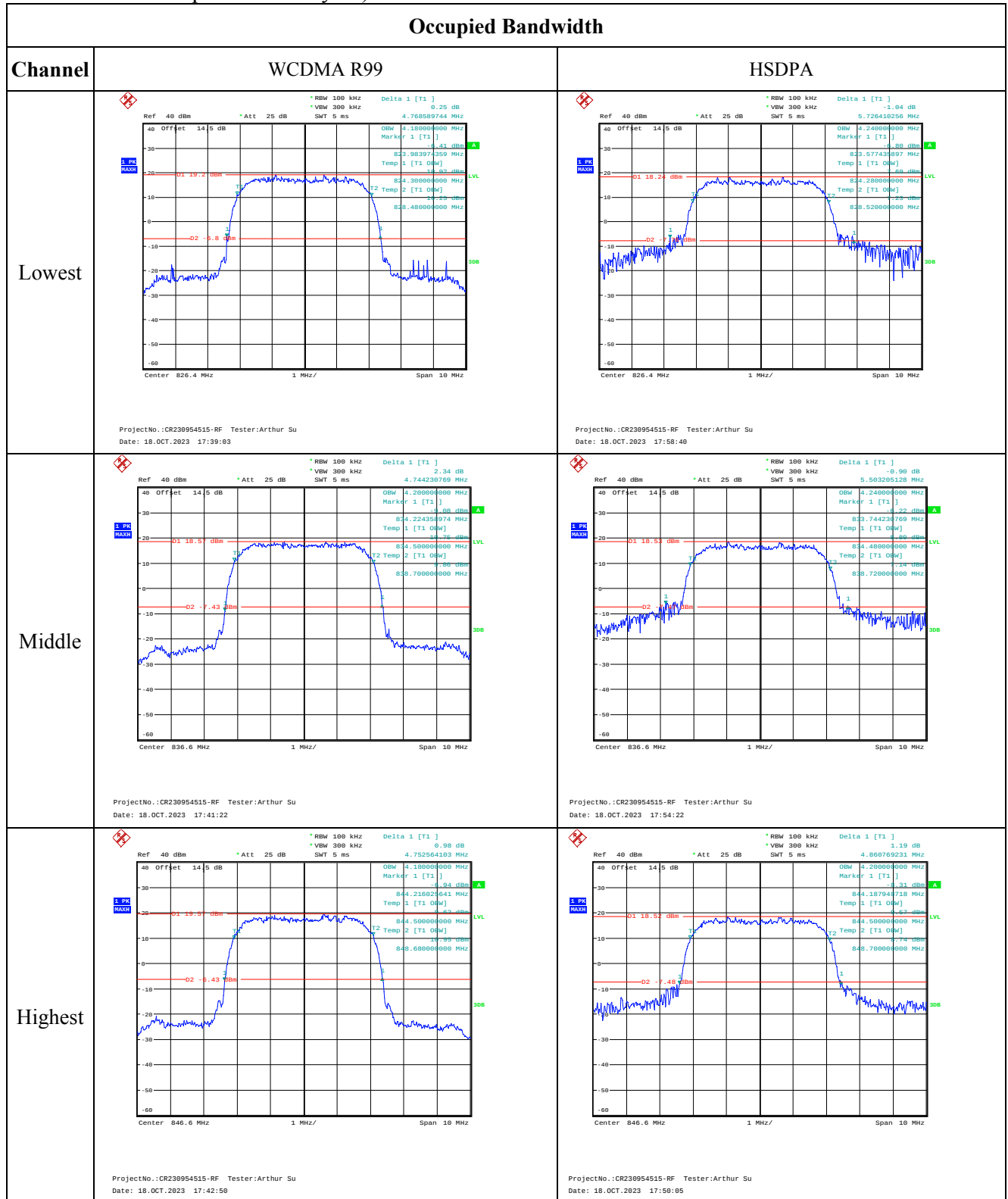
Occupied Bandwidth						
Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
WCDMA R99	4.18	4.2	4.18	4.77	4.74	4.75
HSDPA	4.24	4.24	4.2	5.73	5.5	4.86
HSUPA	4.24	4.22	4.2	5.71	5.81	4.77
Note: The test plots please refer to the Plots of Occupied Bandwidth						

Spurious Emissions at Antenna Terminal	
Result:	Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.

Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

Frequency Stability					
Test Modulation:	WCDMA R99		Test Channel:	836.6	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.85	33	0.040	2.5
	-20	3.85	25	0.030	2.5
	-10	3.85	22	0.027	2.5
	0	3.85	5	0.006	2.5
	10	3.85	3	0.003	2.5
	20	3.85	23	0.027	2.5
	30	3.85	11	0.014	2.5
	40	3.85	28	0.033	2.5
	50	3.85	12	0.014	2.5
Frequency Stability vs. Voltage	20	3.5	17	0.020	2.5
	20	4.45	26	0.032	2.5
				Result:	Pass

Test Plots(Note: The 14.5 dB is the Insertion loss of the RF cable and Power Splitter, which was offset into the Spectrum Analyzer):

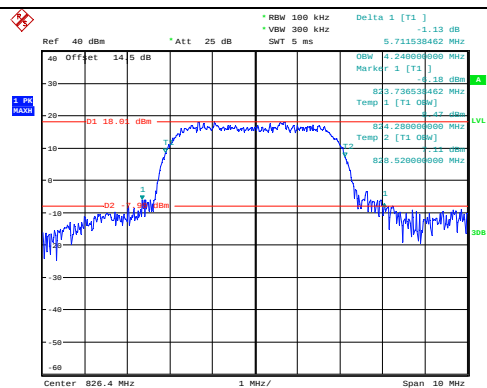


Occupied Bandwidth

Channel

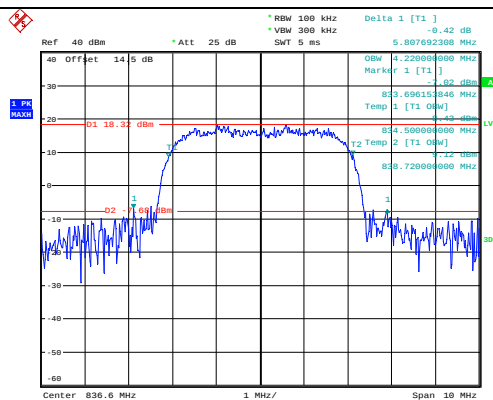
HSUPA

Lowest



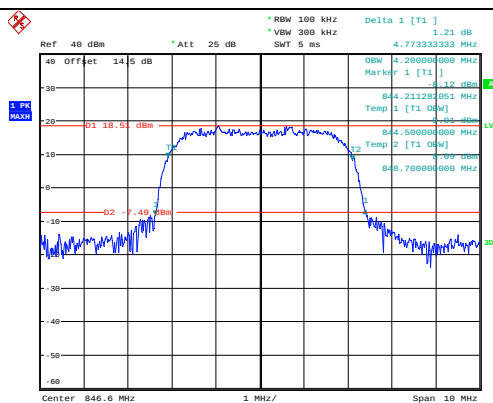
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Date: 18.OCT.2023 18:37:58

Middle



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 18.OCT.2023 18:40:52

Highest



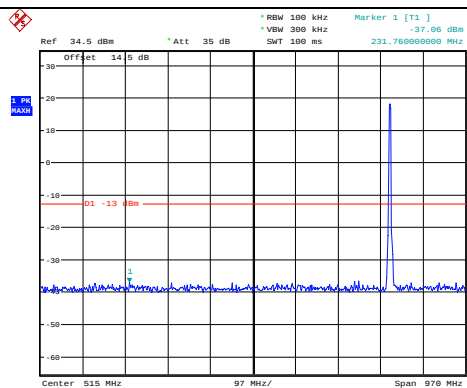
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Spurious Emissions at Antenna Terminal

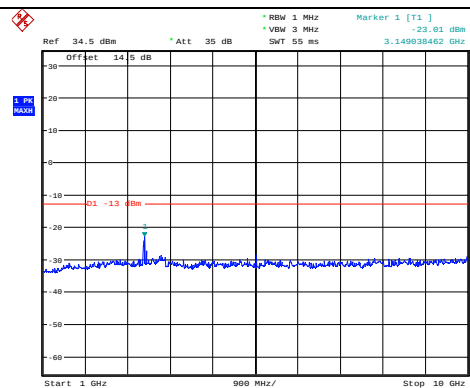
Channel

WCDMA R99

Lowest

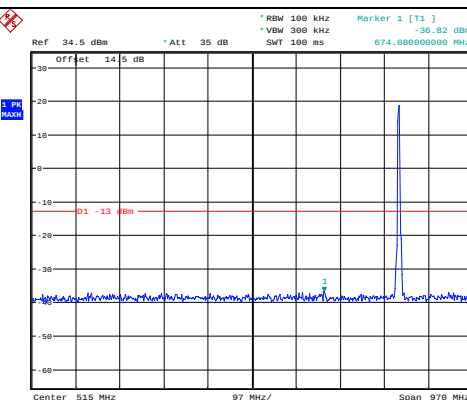


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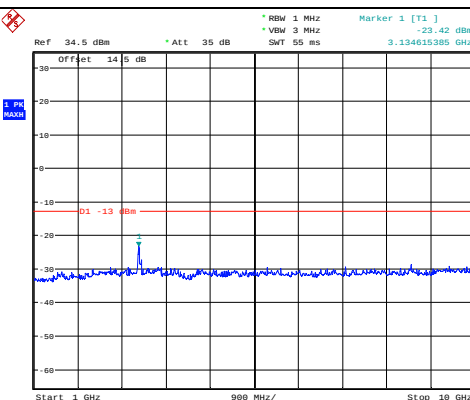


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Middle

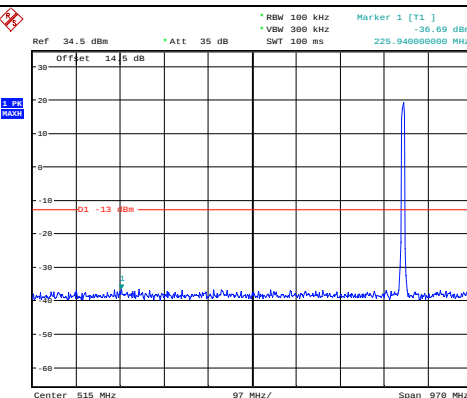


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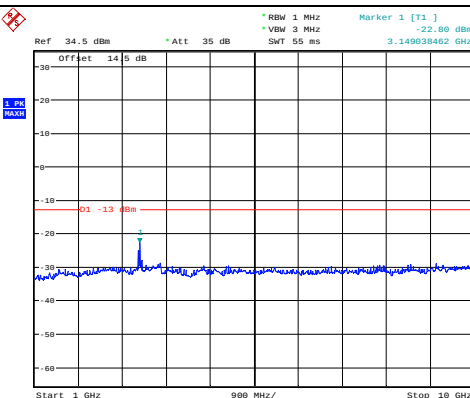


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Highest

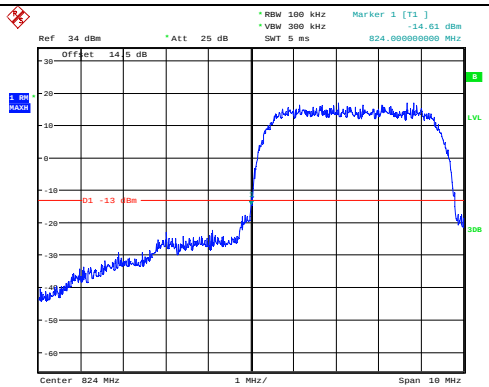
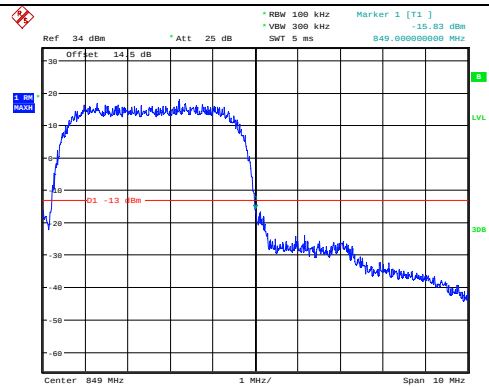
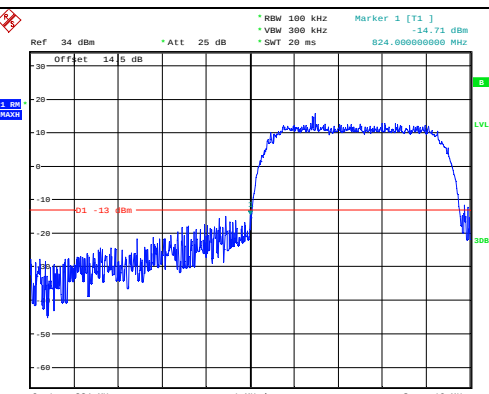
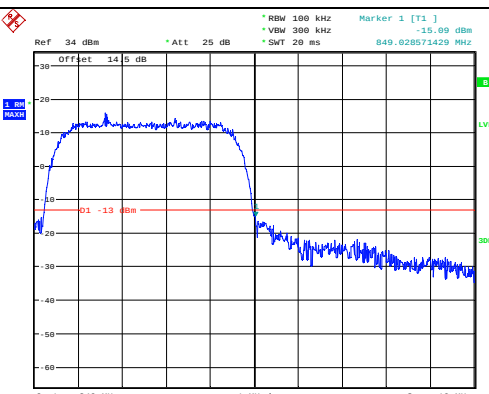
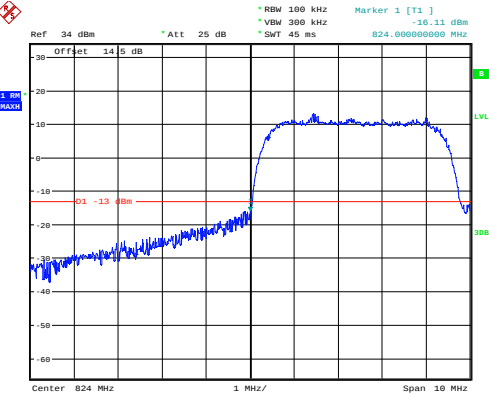
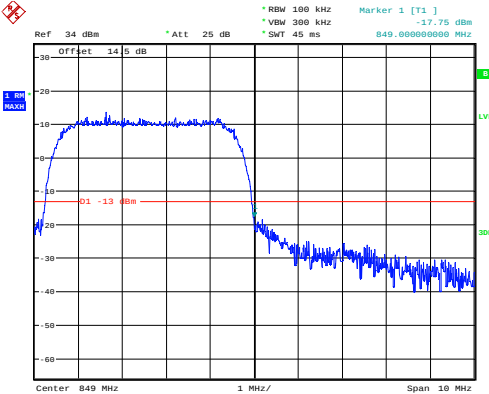


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 21:57:04



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 21:57:35

Out of band emission, Band Edge

Mode	Lowest	Highest
R99	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 18.OCT.2023 17:39:48	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 18.OCT.2023 17:43:15
HSUPA	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 18.OCT.2023 17:59:25	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 18.OCT.2023 18:16:25
HSDPA	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 18.OCT.2023 18:39:32	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 18.OCT.2023 18:43:13

4.6 Antenna Port Test Data and Results for LTE Band 2

Serial Number:	2BF3-1	Test Date:	2023/9/22-2023/9/23
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu/Arthur Su	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.6-25.5	Relative Humidity: (%)	46-54	ATM Pressure: (kPa)	100-100.2
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
Unknown	Coaxial tee connector	Unknown	2204005	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Frequency for Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	1850.7	1880	1909.3
3MHz	1851.5	1880	1908.5
5MHz	1852.5	1880	1907.5
10MHz	1855	1880	1905
15MHz	1857.5	1880	1902.5
20MHz	1860	1880	1900

Test Data:

RF Output Power						
Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
1.4MHz QPSK	RB1#0	23.65	22.72	23.21	25.43	33
	RB1#3	23.8	22.84	23.43		
	RB1#5	23.64	22.7	23.26		
	RB3#0	23.68	22.77	23.25		
	RB3#3	23.69	22.73	23.26		
	RB6#0	22.71	21.76	22.32		
1.4MHz 16QAM	RB1#0	22.61	21.69	22.34	24.48	33
	RB1#3	22.81	21.86	22.54		
	RB1#5	22.68	21.71	22.31		
	RB3#0	22.85	21.99	22.24		
	RB3#3	22.76	21.98	22.23		
	RB6#0	21.62	20.77	21.3		
3MHz QPSK	RB1#0	23.74	22.67	23.37	25.37	33
	RB1#8	23.7	22.6	23.37		
	RB1#14	23.68	22.6	23.34		
	RB6#0	22.65	21.65	22.31		
	RB6#9	22.64	21.61	22.32		
	RB15#0	22.71	21.66	22.34		
3MHz 16QAM	RB1#0	22.73	22.24	22.51	24.36	33
	RB1#8	22.73	22.17	22.47		
	RB1#14	22.64	22.2	22.42		
	RB6#0	21.63	20.69	21.33		
	RB6#9	21.58	20.61	21.35		
	RB15#0	21.75	20.69	21.32		
5MHz QPSK	RB1#0	23.62	23.41	22.63	25.34	33
	RB1#13	23.71	23.54	22.71		
	RB1#24	23.55	23.35	22.59		
	RB15#0	22.73	22.52	21.72		
	RB15#10	22.73	22.49	21.68		
	RB25#0	22.74	22.47	21.67		
5MHz 16QAM	RB1#0	22.7	22.29	21.88	24.37	33
	RB1#13	22.74	22.38	22		
	RB1#24	22.62	22.26	21.84		
	RB15#0	21.73	21.54	20.73		
	RB15#10	21.75	21.51	20.62		
	RB25#0	21.75	21.52	20.68		
10MHz QPSK	RB1#0	23.68	23.1	22.51	25.43	33
	RB1#25	23.8	23.26	22.65		
	RB1#49	23.63	23.02	22.45		

	RB25#0	22.74	22.25	21.69		
	RB25#25	22.63	22.19	21.45		
	RB50#0	22.66	22.17	21.55		
10MHz 16QAM	RB1#0	22.64	22.66	21.63	24.45	33
	RB1#25	22.78	22.82	21.71		
	RB1#49	22.54	22.6	21.53		
	RB25#0	21.78	21.26	20.69		
	RB25#25	21.71	21.2	20.51		
	RB50#0	21.68	21.2	20.58		
15MHz QPSK	RB1#0	23.63	23	22.51	25.26	33
	RB1#38	23.6	22.98	22.58		
	RB1#74	23.48	22.82	22.41		
	RB36#0	22.67	22.1	21.73		
	RB36#39	22.62	22.03	21.55		
	RB75#0	22.65	22.1	21.68		
15MHz 16QAM	RB1#0	22.99	22.56	21.66	24.62	33
	RB1#38	22.98	22.57	21.71		
	RB1#74	22.81	22.41	21.52		
	RB36#0	21.67	21.1	20.75		
	RB36#39	21.59	21.04	20.61		
	RB75#0	21.58	21.04	20.63		
20MHz QPSK	RB1#0	23.45	23.02	22.31	25.29	33
	RB1#50	23.66	23.24	22.62		
	RB1#99	23.22	22.8	22.15		
	RB50#0	22.58	22.19	21.52		
	RB50#50	22.56	22.14	21.22		
	RB100#0	22.52	22.16	21.4		
20MHz 16QAM	RB1#0	22.96	22.29	21.48	24.88	33
	RB1#50	23.25	22.53	21.75		
	RB1#99	22.78	22.09	21.34		
	RB50#0	21.58	21.18	20.51		
	RB50#50	21.54	21.11	20.23		
	RB100#0	21.56	21.18	20.43		

Note: EIRP=Conducted Power(dBm) - Lc(dB) + Gr(dBi)

Result:**Pass****Peak-to-average Ratio (PAR)**

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
20MHz QPSK	RB1#0	9.65	9.62	8.56	13
	RB100#0	6.41	6.38	6.47	13
20MHz 16QAM	RB1#0	9.07	9.2	8.62	13
	RB100#0	7.05	7.12	7.12	13
				Result:	Pass

Occupied Bandwidth

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
1.4MHz QPSK	1.104	1.104	1.098	1.302	1.308	1.290
1.4MHz 16QAM	1.098	1.110	1.098	1.302	1.320	1.272
3MHz QPSK	2.688	2.688	2.688	2.892	2.868	2.880
3MHz 16QAM	2.688	2.676	2.688	2.868	2.892	2.880
5MHz QPSK	4.520	4.560	4.520	5.180	5.200	5.180
5MHz 16QAM	4.560	4.520	4.540	5.220	5.200	5.180
10MHz QPSK	8.960	8.960	8.960	9.840	9.960	9.800
10MHz 16QAM	8.960	8.960	8.960	10.000	9.840	9.800
15MHz QPSK	13.560	13.620	13.500	15.300	15.060	15.120
15MHz 16QAM	13.560	13.500	13.560	15.060	15.060	15.060
20MHz QPSK	18.000	17.920	18.000	19.840	19.680	19.440
20MHz 16QAM	18.000	17.920	17.920	19.520	19.600	19.600

Note: The test plots please refer to the Plots of Occupied Bandwidth

Spurious Emissions at Antenna Terminal

Result:	Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.
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Out of band emission, Band Edge

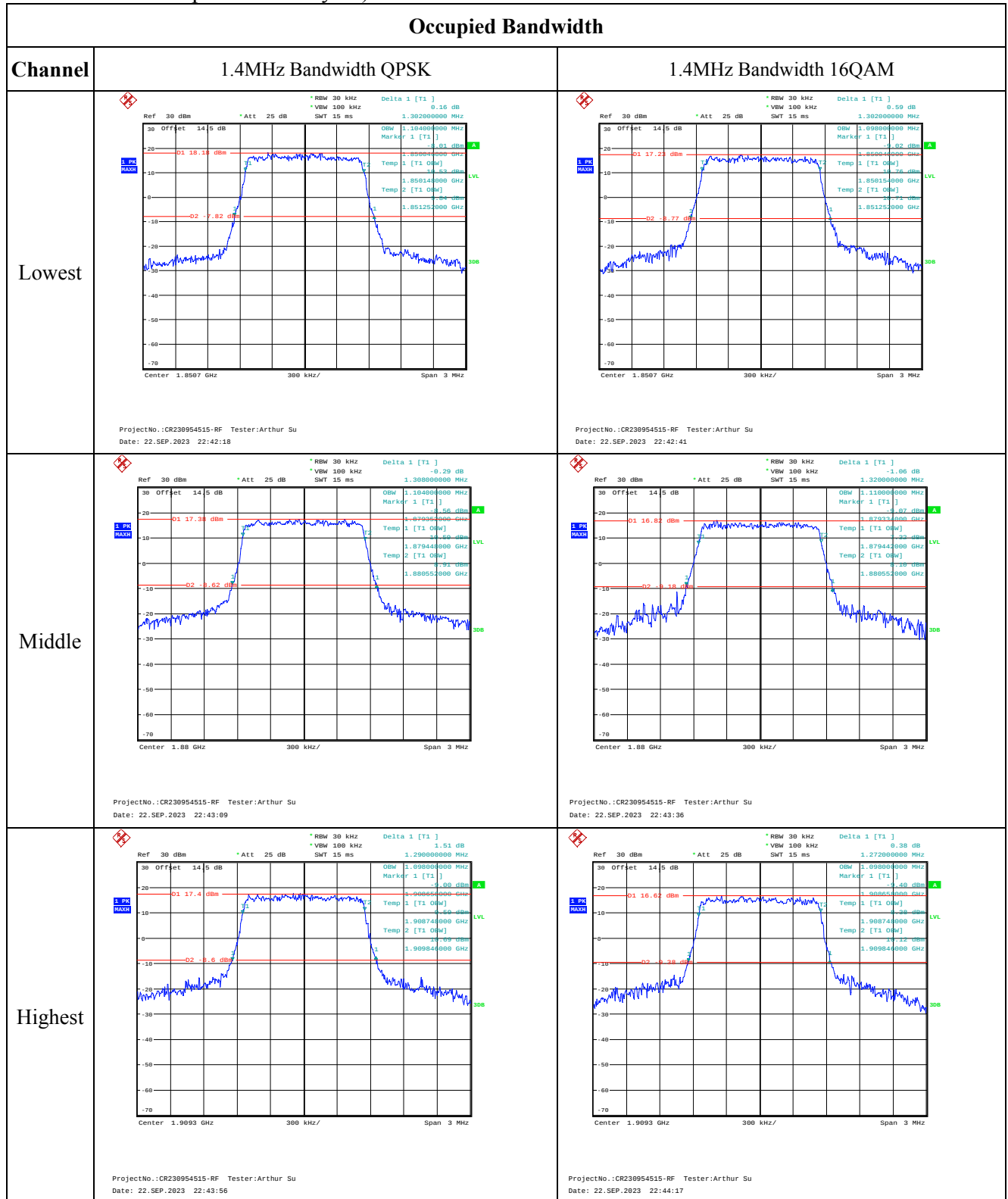
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
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Frequency Stability

Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1851.030	1850.000	1909.043	1910.000
	-20	3.85	1851.030	1850.000	1909.043	1910.000
	-10	3.85	1851.039	1850.000	1909.040	1910.000
	0	3.85	1851.032	1850.000	1909.061	1910.000
	10	3.85	1851.029	1850.000	1909.043	1910.000
	20	3.85	1851.040	1850.000	1909.040	1910.000
	30	3.85	1851.027	1850.000	1909.061	1910.000
	40	3.85	1851.034	1850.000	1909.044	1910.000
	50	3.85	1851.012	1850.000	1909.043	1910.000
Frequency Stability vs. Voltage	20	3.5	1851.028	1850.000	1909.063	1910.000
	20	4.45	1851.013	1850.000	1909.061	1910.000
					Result:	Pass

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1851.024	1850.000	1908.983	1910.000
	-20	3.85	1851.035	1850.000	1908.976	1910.000
	-10	3.85	1851.029	1850.000	1908.975	1910.000
	0	3.85	1851.033	1850.000	1908.970	1910.000
	10	3.85	1851.018	1850.000	1908.963	1910.000
	20	3.85	1851.040	1850.000	1908.960	1910.000
	30	3.85	1851.034	1850.000	1908.967	1910.000
	40	3.85	1851.038	1850.000	1908.975	1910.000
	50	3.85	1851.036	1850.000	1908.982	1910.000
Frequency Stability vs. Voltage	20	3.5	1851.012	1850.000	1908.974	1910.000
	20	4.45	1851.032	1850.000	1908.989	1910.000
					Result:	Pass

Test Plots (Note: The 14.5 dB is the Insertion loss of the RF cable and Power Splitter, which was offset into the Spectrum Analyzer):



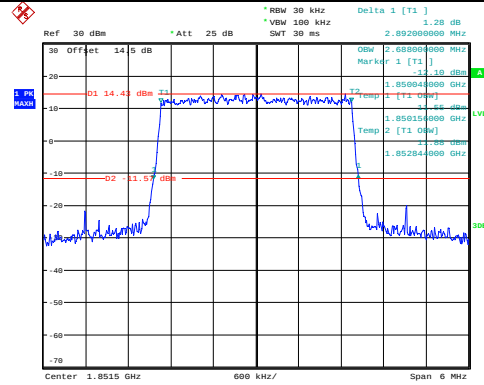
Occupied Bandwidth

Channel

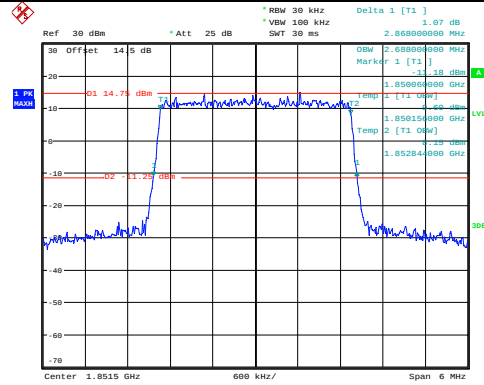
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

Lowest

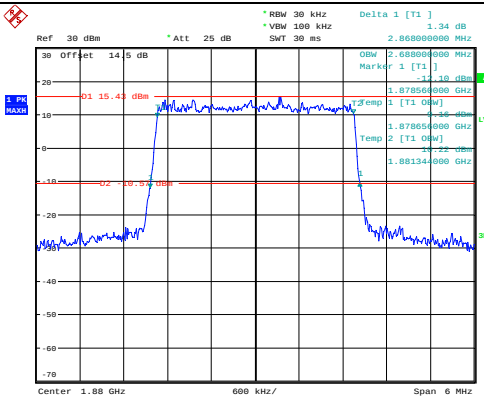


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Date: 22.SEP.2023 22:45:02

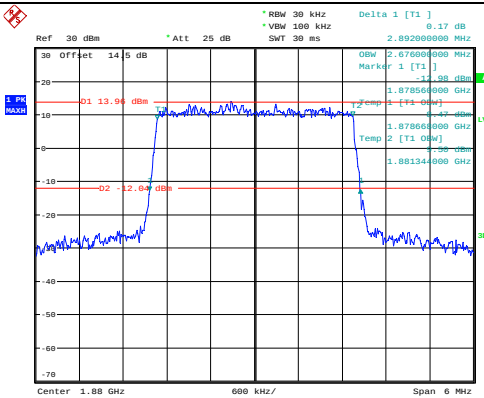


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:45:23

Middle

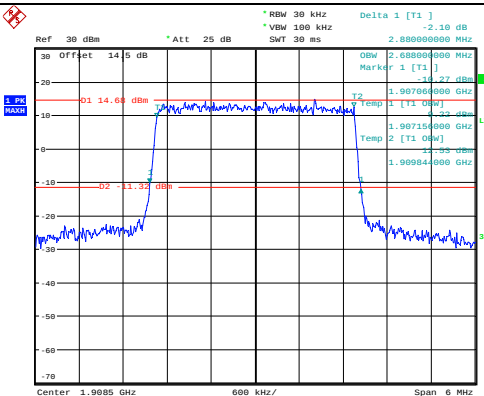


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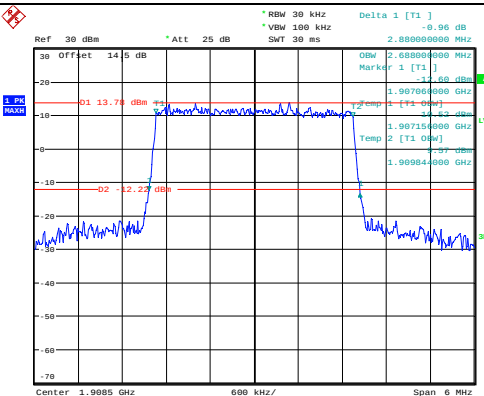


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:46:00

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:46:21



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:46:42

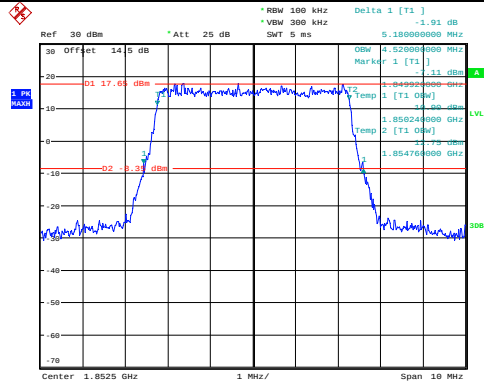
Occupied Bandwidth

Channel

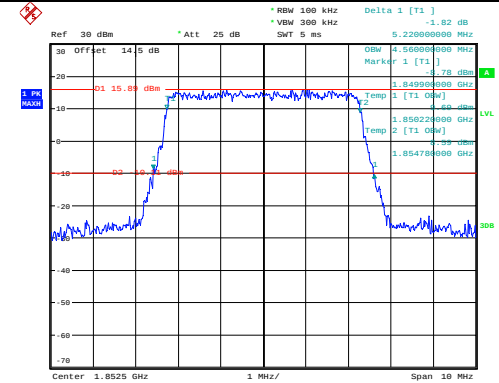
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

Lowest

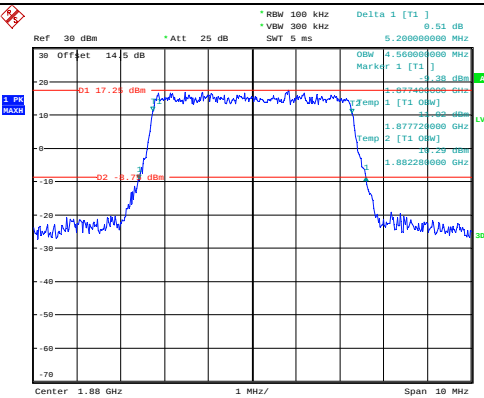


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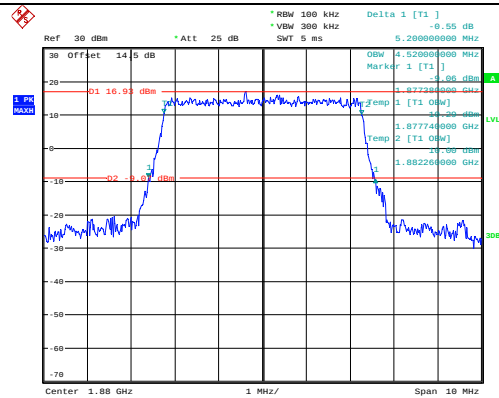


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:47:47

Middle

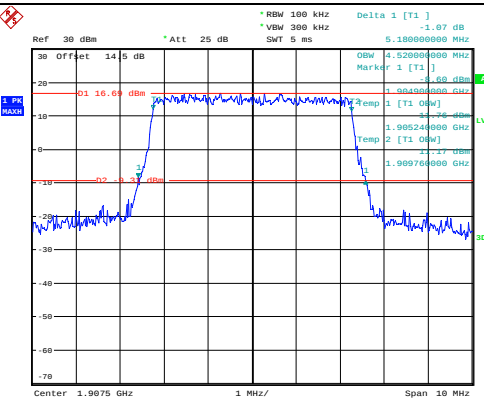


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:48:11

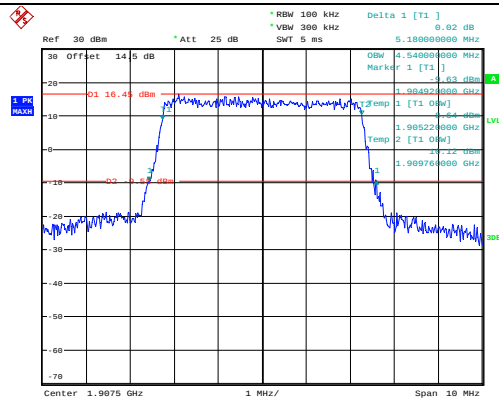


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:48:34

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:48:58



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:49:21

Occupied Bandwidth

Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest	ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:50:19	ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:50:39
Middle	ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:50:59	ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:51:20
Highest	ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:51:41	ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:52:03

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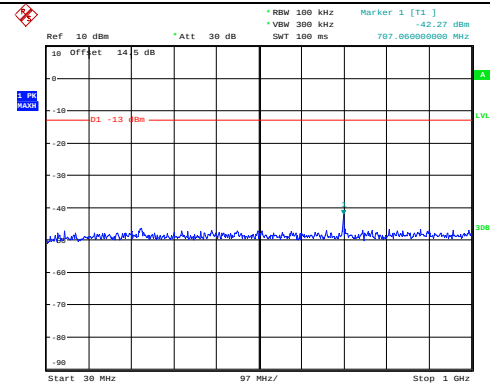
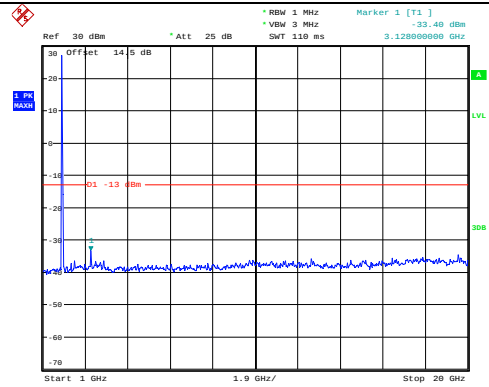
Occupied Bandwidth	
Channel	20MHz Bandwidth QPSK 20MHz Bandwidth 16QAM
Lowest	ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:56:06
Middle	ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:56:15
Highest	ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:57:39

Spurious Emissions at Antenna Terminal

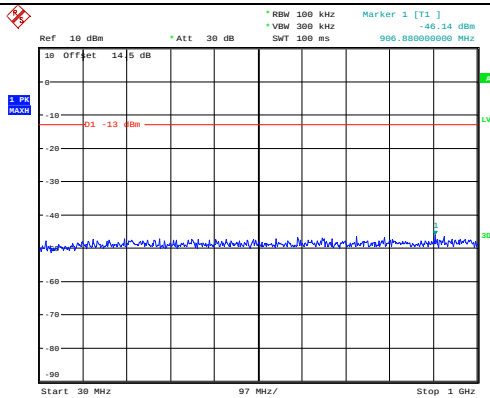
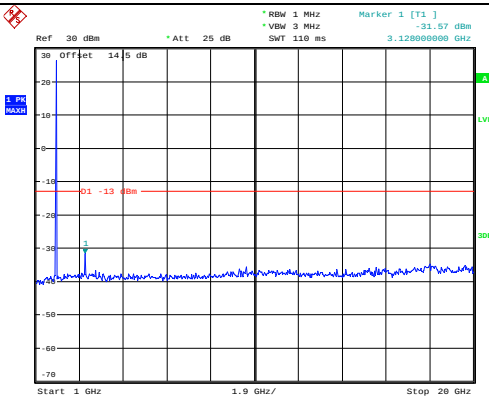
Channel

1.4MHz Bandwidth QPSK

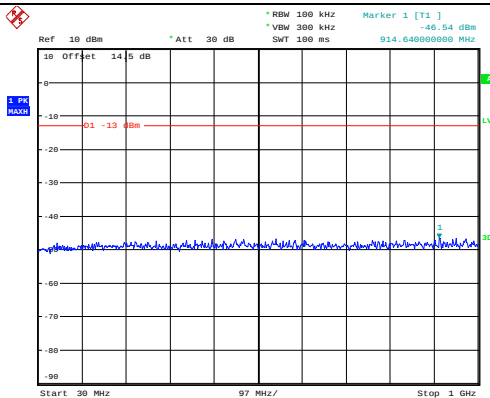
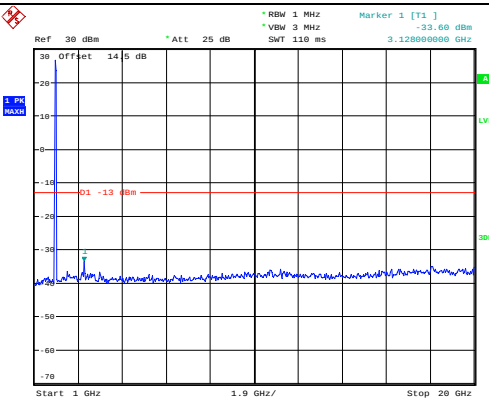
Lowest

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:33:26ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:33:36

Middle

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:33:49ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:33:59

Highest

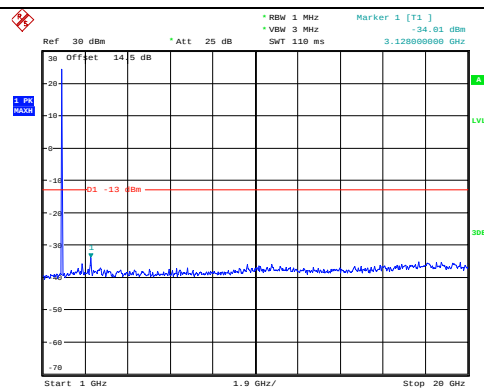
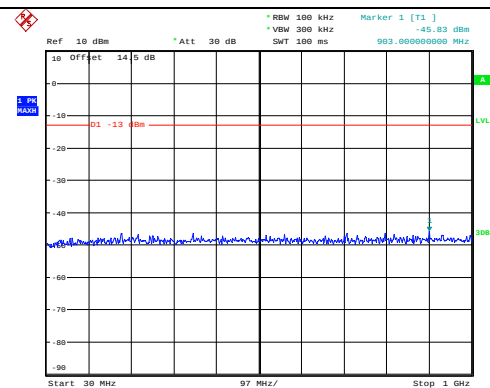
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Date: 23.SEP.2023 00:34:11ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:34:22

Spurious Emissions at Antenna Terminal

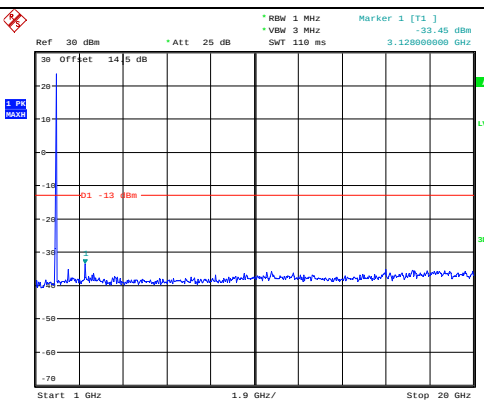
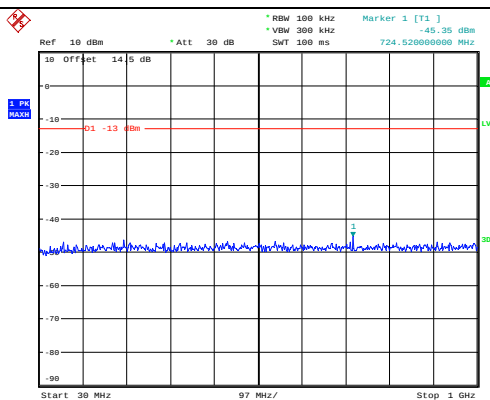
Channel

3MHz Bandwidth QPSK

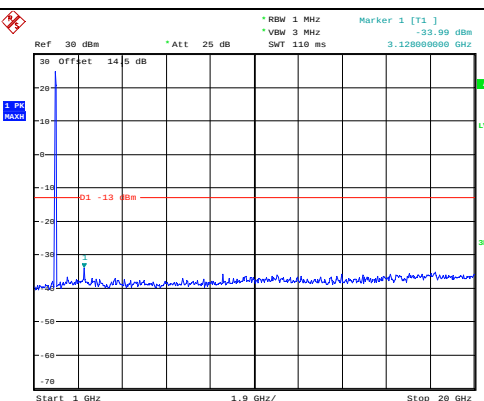
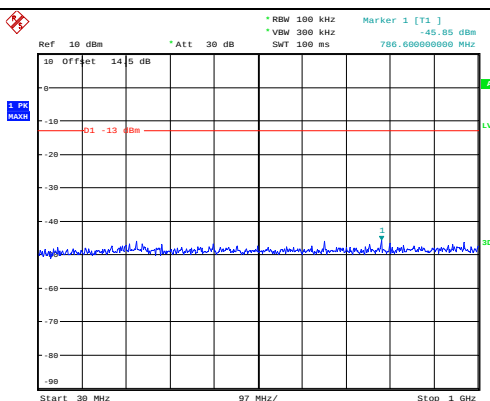
Lowest



Middle



Highest

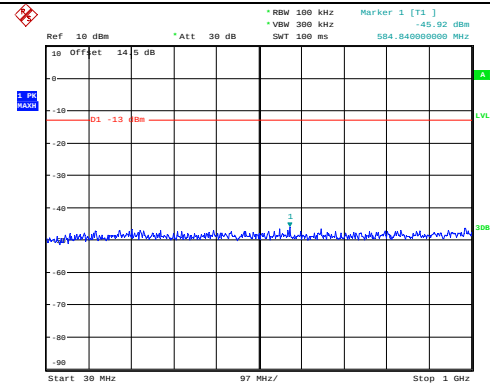
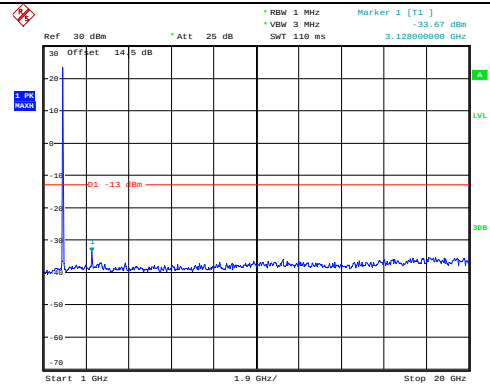


Spurious Emissions at Antenna Terminal

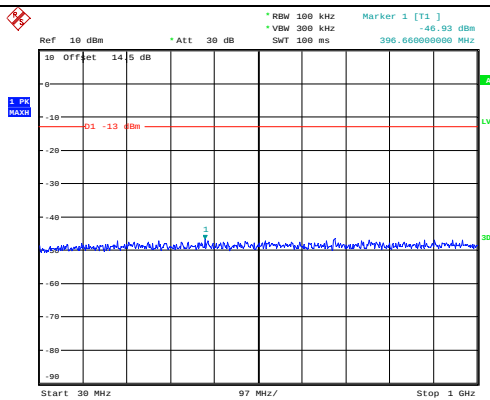
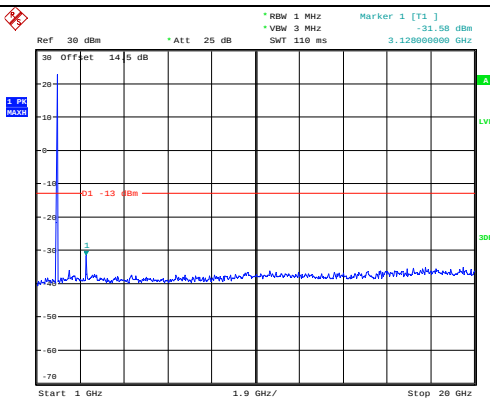
Channel

5MHz Bandwidth QPSK

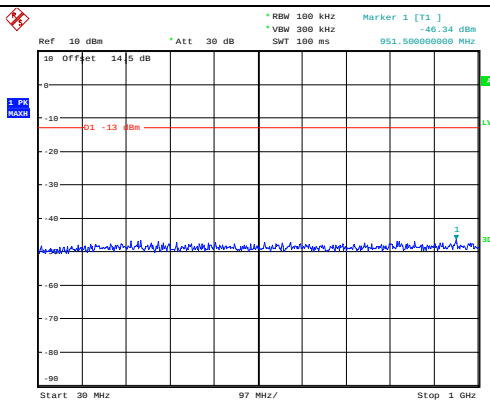
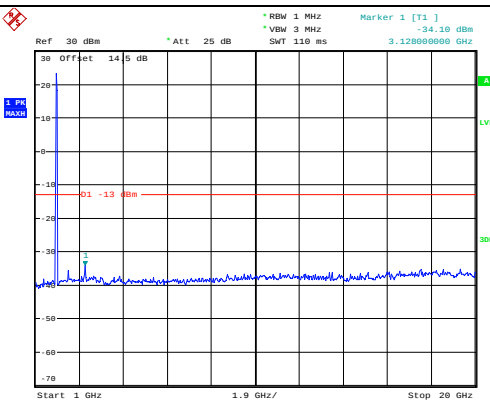
Lowest

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:36:45ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:36:55

Middle

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:37:08ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:37:18

Highest

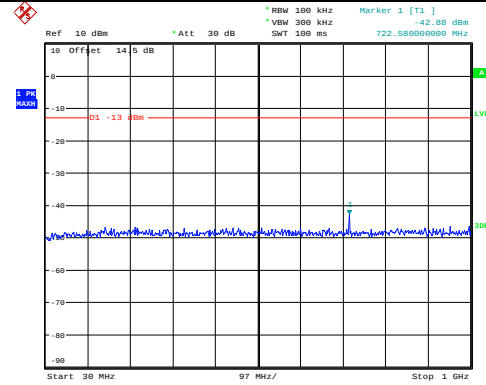
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Date: 23.SEP.2023 00:37:30ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:37:41

Spurious Emissions at Antenna Terminal

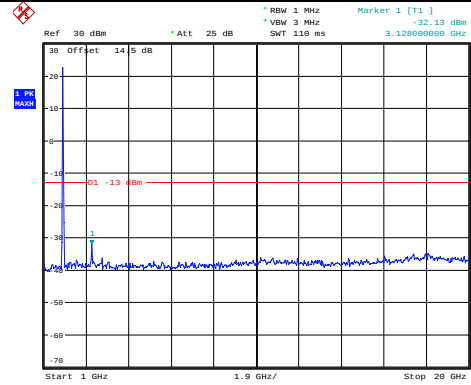
Channel

10MHz Bandwidth QPSK

Lowest

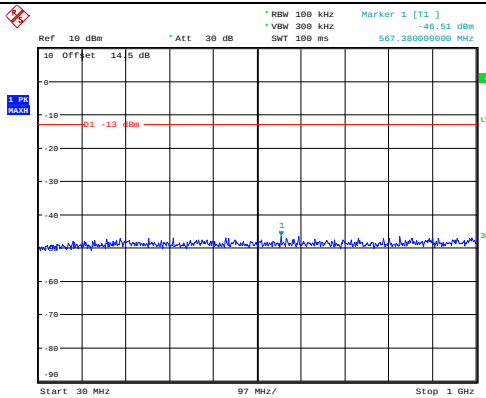


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Date: 23.SEP.2023 00:38:30

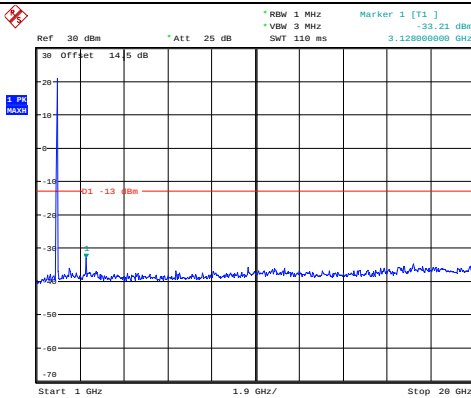


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:38:40

Middle

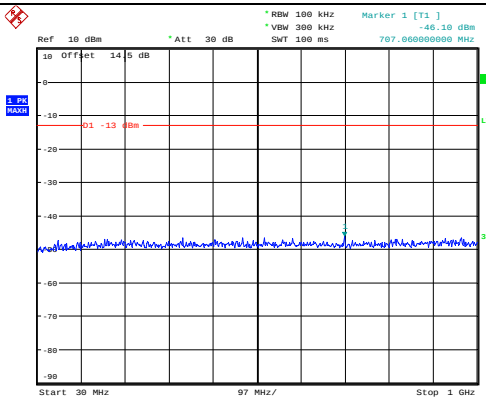


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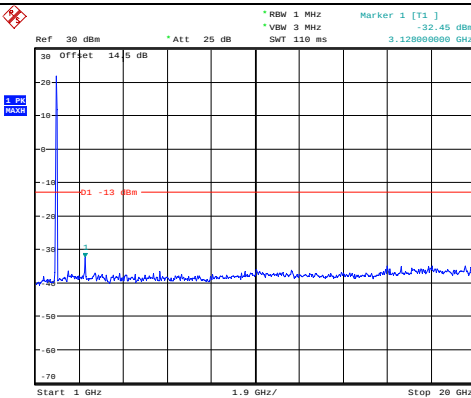


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:39:03

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:39:19



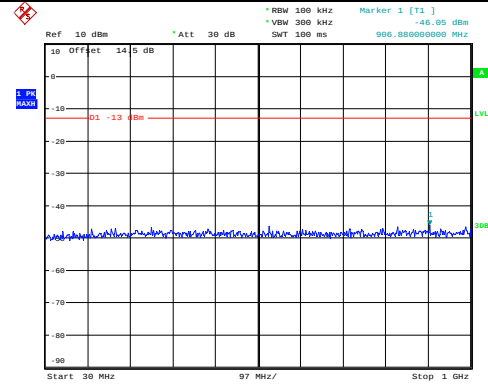
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Date: 23.SEP.2023 00:39:29

Spurious Emissions at Antenna Terminal

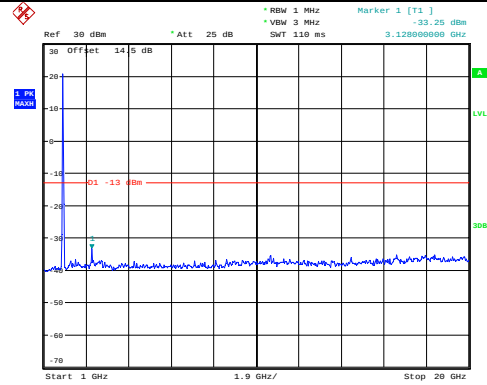
Channel

15MHz Bandwidth QPSK

Lowest

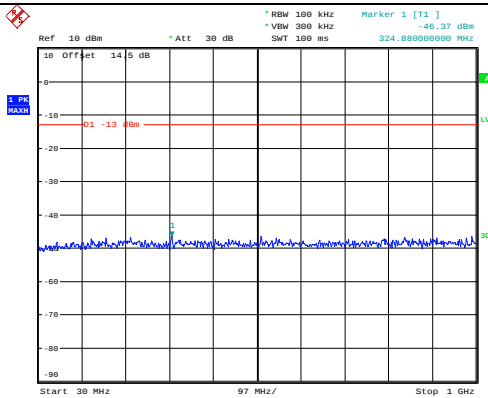


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:40:23

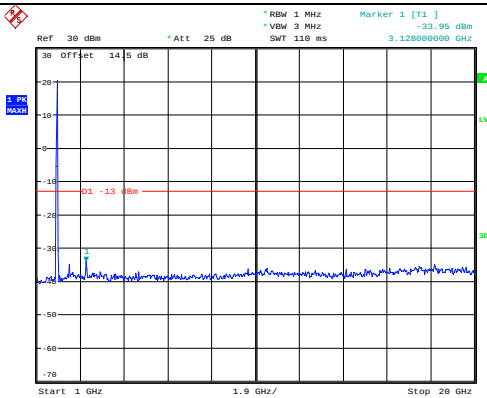


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Date: 23.SEP.2023 00:40:33

Middle

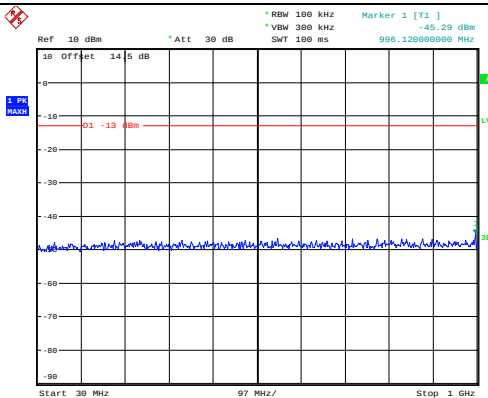


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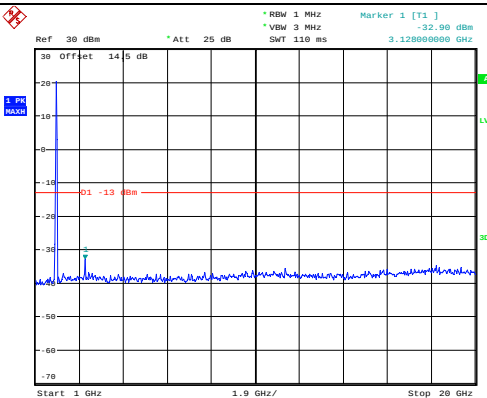


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:40:56

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:41:09



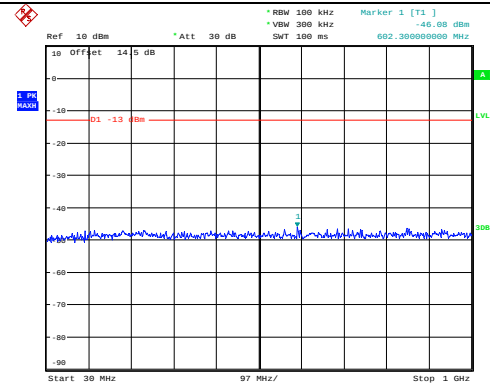
ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:41:19

Spurious Emissions at Antenna Terminal

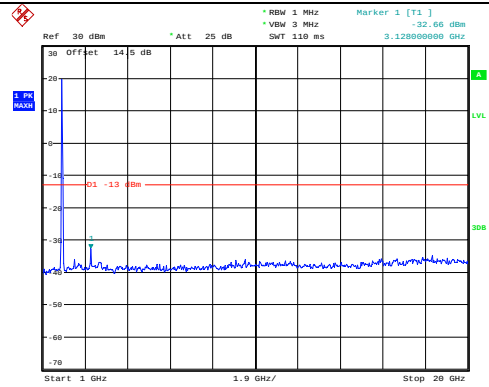
Channel

20MHz Bandwidth QPSK

Lowest

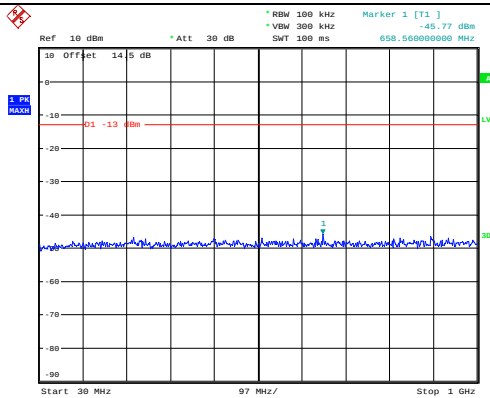


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:42:16

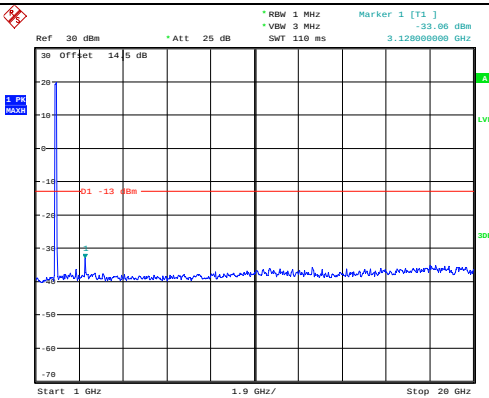


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:42:26

Middle

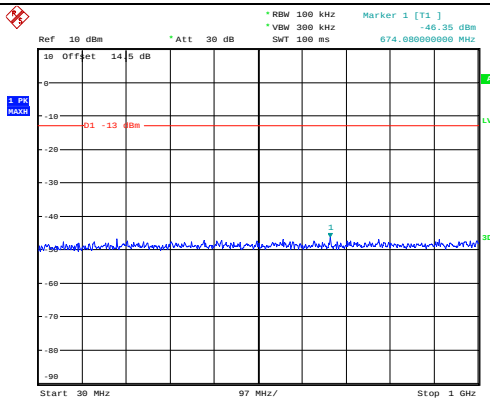


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:42:39

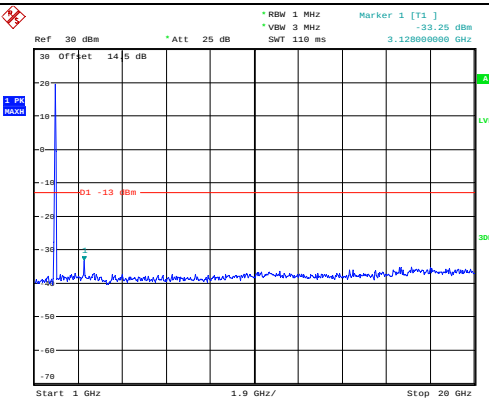


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:42:49

Highest

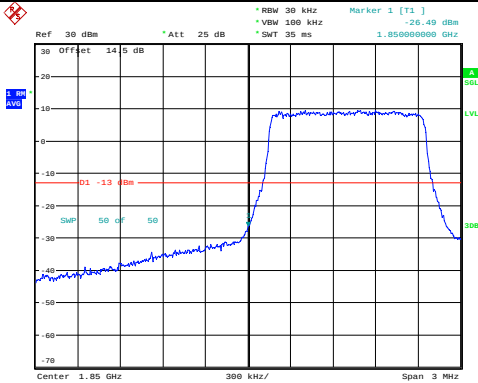
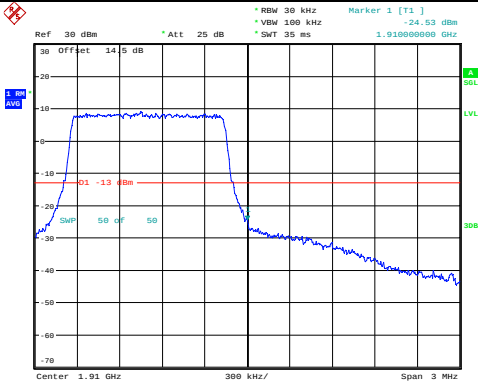
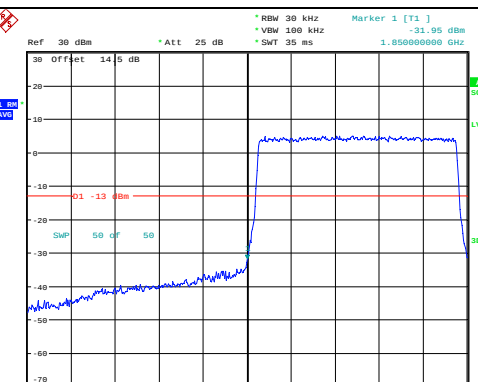
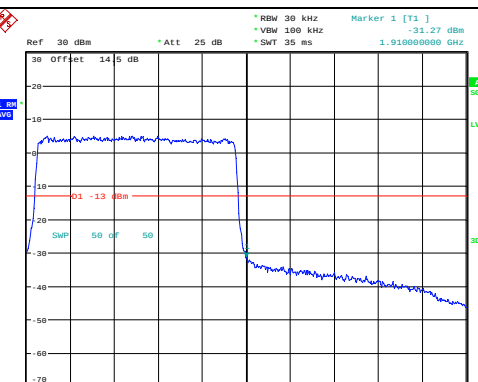
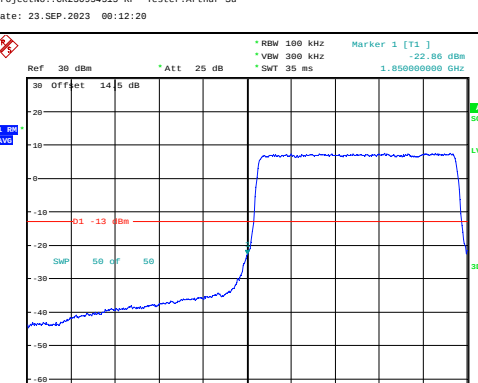
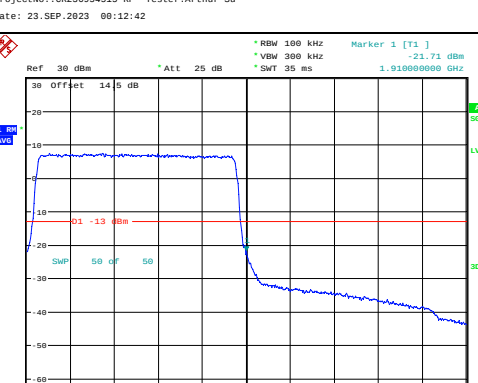


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:43:03

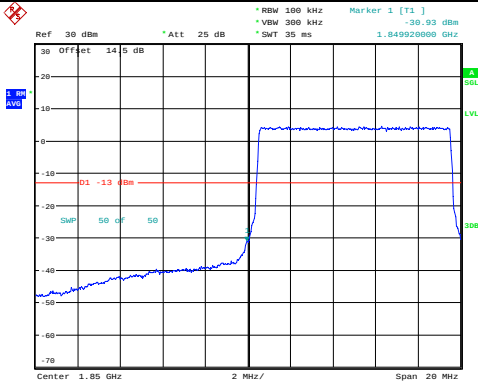
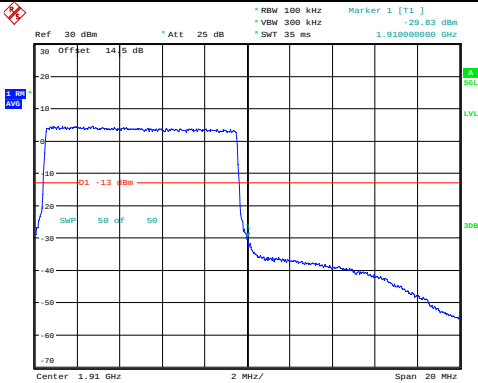
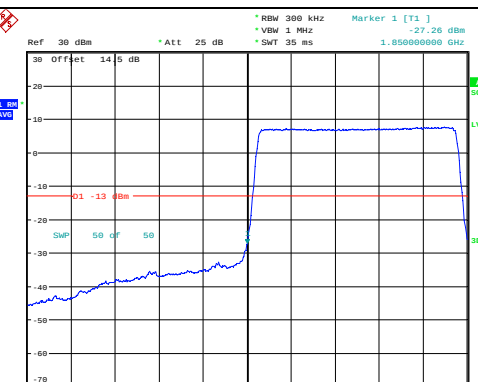
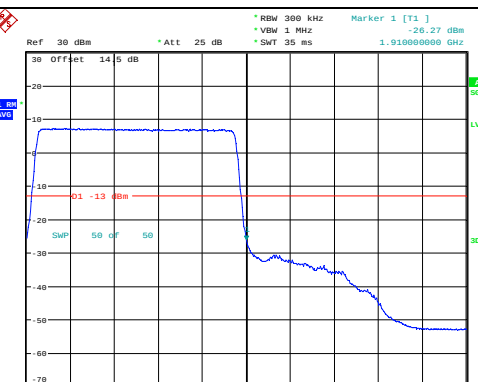
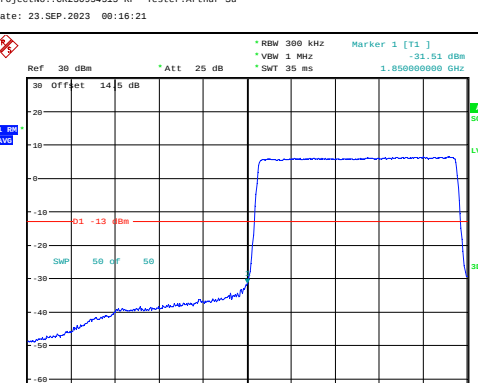
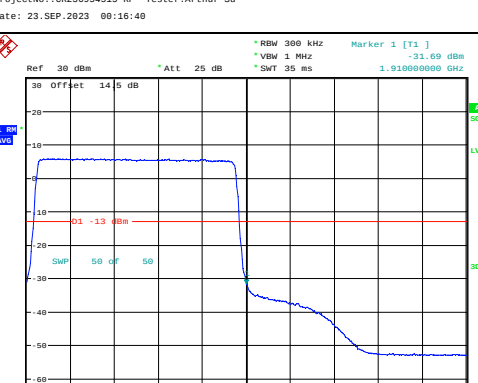


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:43:13

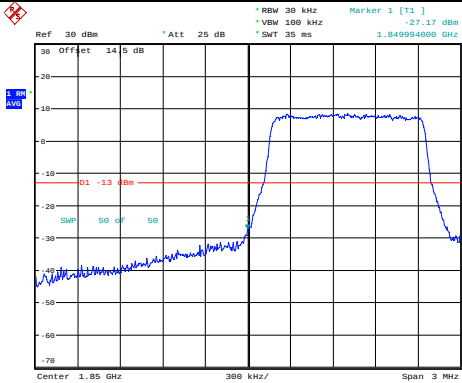
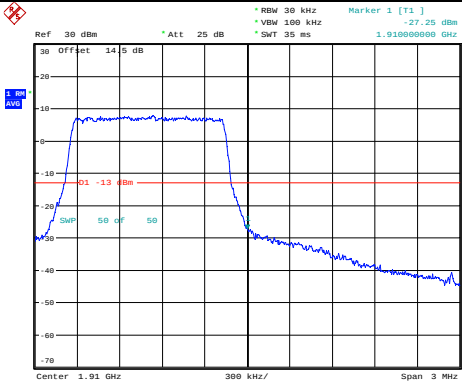
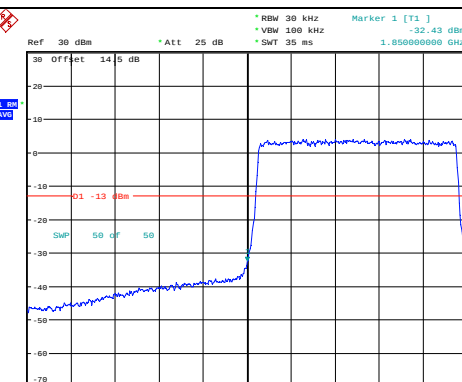
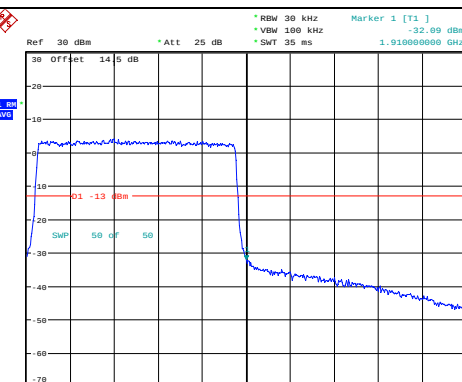
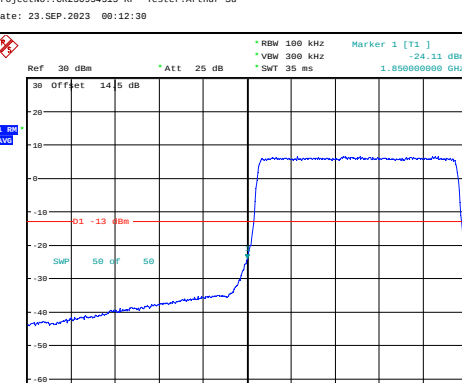
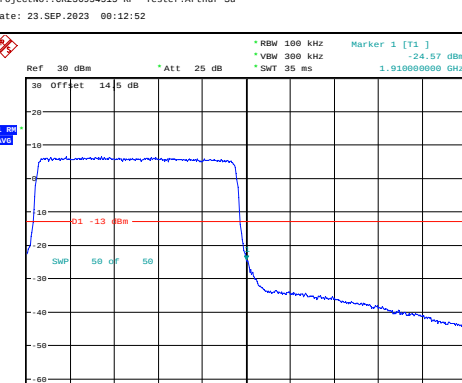
Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 1.4MHz	 Ref 30 dBm *Att 25 dB *RBW 30 kHz *VBW 100 kHz *SWT 35 ms Marker 1 [T1] -20.49 dBm 1.850000000 GHz Center 1.85 GHz 300 kHz/ Span 3 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:11:15	 Ref 30 dBm *Att 25 dB *RBW 30 kHz *VBW 100 kHz *SWT 35 ms Marker 1 [T1] -24.53 dBm 1.910000000 GHz Center 1.91 GHz 300 kHz/ Span 3 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:11:35
QPSK 3MHz	 Ref 30 dBm *Att 25 dB *RBW 30 kHz *VBW 100 kHz *SWT 35 ms Marker 1 [T1] -31.95 dBm 1.850000000 GHz Center 1.85 GHz 600 kHz/ Span 6 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:12:20	 Ref 30 dBm *Att 25 dB *RBW 30 kHz *VBW 100 kHz *SWT 35 ms Marker 1 [T1] -31.27 dBm 1.910000000 GHz Center 1.91 GHz 600 kHz/ Span 6 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:12:42
QPSK 5MHz	 Ref 30 dBm *Att 25 dB *RBW 100 kHz *VBW 300 kHz *SWT 35 ms Marker 1 [T1] -22.86 dBm 1.850000000 GHz Center 1.85 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:13:36	 Ref 30 dBm *Att 25 dB *RBW 100 kHz *VBW 300 kHz *SWT 35 ms Marker 1 [T1] -21.71 dBm 1.910000000 GHz Center 1.91 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:13:58

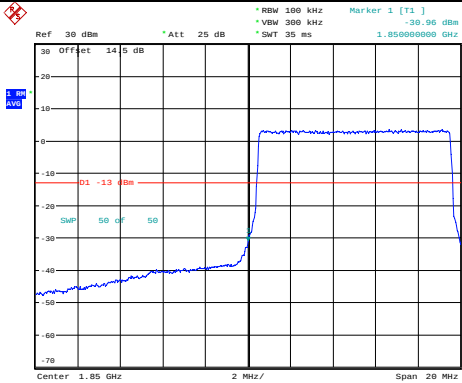
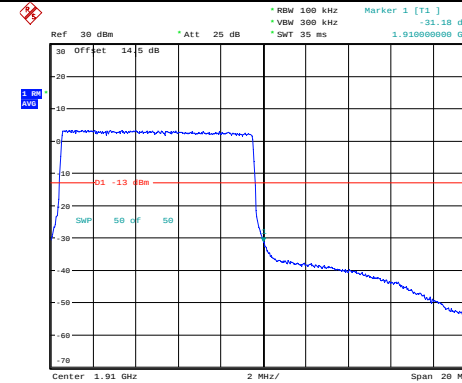
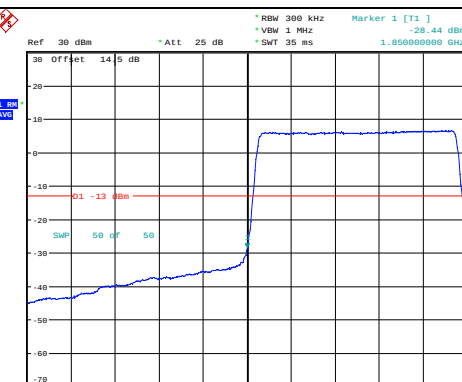
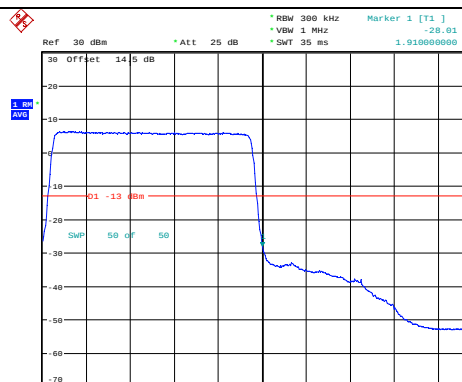
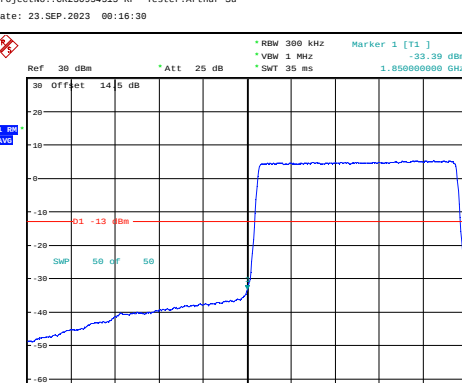
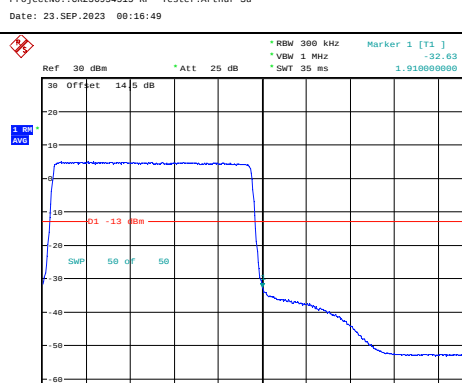
Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 10MHz	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -27.53 dBm 1.849920000 GHz Center 1.85 GHz 2 MHz/ Span 20 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:14:54	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -29.53 dBm 1.910000000 GHz Center 1.91 GHz 2 MHz/ Span 20 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:15:19
QPSK 15MHz	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -27.26 dBm 1.850000000 GHz Center 1.85 GHz 3 MHz/ Span 30 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:16:21	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -26.27 dBm 1.910000000 GHz Center 1.91 GHz 3 MHz/ Span 30 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:16:40
QPSK 20MHz	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -31.51 dBm 1.850000000 GHz Center 1.85 GHz 4 MHz/ Span 40 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:17:41	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -31.69 dBm 1.910000000 GHz Center 1.91 GHz 4 MHz/ Span 40 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:18:01

Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 1.4MHz	 Ref 30 dBm * Att 25 dB * RBW 30 kHz * VBW 100 kHz * SWT 35 ms * Marker 1 [T1] -27.17 dBm 1.849954000 GHz Center 1.85 GHz 300 kHz/ Span 3 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:11:24	 Ref 30 dBm * Att 25 dB * RBW 30 kHz * VBW 100 kHz * SWT 35 ms * Marker 1 [T1] -27.25 dBm 1.910000000 GHz Center 1.91 GHz 300 kHz/ Span 3 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:11:45
16QAM 3MHz	 Ref 30 dBm * Att 25 dB * RBW 30 kHz * VBW 100 kHz * SWT 35 ms * Marker 1 [T1] -32.43 dBm 1.850000000 GHz Center 1.85 GHz 600 kHz/ Span 6 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:12:30	 Ref 30 dBm * Att 25 dB * RBW 30 kHz * VBW 100 kHz * SWT 35 ms * Marker 1 [T1] -32.09 dBm 1.910000000 GHz Center 1.91 GHz 600 kHz/ Span 6 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:12:52
16QAM 5MHz	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -24.11 dBm 1.850000000 GHz Center 1.85 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:13:46	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -24.57 dBm 1.910000000 GHz Center 1.91 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:14:09

Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 10MHz	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -20.56 dBm 1.850000000 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:15:06	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -21.18 dBm 1.910000000 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:15:30
16QAM 15MHz	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -28.44 dBm 1.850000000 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:16:30	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -28.01 dBm 1.910000000 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:16:49
16QAM 20MHz	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -33.39 dBm 1.850000000 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:17:51	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -32.63 dBm 1.910000000 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:18:10

4.7 Antenna Port Test Data and Results for LTE Band 4

Serial Number:	2BF3-1	Test Date:	2023/9/22-2023/9/23
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu/Arthur Su	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.6-25.5	Relative Humidity: (%)	46-54	ATM Pressure: (kPa)	100-100.2
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
Unknown	Coaxial tee connector	Unknown	2204005	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Frequency for Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	1710.7	1732.5	1754.3
3MHz	1711.5	1732.5	1753.5
5MHz	1712.5	1732.5	1752.5
10MHz	1715	1732.5	1750
15MHz	1717.5	1732.5	1747.5
20MHz	1720	1732.5	1745

Test Data:

RF Output Power						
Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
1.4MHz QPSK	RB1#0	24.52	24.31	23.99	22.17	30
	RB1#3	24.68	24.46	23.86		
	RB1#5	24.54	24.28	23.48		
	RB3#0	24.51	24.29	23.54		
	RB3#3	24.54	24.33	23.46		
	RB6#0	23.59	23.34	23.45		
1.4MHz 16QAM	RB1#0	23.59	23.27	23.26	21.28	30
	RB1#3	23.79	23.47	23.46		
	RB1#5	23.61	23.29	23.25		
	RB3#0	23.49	23.35	23.38		
	RB3#3	23.48	23.36	23.28		
	RB6#0	22.62	22.27	22.28		
3MHz QPSK	RB1#0	24.68	24.55	23.93	22.18	30
	RB1#8	24.69	24.56	23.96		
	RB1#14	24.19	24.52	23.53		
	RB6#0	23.55	23.54	23.45		
	RB6#9	23.59	23.53	23.38		
	RB15#0	23.61	23.56	23.41		
3MHz 16QAM	RB1#0	23.63	24.03	23.45	21.52	30
	RB1#8	23.58	24	23.43		
	RB1#14	23.61	24	23.44		
	RB6#0	22.51	22.57	22.35		
	RB6#9	22.51	22.56	22.3		
	RB15#0	22.66	22.6	22.29		
5MHz QPSK	RB1#0	24.57	24.48	24.08	22.18	30
	RB1#13	24.69	24.56	23.78		
	RB1#24	24.3	24.45	23.66		
	RB15#0	23.75	23.57	23.45		
	RB15#10	23.61	23.64	23.4		
	RB25#0	23.61	23.56	23.4		
5MHz 16QAM	RB1#0	23.58	23.36	23.57	21.17	30
	RB1#13	23.68	23.45	23.61		
	RB1#24	23.56	23.32	23.49		
	RB15#0	22.71	22.58	22.39		
	RB15#10	22.6	22.67	22.35		
	RB25#0	22.66	22.64	22.39		
10MHz QPSK	RB1#0	24.64	24.63	24.15	22.23	30
	RB1#25	23.9	24.74	23.48		
	RB1#49	24.09	24.49	23.22		

	RB25#0	23.75	23.57	23.28		
	RB25#25	23.63	23.66	23.17		
	RB50#0	23.75	23.62	23.25		
10MHz 16QAM	RB1#0	23.56	24.05	23.26	21.64	30
	RB1#25	23.51	24.15	23.4		
	RB1#49	23.54	24.01	23.13		
	RB25#0	22.82	22.6	22.33		
	RB25#25	22.7	22.7	22.17		
	RB50#0	22.72	22.63	22.22		
15MHz QPSK	RB1#0	24.58	24.57	24.46	22.09	30
	RB1#38	24.18	24.6	24.25		
	RB1#74	24.57	24.43	23.61		
	RB36#0	23.85	23.65	23.69		
	RB36#39	23.84	23.7	23.54		
	RB75#0	23.86	23.68	23.68		
15MHz 16QAM	RB1#0	23.87	24.01	23.6	21.57	30
	RB1#38	23.89	24.08	23.62		
	RB1#74	23.82	23.95	23.36		
	RB36#0	22.75	22.62	22.66		
	RB36#39	22.77	22.73	22.46		
	RB75#0	22.74	22.65	22.61		
20MHz QPSK	RB1#0	24.39	24.47	24.36	22.25	30
	RB1#50	24.24	24.76	24.69		
	RB1#99	24.32	24.29	23.53		
	RB50#0	23.71	23.49	23.69		
	RB50#50	23.78	23.59	23.36		
	RB100#0	23.79	23.51	23.53		
20MHz 16QAM	RB1#0	23.88	23.67	23.56	21.69	30
	RB1#50	24.2	24.03	23.84		
	RB1#99	23.81	23.61	23.3		
	RB50#0	22.72	22.46	22.7		
	RB50#50	22.76	22.62	22.34		
	RB100#0	22.8	22.55	22.56		
Note: EIRP=Conducted Power(dBm) - Lc(dB) + Gr(dBi)						
					Result:	Pass

Peak-to-average Ratio(PAR)					
Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
20MHz QPSK	RB1#0	9.23	9.52	9.13	13
	RB100#0	6.44	6.44	6.35	13
20MHz 16QAM	RB1#0	8.37	8.81	8.97	13
	RB100#0	7.18	7.12	7.12	13
				Result:	Pass

Occupied Bandwidth

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
1.4MHz QPSK	1.104	1.104	1.104	1.302	1.290	1.314
1.4MHz 16QAM	1.092	1.098	1.110	1.290	1.308	1.320
3MHz QPSK	2.688	2.688	2.688	2.880	2.892	2.868
3MHz 16QAM	2.688	2.688	2.676	2.868	2.868	2.892
5MHz QPSK	4.520	4.520	4.540	5.140	5.200	5.140
5MHz 16QAM	4.540	4.520	4.520	5.160	5.160	5.160
10MHz QPSK	8.960	8.960	8.960	9.920	9.960	9.880
10MHz 16QAM	8.960	8.960	8.960	9.920	9.720	9.760
15MHz QPSK	13.560	13.620	13.560	15.300	15.180	15.120
15MHz 16QAM	13.620	13.560	13.560	15.240	15.000	15.120
20MHz QPSK	18.000	17.920	18.000	19.680	19.680	19.600
20MHz 16QAM	18.000	18.000	18.000	19.680	19.520	19.520

Note: The test plots please refer to the Plots of Occupied Bandwidth

Spurious Emissions at Antenna Terminal

Result: Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.

Out of band emission, Band Edge

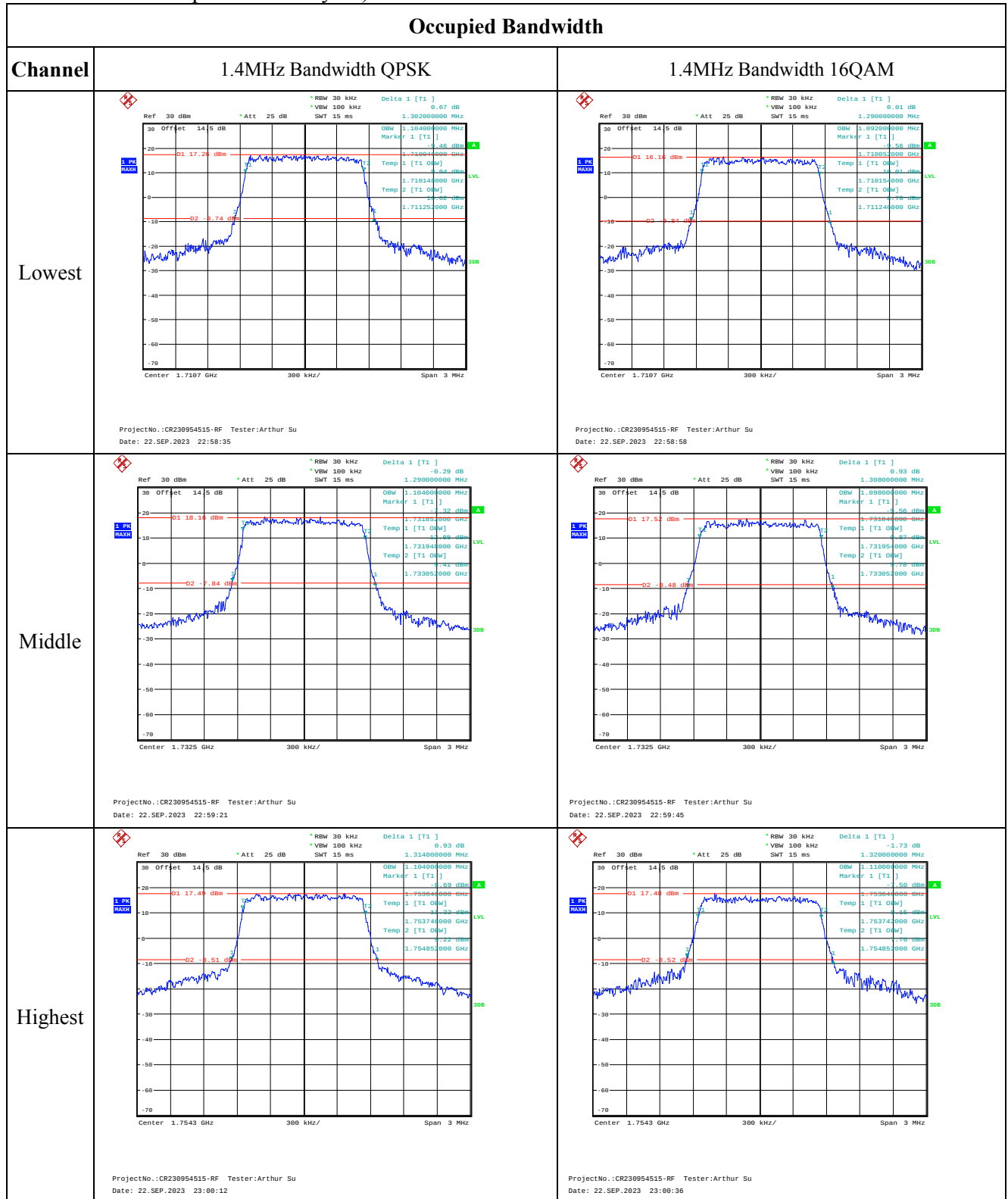
Result: Pass, Please refer to the test plots of Out of band emission, Band Edge.

Frequency Stability

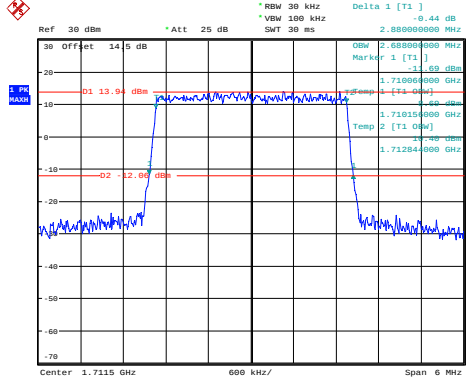
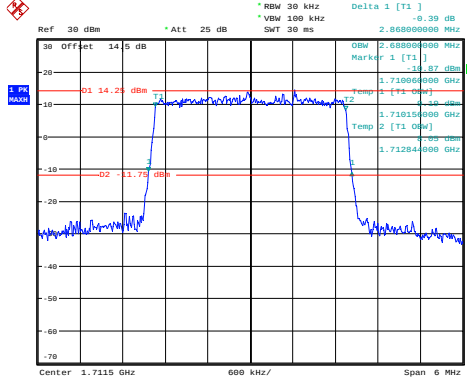
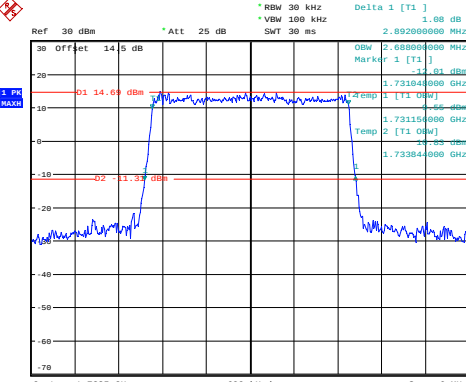
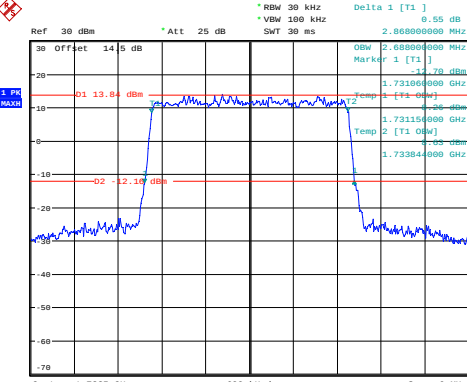
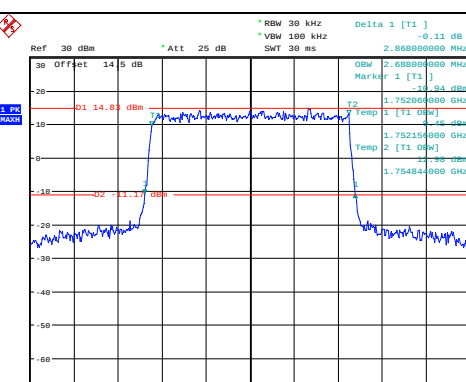
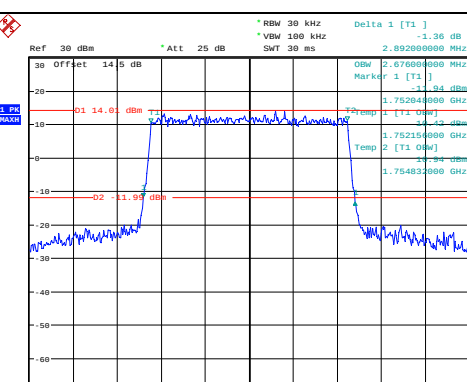
Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1711.040	1710.00	1754.044	1755
	-20	3.85	1711.031	1710.00	1754.061	1755
	-10	3.85	1711.038	1710.00	1754.051	1755
	0	3.85	1711.030	1710.00	1754.057	1755
	10	3.85	1711.034	1710.00	1754.069	1755
	20	3.85	1711.040	1710.00	1754.040	1755
	30	3.85	1711.016	1710.00	1754.042	1755
	40	3.85	1711.031	1710.00	1754.049	1755
	50	3.85	1711.040	1710.00	1754.043	1755
Frequency Stability vs. Voltage	20	3.5	1711.039	1710.00	1754.057	1755
	20	4.45	1711.027	1710.00	1754.059	1755
Result:					Pass	

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1711.028	1710.00	1754.062	1755
	-20	3.85	1711.031	1710.00	1754.048	1755
	-10	3.85	1711.027	1710.00	1754.060	1755
	0	3.85	1711.033	1710.00	1754.067	1755
	10	3.85	1711.012	1710.00	1754.060	1755
	20	3.85	1711.040	1710.00	1754.040	1755
	30	3.85	1711.012	1710.00	1754.053	1755
	40	3.85	1711.017	1710.00	1754.049	1755
	50	3.85	1711.035	1710.00	1754.064	1755
Frequency Stability vs. Voltage	20	3.5	1711.039	1710.00	1754.059	1755
	20	4.45	1711.037	1710.00	1754.046	1755
					Result:	Pass

Test Plots(Note: The 14.5 dB is the Insertion loss of the RF cable and Power Splitter, which was offset into the Spectrum Analyzer):



Occupied Bandwidth

Channel	3MHz Bandwidth QPSK	3MHz Bandwidth 16QAM
Lowest	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:01:30	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:01:50
Middle	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:02:11	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:02:34
Highest	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:02:55	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:03:12

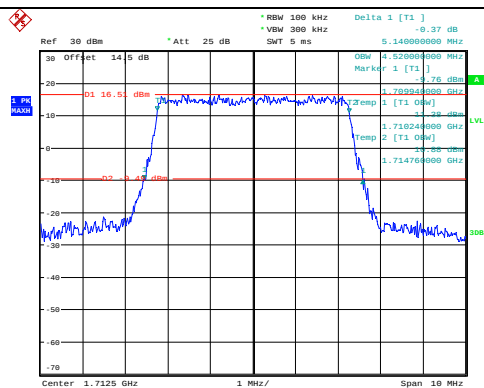
Occupied Bandwidth

Channel

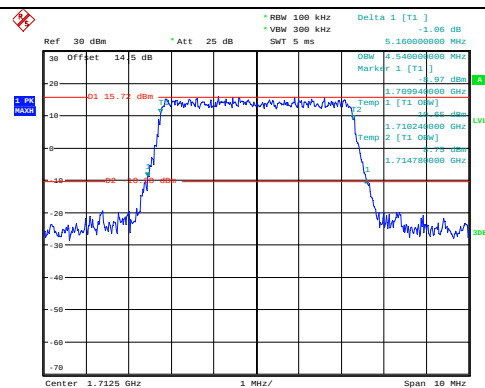
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

Lowest

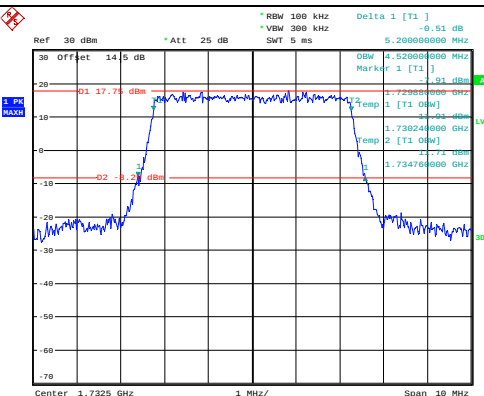


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:03:58

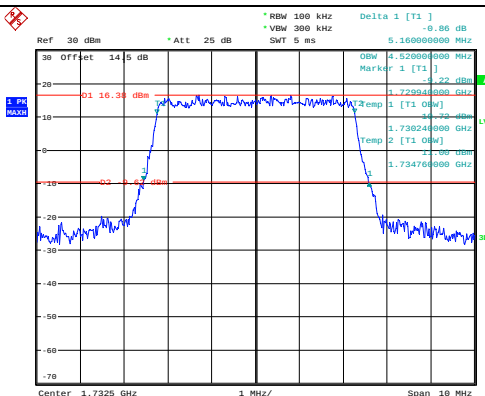


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:04:22

Middle

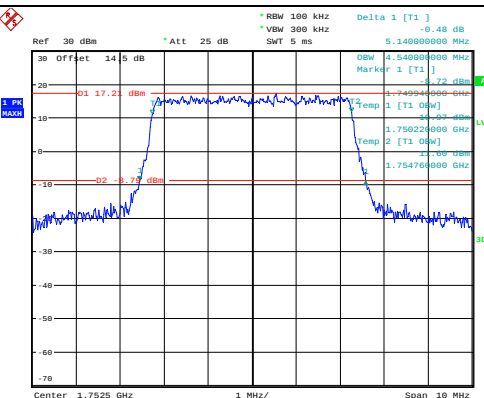


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:04:52

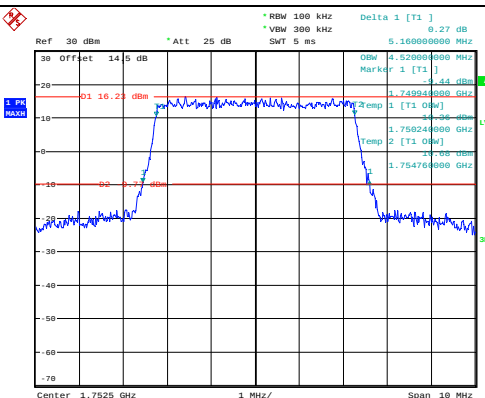


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:05:16

Highest

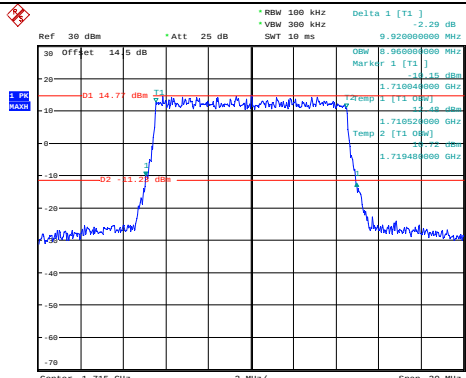
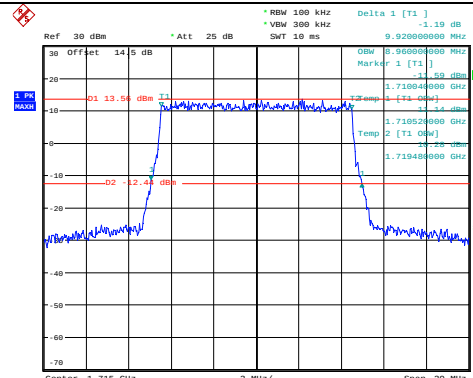
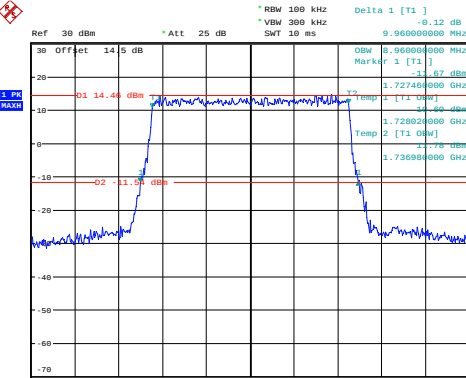
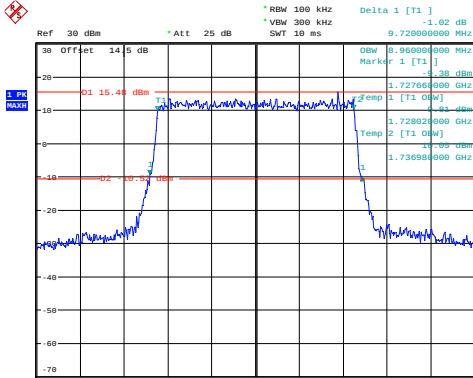
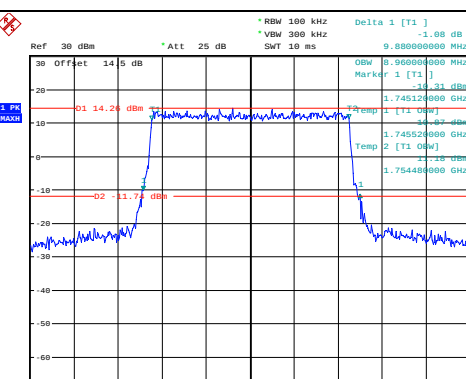
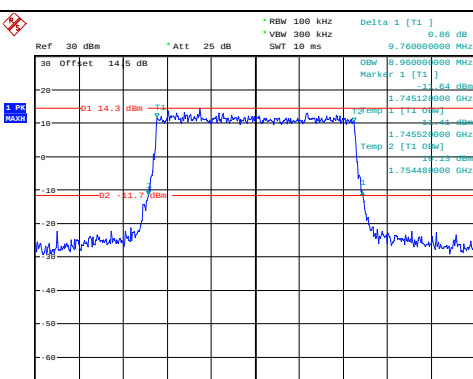


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:05:43



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:06:07

Occupied Bandwidth

Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:06:56	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:07:19
Middle	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:07:40	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:08:00
Highest	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:08:21	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:08:40

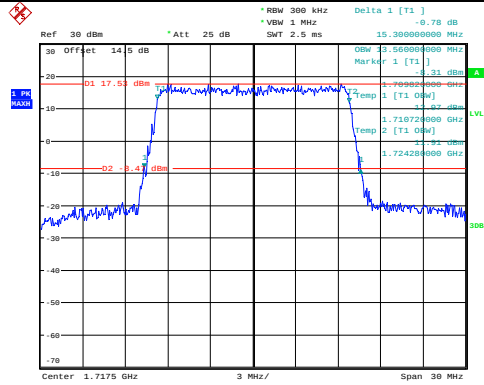
Occupied Bandwidth

Channel

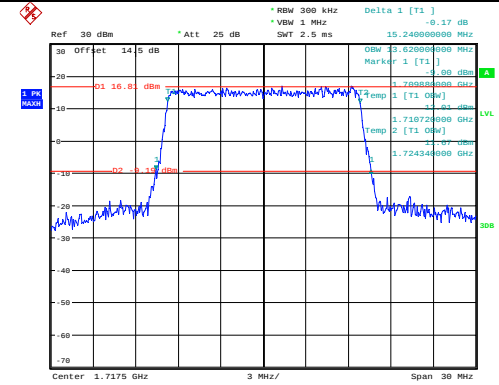
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

Lowest

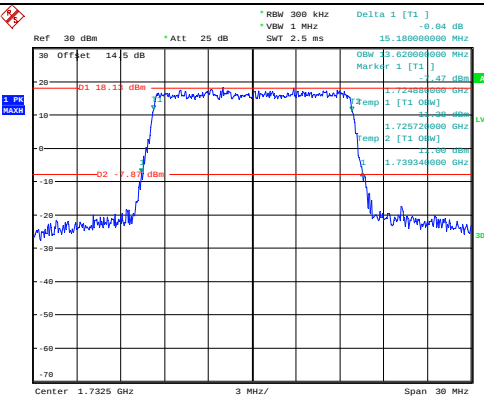


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:09:26

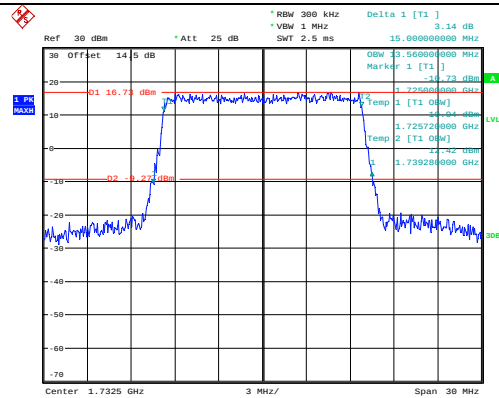


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:09:53

Middle

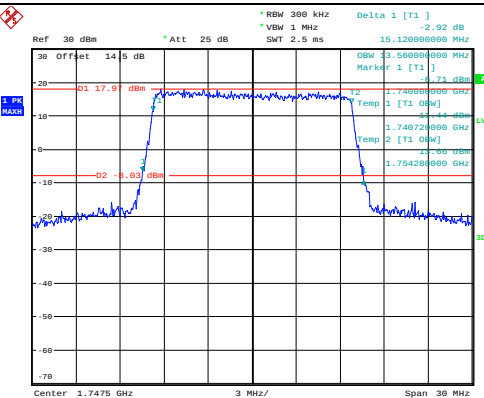


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:10:20

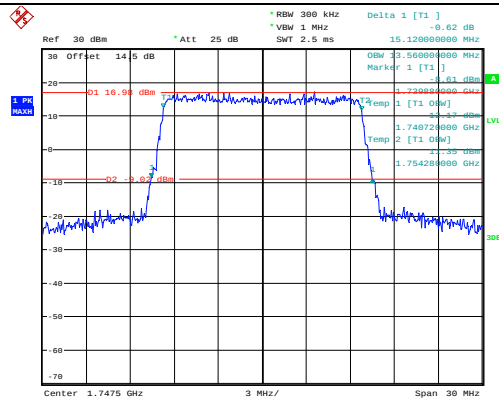


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:10:40

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:11:07



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:11:27

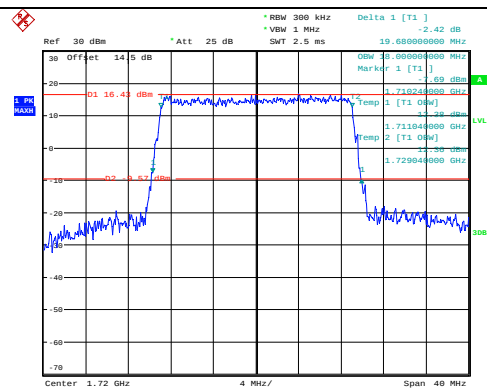
Occupied Bandwidth

Channel

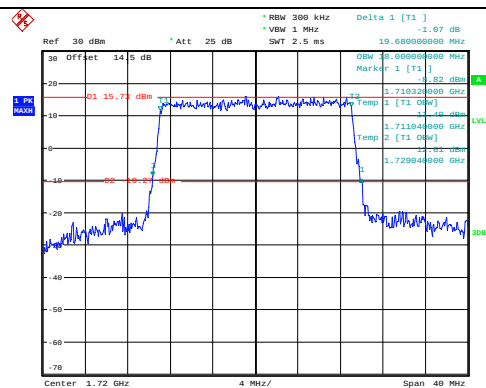
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

Lowest

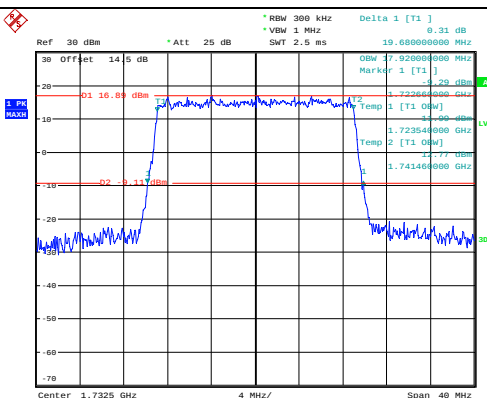


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:12:18

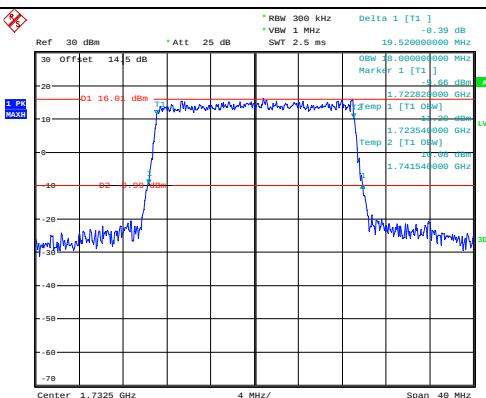


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:12:38

Middle

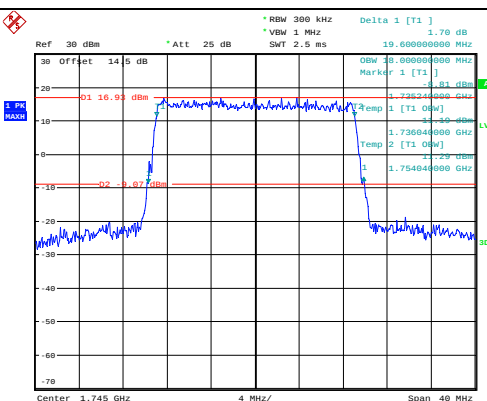


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:13:03

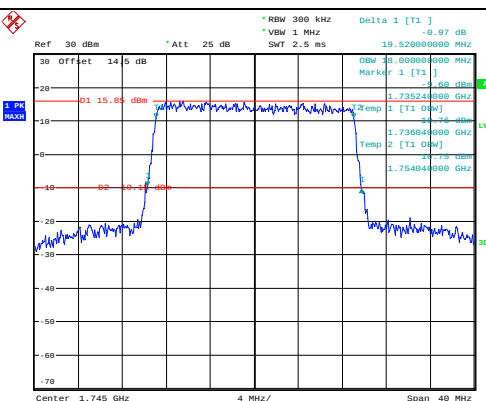


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:13:26

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:13:47



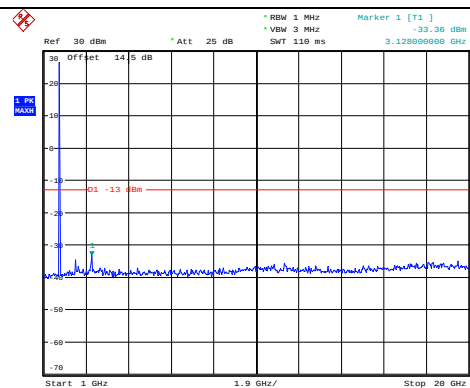
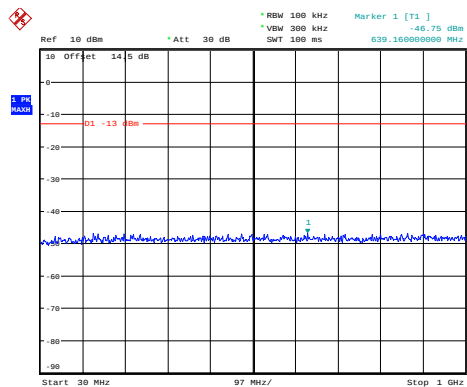
ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:14:11

Spurious Emissions at Antenna Terminal

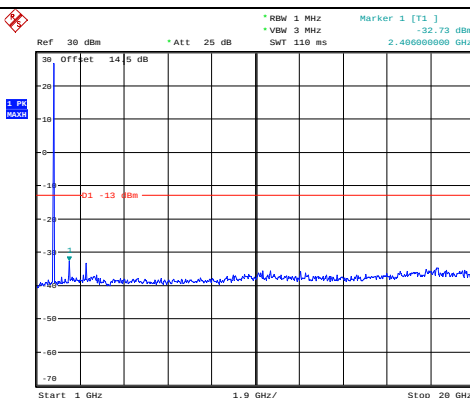
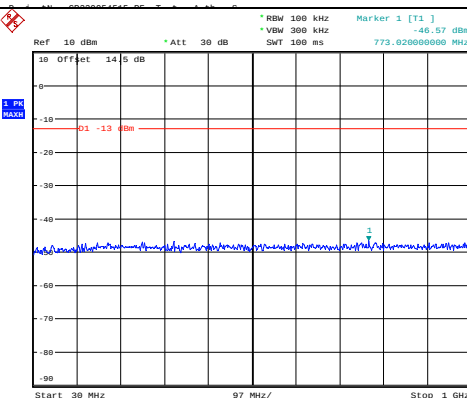
Channel

1.4MHz Bandwidth QPSK

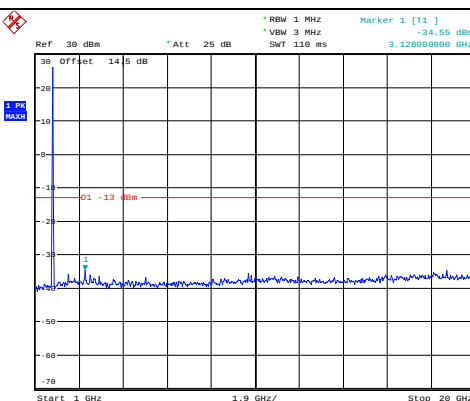
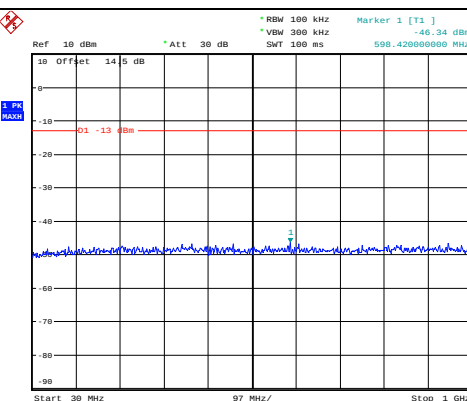
Lowest

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:43:44

Middle

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:44:10

Highest

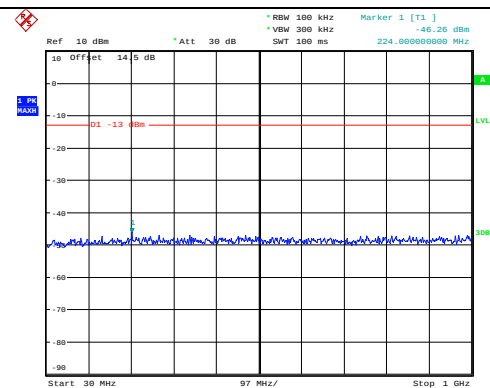
ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:44:33

Spurious Emissions at Antenna Terminal

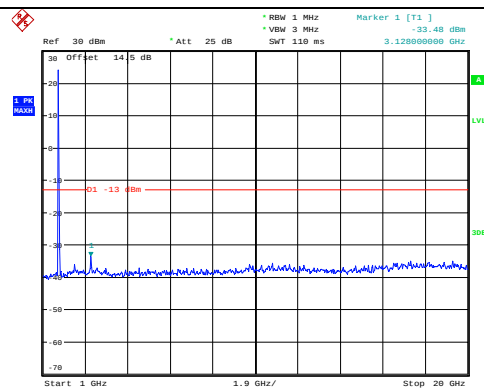
Channel

3MHz Bandwidth QPSK

Lowest

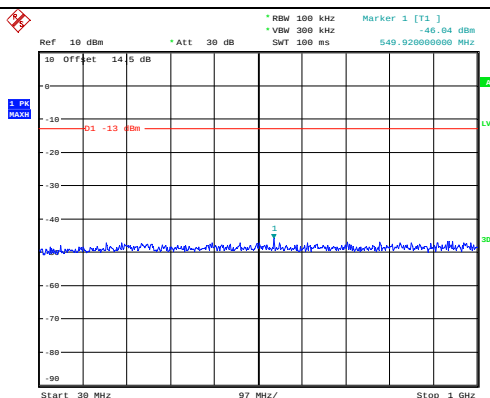


ProjectNo.:CR230954515-RF Tester:Arthur Su
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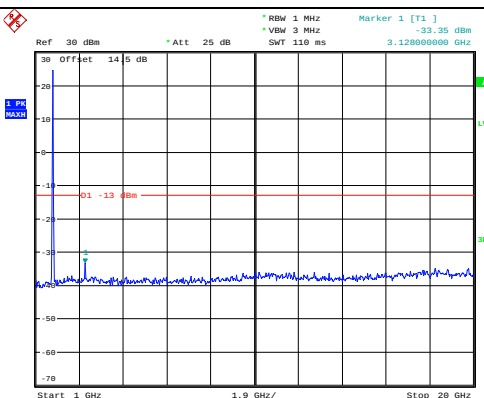


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:45:29

Middle

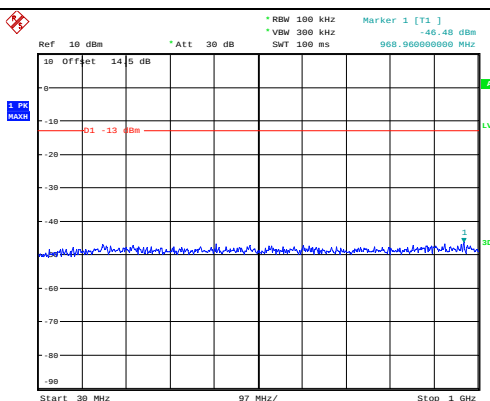


ProjectNo.:CR230954515-RF Tester:Arthur Su
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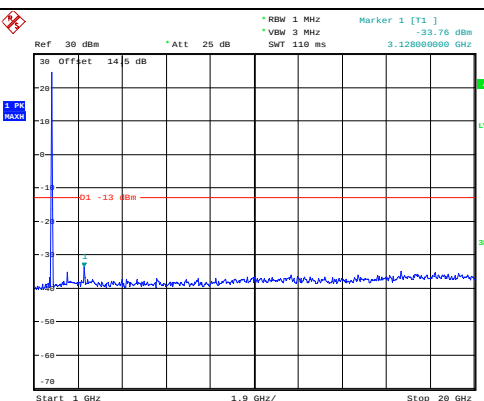


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:45:52

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:46:05



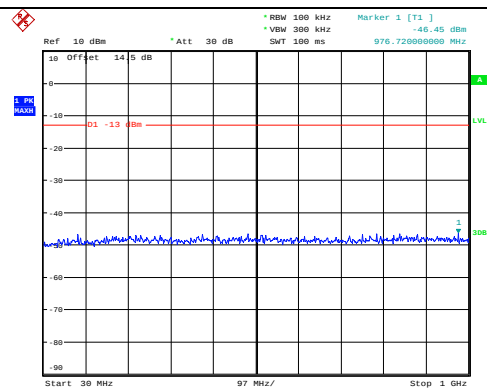
ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:46:15

Spurious Emissions at Antenna Terminal

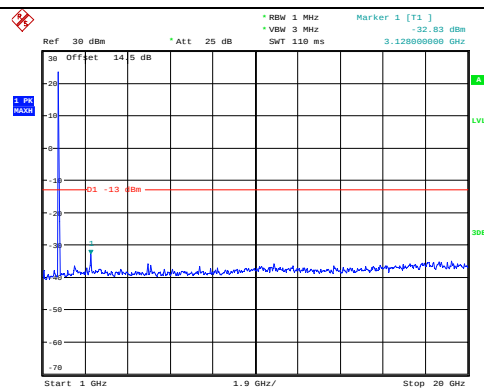
Channel

5MHz Bandwidth QPSK

Lowest

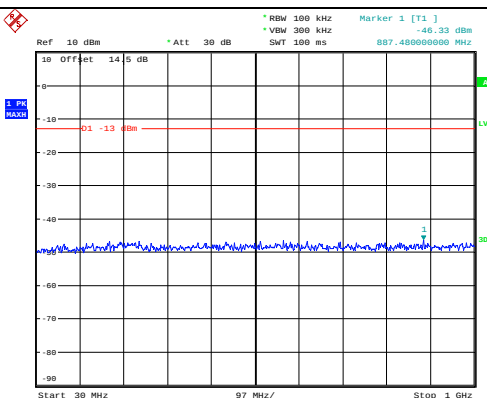


ProjectNo.:CR230954515-RF Tester:Arthur Su
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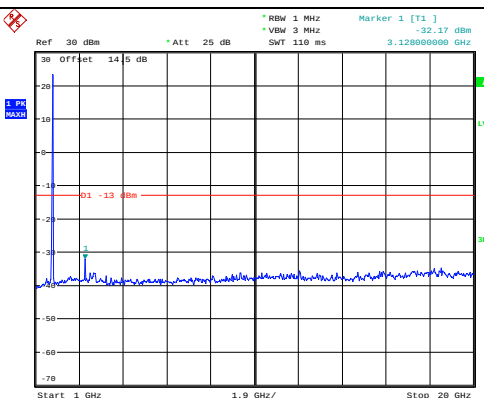


ProjectNo.:CR230954515-RF Tester:Arthur Su
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Middle

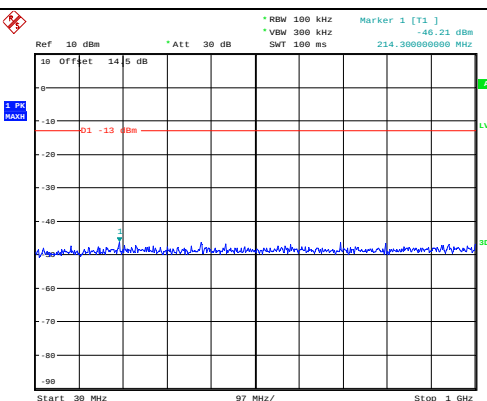


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:47:22

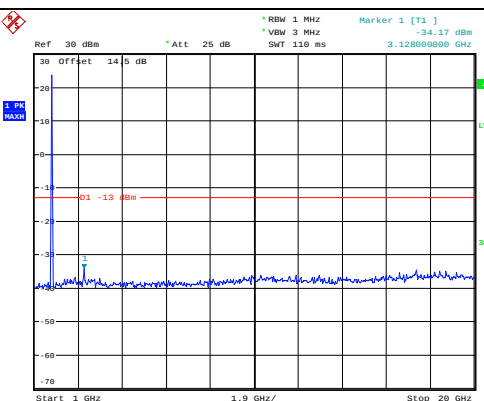


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:47:33

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:47:45



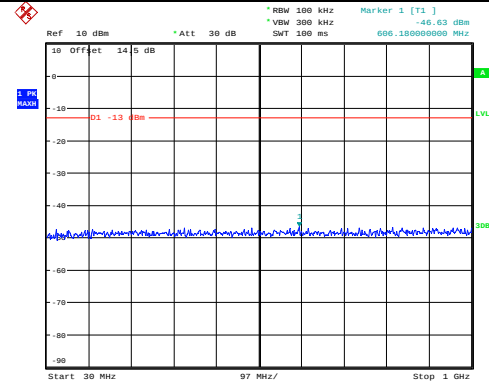
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Spurious Emissions at Antenna Terminal

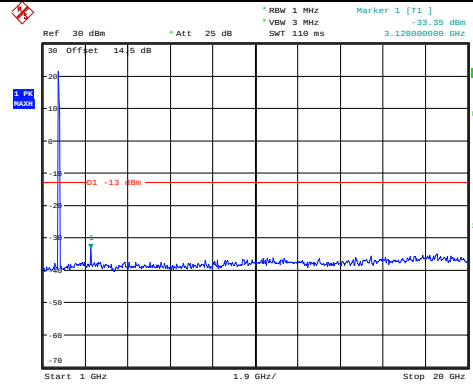
Channel

10MHz Bandwidth QPSK

Lowest

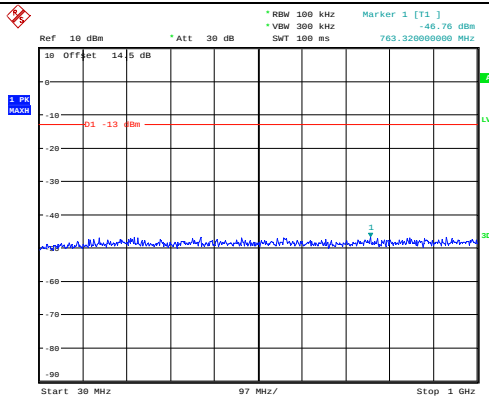


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:48:37

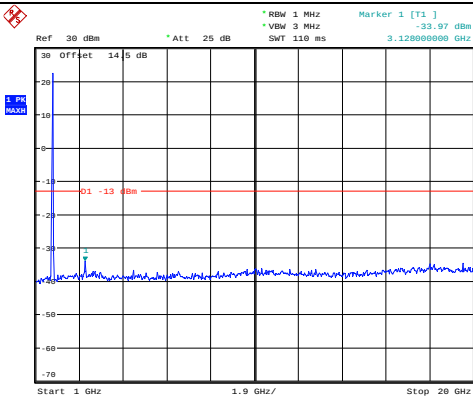


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:48:47

Middle

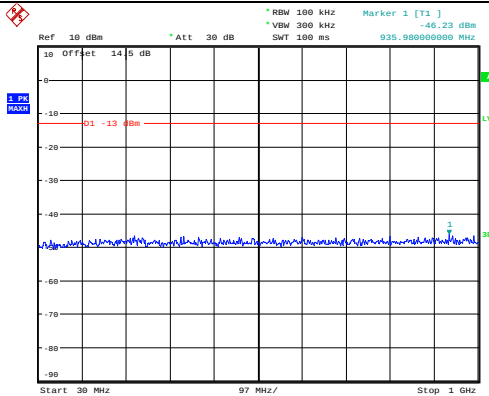


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:49:04

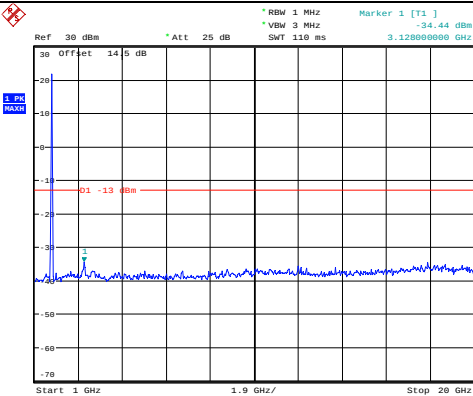


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:49:14

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:49:30



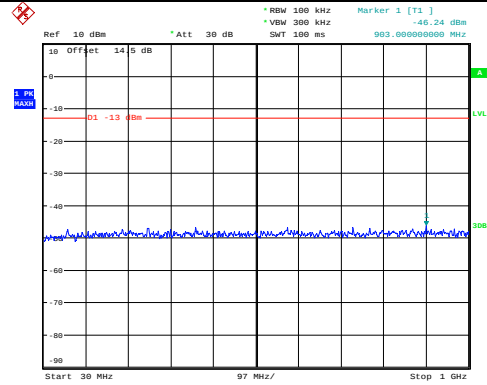
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Spurious Emissions at Antenna Terminal

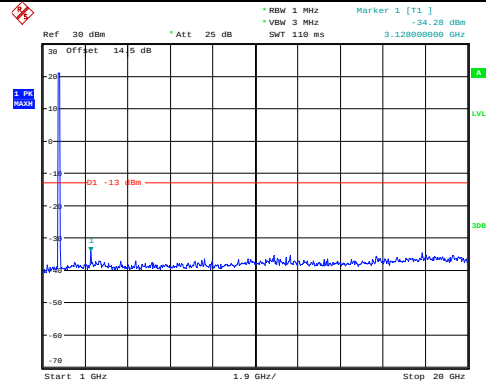
Channel

15MHz Bandwidth QPSK

Lowest

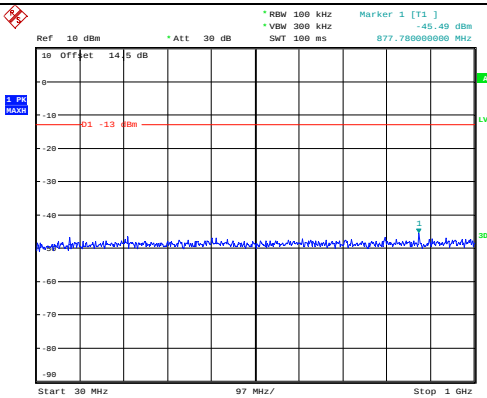


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Date: 23.SEP.2023 00:50:18

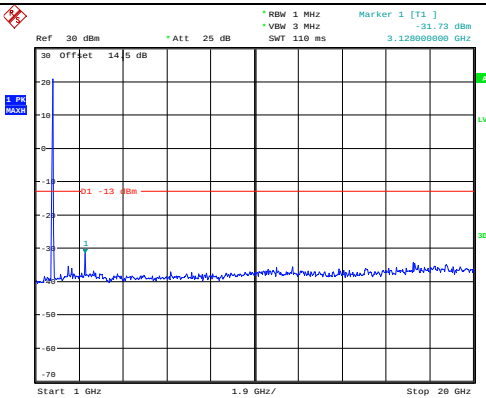


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:50:28

Middle

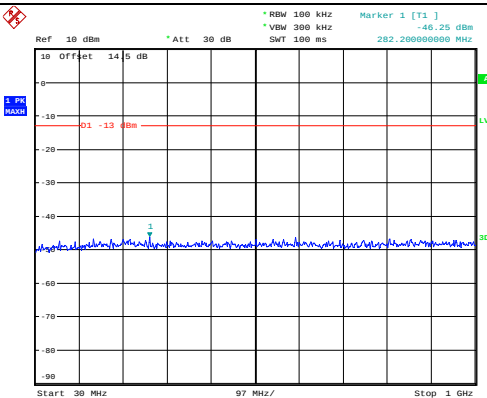


ProjectNo.:CR230954515-RF Tester:Arthur Su
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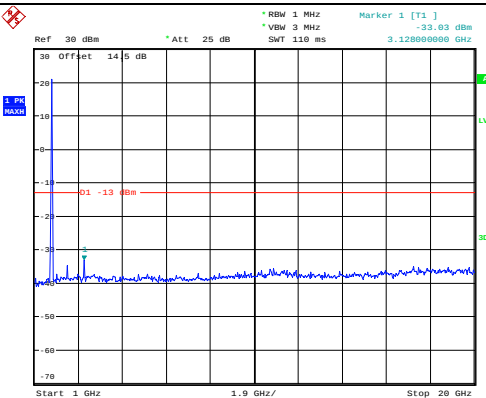


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:50:51

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:51:08



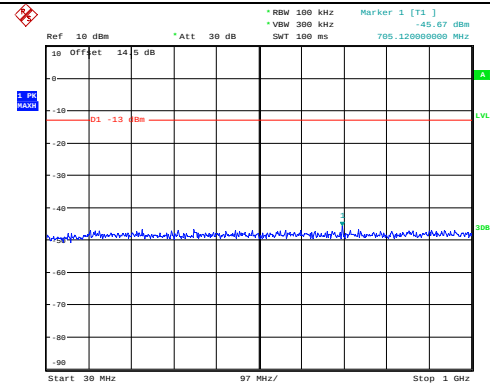
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Date: 23.SEP.2023 00:51:18

Spurious Emissions at Antenna Terminal

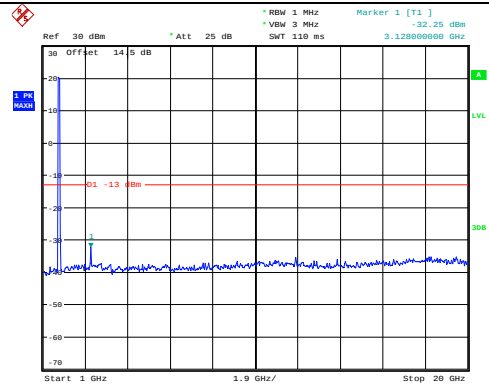
Channel

20MHz Bandwidth QPSK

Lowest

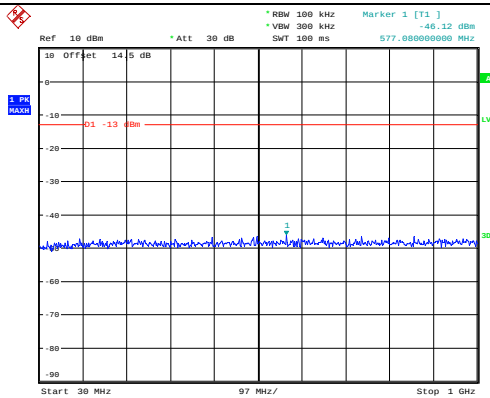


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:52:00

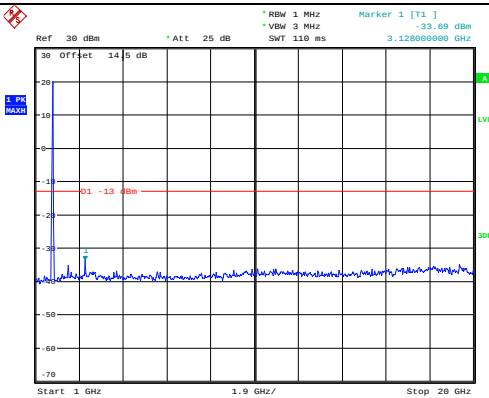


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:52:10

Middle

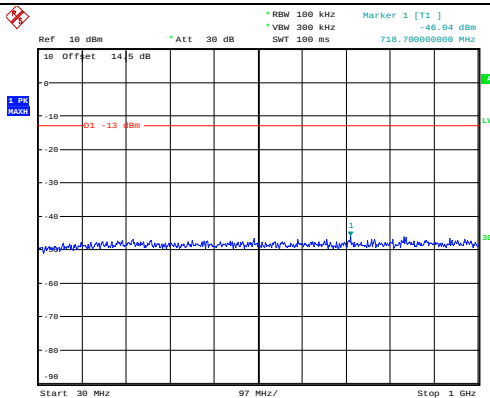


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:52:26

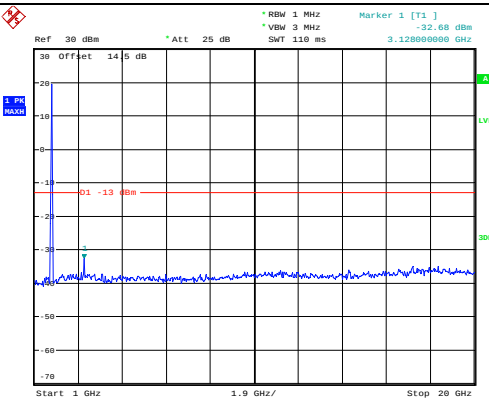


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:52:36

Highest

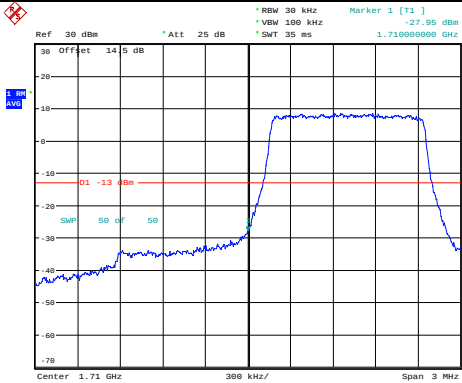
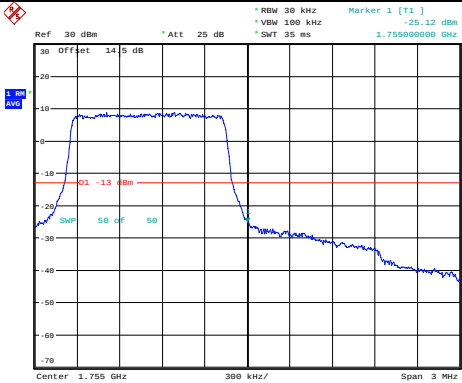
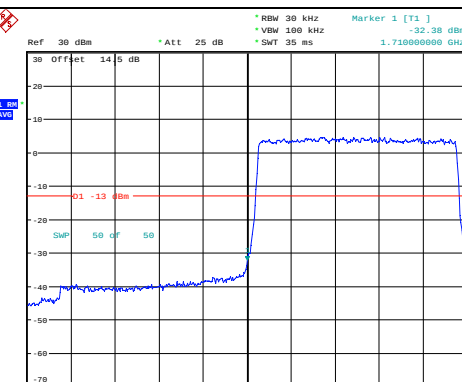
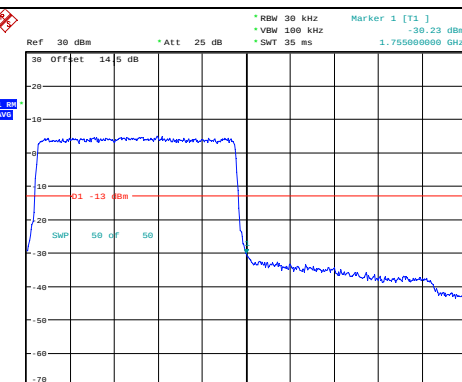
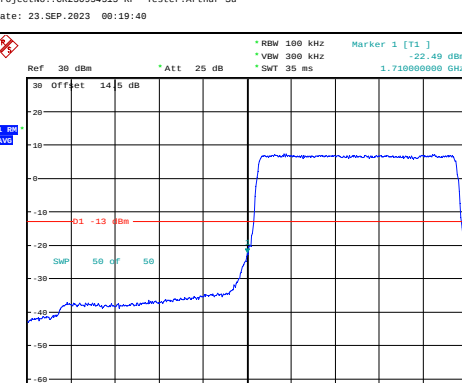
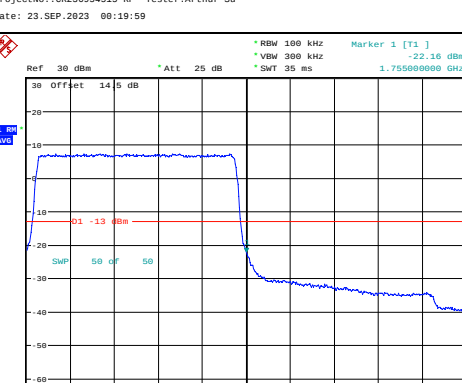


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:52:52

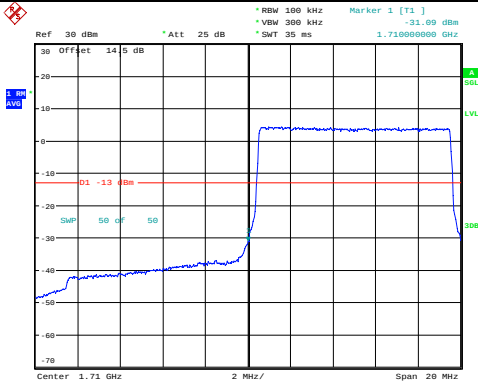
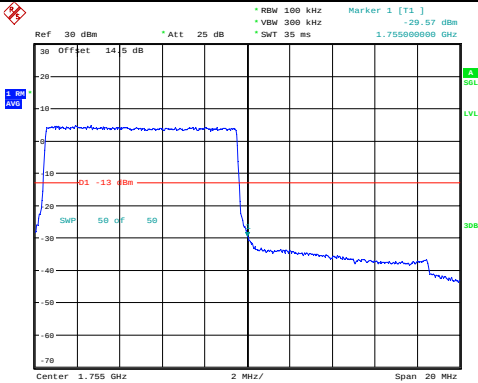
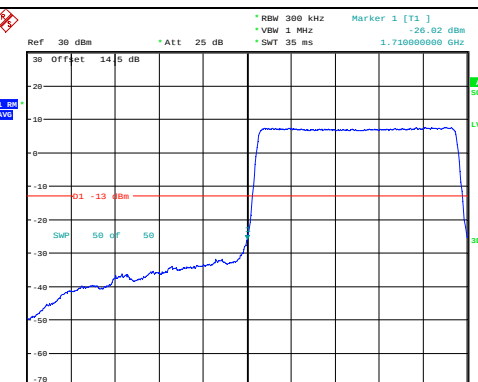
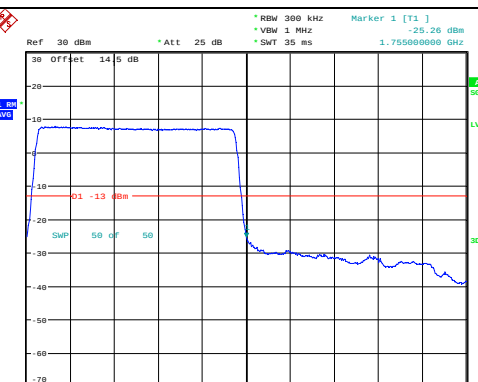
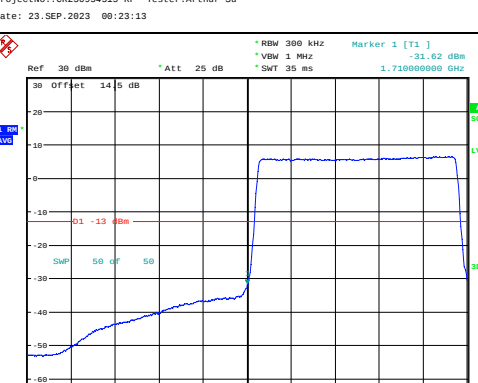
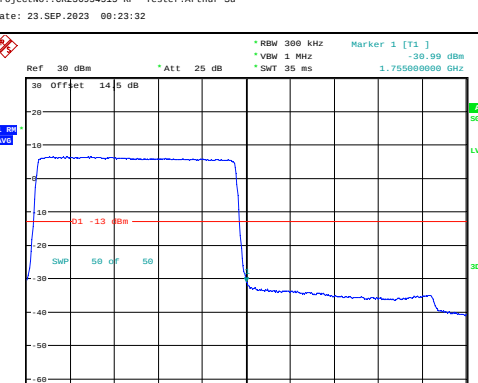


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:53:03

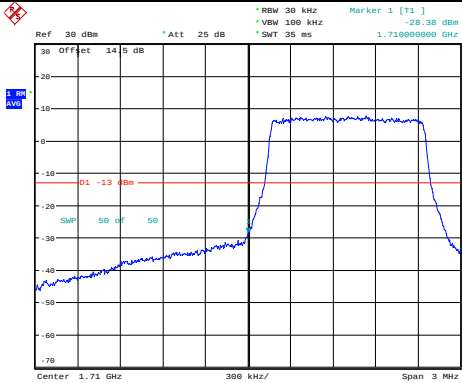
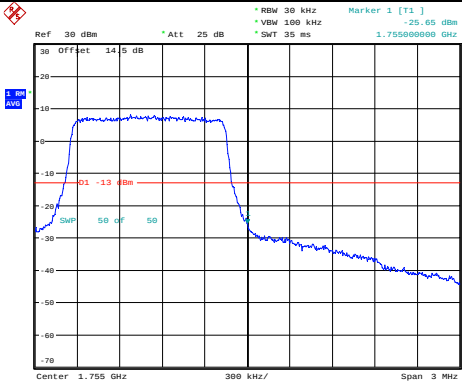
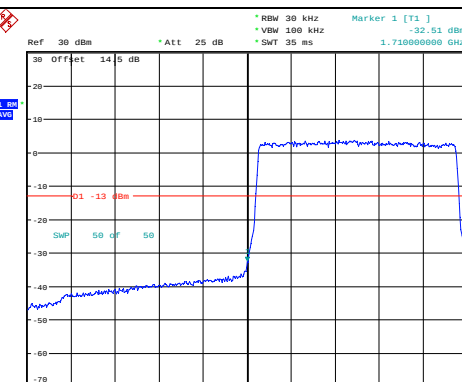
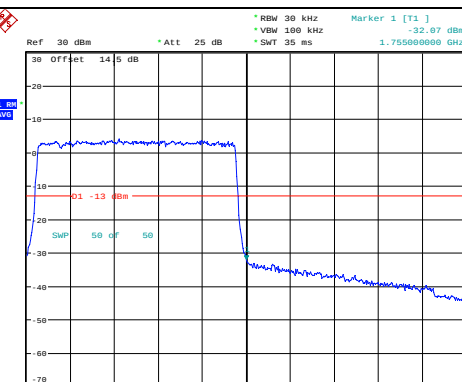
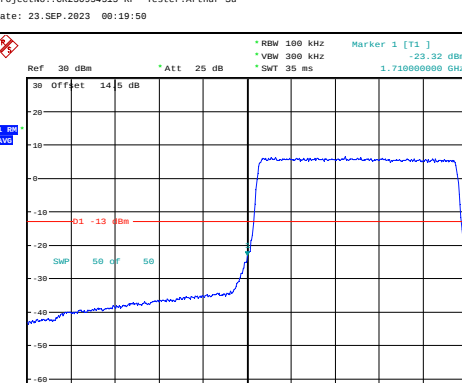
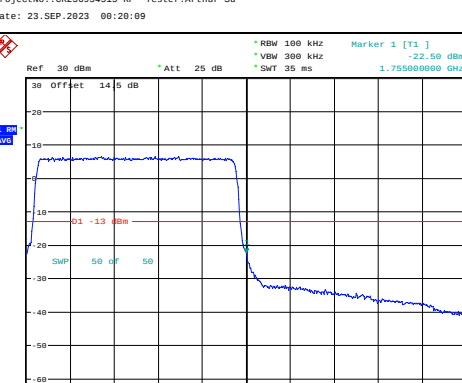
Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 1.4MHz	 Ref 30 dBm * Att 25 dB * RBW 30 kHz * VBW 100 kHz * SWT 35 ms * Marker 1 [T1] -27.95 dBm 1.710000000 GHz Center 1.71 GHz 300 kHz/ Span 3 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:18:26	 Ref 30 dBm * Att 25 dB * RBW 30 kHz * VBW 100 kHz * SWT 35 ms * Marker 1 [T1] -25.12 dBm 1.755000000 GHz Center 1.755 GHz 300 kHz/ Span 3 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:18:46
QPSK 3MHz	 Ref 30 dBm * Att 25 dB * RBW 30 kHz * VBW 100 kHz * SWT 35 ms * Marker 1 [T1] -32.38 dBm 1.710000000 GHz Center 1.71 GHz 600 kHz/ Span 6 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:19:40	 Ref 30 dBm * Att 25 dB * RBW 30 kHz * VBW 100 kHz * SWT 35 ms * Marker 1 [T1] -30.23 dBm 1.755000000 GHz Center 1.755 GHz 600 kHz/ Span 6 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:19:59
QPSK 5MHz	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -22.49 dBm 1.710000000 GHz Center 1.71 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:20:53	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -22.16 dBm 1.755000000 GHz Center 1.755 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:21:15

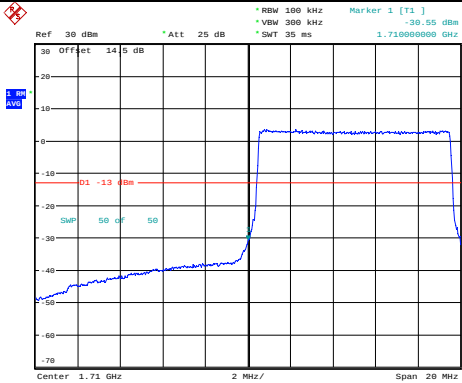
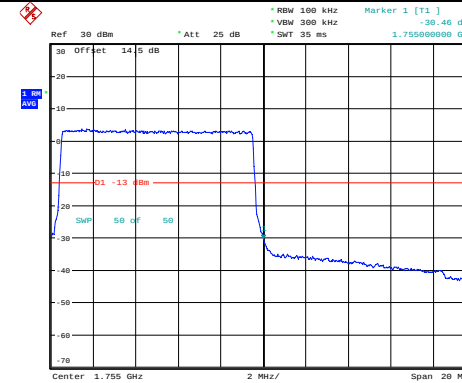
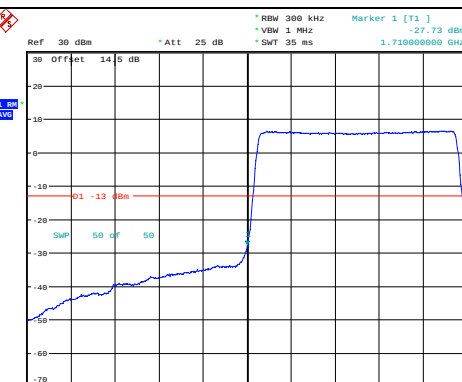
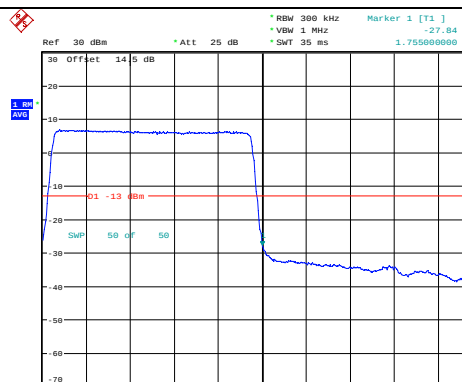
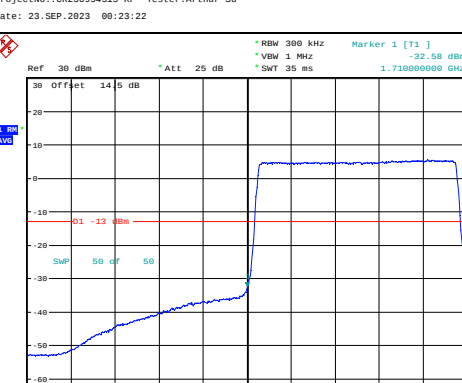
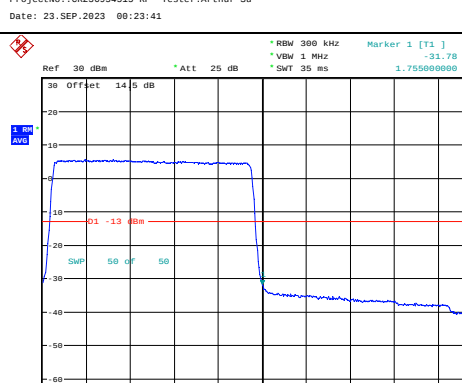
Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 10MHz	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -21.59 dBm 1.710000000 GHz Center 1.71 GHz 2 MHz/ Span 20 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:22:03	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -23.57 dBm 1.755000000 GHz Center 1.755 GHz 2 MHz/ Span 20 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:22:27
QPSK 15MHz	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -26.02 dBm 1.710000000 GHz Center 1.71 GHz 3 MHz/ Span 30 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:23:13	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -25.26 dBm 1.755000000 GHz Center 1.755 GHz 3 MHz/ Span 30 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:23:32
QPSK 20MHz	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -31.62 dBm 1.710000000 GHz Center 1.71 GHz 4 MHz/ Span 40 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:24:16	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -30.99 dBm 1.755000000 GHz Center 1.755 GHz 4 MHz/ Span 40 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:24:35

Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 1.4MHz	 Ref 30 dBm * Att 25 dB * RBW 30 kHz * VBW 100 kHz * SWT 35 ms * Marker 1 [T1] -28.38 dBm 1.710000000 GHz Center 1.71 GHz 300 kHz/ Span 3 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:18:37	 Ref 30 dBm * Att 25 dB * RBW 30 kHz * VBW 100 kHz * SWT 35 ms * Marker 1 [T1] -25.65 dBm 1.755000000 GHz Center 1.755 GHz 300 kHz/ Span 3 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:18:55
16QAM 3MHz	 Ref 30 dBm * Att 25 dB * RBW 30 kHz * VBW 100 kHz * SWT 35 ms * Marker 1 [T1] -32.51 dBm 1.710000000 GHz Center 1.71 GHz 600 kHz/ Span 6 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:19:50	 Ref 30 dBm * Att 25 dB * RBW 30 kHz * VBW 100 kHz * SWT 35 ms * Marker 1 [T1] -32.07 dBm 1.755000000 GHz Center 1.755 GHz 600 kHz/ Span 6 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:20:09
16QAM 5MHz	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -23.32 dBm 1.710000000 GHz Center 1.71 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:21:04	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -22.50 dBm 1.755000000 GHz Center 1.755 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:21:25

Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 10MHz	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -20.55 dBm 1.710000000 GHz Center 1.71 GHz 2 MHz/ Span 20 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:22:15	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -20.46 dBm 1.755000000 GHz Center 1.755 GHz 2 MHz/ Span 20 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:22:38
16QAM 15MHz	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -27.73 dBm 1.710000000 GHz Center 1.71 GHz 3 MHz/ Span 30 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:22:22	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -27.84 dBm 1.755000000 GHz Center 1.755 GHz 3 MHz/ Span 30 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:23:41
16QAM 20MHz	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -32.58 dBm 1.710000000 GHz Center 1.71 GHz 4 MHz/ Span 40 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:24:25	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -31.78 dBm 1.755000000 GHz Center 1.755 GHz 4 MHz/ Span 40 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:24:44

4.8 Antenna Port Test Data and Results for LTE Band 7

Serial Number:	2BF3-1	Test Date:	2023/9/22-2023/9/23
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu/Arthur Su	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.6-25.5	Relative Humidity: (%)	46-54	ATM Pressure: (kPa)	100-100.2
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
Unknown	Coaxial tee connector	Unknown	2204005	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Frequency for Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
5MHz	2502.5	2535	2567.5
10MHz	2505	2535	2565
15MHz	2507.5	2535	2562.5
20MHz	2510	2535	2560

Test Data:

RF Output Power						
Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
5MHz QPSK	RB1#0	18.03	18.32	17.17	14.44	33
	RB1#13	18.14	18.4	17.18		
	RB1#24	18.02	18.25	17.08		
	RB15#0	17.21	17.38	16.17		
	RB15#10	17.09	17.36	16.18		
	RB25#0	17.11	17.33	16.15		
5MHz 16QAM	RB1#0	17.11	17.18	16.37	13.27	33
	RB1#13	17.21	17.23	16.41		
	RB1#24	17.06	17.15	16.32		
	RB15#0	16.26	16.45	15.13		
	RB15#10	16.1	16.4	15.17		
	RB25#0	16.15	16.39	15.15		
10MHz QPSK	RB1#0	18.13	18.28	17.57	14.38	33
	RB1#25	18.28	18.34	17.59		
	RB1#49	18.11	18.12	17.35		
	RB25#0	17.3	17.25	16.41		
	RB25#25	17.07	17.14	16.47		
	RB50#0	17.2	17.23	16.49		
10MHz 16QAM	RB1#0	17.13	17.73	16.63	13.92	33
	RB1#25	17.22	17.88	16.66		
	RB1#49	17.08	17.7	16.43		
	RB25#0	16.4	16.29	15.45		
	RB25#25	16.18	16.22	15.5		
	RB50#0	16.22	16.19	15.49		
15MHz QPSK	RB1#0	18.07	18.12	17.81	14.18	33
	RB1#38	18.12	18.14	17.75		
	RB1#74	17.99	17.94	17.48		
	RB36#0	17.22	17.22	16.79		
	RB36#39	17.13	17.06	16.78		
	RB75#0	17.24	17.18	16.81		
15MHz 16QAM	RB1#0	17.48	17.59	16.93	13.75	33
	RB1#38	17.5	17.71	16.85		
	RB1#74	17.39	17.53	16.54		
	RB36#0	16.28	16.19	15.83		
	RB36#39	16.09	16.11	15.75		
	RB75#0	16.19	16.12	15.82		
20MHz QPSK	RB1#0	17.85	18.09	17.69	14.41	33
	RB1#50	18.25	18.37	17.85		
	RB1#99	17.83	17.95	17.23		
	RB50#0	17.36	17.09	16.72		

20MHz 16QAM	RB50#50	17.11	17.04	16.76	13.8	33
	RB100#0	17.22	17.08	16.75		
	RB1#0	17.49	17.31	16.83		
	RB1#50	17.76	17.66	16.96		
	RB1#99	17.39	17.21	16.39		
	RB50#0	16.35	16.11	15.69		
	RB50#50	16.1	16.06	15.76		
	RB100#0	16.24	16.08	15.77		

Note: EIRP=Conducted Power(dBm) - Lc(dB) + Gr(dBi)

Result:**Pass****Peak-to-average Ratio(PAR)**

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
20MHz QPSK	RB1#0	8.62	8.85	8.91	13
	RB100#0	6.38	6.28	6.51	13
20MHz 16QAM	RB1#0	8.3	8.4	8.43	13
	RB100#0	7.05	7.05	7.24	13
				Result:	Pass

Occupied Bandwidth

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
5MHz QPSK	4.540	4.520	4.540	5.140	5.140	5.140
5MHz 16QAM	4.520	4.540	4.520	5.200	5.140	5.160
10MHz QPSK	8.960	8.960	8.920	9.880	9.840	9.880
10MHz 16QAM	9.000	8.960	8.960	9.840	9.840	9.880
15MHz QPSK	13.560	13.560	13.500	15.060	15.120	14.940
15MHz 16QAM	13.560	13.560	13.560	15.120	15.000	15.060
20MHz QPSK	17.920	17.920	18.000	19.600	19.440	19.520
20MHz 16QAM	18.080	17.840	18.000	19.520	19.520	19.600

Note: The test plots please refer to the Plots of Occupied Bandwidth

Spurious Emissions at Antenna Terminal**Result:**

Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.

Out of band emission, Band Edge**Result:**

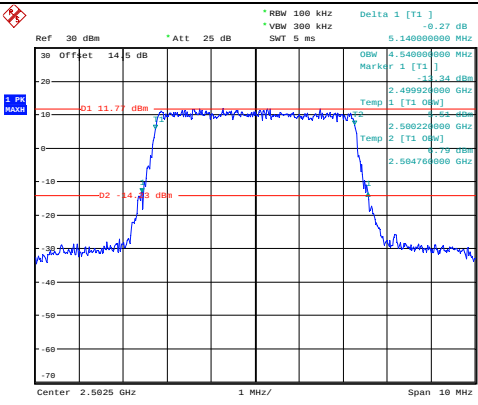
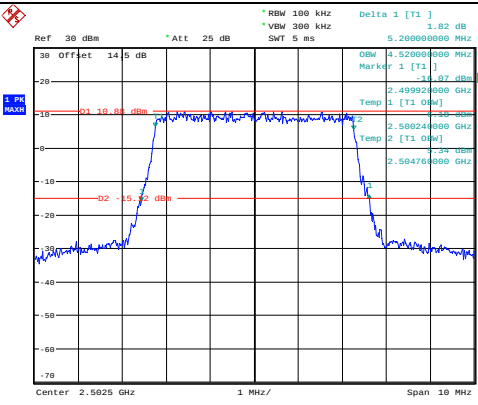
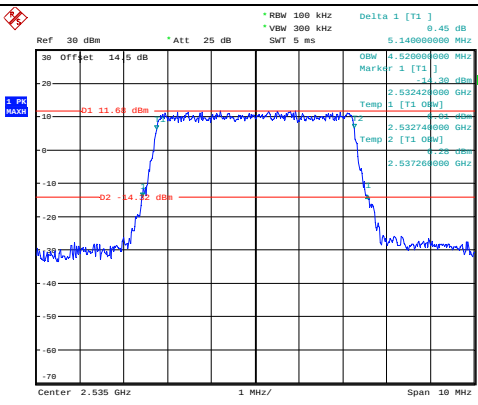
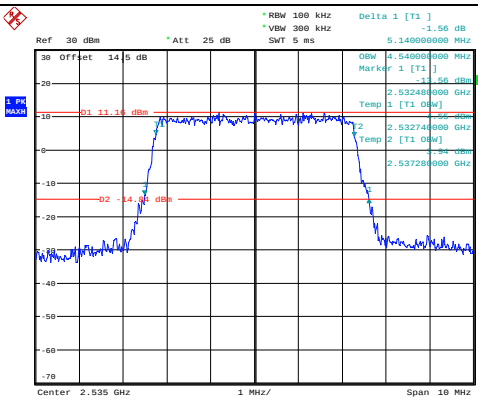
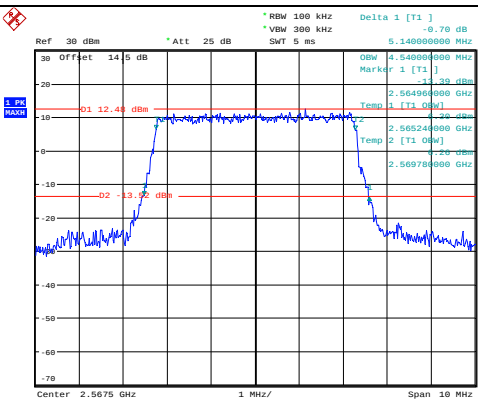
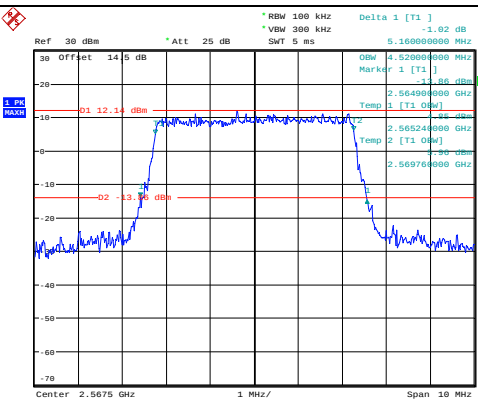
Pass, Please refer to the test plots of Out of band emission, Band Edge.

Frequency Stability						
Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	2501.037	2500.00	2569.062	2570
	-20	3.85	2501.038	2500.00	2569.066	2570
	-10	3.85	2501.036	2500.00	2569.055	2570
	0	3.85	2501.013	2500.00	2569.055	2570
	10	3.85	2501.030	2500.00	2569.041	2570
	20	3.85	2501.040	2500.00	2569.040	2570
	30	3.85	2501.011	2500.00	2569.056	2570
	40	3.85	2501.021	2500.00	2569.066	2570
	50	3.85	2501.038	2500.00	2569.051	2570
Frequency Stability vs. Voltage	20	3.5	2501.015	2500.00	2569.050	2570
	20	4.45	2501.030	2500.00	2569.060	2570
					Result:	Pass

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	2500.941	2500.00	2569.047	2570
	-20	3.85	2500.945	2500.00	2569.068	2570
	-10	3.85	2500.931	2500.00	2569.062	2570
	0	3.85	2500.955	2500.00	2569.050	2570
	10	3.85	2500.955	2500.00	2569.064	2570
	20	3.85	2500.960	2500.00	2569.040	2570
	30	3.85	2500.958	2500.00	2569.043	2570
	40	3.85	2500.940	2500.00	2569.067	2570
	50	3.85	2500.937	2500.00	2569.052	2570
Frequency Stability vs. Voltage	20	3.5	2500.940	2500.00	2569.049	2570
	20	4.45	2500.942	2500.00	2569.057	2570
					Result:	Pass

Test Plots(Note: The 14.5dB is the Insertion loss of the RF cable, Power Splitter and DC Block, which was offset into the Spectrum Analyzer):

Occupied Bandwidth

Channel	5MHz Bandwidth QPSK	5MHz Bandwidth 16QAM
Lowest	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz SMT 5 ms Delta 1 [T1] -0.27 dB OBW 4.540000000 MHz Marker 1 [T1] -11.77 dBm Temp 1 [T1] 0.000000000 GHz Temp 2 [T1] 0.000000000 GHz LVL -11.77 dBm 30B -11.77 dBm Center 2.5625 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 21:59:14	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz SMT 5 ms Delta 1 [T1] -1.82 dB OBW 4.520000000 MHz Marker 1 [T1] -10.84 dBm Temp 1 [T1] 0.000000000 GHz Temp 2 [T1] 0.000000000 GHz LVL -10.84 dBm 30B -10.84 dBm Center 2.5625 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 21:59:35
Middle	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz SMT 5 ms Delta 1 [T1] -0.45 dB OBW 4.520000000 MHz Marker 1 [T1] -11.69 dBm Temp 1 [T1] 0.000000000 GHz Temp 2 [T1] 0.000000000 GHz LVL -11.69 dBm 30B -11.69 dBm Center 2.535 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 21:59:55	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz SMT 5 ms Delta 1 [T1] -1.56 dB OBW 4.540000000 MHz Marker 1 [T1] -11.16 dBm Temp 1 [T1] 0.000000000 GHz Temp 2 [T1] 0.000000000 GHz LVL -11.16 dBm 30B -11.16 dBm Center 2.535 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:00:15
Highest	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz SMT 5 ms Delta 1 [T1] -0.79 dB OBW 4.540000000 MHz Marker 1 [T1] -12.46 dBm Temp 1 [T1] 0.000000000 GHz Temp 2 [T1] 0.000000000 GHz LVL -12.46 dBm 30B -12.46 dBm Center 2.5675 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:00:39	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz SMT 5 ms Delta 1 [T1] -1.62 dB OBW 4.520000000 MHz Marker 1 [T1] -12.14 dBm Temp 1 [T1] 0.000000000 GHz Temp 2 [T1] 0.000000000 GHz LVL -12.14 dBm 30B -12.14 dBm Center 2.5675 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:01:02

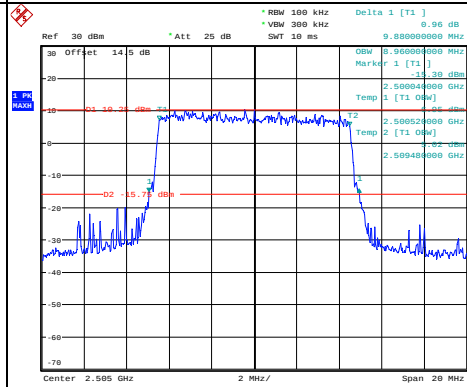
Occupied Bandwidth

Channel

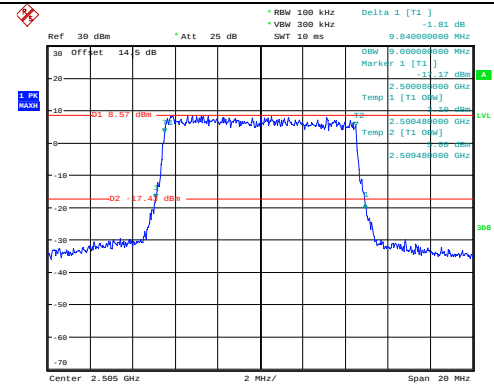
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

Lowest

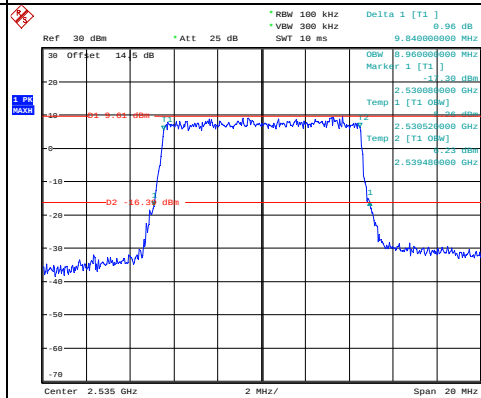


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Date: 22.SEP.2023 22:01:56

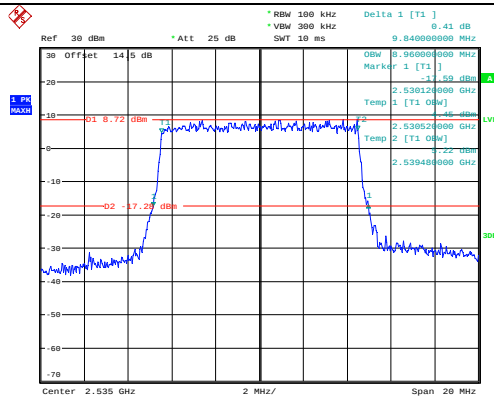


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:02:15

Middle

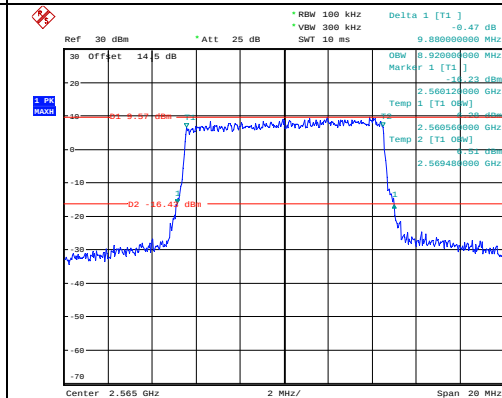


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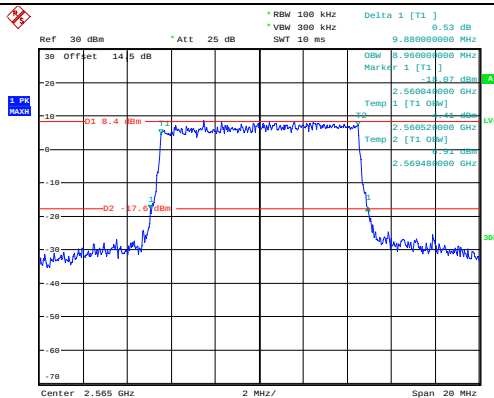


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:02:55

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:03:16



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:03:39

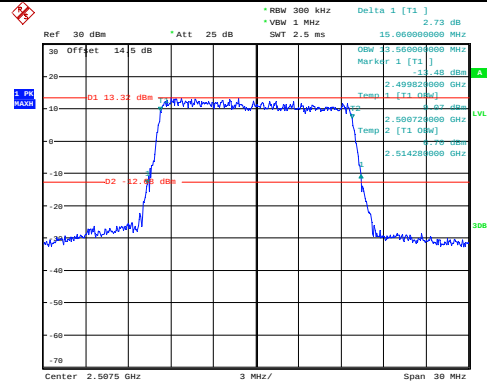
Occupied Bandwidth

Channel

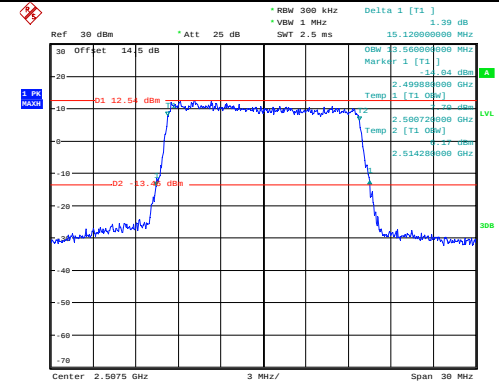
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

Lowest

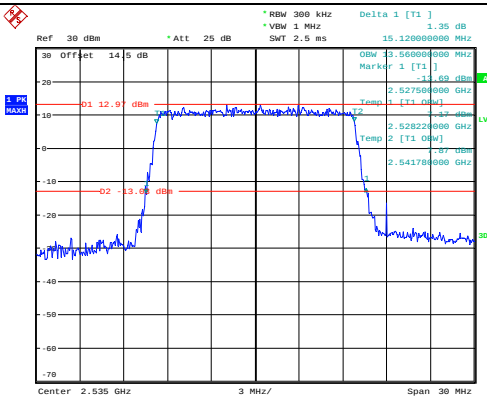


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:04:25

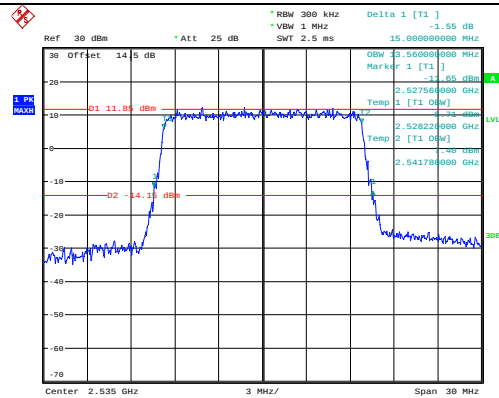


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Date: 22.SEP.2023 22:04:45

Middle

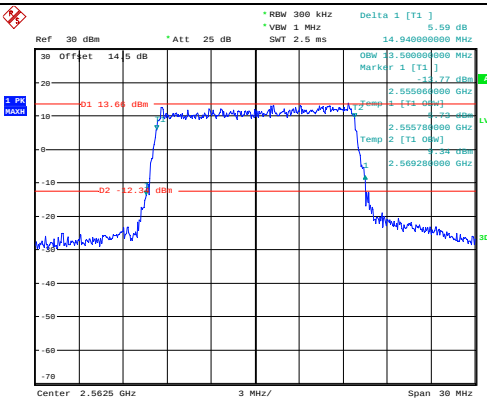


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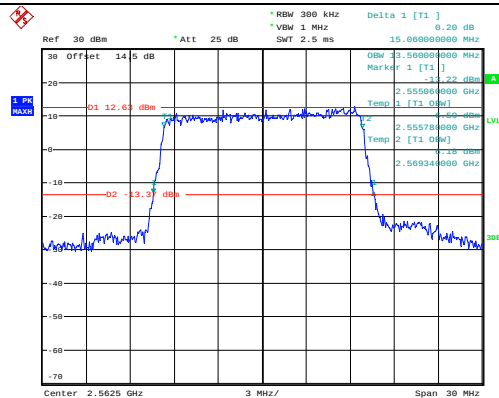


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:05:26

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:05:47



ProjectNo.:CR230954515-RF Tester:Arthur Su
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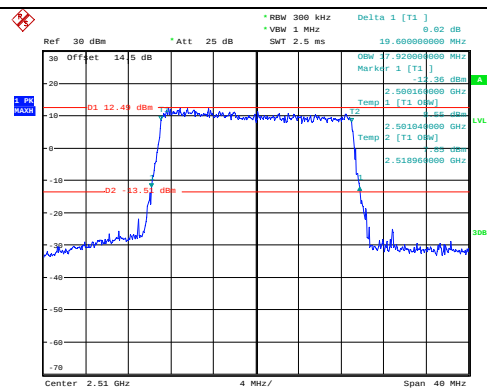
Occupied Bandwidth

Channel

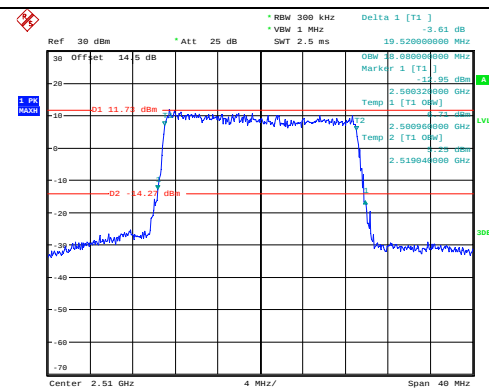
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

Lowest

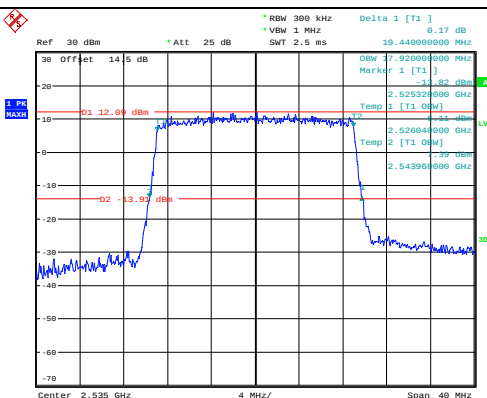


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:07:04

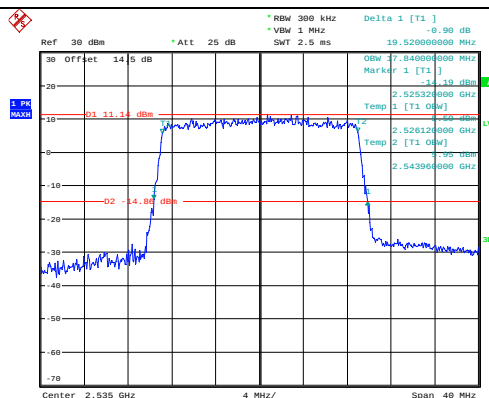


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Date: 22.SEP.2023 22:07:24

Middle

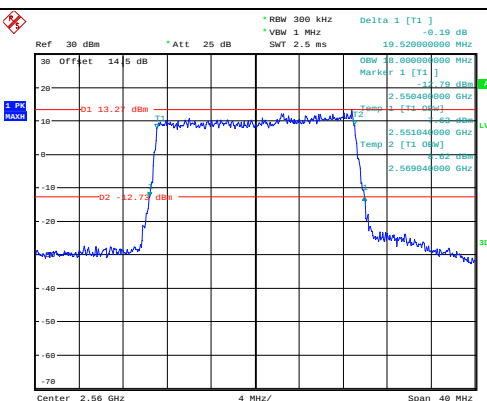


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Date: 22.SEP.2023 22:07:45

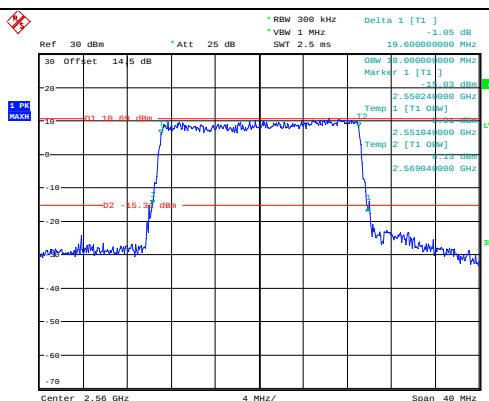


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:08:08

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:08:29



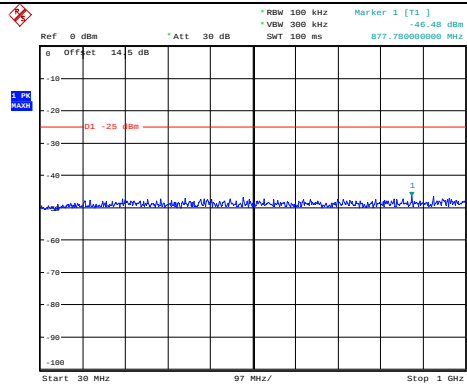
ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:08:49

Spurious Emissions at Antenna Terminal

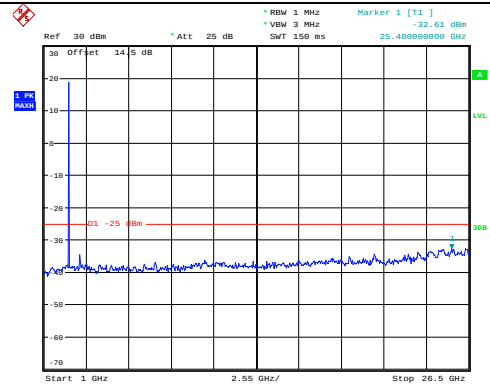
Channel

5MHz Bandwidth QPSK

Lowest

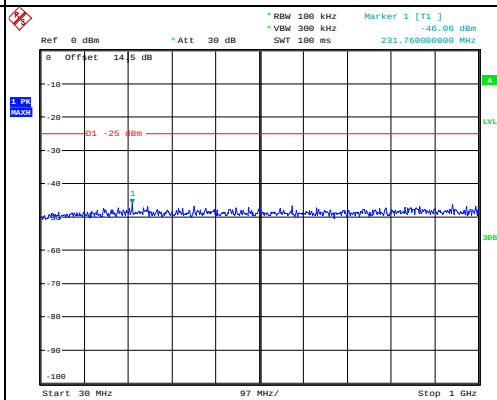


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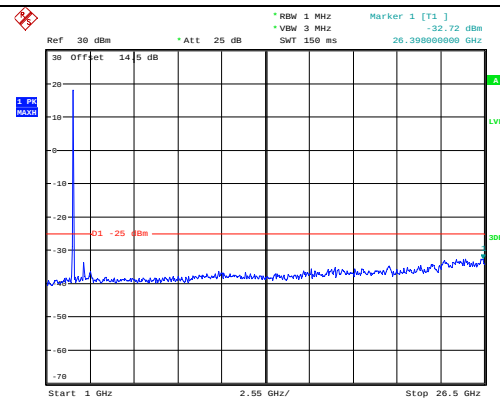


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Date: 22.SEP.2023 22:19:32

Middle

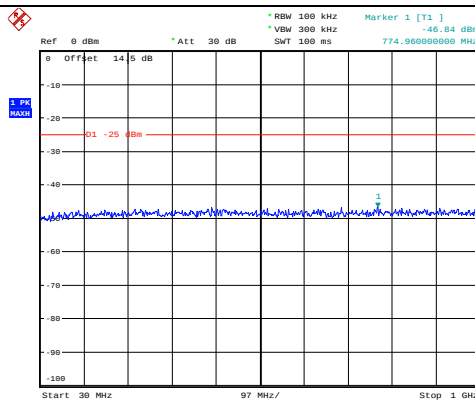


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Date: 22.SEP.2023 22:19:47

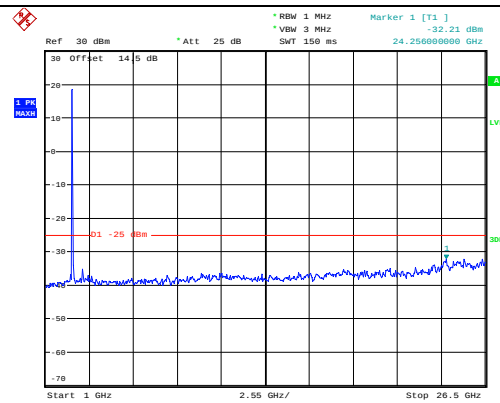


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:19:59

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:20:17



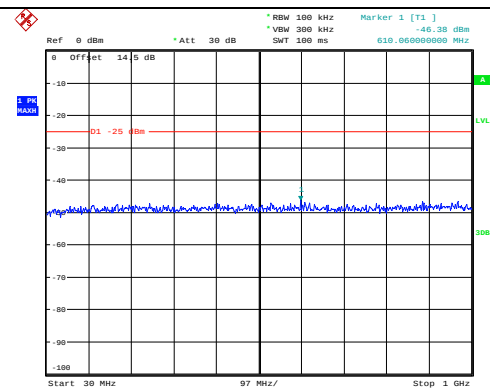
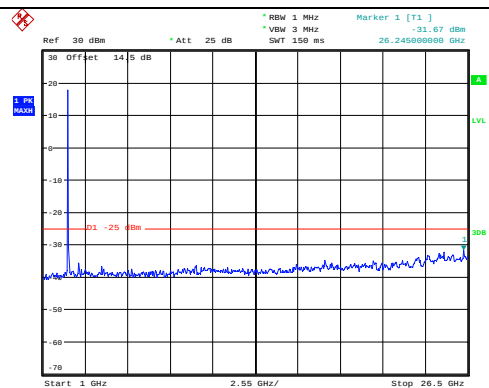
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Date: 22.SEP.2023 22:20:30

Spurious Emissions at Antenna Terminal

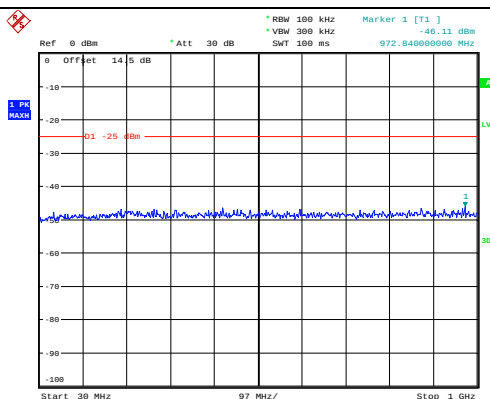
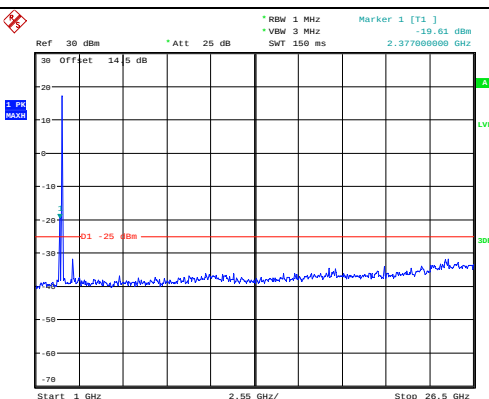
Channel

10MHz Bandwidth QPSK

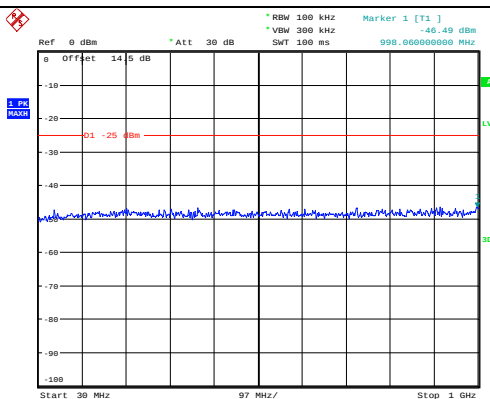
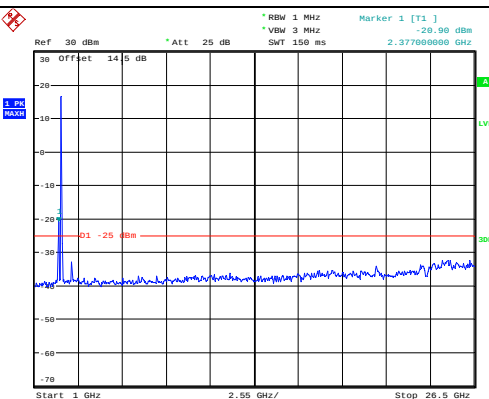
Lowest

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:21:10ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:21:20

Middle

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:21:18ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:21:51

Highest

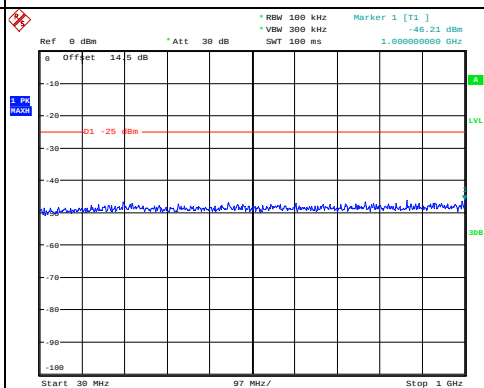
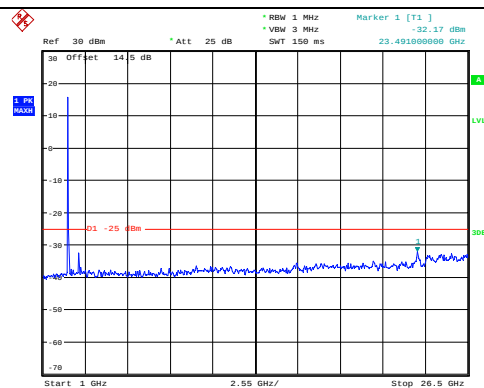
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Date: 22.SEP.2023 22:22:09ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:22:22

Spurious Emissions at Antenna Terminal

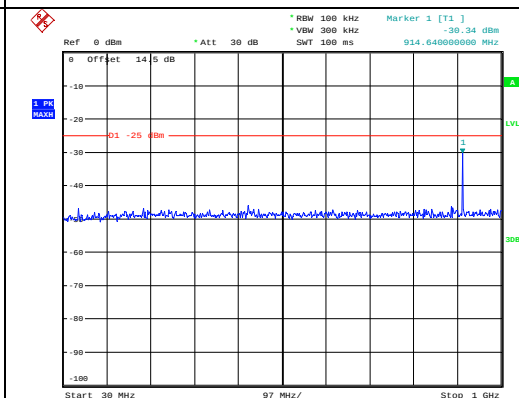
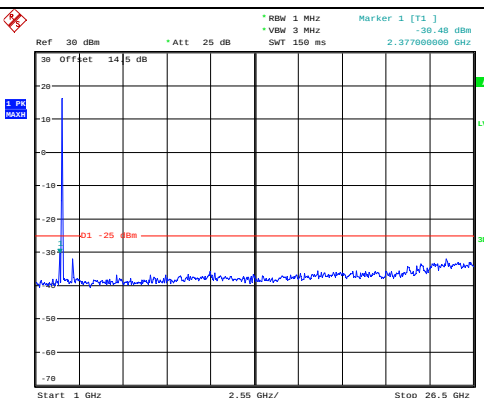
Channel

15MHz Bandwidth QPSK

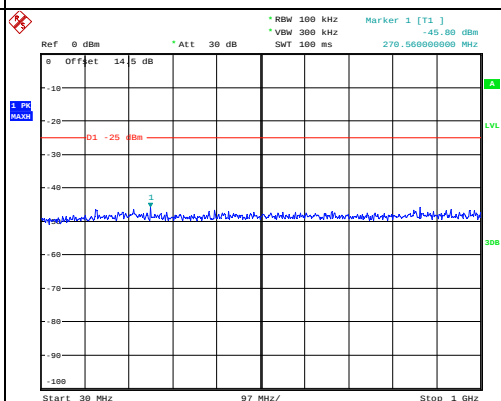
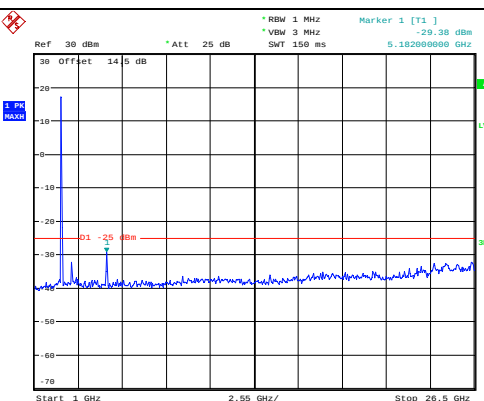
Lowest

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:23:14ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:23:26

Middle

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:23:41ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:23:54

Highest

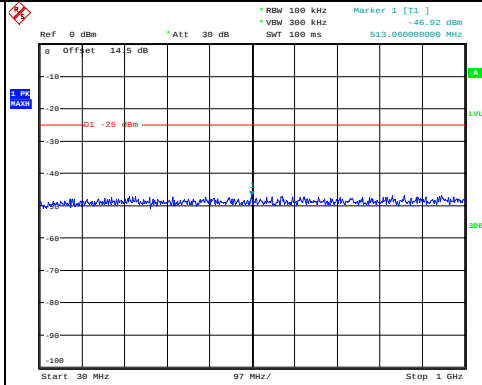
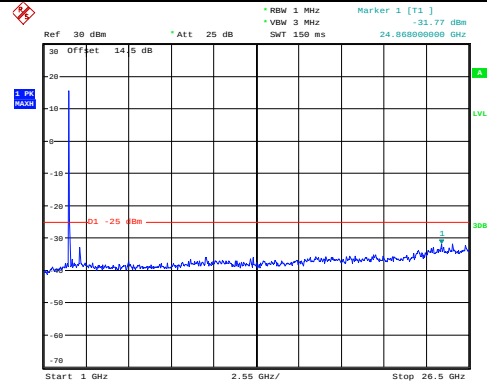
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Date: 22.SEP.2023 22:24:12ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:24:25

Spurious Emissions at Antenna Terminal

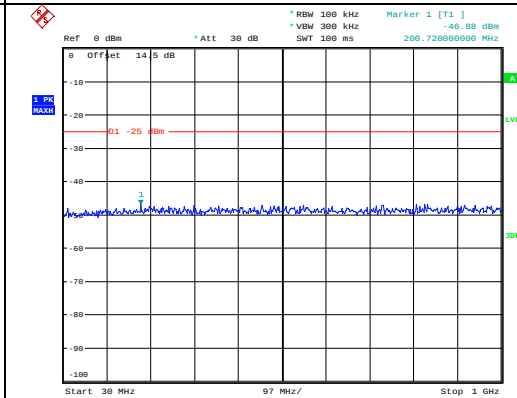
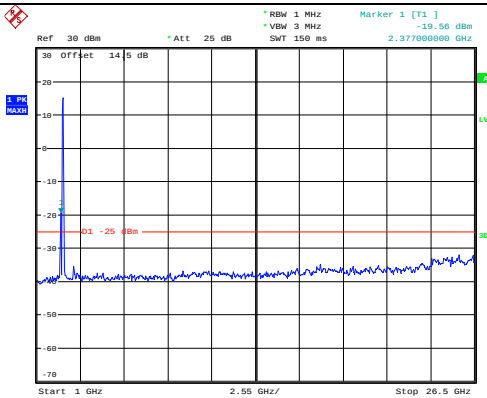
Channel

20MHz Bandwidth QPSK

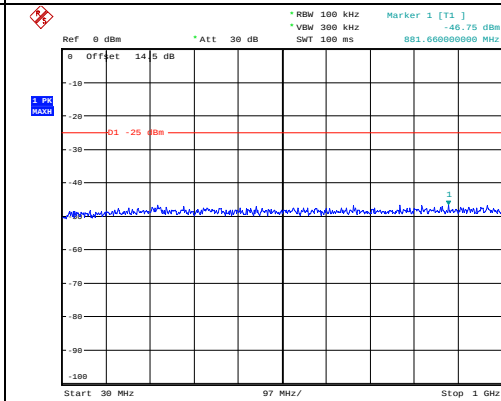
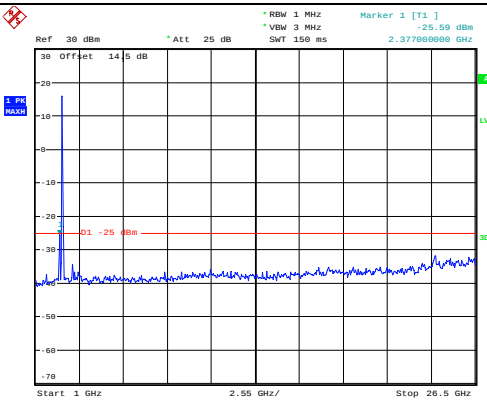
Lowest

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:25:14ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:25:27

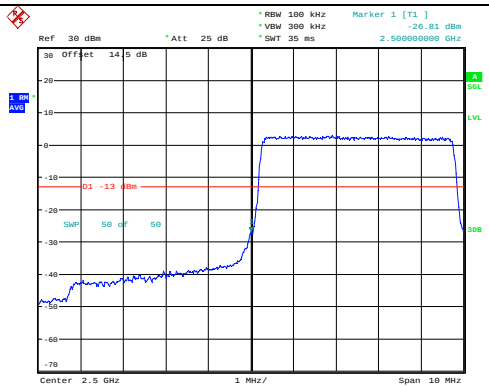
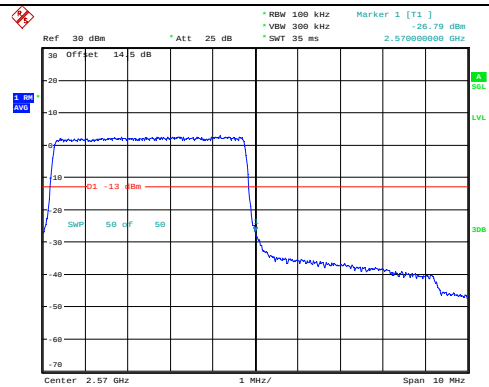
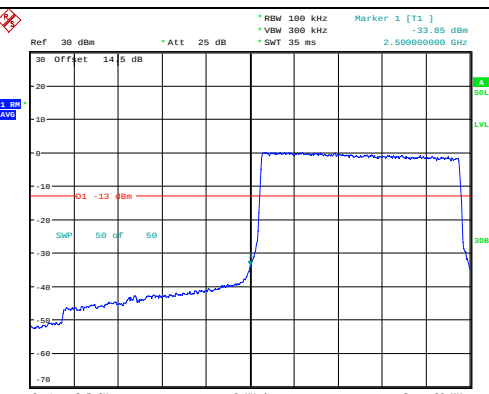
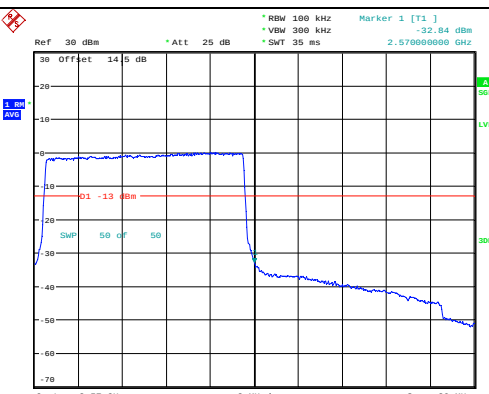
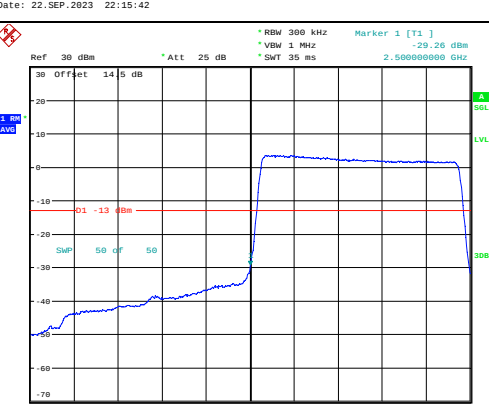
Middle

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:25:42ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:25:54

Highest

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:26:13ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:26:25

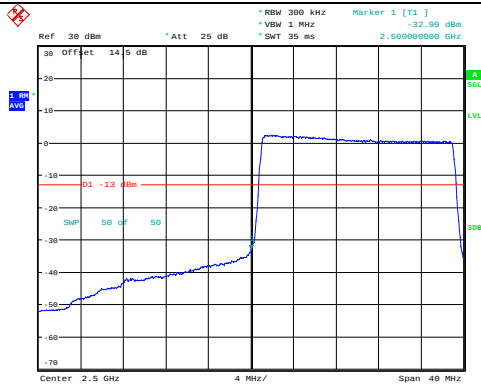
Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 5MHz	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:14:42	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:14:56
QPSK 10MHz	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:15:42	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:16:05
QPSK 15MHz	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:16:51	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 22:17:11

Mode

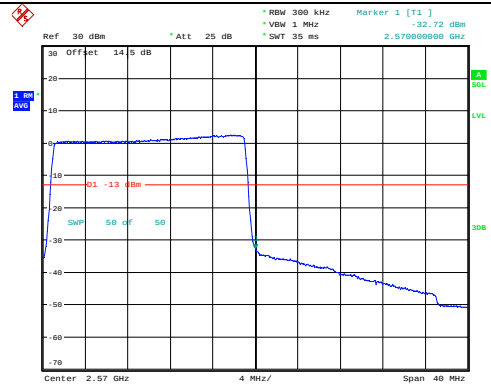
QPSK
20MHz

Lowest



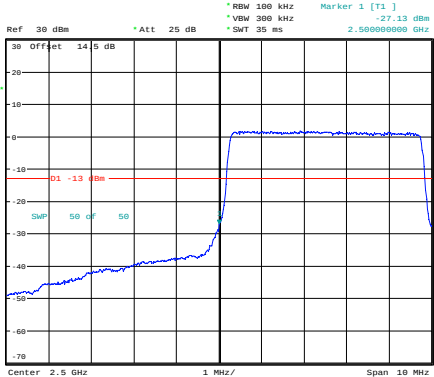
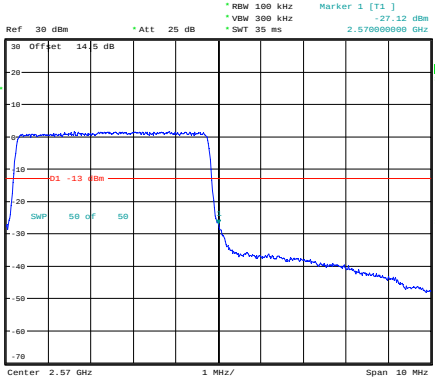
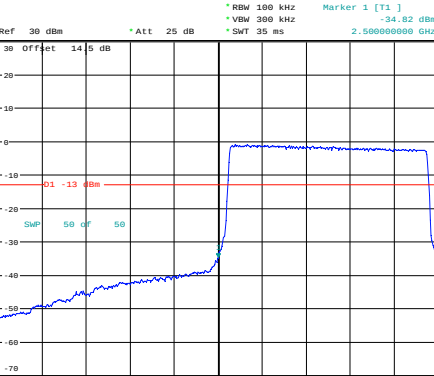
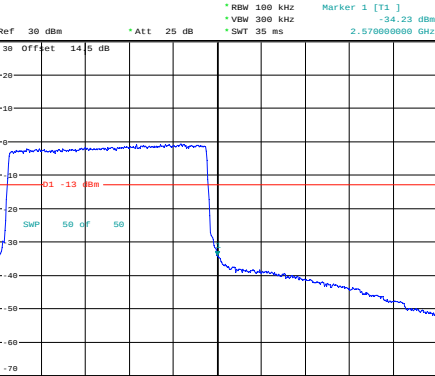
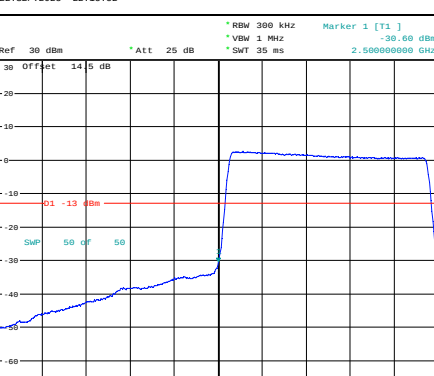
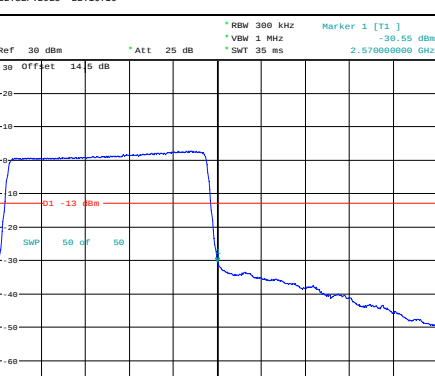
ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:18:03

Highest

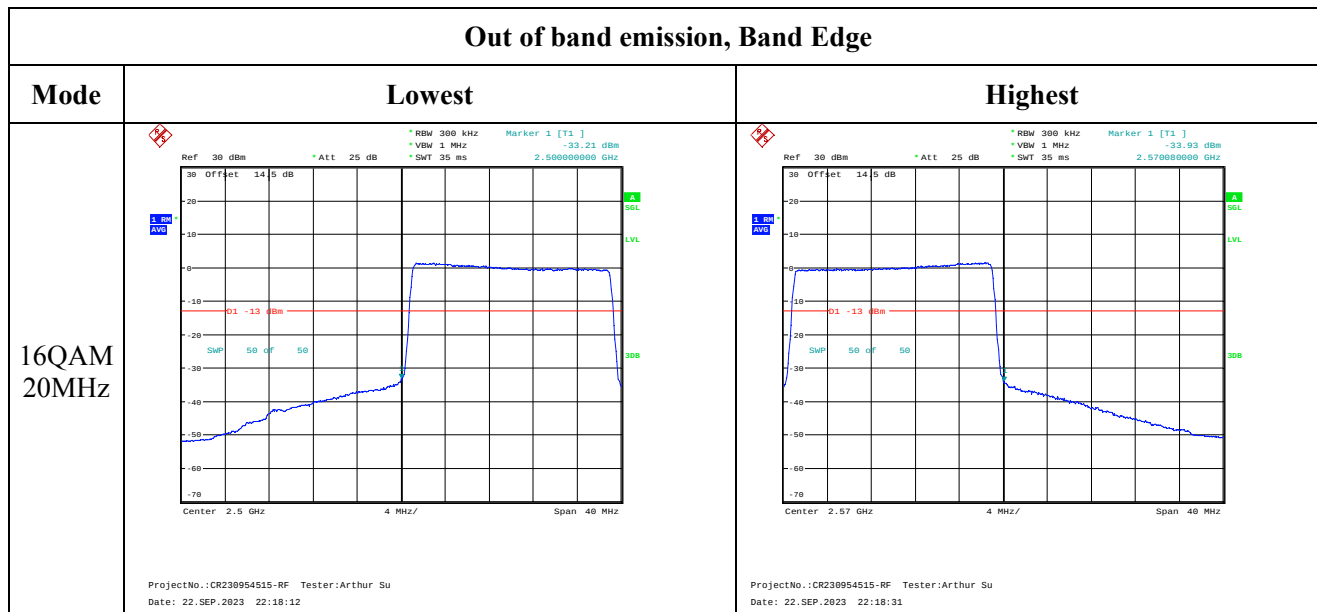


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 22:18:22

Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 5MHz	 Ref: 30 dBm, Att: 25 dB, RBW: 100 kHz, VBW: 300 kHz, SWT: 35 ms, Marker 1 [T1]: -27.13 dBm, 2.500000000 GHz Center: 2.5 GHz, Span: 10 MHz ProjectNo.: CR230954515-RF, Tester: Arthur Su, Date: 22.SEP.2023 22:14:48	 Ref: 30 dBm, Att: 25 dB, RBW: 100 kHz, VBW: 300 kHz, SWT: 35 ms, Marker 1 [T1]: -27.12 dBm, 2.570000000 GHz Center: 2.57 GHz, Span: 10 MHz ProjectNo.: CR230954515-RF, Tester: Arthur Su, Date: 22.SEP.2023 22:15:03
16QAM 10MHz	 Ref: 30 dBm, Att: 25 dB, RBW: 100 kHz, VBW: 300 kHz, SWT: 35 ms, Marker 1 [T1]: -34.82 dBm, 2.500000000 GHz Center: 2.5 GHz, Span: 20 MHz ProjectNo.: CR230954515-RF, Tester: Arthur Su, Date: 22.SEP.2023 22:15:52	 Ref: 30 dBm, Att: 25 dB, RBW: 100 kHz, VBW: 300 kHz, SWT: 35 ms, Marker 1 [T1]: -34.23 dBm, 2.570000000 GHz Center: 2.57 GHz, Span: 20 MHz ProjectNo.: CR230954515-RF, Tester: Arthur Su, Date: 22.SEP.2023 22:16:16
16QAM 15MHz	 Ref: 30 dBm, Att: 25 dB, RBW: 300 kHz, VBW: 1 MHz, SWT: 35 ms, Marker 1 [T1]: -39.80 dBm, 2.500000000 GHz Center: 2.5 GHz, Span: 30 MHz ProjectNo.: CR230954515-RF, Tester: Arthur Su, Date: 22.SEP.2023 22:17:01	 Ref: 30 dBm, Att: 25 dB, RBW: 300 kHz, VBW: 1 MHz, SWT: 35 ms, Marker 1 [T1]: -39.55 dBm, 2.570000000 GHz Center: 2.57 GHz, Span: 30 MHz ProjectNo.: CR230954515-RF, Tester: Arthur Su, Date: 22.SEP.2023 22:17:20

Out of band emission, Band Edge



4.9 Antenna Port Test Data and Results for LTE Band 17

Serial Number:	2BF3-1	Test Date:	2023/9/22-2023/9/23
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu/Arthur Su	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.6-25.5	Relative Humidity: (%)	46-54	ATM Pressure: (kPa)	100-100.2
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
Unknown	Coaxial tee connector	Unknown	2204005	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Frequency for Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
5MHz	706.5	710	713.5
10MHz	709	710	711

Test Data:

RF Output Power						
Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
5MHz QPSK	RB1#0	25.75	25.82	25.79	22.73	34.77
	RB1#13	25.89	25.9	25.9		
	RB1#24	25.78	25.7	25.73		
	RB15#0	24.96	24.79	24.84		
	RB15#10	24.92	24.98	24.72		
	RB25#0	24.92	24.89	24.81		
5MHz 16QAM	RB1#0	24.84	24.67	25.02	21.97	34.77
	RB1#13	24.99	24.76	25.14		
	RB1#24	24.82	24.65	24.98		
	RB15#0	24	23.87	23.81		
	RB15#10	23.94	24	23.71		
	RB25#0	23.94	23.94	23.78		
10MHz QPSK	RB1#0	25.85	25.89	25.89	22.88	34.77
	RB1#25	26.05	26.01	25.99		
	RB1#49	25.81	25.78	25.81		
	RB25#0	24.98	24.89	24.78		
	RB25#25	25.06	24.9	24.81		
	RB50#0	25.03	24.97	24.85		
10MHz 16QAM	RB1#0	24.81	25.43	24.98	22.38	34.77
	RB1#25	24.99	25.55	25.12		
	RB1#49	24.79	25.32	24.93		
	RB25#0	24.06	23.94	23.82		
	RB25#25	24.11	23.97	23.82		
	RB50#0	24.04	23.95	23.81		

Note:

ERP= Conducted Power(dBm) - Lc(dB) + Gr(dBd)

Gr(dBd)=Gr(dBi)-2.15

Result:**Pass****Peak-to-average Ratio (PAR)**

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
10MHz QPSK	RB1#0	5.22	5.19	5.48	13
	RB50#0	5.71	5.8	5.71	13
10MHz 16QAM	RB1#0	5.93	6.47	6.67	13
	RB50#0	6.51	6.54	6.41	13
Result:					Pass

Occupied Bandwidth						
Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
5MHz QPSK	4.520	4.540	4.520	5.100	5.180	5.220
5MHz 16QAM	4.520	4.520	4.560	5.240	5.140	5.200
10MHz QPSK	8.960	8.960	8.960	9.960	9.960	9.800
10MHz 16QAM	8.960	9.000	8.960	9.760	9.880	9.760
Note: The test plots please refer to the Plots of Occupied Bandwidth						

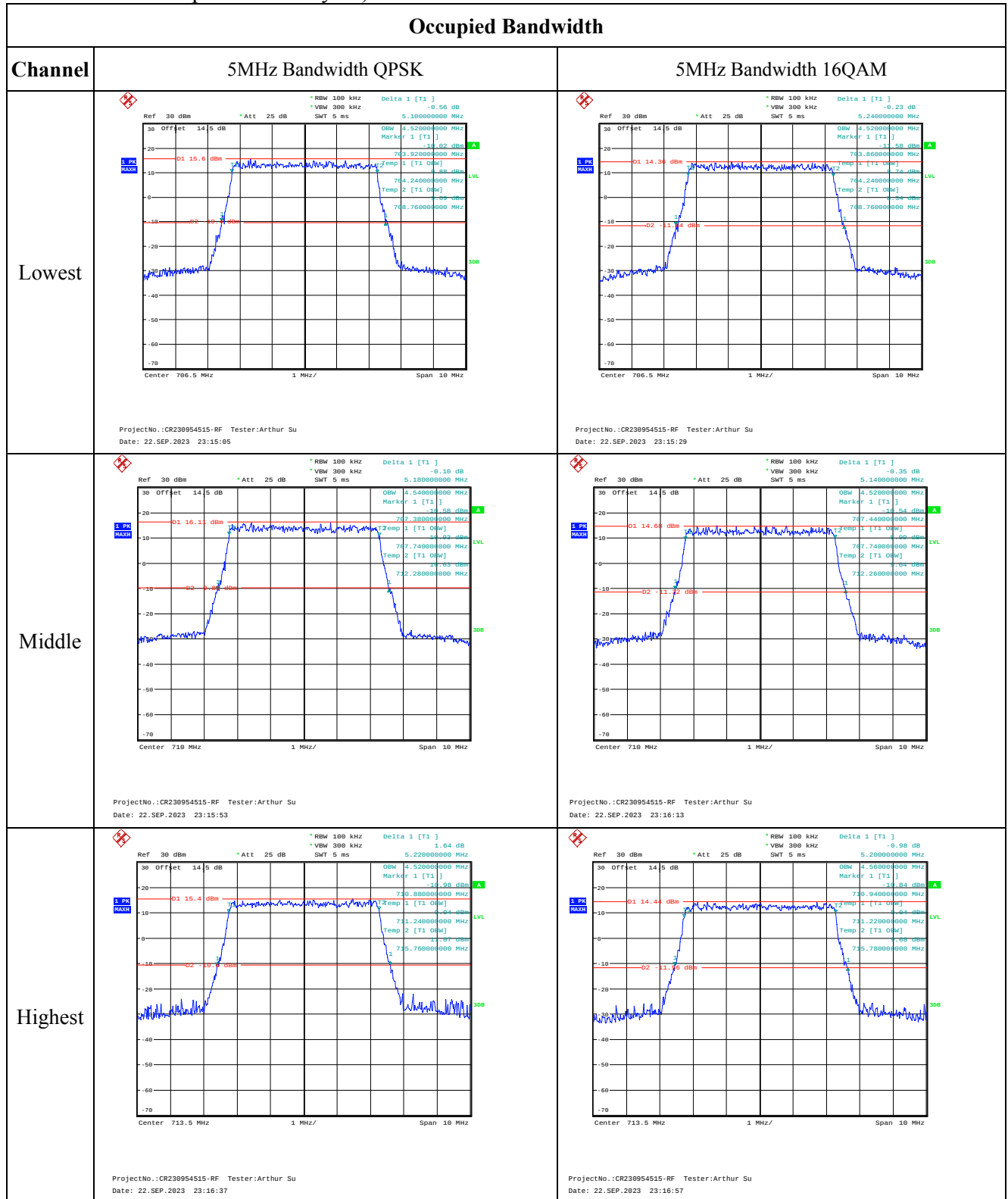
Spurious Emissions at Antenna Terminal	
Result:	Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.

Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

Frequency Stability						
Test Mode:	10M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{Dc})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	704.496	704.00	715.497	716.00
	-20	3.85	704.510	704.00	715.490	716.00
	-10	3.85	704.503	704.00	715.496	716.00
	0	3.85	704.494	704.00	715.490	716.00
	10	3.85	704.501	704.00	715.490	716.00
	20	3.85	704.520	704.00	715.480	716.00
	30	3.85	704.497	704.00	715.496	716.00
	40	3.85	704.496	704.00	715.506	716.00
Frequency Stability vs. Voltage	50	3.85	704.510	704.00	715.501	716.00
	20	3.5	704.494	704.00	715.489	716.00
	20	4.45	704.506	704.00	715.494	716.00
Result:					Pass	

Test Mode:	10M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	704.518	704.00	715.501	716.00
	-20	3.85	704.516	704.00	715.481	716.00
	-10	3.85	704.501	704.00	715.491	716.00
	0	3.85	704.511	704.00	715.504	716.00
	10	3.85	704.510	704.00	715.490	716.00
	20	3.85	704.520	704.00	715.480	716.00
	30	3.85	704.519	704.00	715.499	716.00
	40	3.85	704.499	704.00	715.499	716.00
	50	3.85	704.508	704.00	715.505	716.00
Frequency Stability vs. Voltage	20	3.5	704.516	704.00	715.499	716.00
	20	4.45	704.500	704.00	715.506	716.00
					Result:	Pass

Test Plots(Note: The 14.5 dB is the Insertion loss of the RF cable and Power Splitter, which was offset into the Spectrum Analyzer):



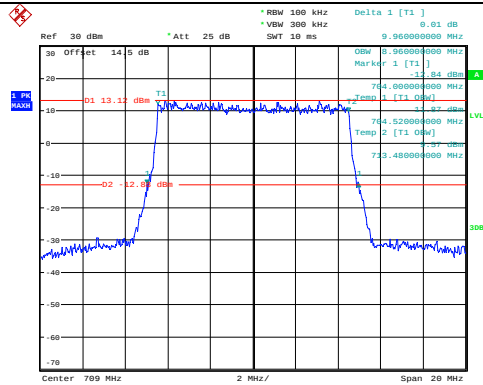
Occupied Bandwidth

Channel

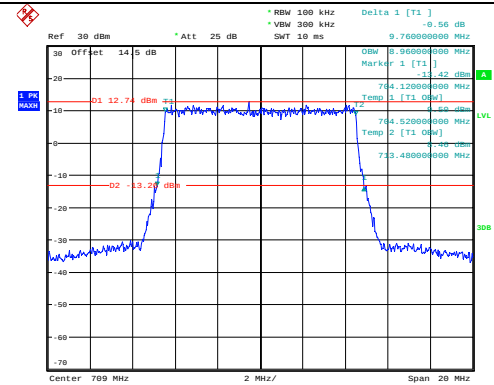
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

Lowest

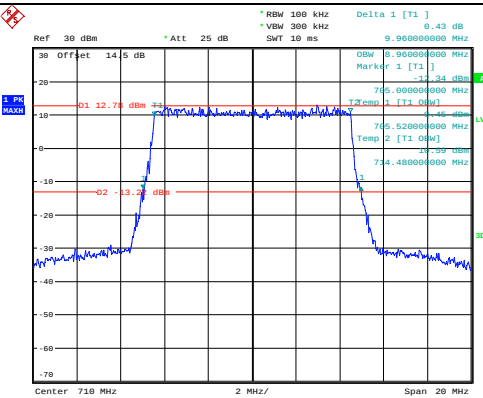


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:18:02

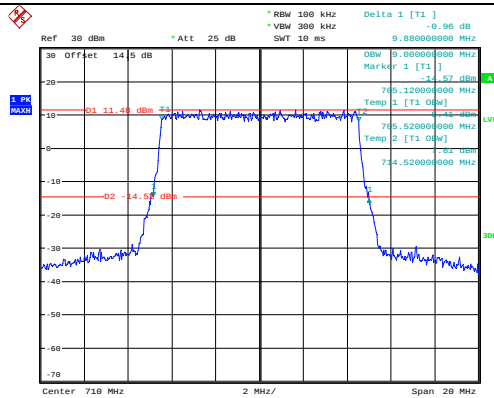


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:18:25

Middle

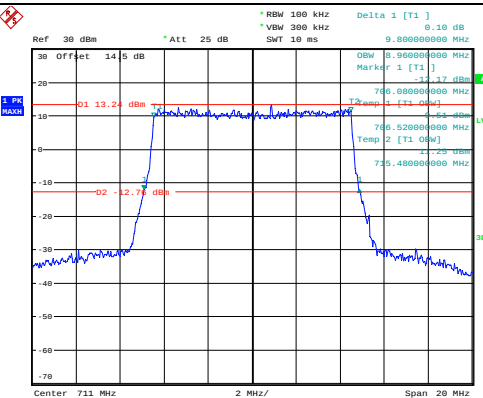


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Date: 22.SEP.2023 23:18:45

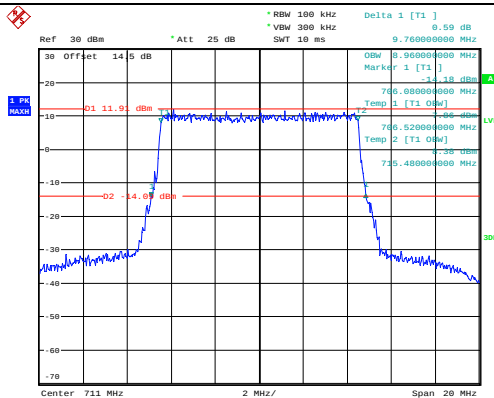


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:19:05

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:19:26



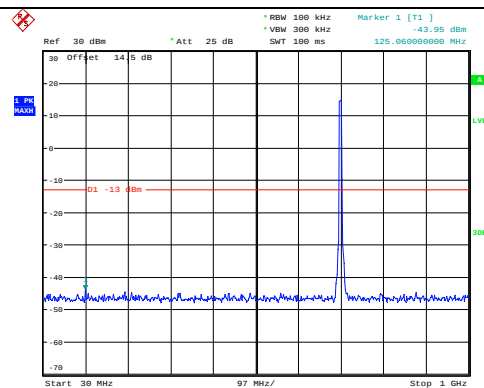
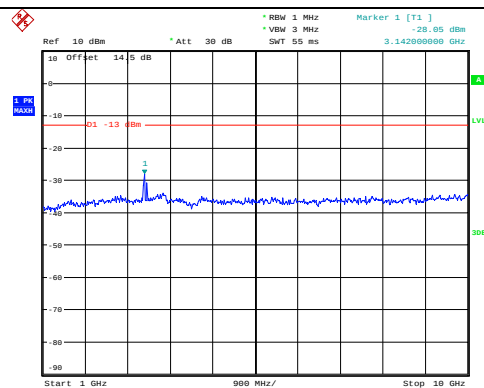
ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:19:46

Spurious Emissions at Antenna Terminal

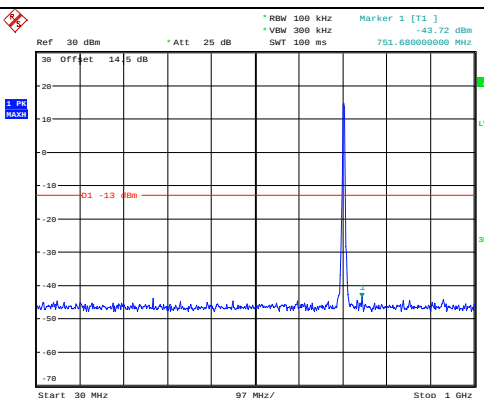
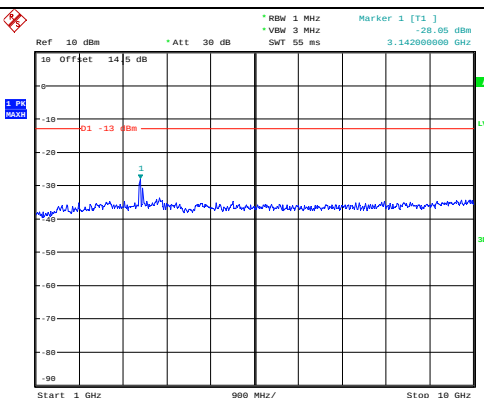
Channel

5MHz Bandwidth QPSK

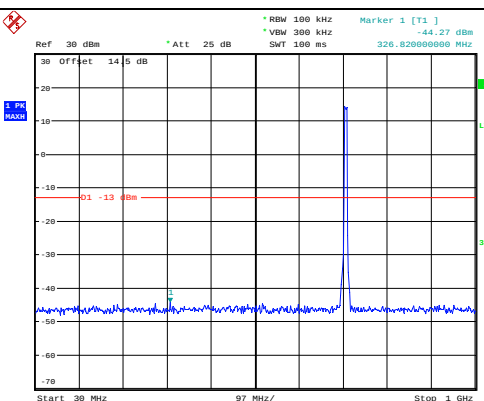
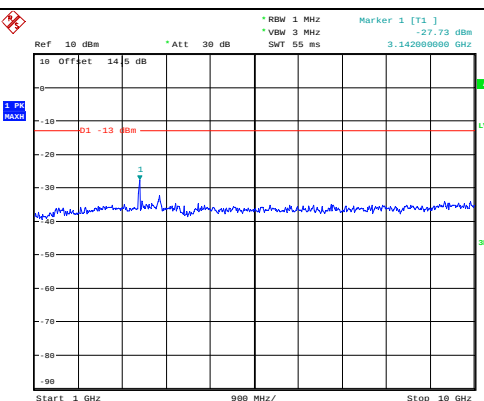
Lowest

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:53:50ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:54:00

Middle

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:54:13ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:54:23

Highest

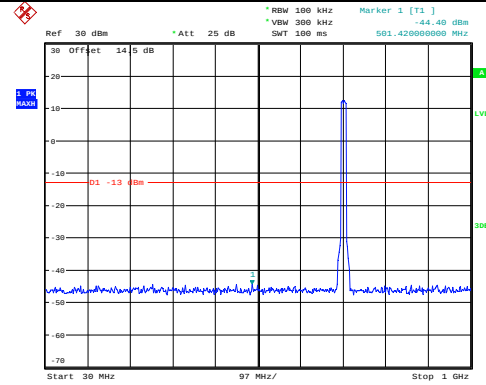
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Date: 23.SEP.2023 00:54:36ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:54:46

Spurious Emissions at Antenna Terminal

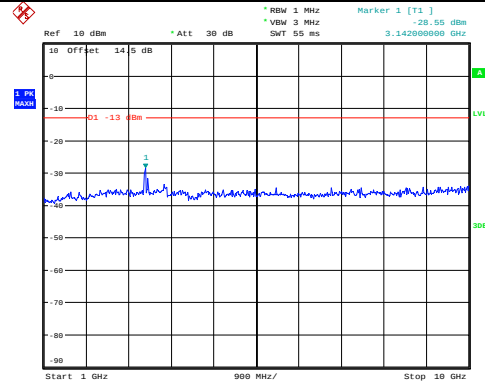
Channel

10MHz Bandwidth QPSK

Lowest

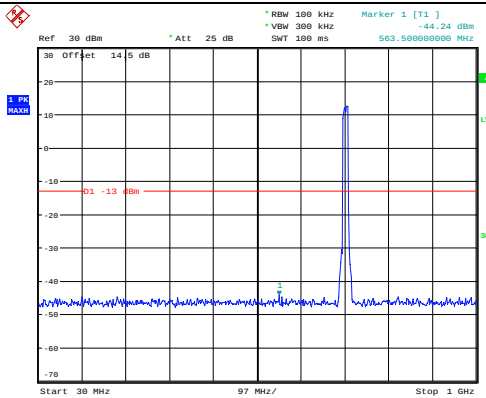


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:55:27

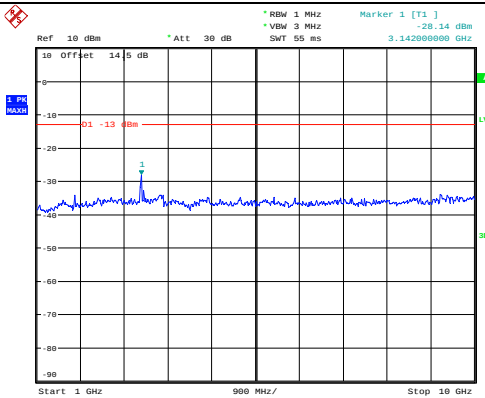


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Date: 23.SEP.2023 00:55:37

Middle

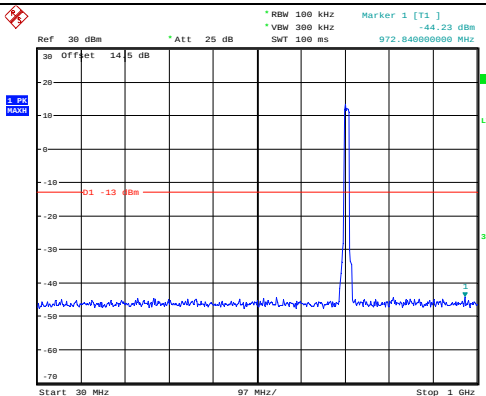


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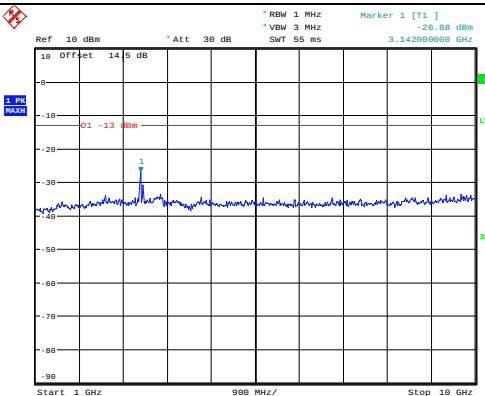


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:56:00

Highest

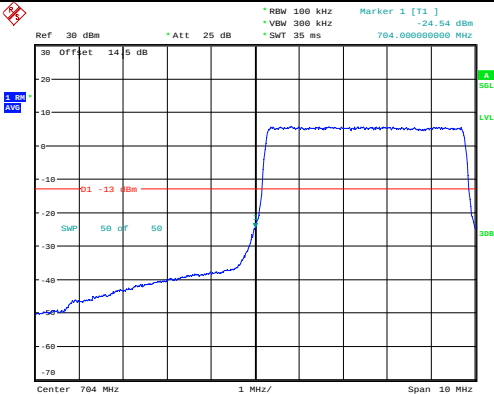
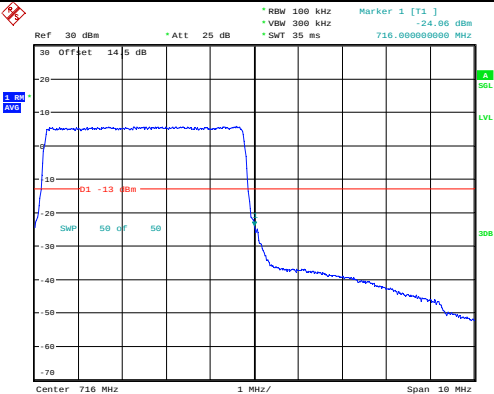
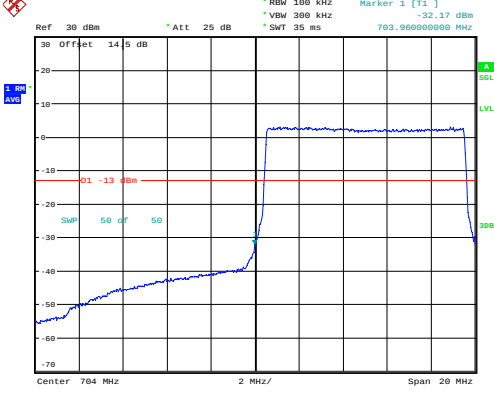
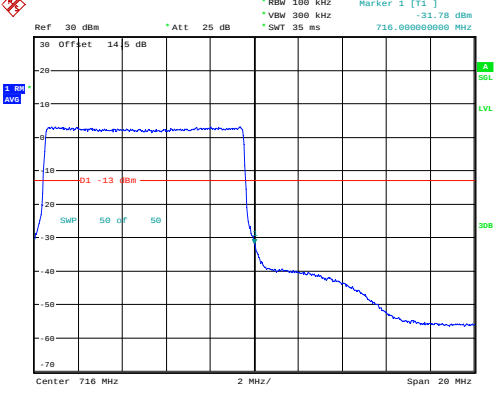


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:56:17

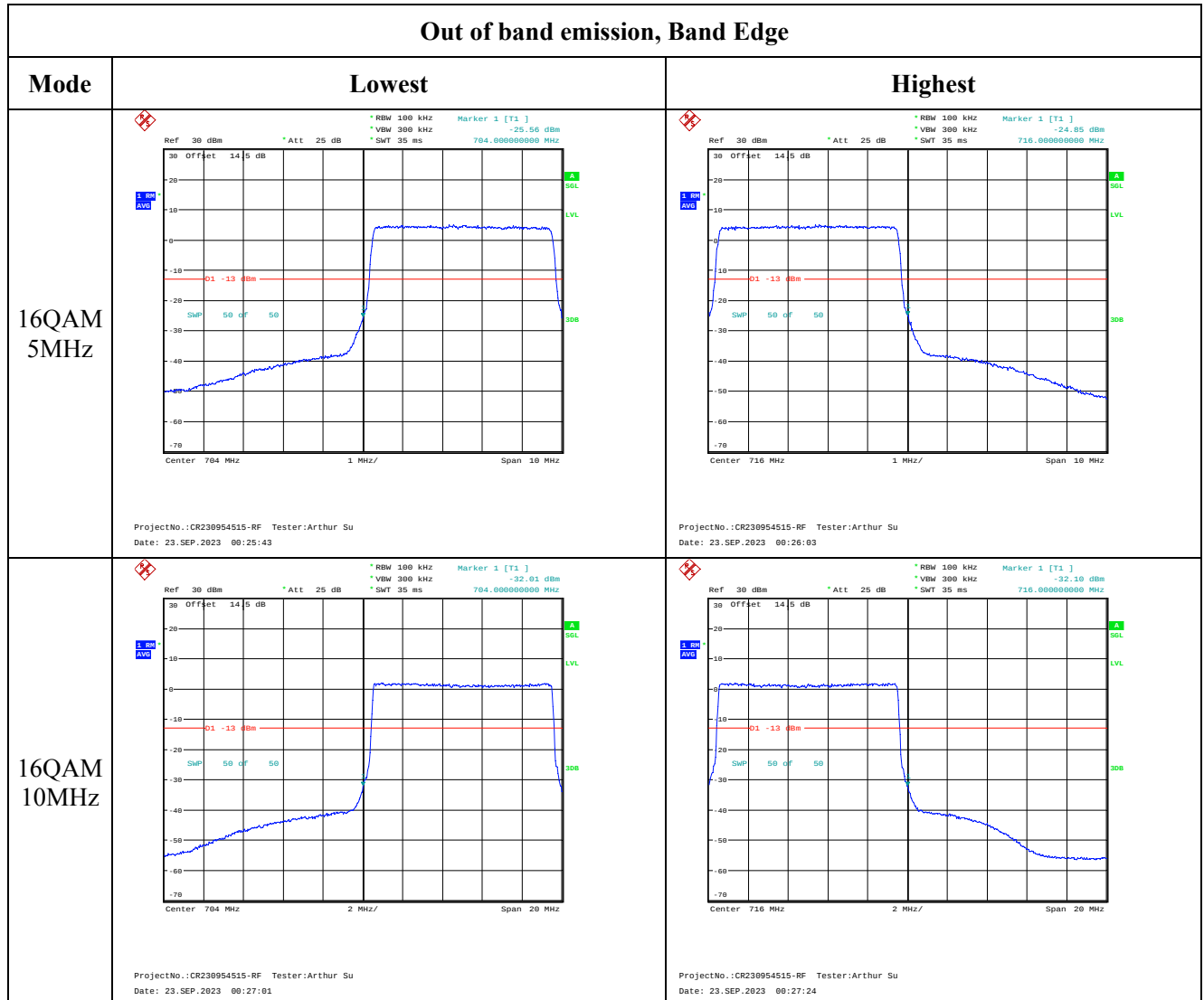


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:56:31

Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 5MHz	 Ref: 30 dBm, Offset: 14.5 dB, Att: 25 dB, RBW: 100 kHz, VBW: 300 kHz, SWT: 35 ms, Marker 1 [T1]: 704.000000000 MHz, -24.54 dBm ProjectNo.: CR230954515-RF Tester: Arthur Su Date: 23.SEP.2023 00:25:31	 Ref: 30 dBm, Offset: 14.5 dB, Att: 25 dB, RBW: 100 kHz, VBW: 300 kHz, SWT: 35 ms, Marker 1 [T1]: 716.000000000 MHz, -24.06 dBm ProjectNo.: CR230954515-RF Tester: Arthur Su Date: 23.SEP.2023 00:25:53
QPSK 10MHz	 Ref: 30 dBm, Offset: 14.5 dB, Att: 25 dB, RBW: 100 kHz, VBW: 300 kHz, SWT: 35 ms, Marker 1 [T1]: 703.960000000 MHz, -22.17 dBm ProjectNo.: CR230954515-RF Tester: Arthur Su Date: 23.SEP.2023 00:26:49	 Ref: 30 dBm, Offset: 14.5 dB, Att: 25 dB, RBW: 100 kHz, VBW: 300 kHz, SWT: 35 ms, Marker 1 [T1]: 716.000000000 MHz, -21.78 dBm ProjectNo.: CR230954515-RF Tester: Arthur Su Date: 23.SEP.2023 00:27:13

Out of band emission, Band Edge



4.10 Antenna Port Test Data and Results for LTE Band 66

Serial Number:	2BF3-1	Test Date:	2023/9/22-2023/9/23
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu/Arthur Su	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.6-25.5	Relative Humidity: (%)	46-54	ATM Pressure: (kPa)	100-100.2
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
Unknown	Coaxial tee connector	Unknown	2204005	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Frequency for Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	1710.7	1745	1779.3
3MHz	1711.5	1745	1778.5
5MHz	1712.5	1745	1777.5
10MHz	1715	1745	1775
15MHz	1717.5	1745	1772.5
20MHz	1720	1745	1770

Test Data:

RF Output Power:						
Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
1.4MHz QPSK	RB1#0	24.57	24.43	23.34	22.21	30
	RB1#3	24.72	24.69	23.16		
	RB1#5	24.59	24.43	22.79		
	RB3#0	24.54	24.46	23.09		
	RB3#3	24.54	24.46	22.86		
	RB6#0	23.64	23.51	22.95		
1.4MHz 16QAM	RB1#0	23.65	23.41	22.92	21.31	30
	RB1#3	23.82	23.63	22.89		
	RB1#5	23.69	23.45	22.57		
	RB3#0	23.51	23.53	22.87		
	RB3#3	23.56	23.53	22.79		
	RB6#0	22.62	22.41	21.98		
3MHz QPSK	RB1#0	24.66	24.54	24.27	22.15	30
	RB1#8	24.65	24.47	23.62		
	RB1#14	24.57	24.42	22.93		
	RB6#0	23.57	23.48	23.47		
	RB6#9	23.59	23.44	23.13		
	RB15#0	23.62	23.49	23.35		
3MHz 16QAM	RB1#0	23.64	24.03	23.45	21.52	30
	RB1#8	23.59	23.93	23.41		
	RB1#14	23.55	23.93	22.77		
	RB6#0	22.52	22.52	22.35		
	RB6#9	22.49	22.46	22.3		
	RB15#0	22.63	22.57	22.23		
5MHz QPSK	RB1#0	24.59	24.45	23.94	22.08	30
	RB1#13	24.41	24.51	23.43		
	RB1#24	23.83	24.16	22.43		
	RB15#0	23.75	23.63	23.09		
	RB15#10	23.61	23.5	22.88		
	RB25#0	23.62	23.51	22.94		
5MHz 16QAM	RB1#0	23.59	23.37	23.12	21.13	30
	RB1#13	23.64	23.42	23.14		
	RB1#24	23.58	23.26	22.53		
	RB15#0	22.72	22.62	22.05		
	RB15#10	22.61	22.51	21.79		
	RB25#0	22.65	22.57	21.89		
10MHz QPSK	RB1#0	24.7	24.59	24.51	22.19	30
	RB1#25	24.27	24.54	24.54		
	RB1#49	24.39	23.91	23.14		
	RB25#0	23.75	23.71	23.5		

	RB25#25	23.64	23.46	23.3		
	RB50#0	23.75	23.6	23.4		
10MHz 16QAM	RB1#0	23.59	24.11	23.48	21.64	30
	RB1#25	23.75	24.15	23.6		
	RB1#49	23.54	23.88	23.25		
	RB25#0	22.83	22.74	22.4		
	RB25#25	22.71	22.51	22.25		
	RB50#0	22.73	22.61	22.3		
	RB1#0	24.58	24.53	24.49		
15MHz QPSK	RB1#38	24.03	24.57	24.47	22.07	30
	RB1#74	24.54	23.55	23.08		
	RB36#0	23.87	23.75	23.57		
	RB36#39	23.83	23.54	23.41		
	RB75#0	23.85	23.68	23.45		
	RB1#0	23.85	24.04	23.4	21.53	30
15MHz 16QAM	RB1#38	23.91	24.04	23.45		
	RB1#74	23.79	23.7	23.16		
	RB36#0	22.79	22.7	22.41		
	RB36#39	22.75	22.51	22.37		
	RB75#0	22.74	22.61	22.37		
	RB1#0	24.38	24.37	23.93	22.11	30
20MHz QPSK	RB1#50	24.34	24.62	24.48		
	RB1#99	24.33	23.35	22.74		
	RB50#0	23.73	23.72	22.98		
	RB50#50	23.74	23.31	22.96		
	RB100#0	23.76	23.54	22.96		
	RB1#0	23.85	23.65	23	21.71	30
20MHz 16QAM	RB1#50	24.22	23.93	23.4		
	RB1#99	23.81	23.38	22.84		
	RB50#0	22.7	22.71	21.9		
	RB50#50	22.69	22.34	21.91		
	RB100#0	22.73	22.52	21.95		

Note: EIRP=Conducted Power(dBm) - Lc(dB) + Gr(dBi)

Result:**Pass****Peak-to-average Ratio(PAR)**

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
20MHz QPSK	RB1#0	9.13	9.23	9.42	13
	RB100#0	6.44	6.44	6.47	13
20MHz 16QAM	RB1#0	8.91	8.4	8.43	13
	RB100#0	7.08	7.05	7.15	13
				Result:	Pass

Occupied Bandwidth

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
1.4MHz QPSK	1.092	1.110	1.104	1.296	1.308	1.320
1.4MHz 16QAM	1.092	1.104	1.110	1.272	1.290	1.320
3MHz QPSK	2.688	2.688	2.688	2.892	2.868	2.868
3MHz 16QAM	2.688	2.688	2.688	2.880	2.892	2.880
5MHz QPSK	4.520	4.540	4.520	5.160	5.140	5.140
5MHz 16QAM	4.560	4.520	4.540	5.160	5.160	5.160
10MHz QPSK	8.960	8.960	8.960	9.800	10.000	9.760
10MHz 16QAM	8.960	8.960	8.960	9.960	9.800	9.760
15MHz QPSK	13.620	13.560	13.560	15.240	15.120	15.180
15MHz 16QAM	13.560	13.560	13.560	15.180	15.240	15.060
20MHz QPSK	18.000	18.000	17.920	19.680	19.520	19.680
20MHz 16QAM	18.000	18.000	17.920	19.760	19.440	19.520

Note: The test plots please refer to the Plots of Occupied Bandwidth

Spurious Emissions at Antenna Terminal

Result: Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.

Out of band emission, Band Edge

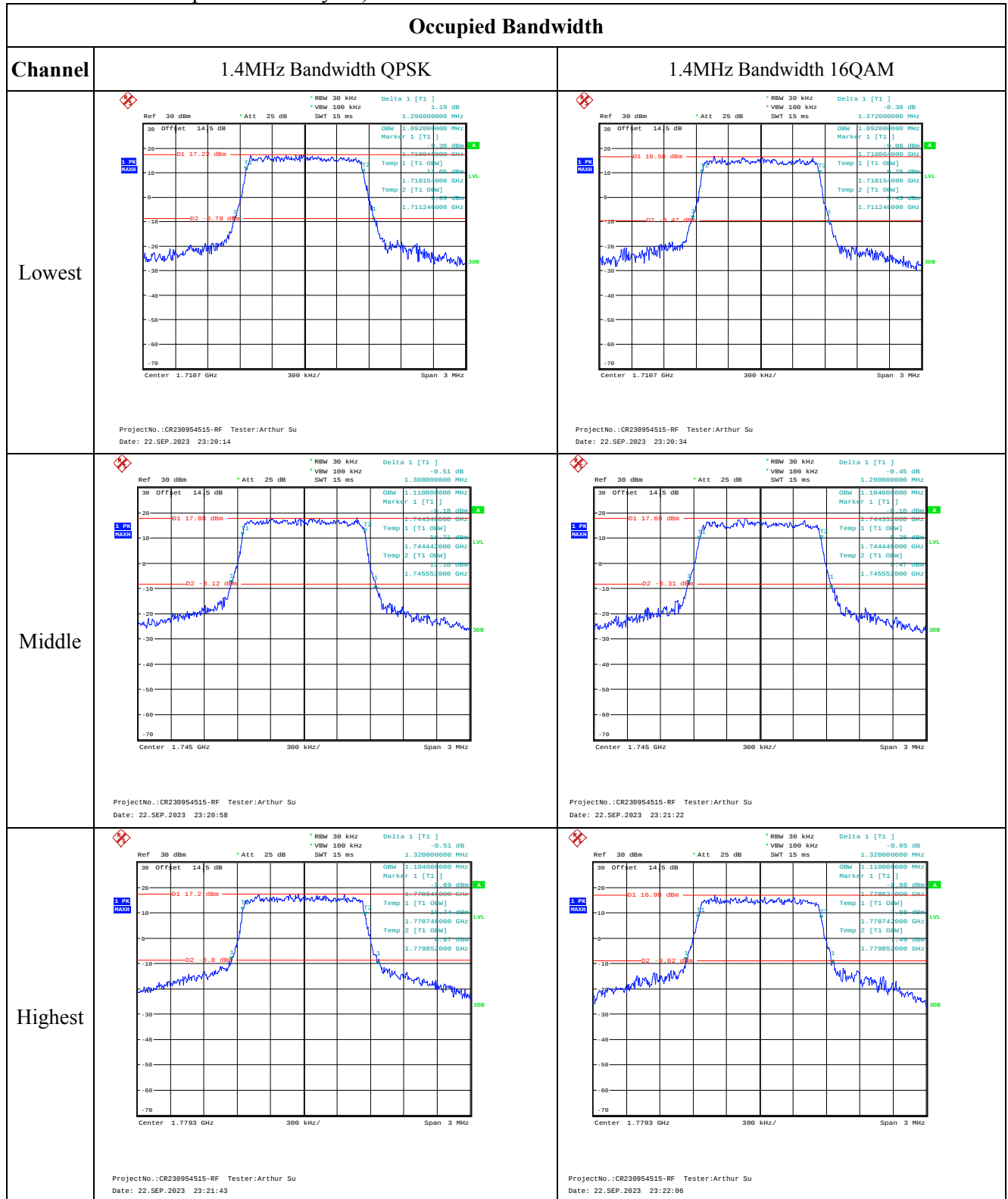
Result: Pass, Please refer to the test plots of Out of band emission, Band Edge.

Frequency Stability

Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1711.016	1710.00	1778.982	1780
	-20	3.85	1711.012	1710.00	1778.975	1780
	-10	3.85	1711.018	1710.00	1778.963	1780
	0	3.85	1711.037	1710.00	1778.963	1780
	10	3.85	1711.028	1710.00	1778.986	1780
	20	3.85	1711.040	1710.00	1778.960	1780
	30	3.85	1711.013	1710.00	1778.965	1780
	40	3.85	1711.029	1710.00	1778.969	1780
	50	3.85	1711.013	1710.00	1778.976	1780
Frequency Stability vs. Voltage	20	3.5	1711.015	1710.00	1778.970	1780
	20	4.45	1711.037	1710.00	1778.977	1780
Result:					Pass	

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1711.034	1710.00	1778.984	1780
	-20	3.85	1711.035	1710.00	1778.981	1780
	-10	3.85	1711.033	1710.00	1778.969	1780
	0	3.85	1711.036	1710.00	1778.986	1780
	10	3.85	1711.031	1710.00	1778.983	1780
	20	3.85	1711.040	1710.00	1778.960	1780
	30	3.85	1711.023	1710.00	1778.981	1780
	40	3.85	1711.015	1710.00	1778.975	1780
	50	3.85	1711.028	1710.00	1778.989	1780
Frequency Stability vs. Voltage	20	3.5	1711.018	1710.00	1778.982	1780
	20	4.45	1711.039	1710.00	1778.974	1780
					Result:	Pass

Test Plots (Note: The 14.5 dB is the Insertion loss of the RF cable and Power Splitter, which was offset into the Spectrum Analyzer):



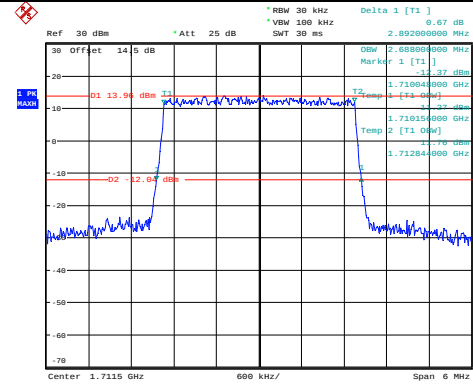
Occupied Bandwidth

Channel

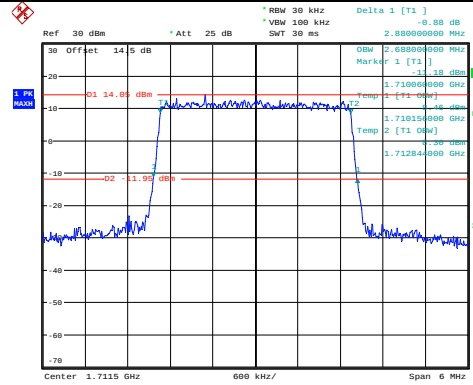
3MHz Bandwidth QPSK

3MHz Bandwidth 16QAM

Lowest

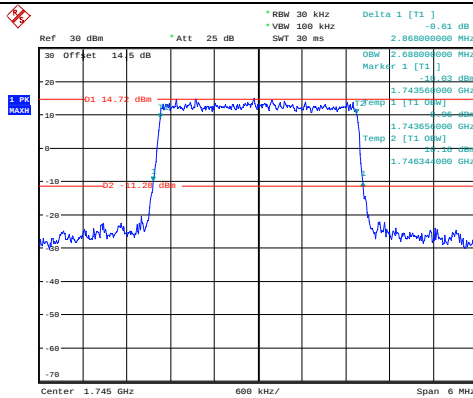


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:23:03

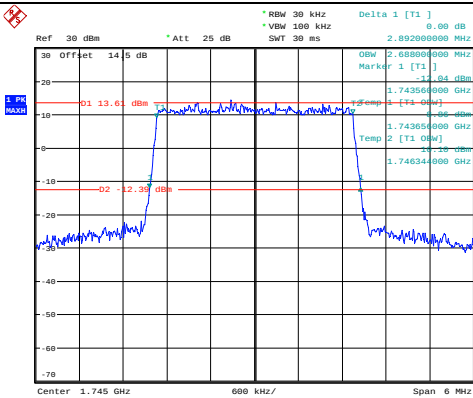


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:23:23

Middle

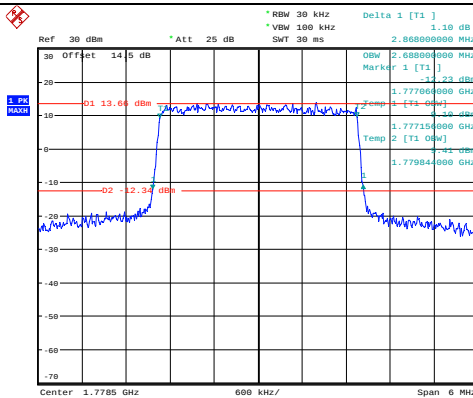


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Date: 22.SEP.2023 23:23:47

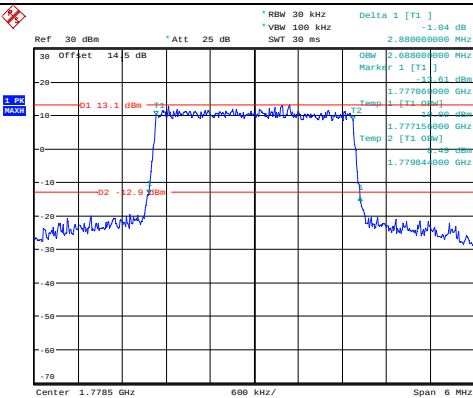


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:24:07

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:24:31



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:24:51

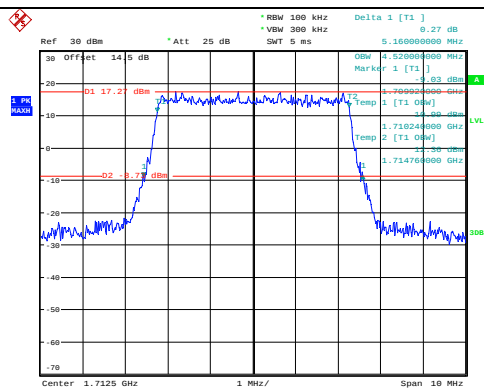
Occupied Bandwidth

Channel

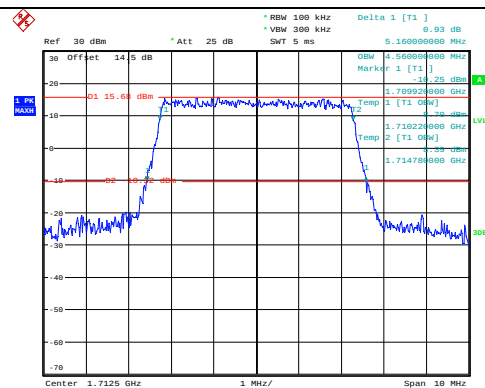
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

Lowest

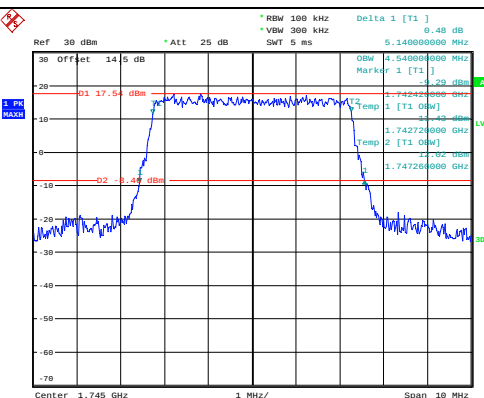


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:25:48

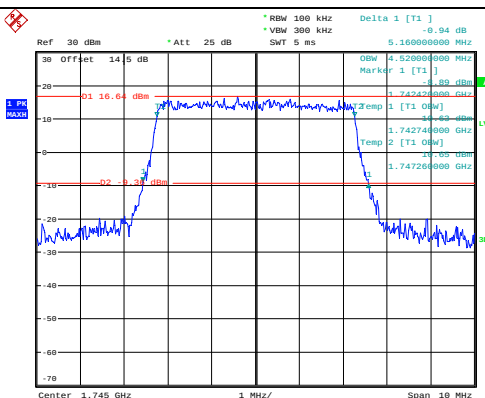


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:26:11

Middle

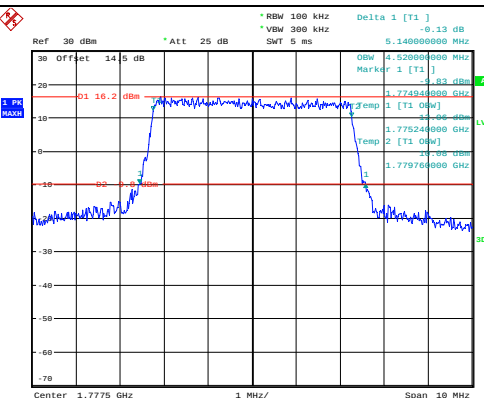


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:26:35

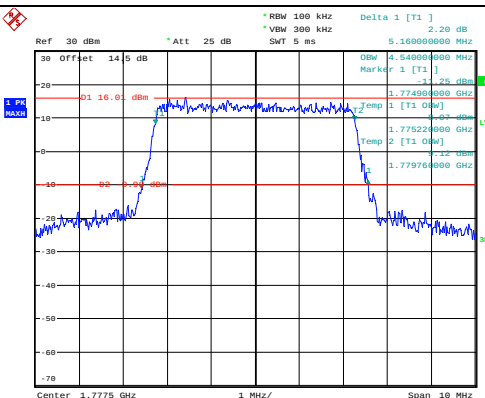


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:26:55

Highest

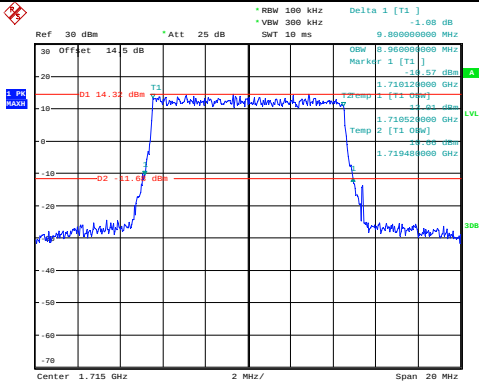
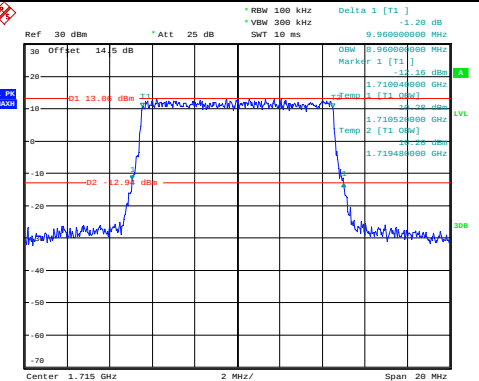
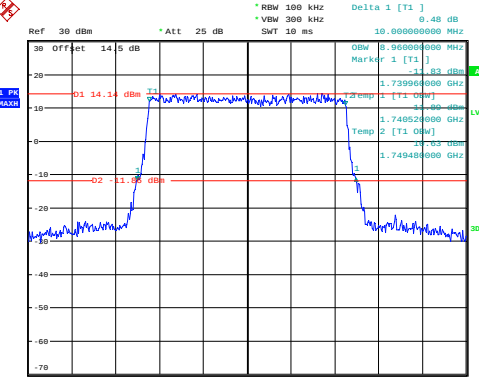
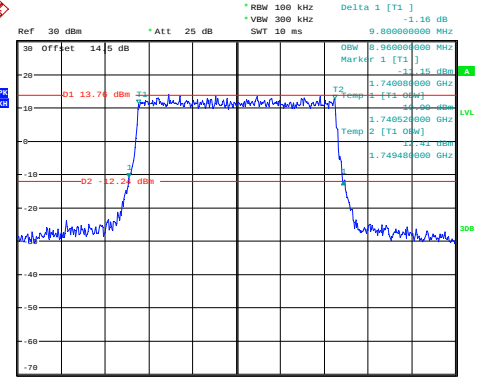
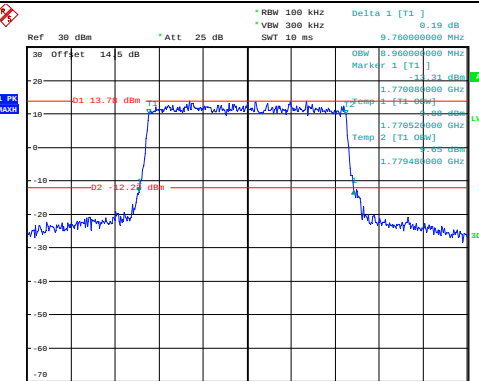
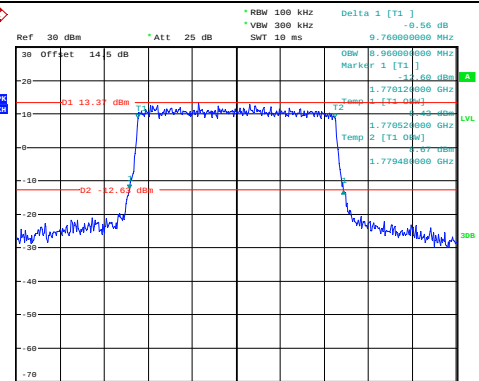


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:27:19



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:27:38

Occupied Bandwidth

Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:28:35	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:28:58
Middle	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:29:21	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:29:41
Highest	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:30:02	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 22.SEP.2023 23:30:21

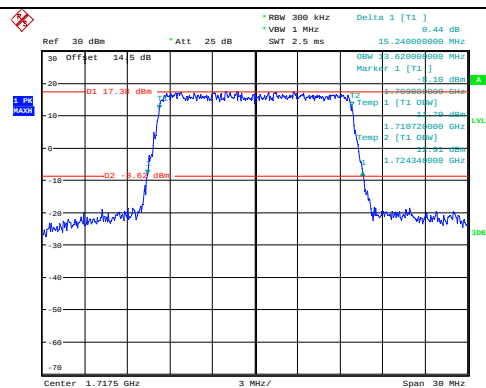
Occupied Bandwidth

Channel

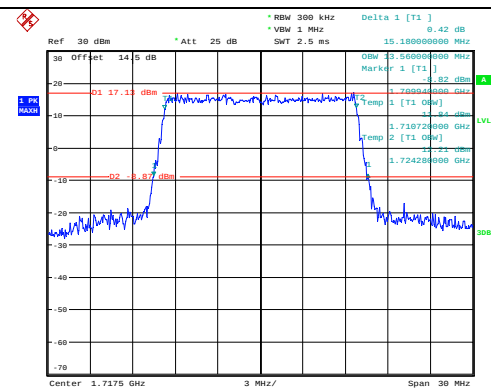
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

Lowest

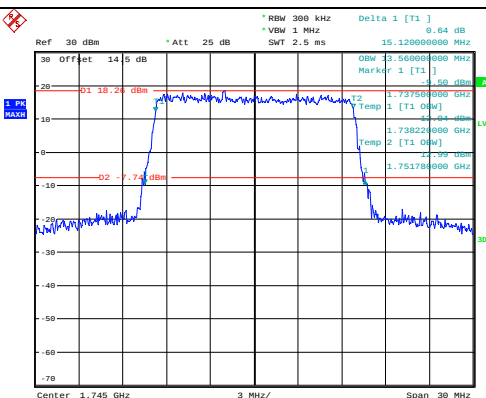


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:31:13

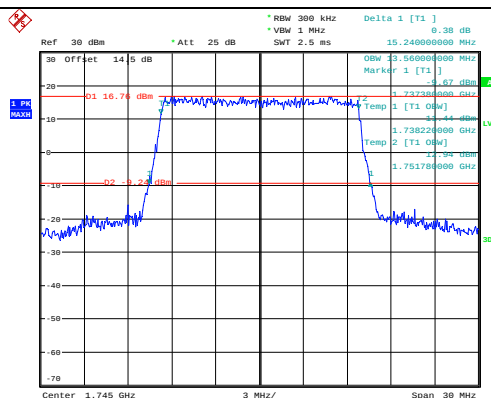


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:31:40

Middle

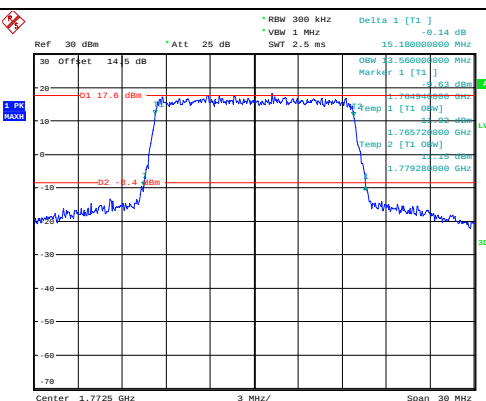


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:32:04

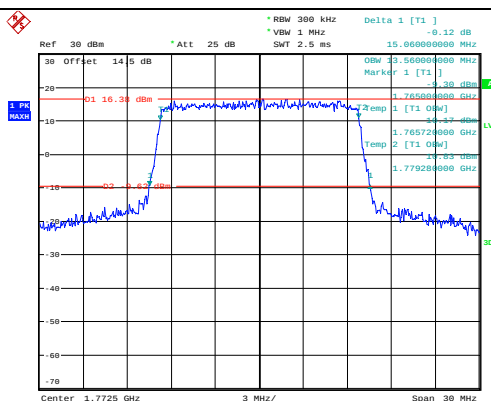


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:32:31

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:33:02



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:33:28

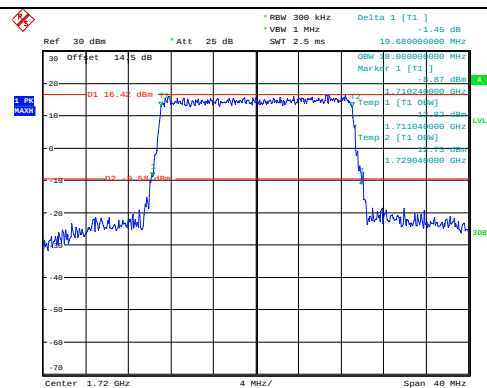
Occupied Bandwidth

Channel

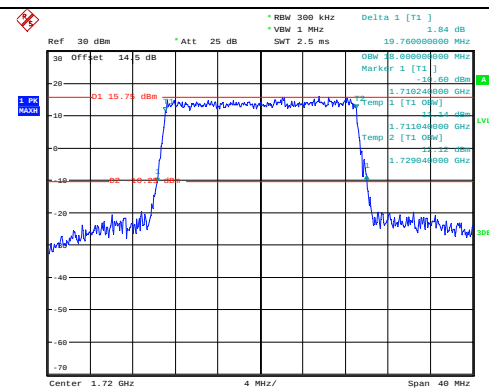
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

Lowest

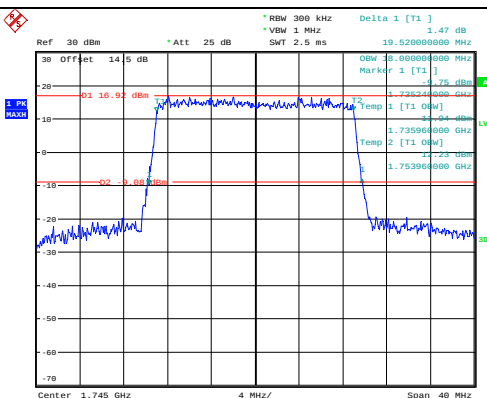


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:34:17

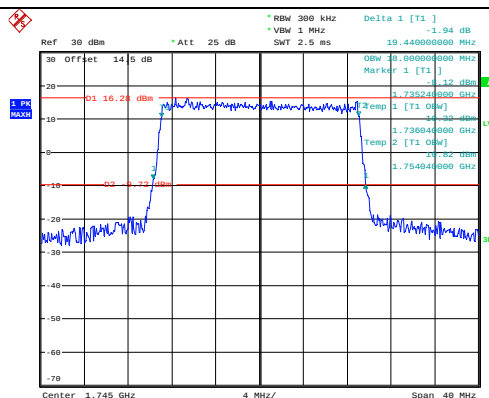


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:34:41

Middle

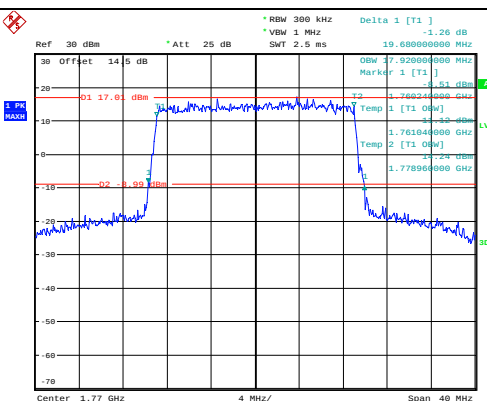


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:35:01

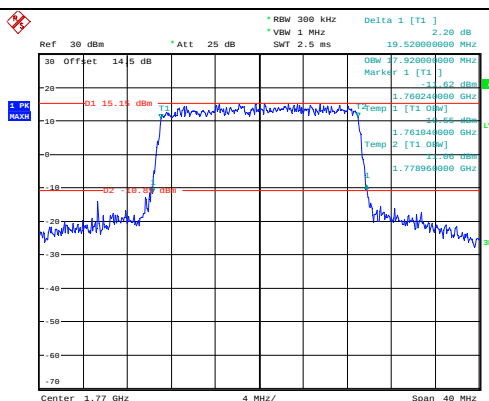


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:35:24

Highest



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:35:45



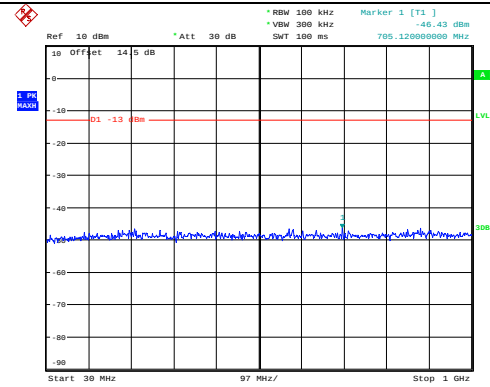
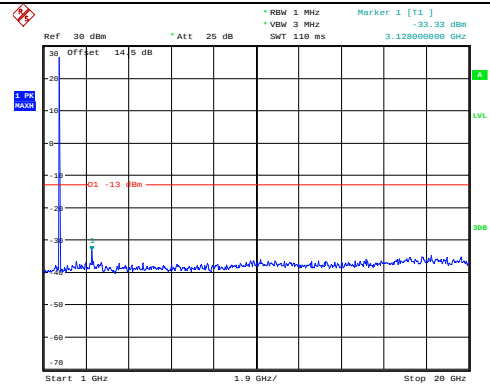
ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 22.SEP.2023 23:36:05

Spurious Emissions at Antenna Terminal

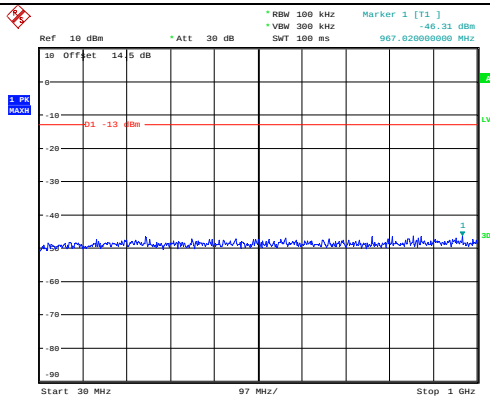
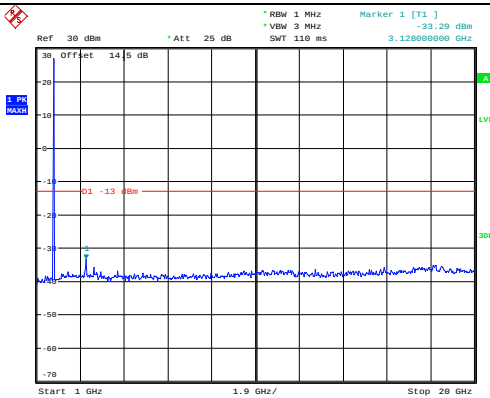
Channel

1.4MHz Bandwidth QPSK

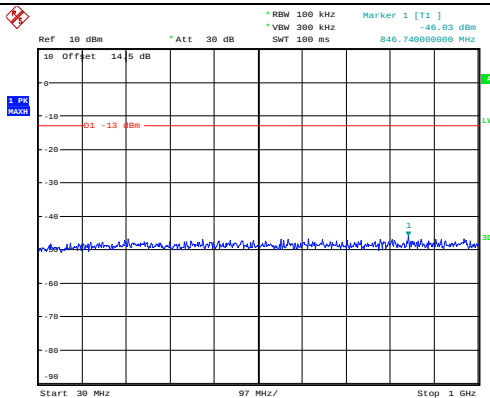
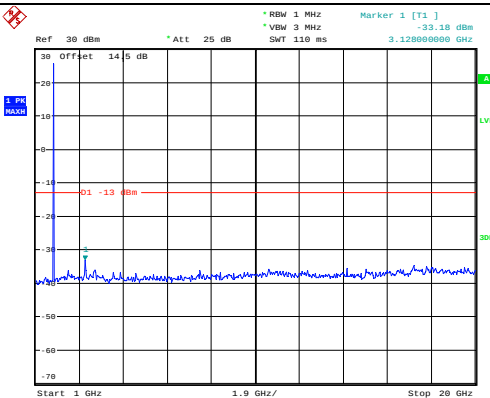
Lowest

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:56:48ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:56:58

Middle

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:57:11ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:57:21

Highest

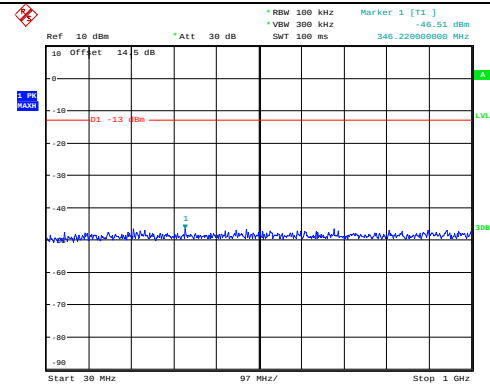
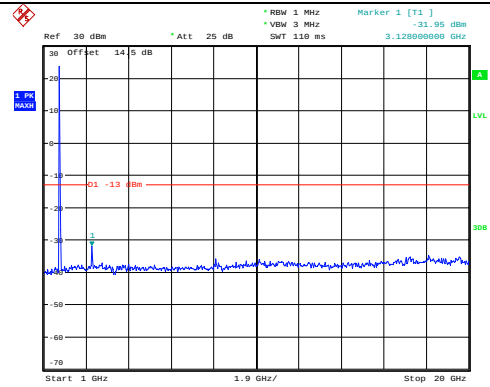
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Date: 23.SEP.2023 00:57:34ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:57:47

Spurious Emissions at Antenna Terminal

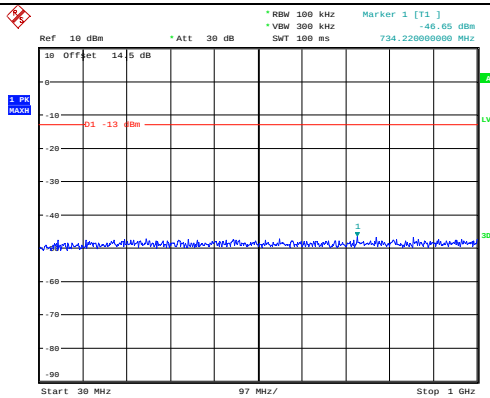
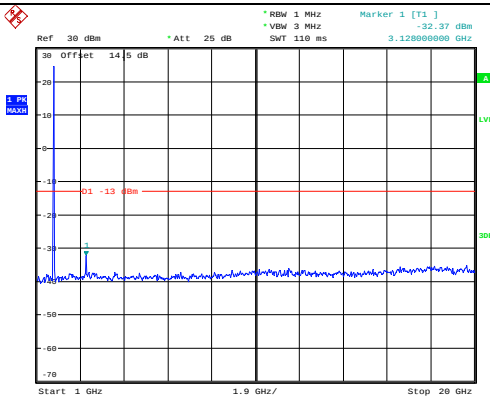
Channel

3MHz Bandwidth QPSK

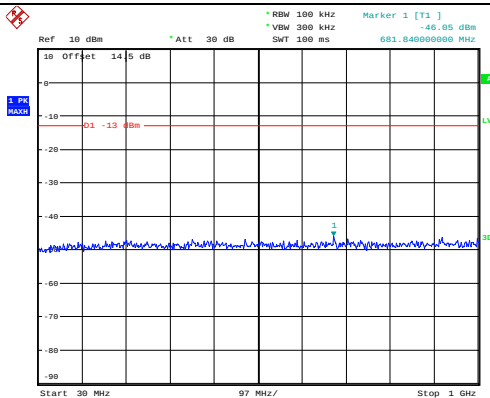
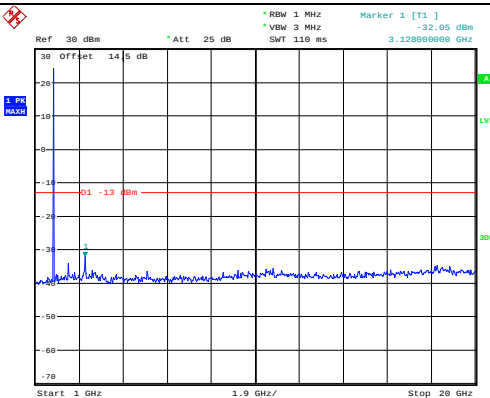
Lowest

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:58:33ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:58:44

Middle

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:58:56ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:59:07

Highest

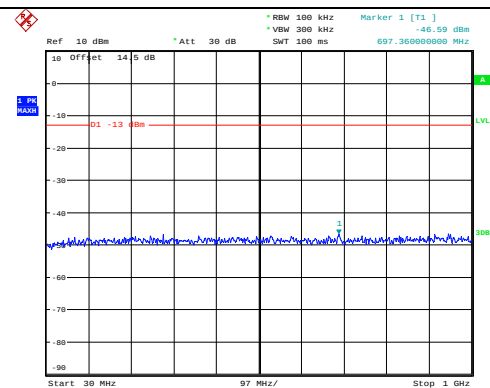
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Date: 23.SEP.2023 00:59:19ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 00:59:29

Spurious Emissions at Antenna Terminal

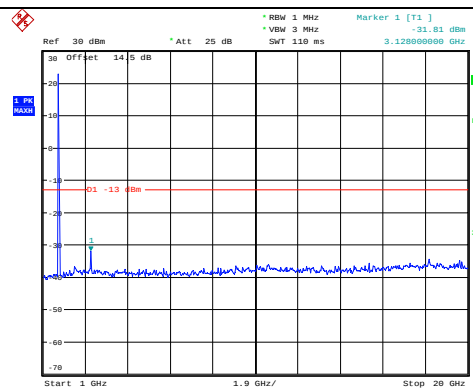
Channel

5MHz Bandwidth QPSK

Lowest

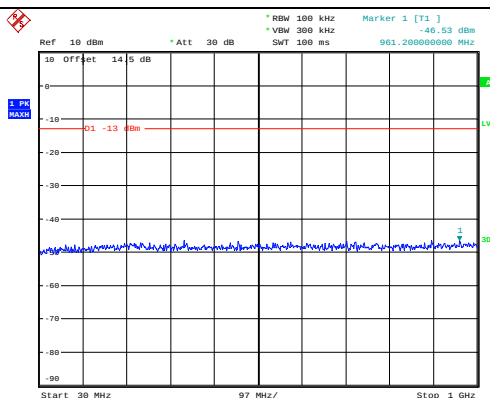


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 01:00:16

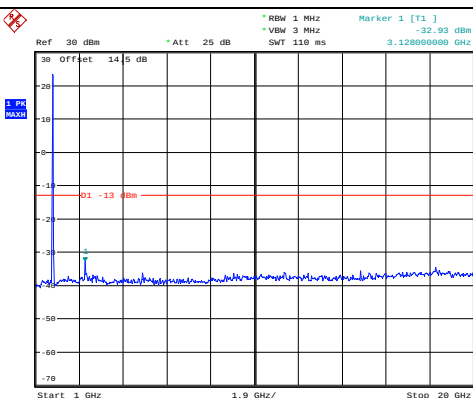


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 01:00:26

Middle

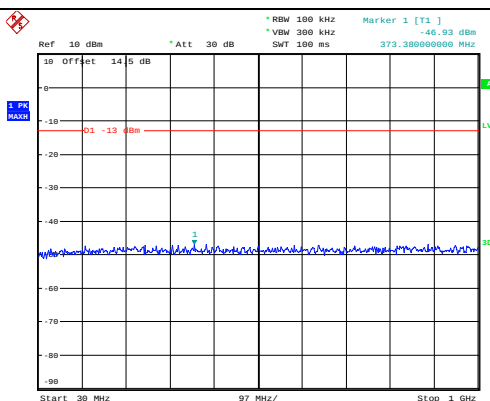


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 01:00:42

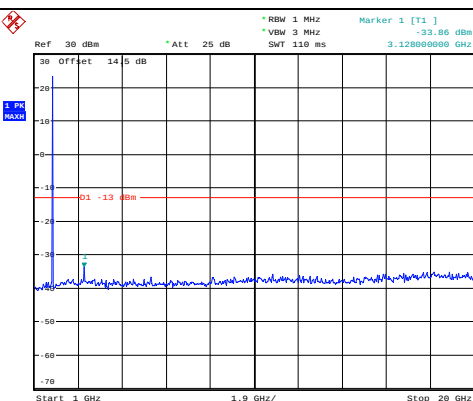


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 01:00:52

Highest

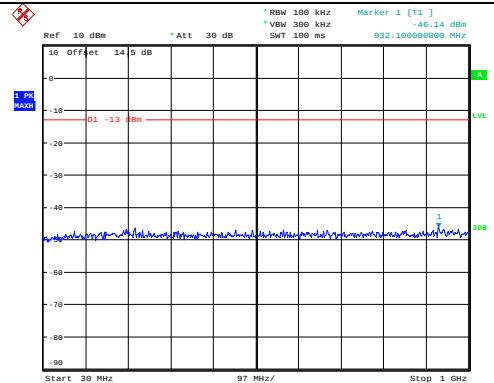
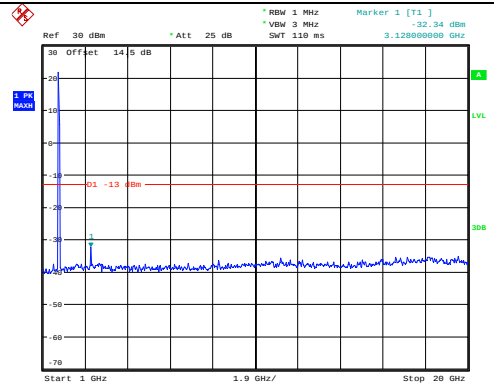
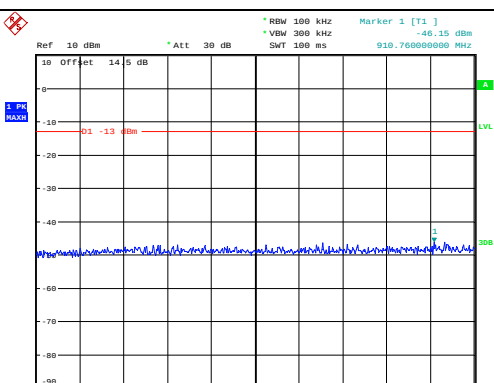
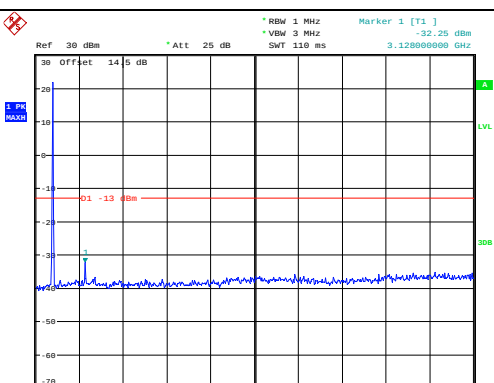
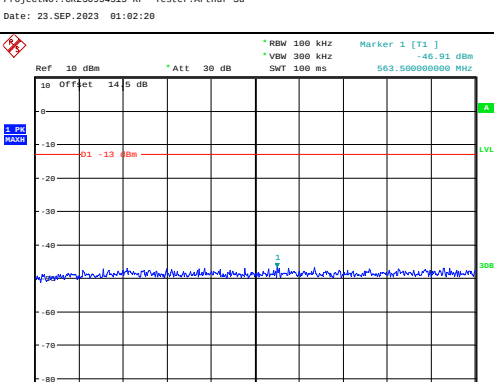
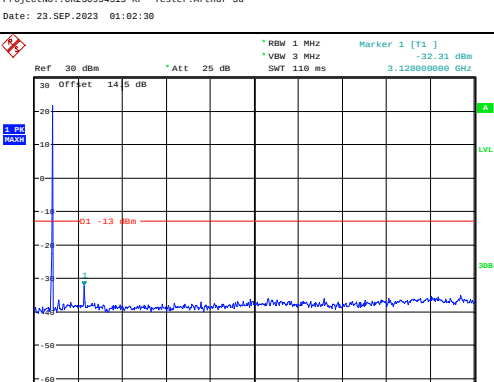


ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 01:01:05



ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 01:01:16

Spurious Emissions at Antenna Terminal

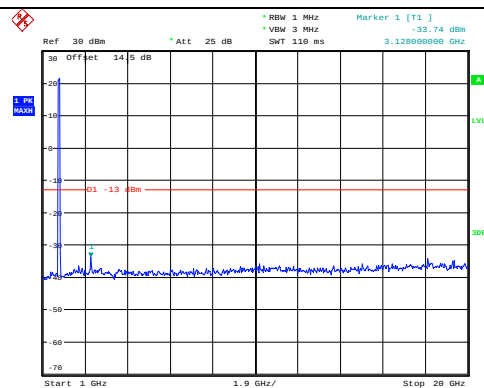
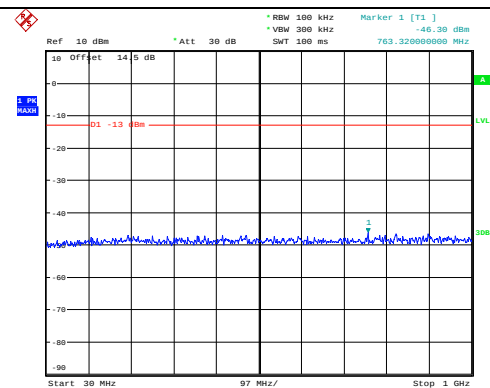
Channel	10MHz Bandwidth QPSK	
Lowest	 Ref 10 dBm *Att 30 dB *RBW 100 kHz Marker 1 [T1] -46.14 dBm *VBW 300 kHz 932.10000000 MHz SWT 100 ms Start 30 MHz 97 MHz/ Stop 1 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 01:01:57	 Ref 30 dBm *Att 25 dB *RBW 1 MHz Marker 1 [T1] -32.34 dBm *VBW 3 MHz 3.128000000 GHz SWT 110 ms Start 1 GHz 1.9 GHz/ Stop 20 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 01:02:07
	 Ref 10 dBm *Att 30 dB *RBW 100 kHz Marker 1 [T1] -40.15 dBm *VBW 300 kHz 939.76000000 MHz SWT 100 ms Start 30 MHz 97 MHz/ Stop 1 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 01:02:20	 Ref 30 dBm *Att 25 dB *RBW 1 MHz Marker 1 [T1] -32.35 dBm *VBW 3 MHz 3.128000000 GHz SWT 110 ms Start 1 GHz 1.9 GHz/ Stop 20 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 01:02:30
Highest	 Ref 10 dBm *Att 30 dB *RBW 100 kHz Marker 1 [T1] -40.91 dBm *VBW 300 kHz 563.50000000 MHz SWT 100 ms Start 30 MHz 97 MHz/ Stop 1 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 01:02:43	 Ref 30 dBm *Att 25 dB *RBW 1 MHz Marker 1 [T1] -32.31 dBm *VBW 3 MHz 3.128000000 GHz SWT 110 ms Start 1 GHz 1.9 GHz/ Stop 20 GHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 01:02:53

Spurious Emissions at Antenna Terminal

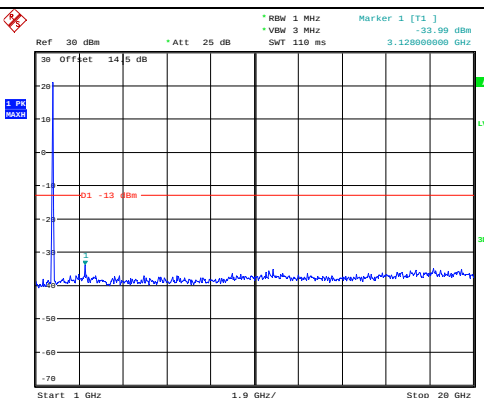
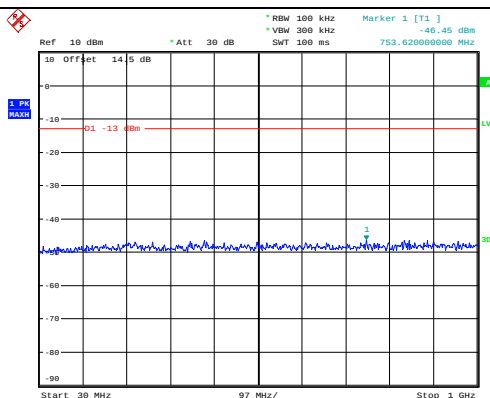
Channel

15MHz Bandwidth QPSK

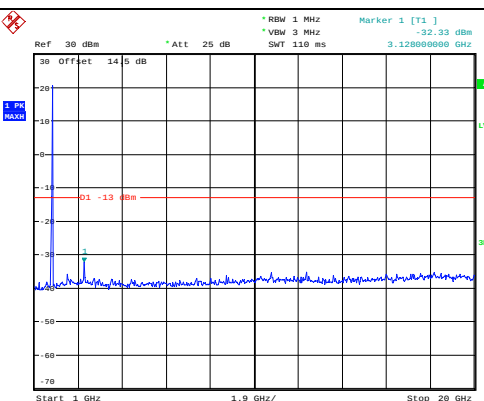
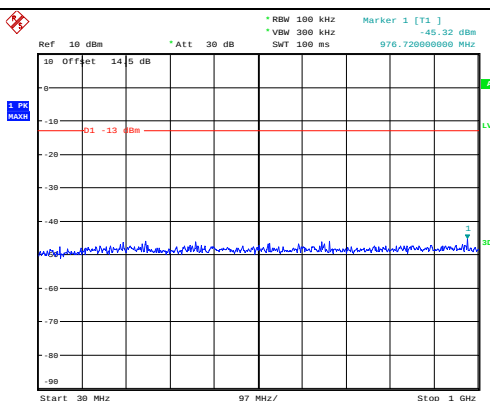
Lowest



Middle



Highest

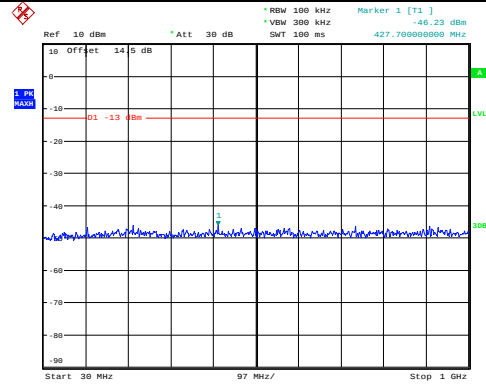
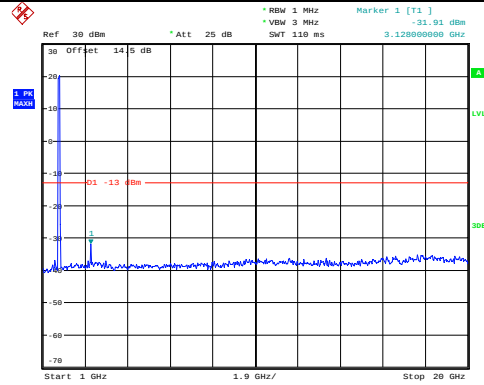


Spurious Emissions at Antenna Terminal

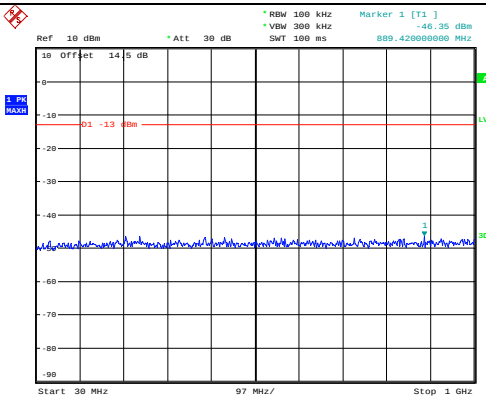
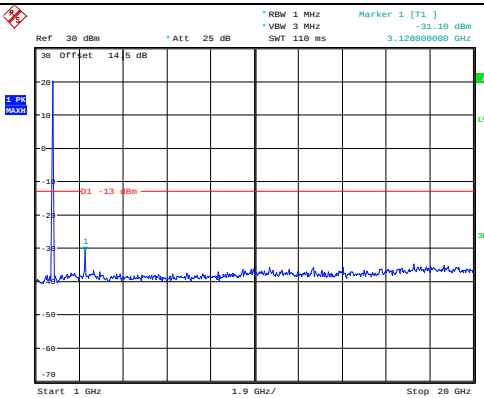
Channel

20MHz Bandwidth QPSK

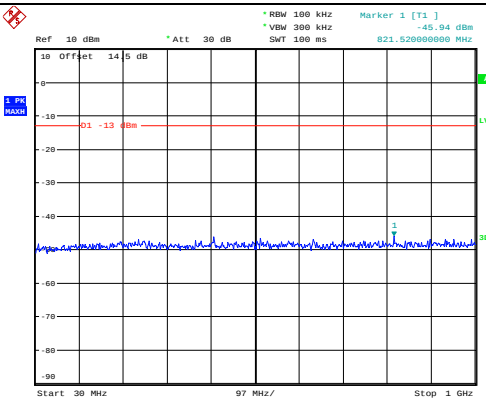
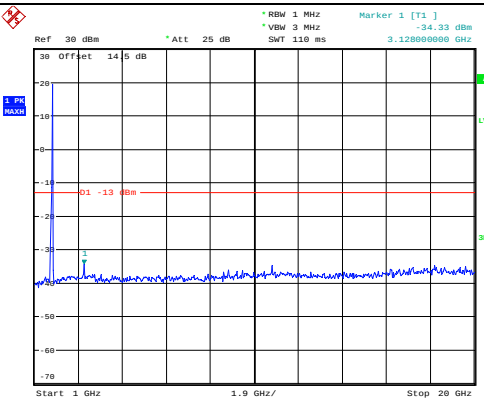
Lowest

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 01:05:29ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 01:05:39

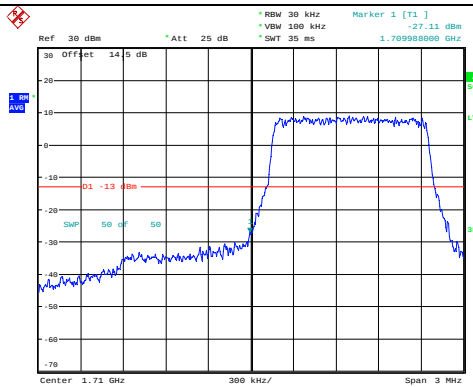
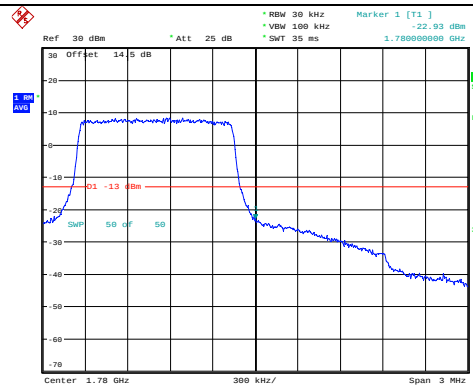
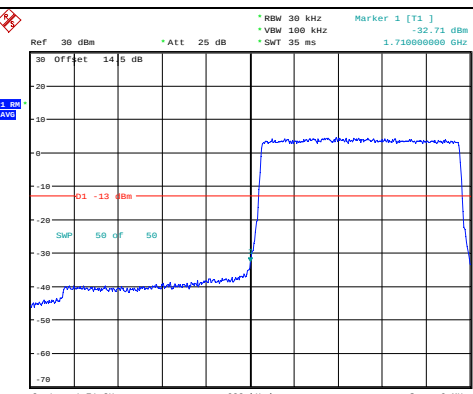
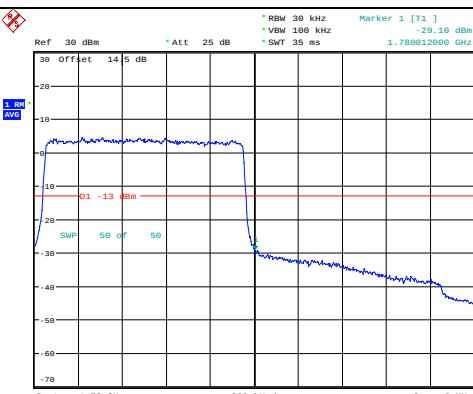
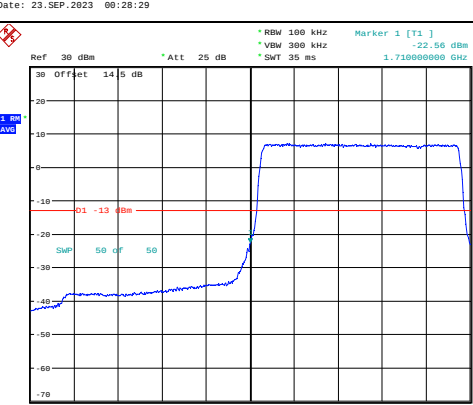
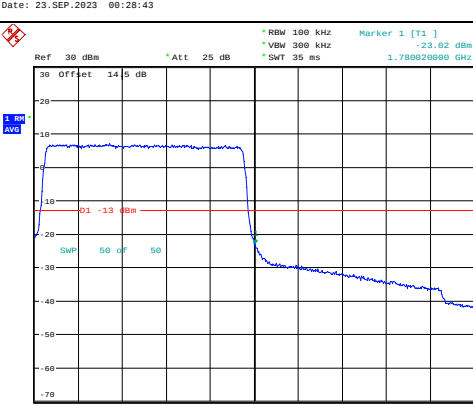
Middle

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 01:05:52ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 01:06:02

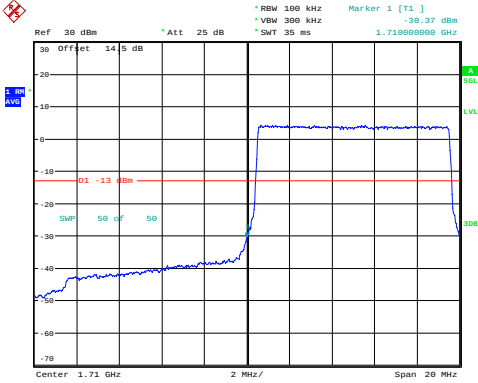
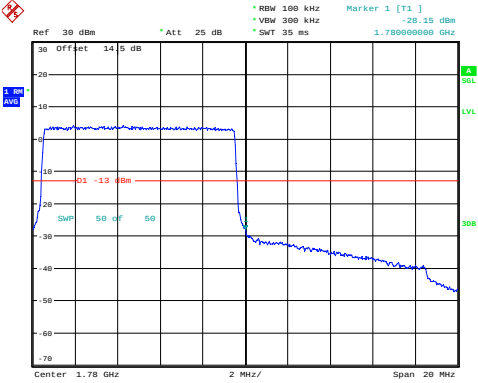
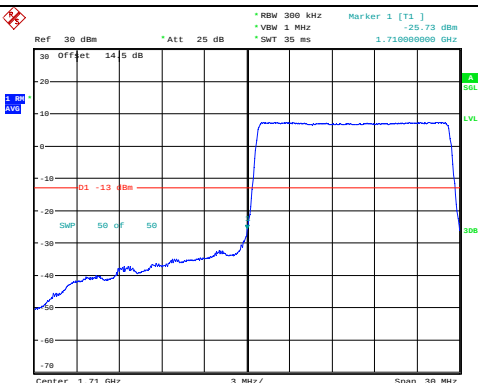
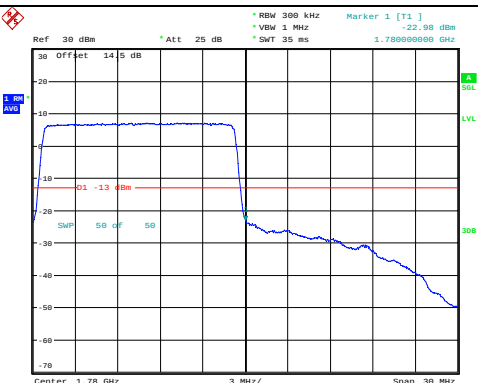
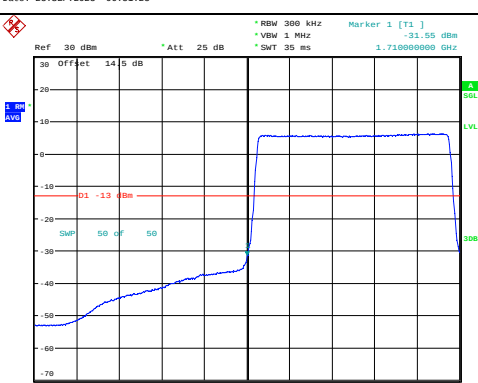
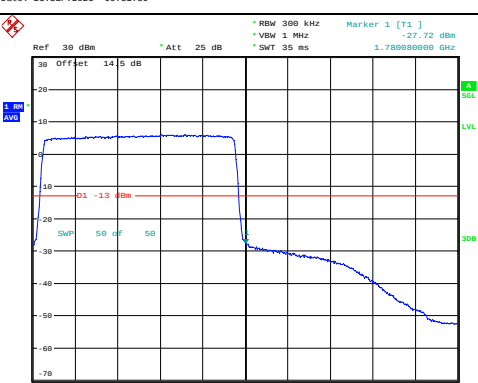
Highest

ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 01:06:15ProjectNo.:CR230954515-RF Tester:Arthur Su
Date: 23.SEP.2023 01:06:25

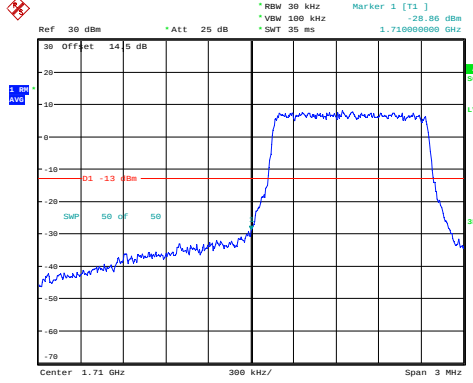
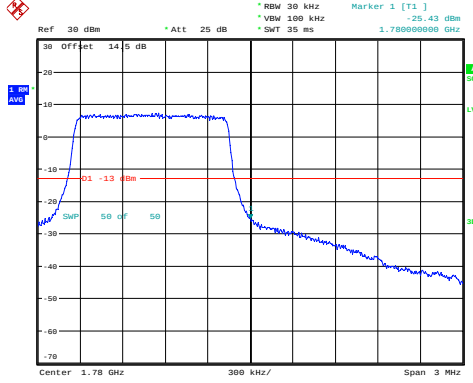
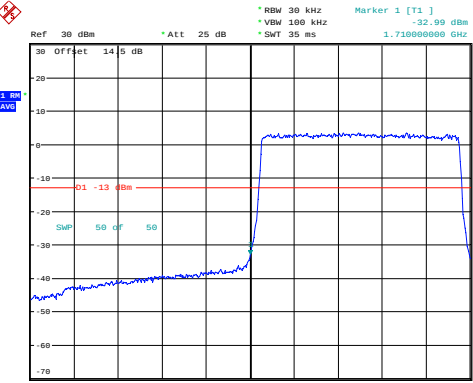
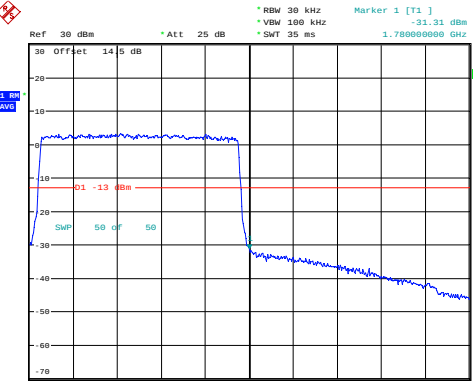
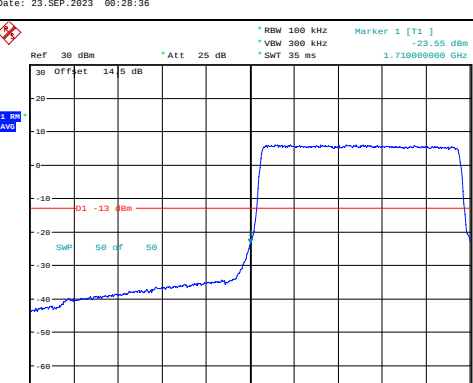
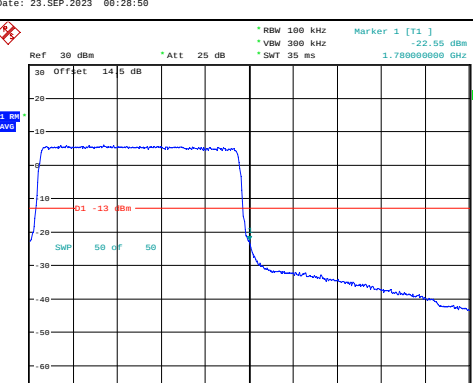
Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 1.4MHz	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:27:36	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:27:50
QPSK 3MHz	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:28:29	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:28:43
QPSK 5MHz	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:29:23	 ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:29:38

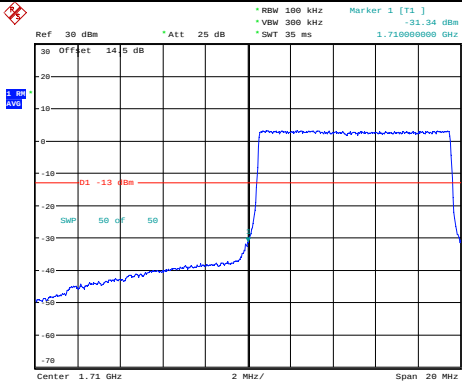
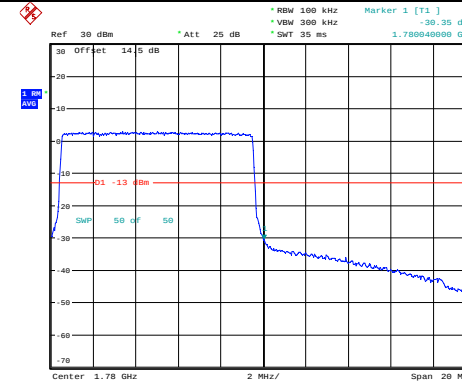
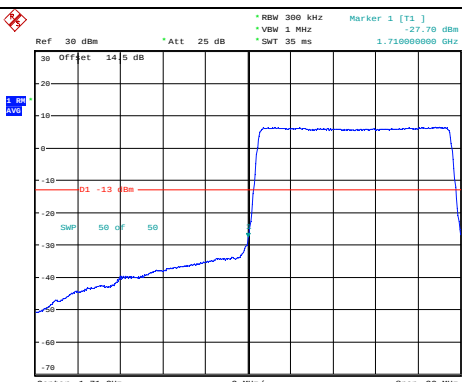
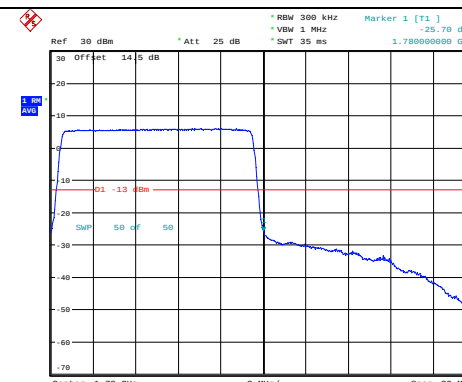
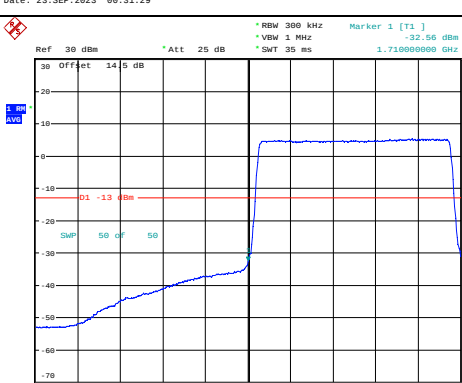
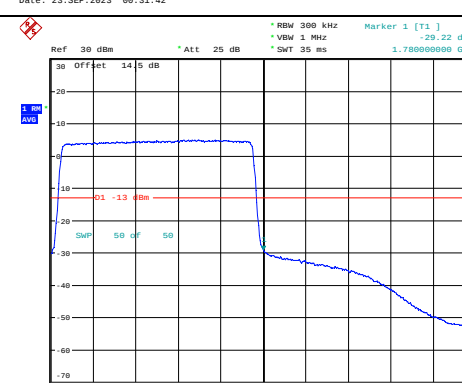
Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 10MHz	 Ref 30 dBm *Att 25 dB *RBW 100 kHz *VBW 300 kHz *SWT 35 ms Marker 1 [T1] -20.17 dBm Center 1.71 GHz 2 MHz/ Span 20 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:30:27	 Ref 30 dBm *Att 25 dB *RBW 100 kHz *VBW 300 kHz *SWT 35 ms Marker 1 [T1] -20.15 dBm Center 1.78 GHz 2 MHz/ Span 20 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:30:43
QPSK 15MHz	 Ref 30 dBm *Att 25 dB *RBW 300 kHz *VBW 1 MHz *SWT 35 ms Marker 1 [T1] -22.73 dBm Center 1.71 GHz 3 MHz/ Span 30 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:31:23	 Ref 30 dBm *Att 25 dB *RBW 300 kHz *VBW 1 MHz *SWT 35 ms Marker 1 [T1] -22.98 dBm Center 1.78 GHz 3 MHz/ Span 30 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:31:36
QPSK 20MHz	 Ref 30 dBm *Att 25 dB *RBW 300 kHz *VBW 1 MHz *SWT 35 ms Marker 1 [T1] -31.55 dBm Center 1.71 GHz 4 MHz/ Span 40 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:32:14	 Ref 30 dBm *Att 25 dB *RBW 300 kHz *VBW 1 MHz *SWT 35 ms Marker 1 [T1] -27.72 dBm Center 1.78 GHz 4 MHz/ Span 40 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:32:26

Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 1.4MHz	 Ref 30 dBm *Att 25 dB *RBW 30 kHz Marker 1 [T1] *VBW 100 kHz -29.86 dBm *SMT 35 ns 1.710000000 GHz 30 Offset 14.5 dB 20 10 0 -10 -20 -30 -40 -50 -60 -70 Center 1.71 GHz 300 kHz/ Span 3 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:27:43	 Ref 30 dBm *Att 25 dB *RBW 30 kHz Marker 1 [T1] *VBW 100 kHz -25.43 dBm *SMT 35 ns 1.780000000 GHz 30 Offset 14.5 dB 20 10 0 -10 -20 -30 -40 -50 -60 -70 Center 1.78 GHz 300 kHz/ Span 3 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:27:57
16QAM 3MHz	 Ref 30 dBm *Att 25 dB *RBW 30 kHz Marker 1 [T1] *VBW 100 kHz -22.99 dBm *SMT 35 ns 1.710000000 GHz 30 Offset 14.5 dB 20 10 0 -10 -20 -30 -40 -50 -60 -70 Center 1.71 GHz 600 kHz/ Span 6 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:28:36	 Ref 30 dBm *Att 25 dB *RBW 30 kHz Marker 1 [T1] *VBW 100 kHz -31.31 dBm *SMT 35 ns 1.780000000 GHz 30 Offset 14.5 dB 20 10 0 -10 -20 -30 -40 -50 -60 -70 Center 1.78 GHz 600 kHz/ Span 6 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:28:50
16QAM 5MHz	 Ref 30 dBm *Att 25 dB *RBW 100 kHz Marker 1 [T1] *VBW 300 kHz -23.55 dBm *SMT 35 ns 1.710000000 GHz 30 Offset 14.5 dB 20 10 0 -10 -20 -30 -40 -50 -60 -70 Center 1.71 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:29:30	 Ref 30 dBm *Att 25 dB *RBW 100 kHz Marker 1 [T1] *VBW 300 kHz -22.55 dBm *SMT 35 ns 1.780000000 GHz 30 Offset 14.5 dB 20 10 0 -10 -20 -30 -40 -50 -60 -70 Center 1.78 GHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:29:45

Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 10MHz	 Ref 30 dBm *Att 25 dB *RBW 100 kHz *VBW 300 kHz *SWT 35 ms Marker 1 [T1] -21.34 dBm 1.710000000 GHz Center 1.71 GHz 2 MHz/ Span 20 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:30:34	 Ref 30 dBm *Att 25 dB *RBW 100 kHz *VBW 300 kHz *SWT 35 ms Marker 1 [T1] -29.25 dBm 1.780000000 GHz Center 1.78 GHz 2 MHz/ Span 20 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:30:51
16QAM 15MH	 Ref 30 dBm *Att 25 dB *RBW 300 kHz *VBW 1 MHz *SWT 35 ms Marker 1 [T1] -27.70 dBm 1.710000000 GHz Center 1.71 GHz 3 MHz/ Span 30 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:31:29	 Ref 30 dBm *Att 25 dB *RBW 300 kHz *VBW 1 MHz *SWT 35 ms Marker 1 [T1] -29.25 dBm 1.780000000 GHz Center 1.78 GHz 3 MHz/ Span 30 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:31:42
16QAM 20MH	 Ref 30 dBm *Att 25 dB *RBW 300 kHz *VBW 1 MHz *SWT 35 ms Marker 1 [T1] -32.56 dBm 1.710000000 GHz Center 1.71 GHz 4 MHz/ Span 40 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:32:20	 Ref 30 dBm *Att 25 dB *RBW 300 kHz *VBW 1 MHz *SWT 35 ms Marker 1 [T1] -29.22 dBm 1.780000000 GHz Center 1.78 GHz 4 MHz/ Span 40 MHz ProjectNo.:CR230954515-RF Tester:Arthur Su Date: 23.SEP.2023 00:32:33

4.11 Antenna Port Test Data and Results for LTE Band 71

Serial Number:	2BF3-1	Test Date:	2023/9/22-2023/9/23
Test Site:	RF	Test Mode:	Transmitting
Tester:	Claire Liu/Arthur Su	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24.6-25.5	Relative Humidity: (%)	46-54	ATM Pressure: (kPa)	100-100.2
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200256	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
YINSAIGE	Coaxial Cable	SS402	SJ0100002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	143458	2023/3/31	2024/3/30
Unknown	Coaxial tee connector	Unknown	2204005	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30174	2023/3/31	2024/3/30
UNI-T	Multimeter	UT39A+	C210582554	2022/9/29	2023/9/28
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	N/A	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Frequency for Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
5MHz	665.5	680.5	695.5
10MHz	668	680.5	693
15MHz	670.5	680.5	690.5
20MHz	673	680.5	688

Test Data:

RF Output Power						
Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
5MHz QPSK	RB1#0	25.89	25.86	25.8	22.84	34.77
	RB1#13	26.05	25.93	25.91		
	RB1#24	25.88	25.76	25.79		
	RB15#0	24.98	24.91	24.98		
	RB15#10	25.12	25	24.98		
	RB25#0	25.05	24.94	24.95		
5MHz 16QAM	RB1#0	24.92	24.72	24.7	21.84	34.77
	RB1#13	25.05	24.84	24.78		
	RB1#24	24.95	24.65	24.69		
	RB15#0	24.02	23.94	24.02		
	RB15#10	24.18	24.02	23.97		
	RB25#0	24.07	24	24		
10MHz QPSK	RB1#0	26	25.92	25.82	22.89	34.77
	RB1#25	26.1	26.01	26.01		
	RB1#49	25.95	25.84	25.87		
	RB25#0	24.88	24.96	25.17		
	RB25#25	25.03	25.11	24.9		
	RB50#0	24.96	25.05	25.07		
10MHz 16QAM	RB1#0	24.97	25.5	25.34	22.38	34.77
	RB1#25	25.1	25.59	25.51		
	RB1#49	24.96	25.38	25.39		
	RB25#0	24.01	24.03	24.24		
	RB25#25	24.13	24.16	23.95		
	RB50#0	24	24.1	24.1		
15MHz QPSK	RB1#0	25.96	25.88	25.79	22.79	34.77
	RB1#38	26	25.97	25.87		
	RB1#74	25.87	25.77	25.81		
	RB36#0	24.9	25.09	24.93		
	RB36#39	24.92	25.09	24.86		
	RB75#0	24.88	25.09	24.91		
15MHz 16QAM	RB1#0	25.28	24.99	25.33	22.17	34.77
	RB1#38	25.3	25.06	25.38		
	RB1#74	25.24	24.88	25.34		
	RB36#0	23.85	24.1	23.96		
	RB36#39	23.9	24.1	23.91		
	RB75#0	23.82	24.11	23.93		
20MHz QPSK	RB1#0	25.75	25.73	25.64	22.85	34.77
	RB1#50	26.06	26.06	25.93		
	RB1#99	25.67	25.63	25.64		
	RB50#0	24.75	25.16	24.63		
	RB50#50	24.85	25.02	24.52		

	RB100#0	24.75	25.11	24.6		
20MHz 16QAM	RB1#0	25.27	24.96	25.16	22.37	34.77
	RB1#50	25.58	25.37	25.47		
	RB1#99	25.23	24.91	25.19		
	RB50#0	23.74	24.22	23.62		
	RB50#50	23.89	24.05	23.53		
	RB100#0	23.8	24.15	23.63		

Note:

ERP= Conducted Power(dBm) - Lc(dB) + Gr(dBd)

Gr(dBd)=Gr(dBi)-2.15

Note: ERP=Conducted Power(dBm) - Cable loss(dB) + Antenna Gain(dBd)

Result:**Pass****Peak-to-average Ratio(PAR)**

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
20MHz QPSK	RB1#0	8.65	10.42	10.67	13
	RB100#0	6.35	6.47	6.35	13
20MHz 16QAM	RB1#0	9.62	9.74	9.94	13
	RB100#0	7.18	7.18	6.96	13
				Result:	Pass

Occupied Bandwidth

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
5MHz QPSK	4.520	4.520	4.540	5.100	5.160	5.180
5MHz 16QAM	4.540	4.560	4.540	5.220	5.260	5.200
10MHz QPSK	8.960	8.960	9.000	9.800	9.880	9.960
10MHz 16QAM	8.960	8.960	9.000	9.800	9.960	9.840
15MHz QPSK	13.560	13.620	13.620	15.120	16.020	15.480
15MHz 16QAM	13.500	13.620	13.620	15.120	15.180	15.060
20MHz QPSK	17.920	18.080	18.000	19.920	20.000	19.840
20MHz 16QAM	18.000	18.000	18.000	19.600	19.920	19.680

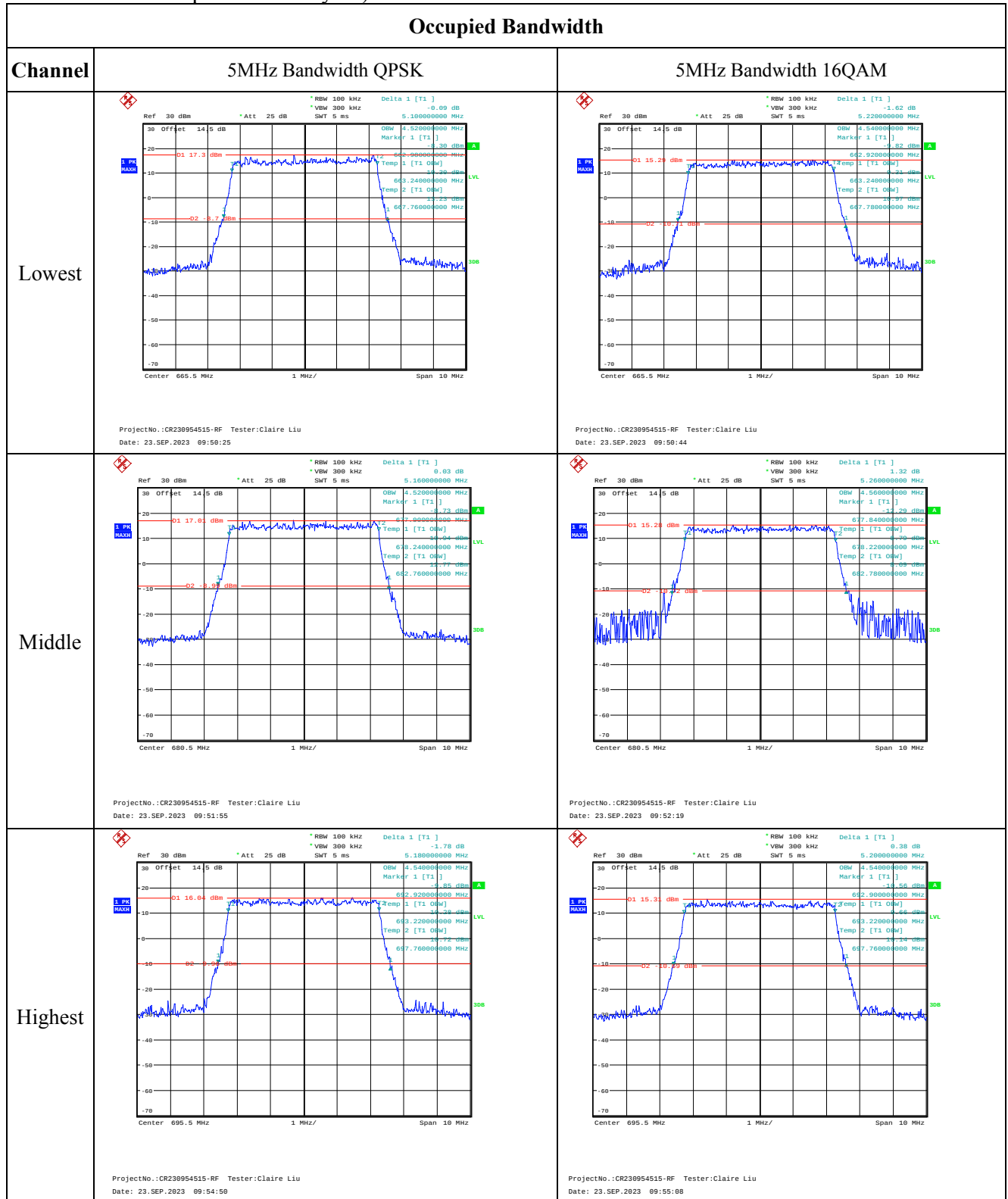
Note: The test plots please refer to the Plots of Occupied Bandwidth

Spurious Emissions at Antenna Terminal**Result:****Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.****Out of band emission, Band Edge****Result:****Pass, Please refer to the test plots of Out of band emission, Band Edge.**

Frequency Stability						
Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	664.018	663.00	696.973	698.00
	-20	3.85	664.031	663.00	696.983	698.00
	-10	3.85	664.018	663.00	696.962	698.00
	0	3.85	664.015	663.00	696.971	698.00
	10	3.85	664.017	663.00	696.966	698.00
	20	3.85	664.040	663.00	696.960	698.00
	30	3.85	664.013	663.00	696.983	698.00
	40	3.85	664.022	663.00	696.980	698.00
	50	3.85	664.018	663.00	696.964	698.00
Frequency Stability vs. Voltage	20	3.5	664.027	663.00	696.974	698.00
	20	4.45	664.038	663.00	696.966	698.00
					Result:	Pass

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	664.038	663.00	697.042	698.00
	-20	3.85	664.027	663.00	697.063	698.00
	-10	3.85	664.021	663.00	697.044	698.00
	0	3.85	664.027	663.00	697.047	698.00
	10	3.85	664.038	663.00	697.042	698.00
	20	3.85	664.040	663.00	697.040	698.00
	30	3.85	664.031	663.00	697.068	698.00
	40	3.85	664.016	663.00	697.053	698.00
	50	3.85	664.038	663.00	697.064	698.00
Frequency Stability vs. Voltage	20	3.5	664.019	663.00	697.043	698.00
	20	4.45	664.030	663.00	697.045	698.00
					Result:	Pass

Test Plots (Note: The 14.5 dB is the Insertion loss of the RF cable and Power Splitter, which was offset into the Spectrum Analyzer):



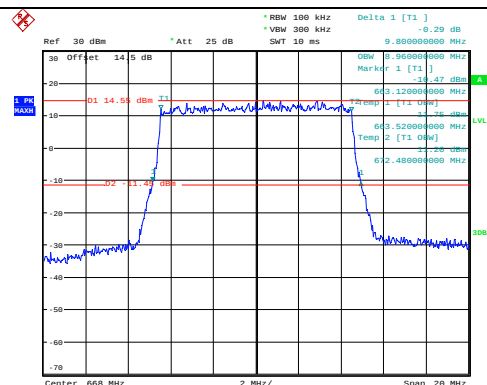
Occupied Bandwidth

Channel

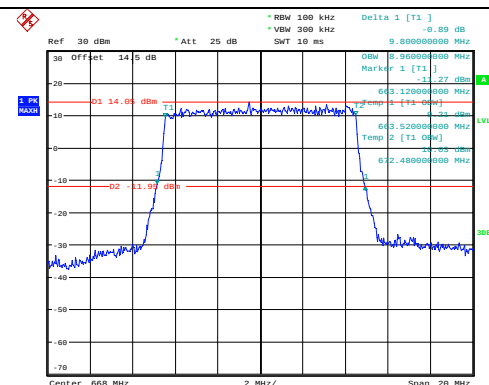
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

Lowest

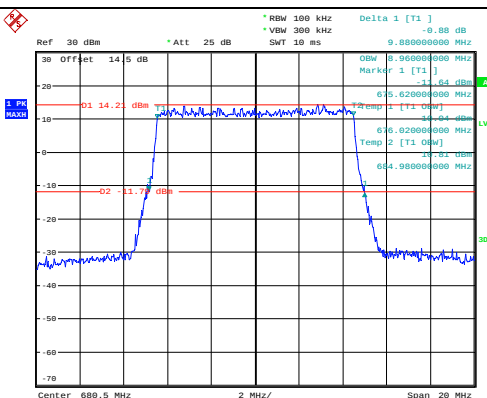


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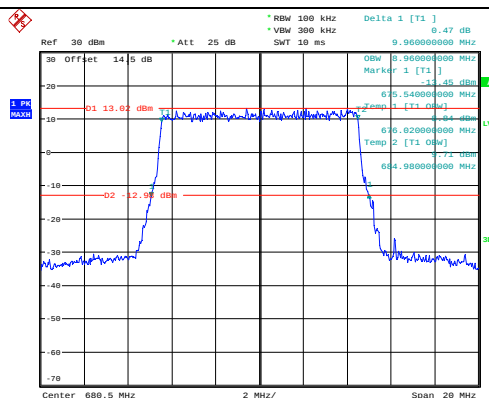


ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 09:57:55

Middle

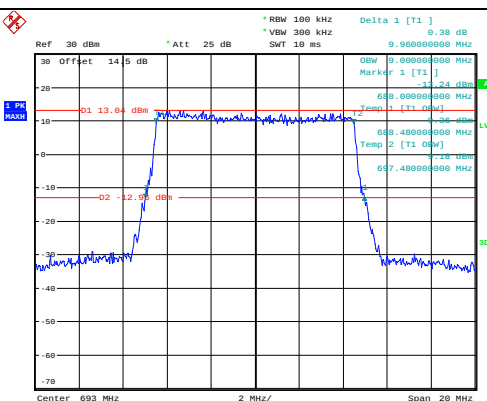


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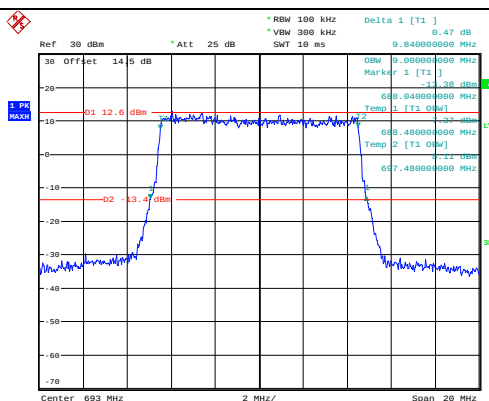


ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 09:58:58

Highest



ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 10:13:35



ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 10:13:53

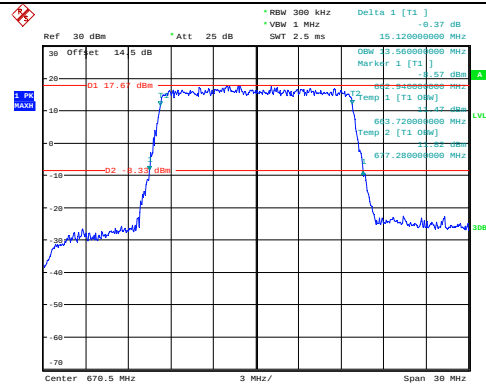
Occupied Bandwidth

Channel

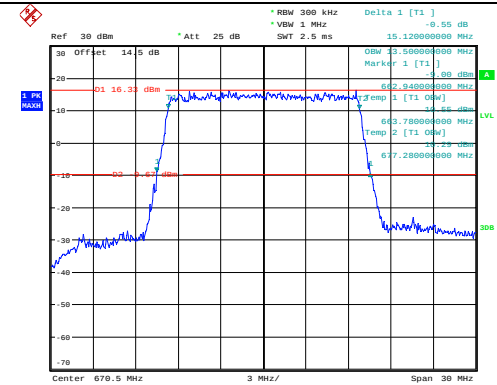
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

Lowest

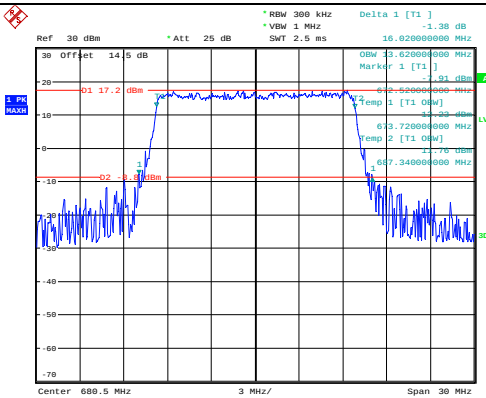


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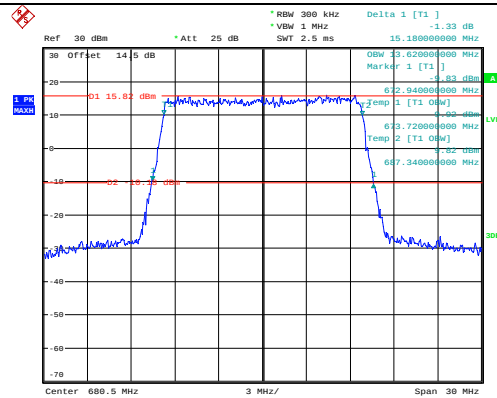


ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 10:16:33

Middle

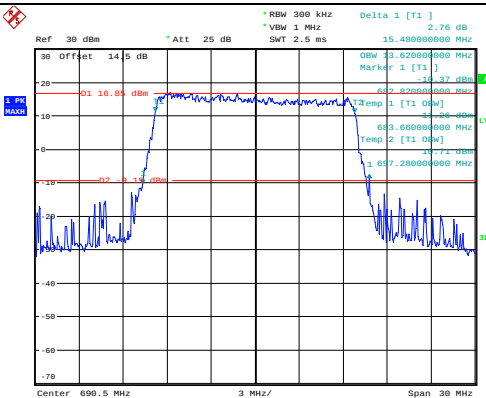


ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 10:18:23

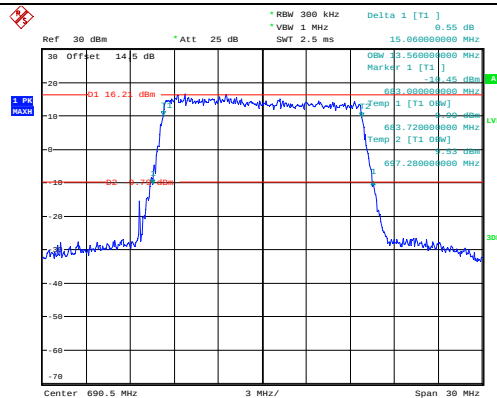


ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 10:18:41

Highest



ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 10:19:28



ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 10:19:46

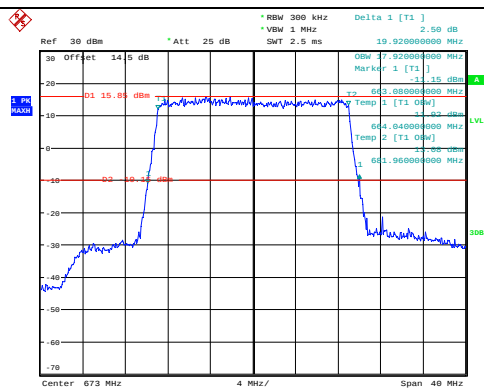
Occupied Bandwidth

Channel

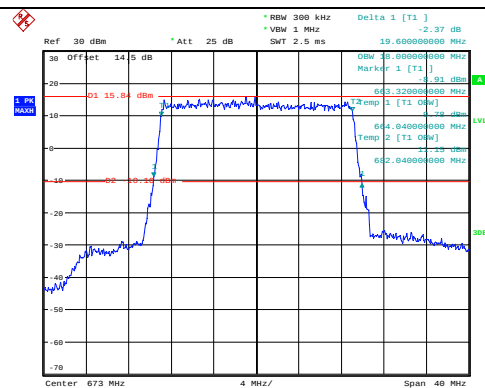
20MHz Bandwidth QPSK

20MHz Bandwidth 16QAM

Lowest

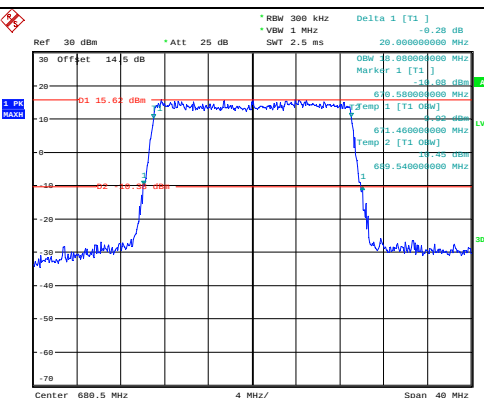


ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 10:20:43

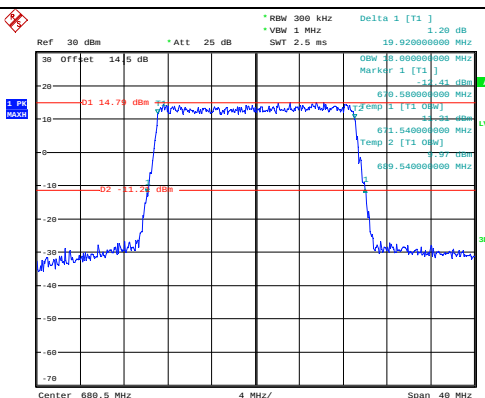


ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 10:21:01

Middle

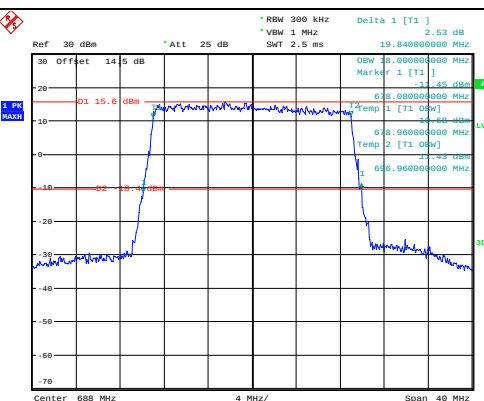


ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 10:21:57

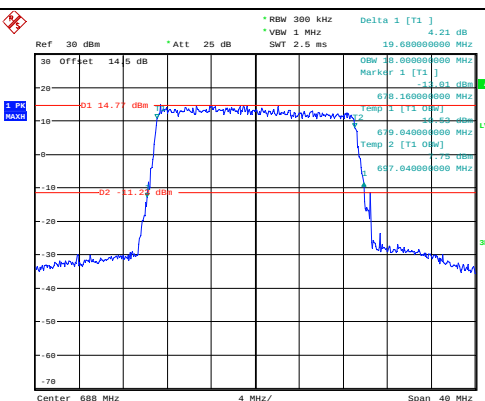


ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 10:22:16

Highest



ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 10:23:20



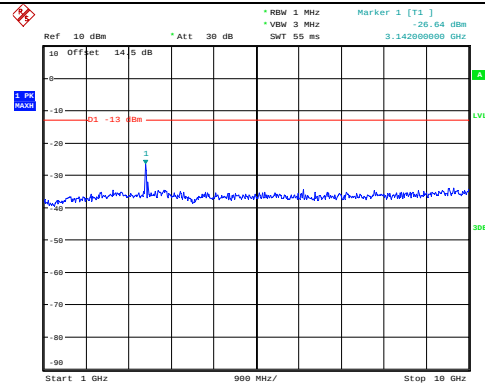
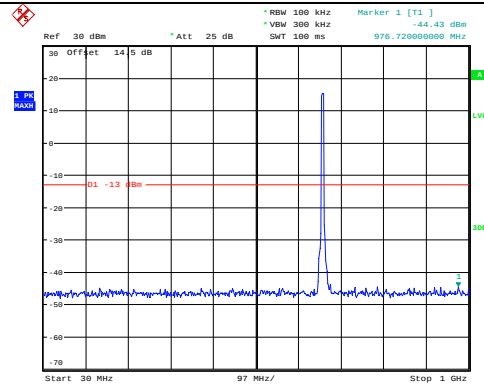
ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 10:23:38

Spurious Emissions at Antenna Terminal

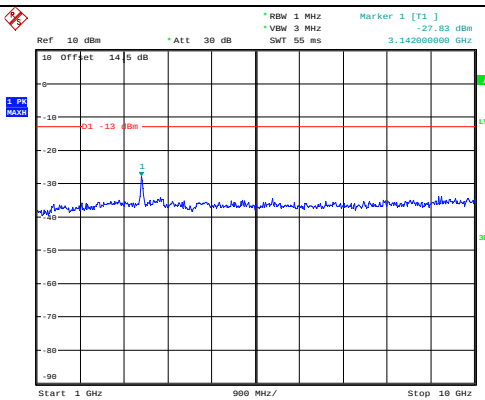
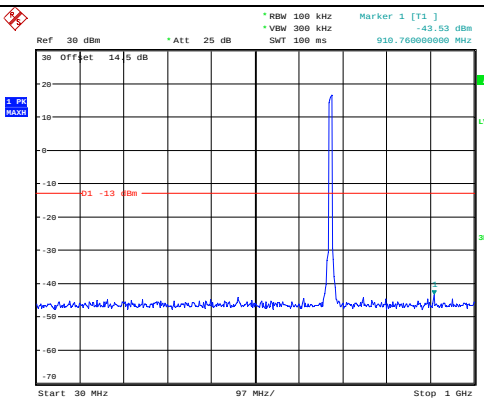
Channel

5MHz Bandwidth QPSK

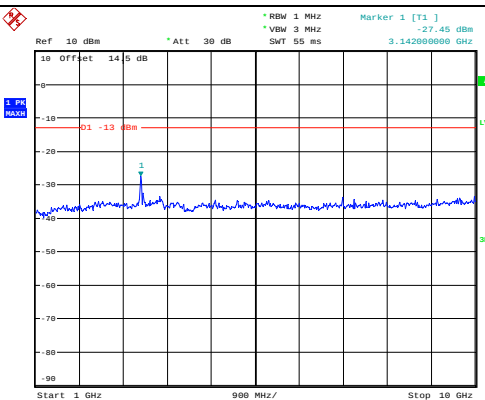
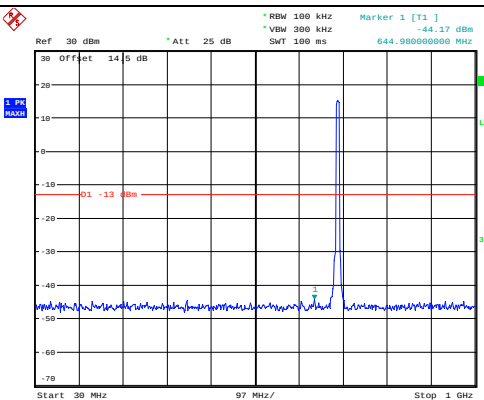
Lowest



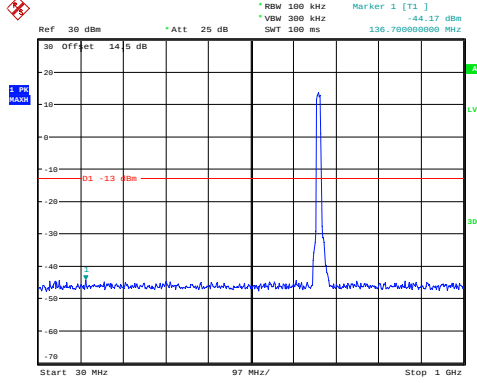
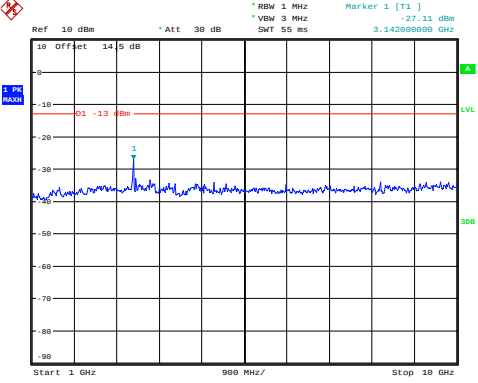
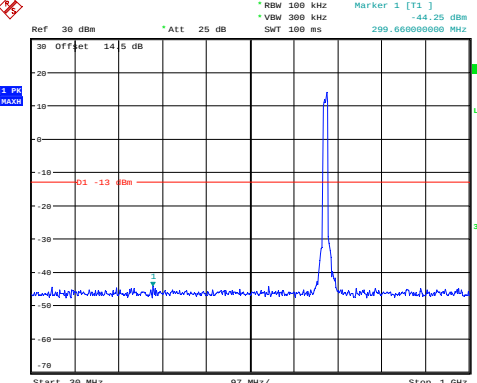
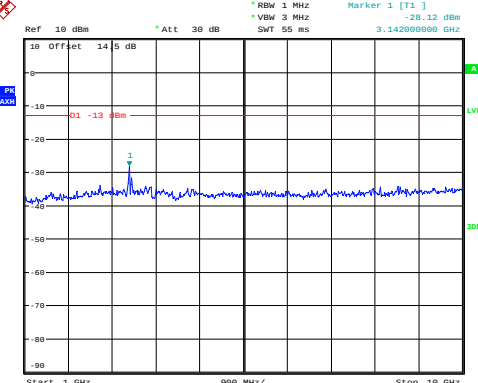
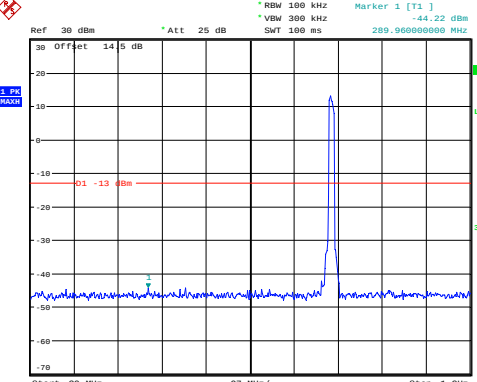
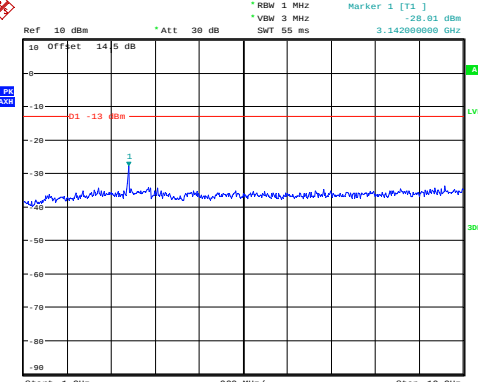
Middle



Highest



Spurious Emissions at Antenna Terminal

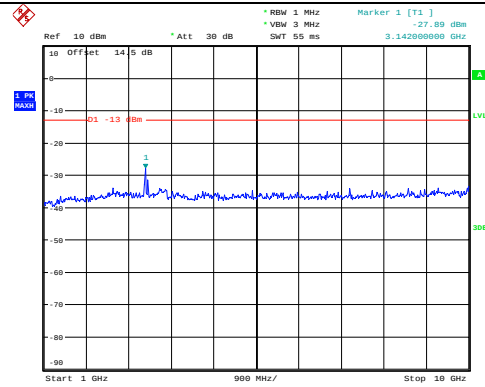
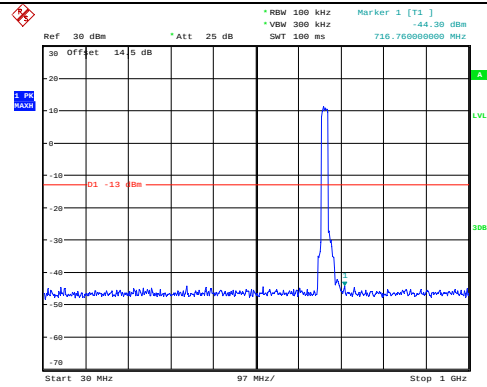
Channel	10MHz Bandwidth QPSK	
Lowest	 ProjectNo.:CR230954515-RF Tester:Claire Liu Date: 23.SEP.2023 11:48:33	 ProjectNo.:CR230954515-RF Tester:Claire Liu Date: 23.SEP.2023 11:48:44
Middle	 ProjectNo.:CR230954515-RF Tester:Claire Liu Date: 23.SEP.2023 11:49:26	 ProjectNo.:CR230954515-RF Tester:Claire Liu Date: 23.SEP.2023 11:49:37
Highest	 ProjectNo.:CR230954515-RF Tester:Claire Liu Date: 23.SEP.2023 11:50:16	 ProjectNo.:CR230954515-RF Tester:Claire Liu Date: 23.SEP.2023 11:50:28

Spurious Emissions at Antenna Terminal

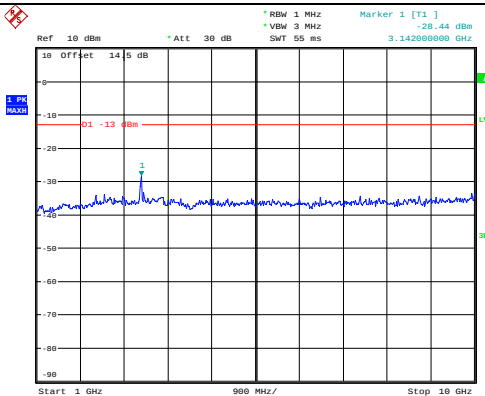
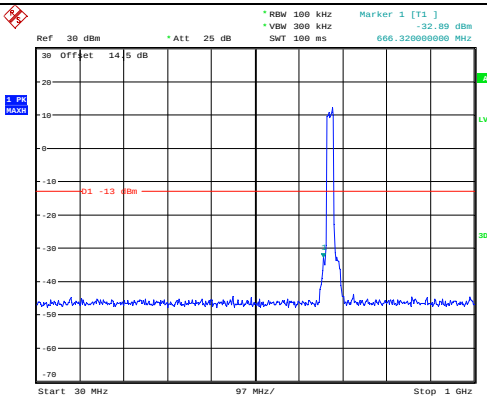
Channel

15MHz Bandwidth QPSK

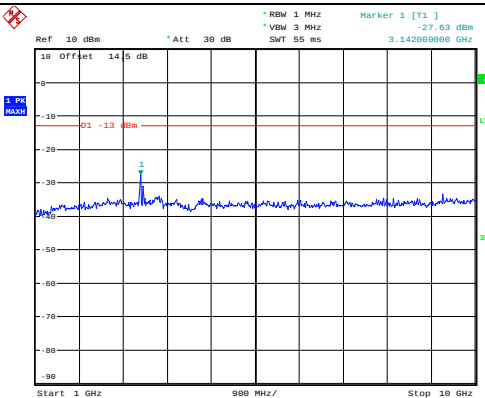
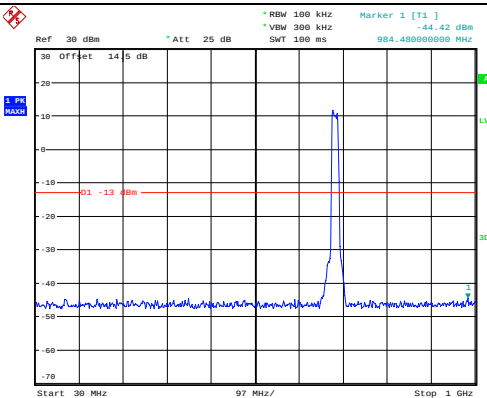
Lowest



Middle



Highest

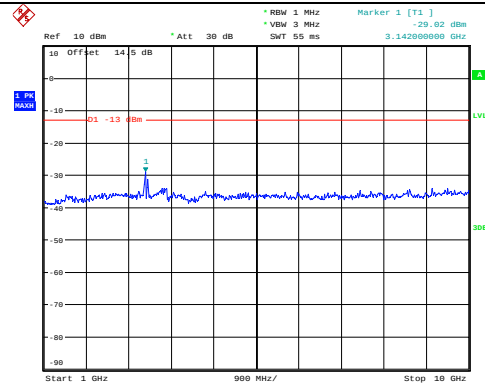
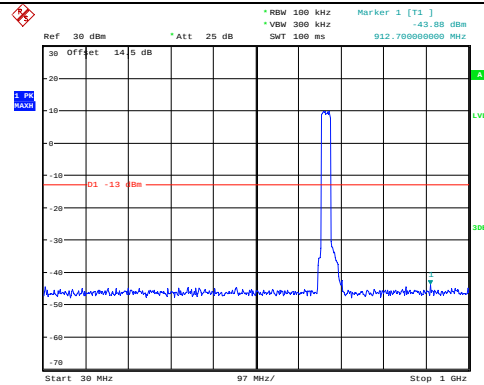


Spurious Emissions at Antenna Terminal

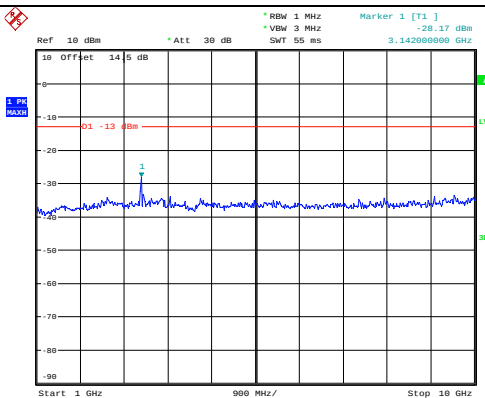
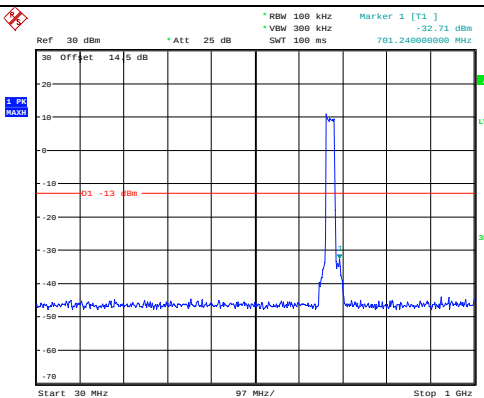
Channel

20MHz Bandwidth QPSK

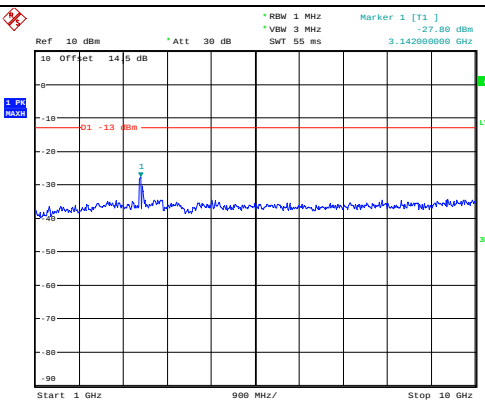
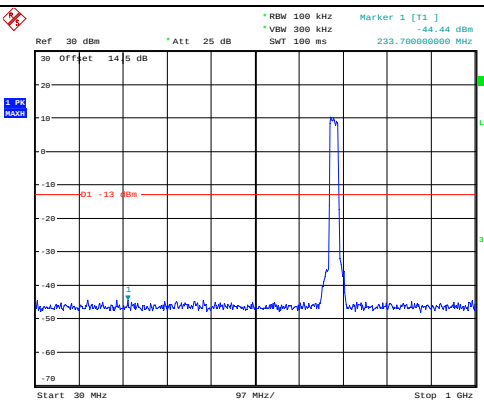
Lowest



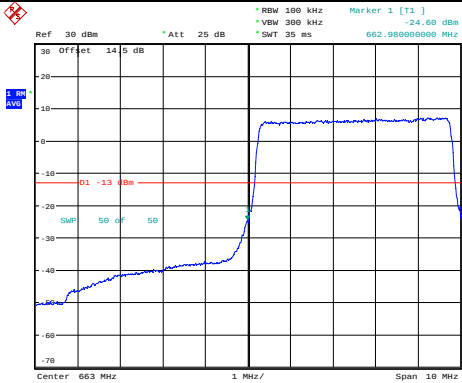
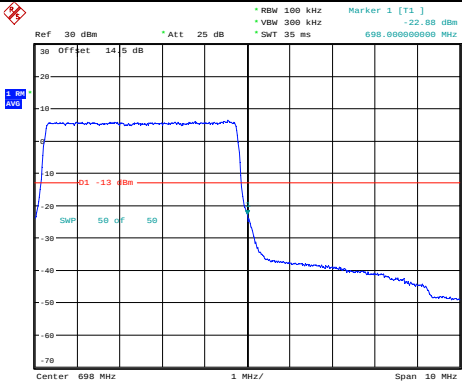
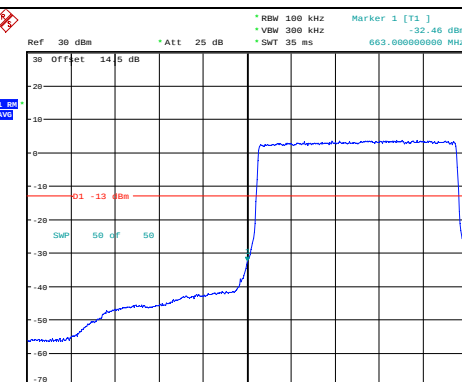
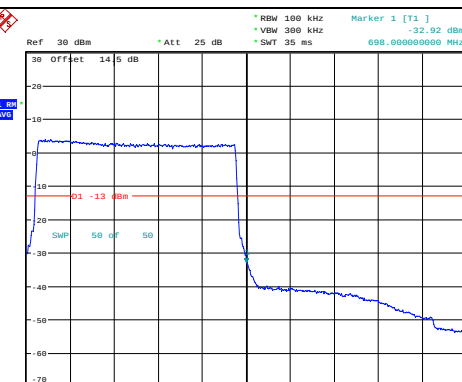
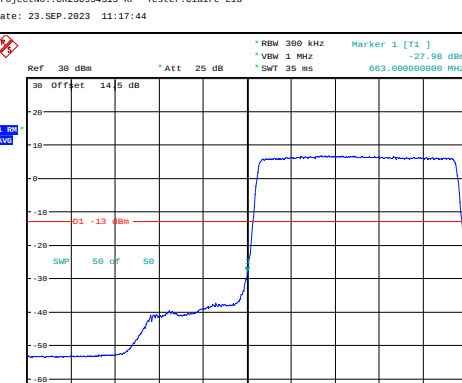
Middle



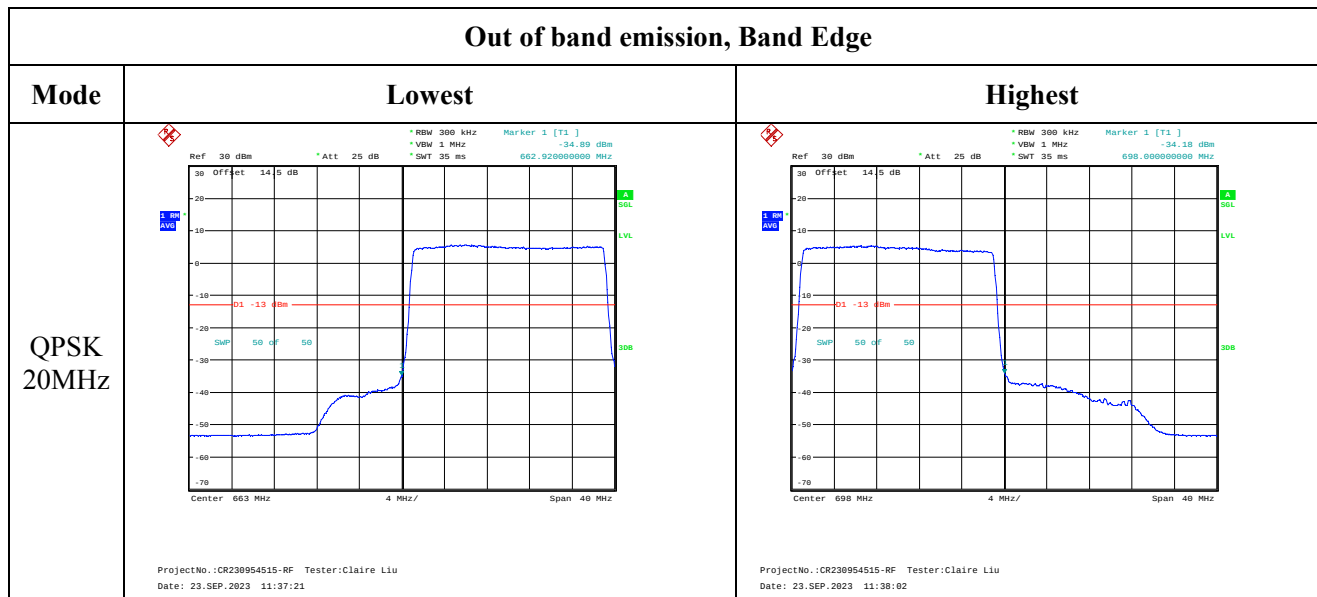
Highest



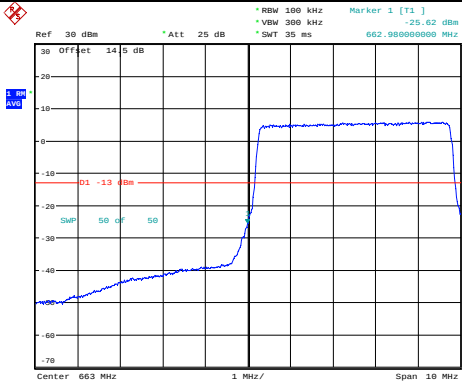
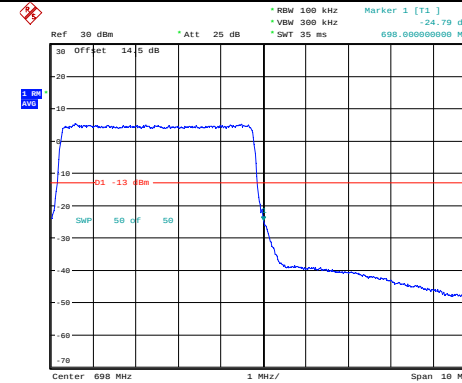
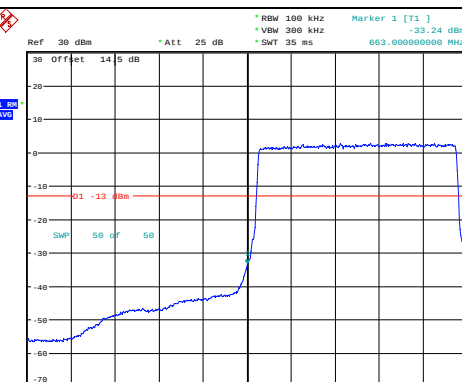
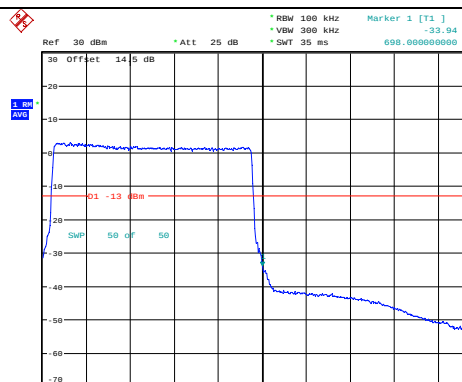
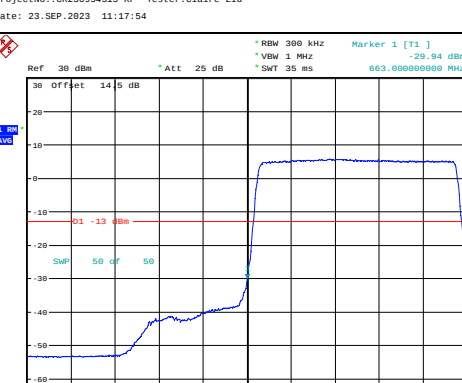
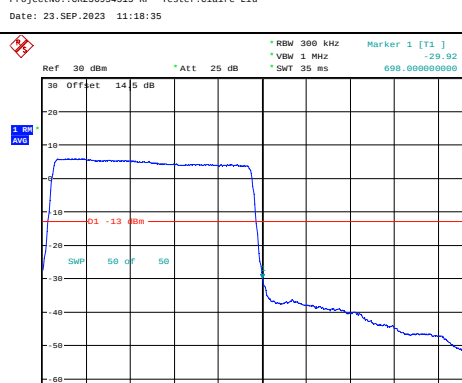
Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 5MHz	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -24.60 dBm 662.980000000 MHz Center 663 MHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Claire Liu Date: 23.SEP.2023 11:15:00	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -22.88 dBm 698.000000000 MHz Center 698 MHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester:Claire Liu Date: 23.SEP.2023 11:16:57
QPSK 10MHz	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -32.46 dBm 663.000000000 MHz Center 663 MHz 2 MHz/ Span 20 MHz ProjectNo.:CR230954515-RF Tester:Claire Liu Date: 23.SEP.2023 11:17:44	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -32.92 dBm 698.000000000 MHz Center 698 MHz 2 MHz/ Span 20 MHz ProjectNo.:CR230954515-RF Tester:Claire Liu Date: 23.SEP.2023 11:18:26
QPSK 15MHz	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -27.98 dBm 663.000000000 MHz Center 663 MHz 3 MHz/ Span 30 MHz ProjectNo.:CR230954515-RF Tester:Claire Liu Date: 23.SEP.2023 11:19:14	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -28.29 dBm 698.000000000 MHz Center 698 MHz 3 MHz/ Span 30 MHz ProjectNo.:CR230954515-RF Tester:Claire Liu Date: 23.SEP.2023 11:24:48

Out of band emission, Band Edge



Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 5MHz	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -29.62 dBm 662.980800000 MHz Center 663 MHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester: Claire Liu Date: 23.SEP.2023 11:15:08	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -24.79 dBm 698.000000000 MHz Center 698 MHz 1 MHz/ Span 10 MHz ProjectNo.:CR230954515-RF Tester: Claire Liu Date: 23.SEP.2023 11:17:06
16QAM 10MHz	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -29.24 dBm 663.000000000 MHz Center 663 MHz 2 MHz/ Span 20 MHz ProjectNo.:CR230954515-RF Tester: Claire Liu Date: 23.SEP.2023 11:17:54	 Ref 30 dBm * Att 25 dB * RBW 100 kHz * VBW 300 kHz * SWT 35 ms * Marker 1 [T1] -29.94 dBm 698.000000000 MHz Center 698 MHz 2 MHz/ Span 20 MHz ProjectNo.:CR230954515-RF Tester: Claire Liu Date: 23.SEP.2023 11:18:35
16QAM 15MHz	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -29.94 dBm 663.000000000 MHz Center 663 MHz 3 MHz/ Span 30 MHz ProjectNo.:CR230954515-RF Tester: Claire Liu Date: 23.SEP.2023 11:19:22	 Ref 30 dBm * Att 25 dB * RBW 300 kHz * VBW 1 MHz * SWT 35 ms * Marker 1 [T1] -29.92 dBm 698.000000000 MHz Center 698 MHz 3 MHz/ Span 30 MHz ProjectNo.:CR230954515-RF Tester: Claire Liu Date: 23.SEP.2023 11:24:47

Mode

Highest

*RBW 300 kHz
 *VIEW 1 MHz
 *SWT 35 ms
 Marker 1 [T2]
 -36.18 dBm
 663.059800000 MHz

Ref 36 dBm
 OffSet 14.5 dB
 Att 25 dB

01 -13.00 dBm
 SWR 50 of 50

Center 663 MHz
 4 MHz/
 Span 40 MHz

* RBW 300 kHz
 * View 1 MHz
 * SWT 35 ms
 Marker 1 [T1]
 -34.62 dBm
 698.00000000 MHz

Ref 30 dBm
 30 Offset 14.5 dB
 * Att 25 dB

1.5W
 AVG

-13 dBm
 SVP 50 dB 50

Center 698 MHz
 4 MHz/
 Span 40 MHz

FA
 SGL
 LVL
 30R

ProjectNo.:CR230954515-RF Tester:Claire Liu
Date: 23.SEP.2023 11:38:09

4.12 Radiated Spurious Emissions

Serial Number:	2BBS-2	Test Date:	2023/9/20~2023/9/23
Test Site:	966-2,966-1	Test Mode:	Transmitting
Tester:	Carl Xue, Mack Huang	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.4~26.2	Relative Humidity: (%)	59~61	ATM Pressure: (kPa)	100.2~100.6
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB6	A082520-5	2020/10/19	2023/10/18
R&S	EMI Test Receiver	ESR3	102724	2023/3/31	2024/3/30
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2023/7/16	2024/7/15
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2023/7/16	2024/7/15
Sonoma	Amplifier	310N	186165	2023/7/16	2024/7/15
EMCO	Adjustable Dipole Antenna	3121C	9109-756	N/A	N/A
MICRO-COAX	Coaxial Cable	UFA210B-0-0720-300300	99G1448	2022/7/16	2024/7/15
ETS-Lindgren	Horn Antenna	3115	9912-5985	2020/10/13	2023/10/12
R&S	Spectrum Analyzer	FSV40	101591	2023/3/31	2024/3/30
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2023/8/6	2024/8/5
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2023/8/6	2024/8/5
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2022/11/9	2023/11/8
AH	Double Ridge Guide Horn Antenna	SAS-571	1396	2021/10/18	2024/10/17
MICRO-COAX	Coaxial Cable	UFA210B-0-0720-300300	99G1448	2022/7/16	2024/7/15
Agilent	Signal Generator	E8247C	MY43321352	2022/11/18	2023/11/17
PASTERNAK	Horn Antenna	PE9852/2F-20	112002	2021/2/5	2024/2/4
PASTERNAK	Horn Antenna	PE9852/2F-20	112001	2021/2/5	2024/2/4
Quinstar	Preamplifier	QLW-18405536-JO	15964001005	2023/9/15	2024/9/14
PASTERNAK	Horn Antenna	PE9850/2F-20	072001	2021/2/5	2024/2/4
PASTERNAK	Horn Antenna	PE9850/2F-20	072002	2021/2/5	2024/2/4
MICRO-COAX	Coaxial Cable	UFB142A-1-2362-200200	235772-001	2023/8/6	2024/8/5

*** Statement of Traceability:** China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

Please refer to the below table.

After pre-scan in the X, Y and Z axes of orientation, the worst case is below:

Cellular Band (30MHz-10GHz)

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
GSM 850 Frequency:824.2MHz								
716.28	H	21.16	-51.83	0.00	0.50	-52.33	-13.00	39.33
706.70	V	21.14	-48.63	0.00	0.54	-49.17	-13.00	36.17
1648.400	H	40.23	-64.10	8.68	0.80	-56.22	-13.00	43.22
1648.400	V	39.78	-64.63	8.68	0.80	-56.75	-13.00	43.75
2472.600	H	41.24	-59.54	9.38	1.00	-51.16	-13.00	38.16
2472.600	V	47.05	-53.68	9.38	1.00	-45.30	-13.00	32.30
3296.800	H	35.41	-61.27	10.32	1.15	-52.10	-13.00	39.10
3296.800	V	35.28	-61.16	10.32	1.15	-51.99	-13.00	38.99
GSM 850 Frequency:836.6MHz								
726.79	H	20.82	-51.96	0.00	0.52	-52.48	-13.00	39.48
689.85	V	21.09	-49.01	0.00	0.54	-49.55	-13.00	36.55
1673.200	H	43.33	-60.98	8.71	0.85	-53.12	-13.00	40.12
1673.200	V	42.11	-62.30	8.71	0.85	-54.44	-13.00	41.44
2509.800	H	44.27	-56.34	9.42	1.01	-47.93	-13.00	34.93
2509.800	V	48.64	-51.98	9.42	1.01	-43.57	-13.00	30.57
3346.400	H	35.10	-62.07	10.34	1.16	-52.89	-13.00	39.89
3346.400	V	35.02	-62.01	10.34	1.16	-52.83	-13.00	39.83
GSM 850 Frequency:848.8MHz								
645.18	H	20.96	-52.66	0.00	0.52	-53.18	-13.00	40.18
716.67	V	20.76	-48.80	0.00	0.50	-49.30	-13.00	36.30
1697.600	H	40.82	-63.47	8.74	0.90	-55.63	-13.00	42.63
1697.600	V	39.00	-65.42	8.74	0.90	-57.58	-13.00	44.58
2546.400	H	44.02	-56.31	9.47	1.01	-47.85	-13.00	34.85
2546.400	V	48.35	-51.93	9.47	1.01	-43.47	-13.00	30.47
3395.200	H	35.01	-62.68	10.36	1.19	-53.51	-13.00	40.51
3395.200	V	34.65	-63.01	10.36	1.19	-53.84	-13.00	40.84

PCS Band (30MHz-20GHz)

1850 Band (GSM 1850)								
Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
GSM 1900 Frequency:1850.2MHz								
210.78	H	48.25	-64.43	0.00	0.26	-64.69	-13.00	51.69
47.65	V	47.83	-51.08	-17.20	0.12	-68.40	-13.00	55.40
3700.400	H	47.03	-50.29	10.60	1.25	-40.94	-13.00	27.94
3700.400	V	38.84	-58.46	10.60	1.25	-49.11	-13.00	36.11
5550.600	H	42.92	-50.34	11.44	1.49	-40.39	-13.00	27.39
5550.600	V	45.83	-47.27	11.44	1.49	-37.32	-13.00	24.32
GSM 1900 Frequency:1880MHz								
189.09	H	48.18	-64.49	0.00	0.26	-64.75	-13.00	51.75
48.67	V	47.72	-52.20	-16.20	0.12	-68.52	-13.00	55.52
3760.000	H	39.63	-56.78	10.66	1.24	-47.36	-13.00	34.36
3760.000	V	37.56	-58.73	10.66	1.24	-49.31	-13.00	36.31
5640.000	H	44.55	-48.90	11.33	1.54	-39.11	-13.00	26.11
5640.000	V	44.68	-48.65	11.33	1.54	-38.86	-13.00	25.86
GSM 1900 Frequency:1909.8MHz								
215.26	H	48.39	-64.20	0.00	0.27	-64.47	-13.00	51.47
45.85	V	47.96	-49.18	-18.97	0.12	-68.27	-13.00	55.27
3819.600	H	40.31	-55.55	10.72	1.29	-46.12	-13.00	33.12
3819.600	V	39.57	-56.15	10.72	1.29	-46.72	-13.00	33.72
5729.400	H	43.55	-49.93	11.22	1.59	-40.30	-13.00	27.30
5729.400	V	44.69	-48.67	11.22	1.59	-39.04	-13.00	26.04

WCDMA Band 2(30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
WCDMA Band II, Frequency:1852.4 MHz								
213.01	H	48.51	-64.12	0.00	0.27	-64.39	-13.00	51.39
48.84	V	47.71	-52.38	-16.04	0.12	-68.54	-13.00	55.54
3704.800	H	36.11	-61.15	10.60	1.25	-51.80	-13.00	38.80
3704.800	V	35.74	-61.49	10.60	1.25	-52.14	-13.00	39.14
5557.200	H	35.23	-58.05	11.43	1.49	-48.11	-13.00	35.11
5557.200	V	35.20	-57.93	11.43	1.49	-47.99	-13.00	34.99
WCDMA Band II, Frequency:1880 MHz								
226.87	H	48.81	-63.55	0.00	0.28	-63.83	-13.00	50.83
47.32	V	47.92	-50.67	-17.53	0.12	-68.32	-13.00	55.32
3760.000	H	35.46	-60.95	10.66	1.24	-51.53	-13.00	38.53
3760.000	V	36.01	-60.28	10.66	1.24	-50.86	-13.00	37.86
5640.000	H	36.55	-56.90	11.33	1.54	-47.11	-13.00	34.11
5640.000	V	35.02	-58.31	11.33	1.54	-48.52	-13.00	35.52
WCDMA Band II, Frequency:1907.6MHz								
189.76	H	48.60	-64.09	0.00	0.26	-64.35	-13.00	51.35
51.29	V	47.84	-54.01	-14.31	0.13	-68.45	-13.00	55.45
3815.200	H	35.41	-60.44	10.72	1.29	-51.01	-13.00	38.01
3815.200	V	35.08	-60.61	10.72	1.29	-51.18	-13.00	38.18
5722.800	H	36.33	-57.16	11.23	1.58	-47.51	-13.00	34.51
5722.800	V	35.84	-57.51	11.23	1.58	-47.86	-13.00	34.86

WCDMA Band 5(30MHz-10GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
WCDMA Band 5 Frequency:826.4 MHz								
691.98	H	21.22	-52.14	0.00	0.54	-52.68	-13.00	39.68
704.20	V	21.06	-48.77	0.00	0.55	-49.32	-13.00	36.32
1652.800	H	35.01	-69.32	8.68	0.81	-61.45	-13.00	48.45
1652.800	V	35.23	-69.18	8.68	0.81	-61.31	-13.00	48.31
2479.200	H	35.87	-64.89	9.39	1.01	-56.51	-13.00	43.51
2479.200	V	36.88	-63.85	9.39	1.01	-55.47	-13.00	42.47
3305.600	H	35.46	-61.27	10.32	1.15	-52.10	-13.00	39.10
3305.600	V	35.08	-61.42	10.32	1.15	-52.25	-13.00	39.25
WCDMA Band 5 Frequency:836.6MHz								
724.22	H	21.10	-51.73	0.00	0.51	-52.24	-13.00	39.24
714.16	V	20.83	-48.78	0.00	0.50	-49.28	-13.00	36.28
1673.200	H	35.74	-68.57	8.71	0.85	-60.71	-13.00	47.71
1673.200	V	35.55	-68.86	8.71	0.85	-61.00	-13.00	48.00
2509.800	H	36.23	-64.38	9.42	1.01	-55.97	-13.00	42.97
2509.800	V	35.10	-65.52	9.42	1.01	-57.11	-13.00	44.11
3346.400	H	35.29	-61.88	10.34	1.16	-52.70	-13.00	39.70
3346.400	V	34.89	-62.14	10.34	1.16	-52.96	-13.00	39.96
WCDMA Band 5 Frequency:846.6MHz								
719.17	H	20.91	-52.02	0.00	0.49	-52.51	-13.00	39.51
663.47	V	21.19	-49.39	0.00	0.50	-49.89	-13.00	36.89
1693.200	H	36.01	-68.29	8.73	0.89	-60.45	-13.00	47.45
1693.200	V	35.78	-68.64	8.73	0.89	-60.80	-13.00	47.80
2539.800	H	36.37	-64.01	9.46	1.01	-55.56	-13.00	42.56
2539.800	V	35.44	-64.90	9.46	1.01	-56.45	-13.00	43.45
3386.400	H	35.08	-62.51	10.35	1.18	-53.34	-13.00	40.34
3386.400	V	35.24	-62.30	10.35	1.18	-53.13	-13.00	40.13

LTE Bands:

(The Worst modulation and bandwidth were below)

LTE Band 2(30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, 1.4MHz, Frequency:1850.7 MHz								
191.07	H	48.91	-63.80	0.00	0.26	-64.06	-13.00	51.06
48.84	V	47.30	-52.79	-16.04	0.12	-68.95	-13.00	55.95
3701.400	H	36.41	-60.90	10.60	1.25	-51.55	-13.00	38.55
3701.400	V	36.78	-60.51	10.60	1.25	-51.16	-13.00	38.16
5552.100	H	39.70	-53.57	11.44	1.49	-43.62	-13.00	30.62
5552.100	V	42.64	-50.46	11.44	1.49	-40.51	-13.00	27.51
QPSK, 1.4MHz, Frequency:1880 MHz								
203.53	H	48.71	-64.11	0.00	0.26	-64.37	-13.00	51.37
47.32	V	47.98	-50.61	-17.53	0.12	-68.26	-13.00	55.26
3760.000	H	39.36	-57.05	10.66	1.24	-47.63	-13.00	34.63
3760.000	V	36.84	-59.45	10.66	1.24	-50.03	-13.00	37.03
5640.000	H	39.07	-54.38	11.33	1.54	-44.59	-13.00	31.59
5640.000	V	41.99	-51.34	11.33	1.54	-41.55	-13.00	28.55
QPSK, 1.4MHz, Frequency:1909.3 MHz								
197.21	H	48.67	-64.16	0.00	0.26	-64.42	-13.00	51.42
48.67	V	47.60	-52.32	-16.20	0.12	-68.64	-13.00	55.64
3818.600	H	36.44	-59.42	10.72	1.29	-49.99	-13.00	36.99
3818.600	V	35.24	-60.47	10.72	1.29	-51.04	-13.00	38.04
5727.900	H	37.98	-55.50	11.23	1.59	-45.86	-13.00	32.86
5727.900	V	41.21	-52.15	11.23	1.59	-42.51	-13.00	29.51

LTE Band 4(30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1.4MHz QPSK, Frequency: 1710.7 MHz								
205.67	H	48.91	-63.87	0.00	0.26	-64.13	-13.00	51.13
50.40	V	47.85	-53.57	-14.72	0.12	-68.41	-13.00	55.41
3421.400	H	35.46	-62.30	10.37	1.17	-53.10	-13.00	40.10
3421.400	V	35.85	-61.88	10.37	1.17	-52.68	-13.00	39.68
5132.100	H	36.23	-57.34	11.28	1.47	-47.53	-13.00	34.53
5132.100	V	35.21	-58.25	11.28	1.47	-48.44	-13.00	35.44
1.4MHz QPSK, Frequency: 1732.5 MHz								
196.51	H	48.36	-64.46	0.00	0.26	-64.72	-13.00	51.72
47.32	V	47.87	-50.72	-17.53	0.12	-68.37	-13.00	55.37
3465.000	H	35.12	-62.69	10.39	1.15	-53.45	-13.00	40.45
3465.000	V	35.01	-62.76	10.39	1.15	-53.52	-13.00	40.52
5197.500	H	36.22	-57.91	11.32	1.44	-48.03	-13.00	35.03
5197.500	V	35.74	-58.24	11.32	1.44	-48.36	-13.00	35.36
1.4MHz QPSK, Frequency: 1754.3 MHz								
191.75	H	48.79	-63.94	0.00	0.26	-64.20	-13.00	51.20
51.47	V	47.65	-54.28	-14.22	0.13	-68.63	-13.00	55.63
3508.600	H	35.77	-62.05	10.41	1.19	-52.83	-13.00	39.83
3508.600	V	36.01	-61.75	10.41	1.19	-52.53	-13.00	39.53
5262.900	H	36.29	-57.41	11.36	1.47	-47.52	-13.00	34.52
5262.900	V	35.42	-58.05	11.36	1.47	-48.16	-13.00	35.16

LTE Band 7(30MHz-26GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
5MHz QPSK, Frequency: 2502.5 MHz								
222.93	H	48.78	-63.66	0.00	0.28	-63.94	-25.00	38.94
48.84	V	47.72	-52.37	-16.04	0.12	-68.53	-25.00	43.53
5005.000	H	37.98	-54.98	11.20	1.47	-45.25	-25.00	20.25
5005.000	V	35.12	-57.70	11.20	1.47	-47.97	-25.00	22.97
7507.500	H	35.74	-54.05	10.90	1.95	-45.10	-25.00	20.10
7507.500	V	35.23	-55.06	10.90	1.95	-46.11	-25.00	21.11
5MHz QPSK, Frequency: 2535 MHz								
207.85	H	48.62	-64.11	0.00	0.26	-64.37	-25.00	39.37
46.34	V	47.92	-49.70	-18.49	0.12	-68.31	-25.00	43.31
5070.000	H	37.84	-55.35	11.24	1.47	-45.58	-25.00	20.58
5070.000	V	36.80	-56.29	11.24	1.47	-46.52	-25.00	21.52
7605.000	H	35.11	-54.36	10.88	2.01	-45.49	-25.00	20.49
7605.000	V	35.35	-54.84	10.88	2.01	-45.97	-25.00	20.97
5MHz QPSK, Frequency: 2567.5 MHz								
213.01	H	48.82	-63.81	0.00	0.27	-64.08	-25.00	39.08
50.05	V	47.69	-53.56	-14.88	0.12	-68.56	-25.00	43.56
5135.000	H	36.55	-57.05	11.28	1.47	-47.24	-25.00	22.24
5135.000	V	35.41	-58.08	11.28	1.47	-48.27	-25.00	23.27
7702.500	H	36.96	-52.56	10.86	1.97	-43.67	-25.00	18.67
7702.500	V	35.23	-54.95	10.86	1.97	-46.06	-25.00	21.06

LTE Band 17(30MHz-10GHz):

EYE Data A (66.41175 GHz)								
Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, 5MHz, Frequency: 706.5 MHz								
599.25	H	20.49	-53.38	0.00	0.51	-53.89	-13.00	40.89
552.88	V	20.63	-51.03	0.00	0.48	-51.51	-13.00	38.51
1413.000	H	36.33	-67.34	8.26	0.72	-59.80	-13.00	46.80
1413.000	V	42.06	-61.66	8.26	0.72	-54.12	-13.00	41.12
2119.500	H	37.01	-64.96	9.17	0.92	-56.71	-13.00	43.71
2119.500	V	52.15	-49.80	9.17	0.92	-41.55	-13.00	28.55
2826.000	H	34.85	-64.96	9.92	1.06	-56.10	-13.00	43.10
2826.000	V	35.12	-64.62	9.92	1.06	-55.76	-13.00	42.76
QPSK, 5MHz, Frequency:710 MHz								
513.88	H	20.65	-54.91	0.00	0.44	-55.35	-13.00	42.35
473.90	V	20.75	-51.87	0.00	0.42	-52.29	-13.00	39.29
1420.000	H	46.22	-57.44	8.28	0.73	-49.89	-13.00	36.89
1420.000	V	37.25	-66.46	8.28	0.73	-58.91	-13.00	45.91
2130.000	H	51.90	-50.12	9.18	0.92	-41.86	-13.00	28.86
2130.000	V	44.36	-57.65	9.18	0.92	-49.39	-13.00	36.39
2840.000	H	35.82	-63.93	9.94	1.06	-55.05	-13.00	42.05
2840.000	V	35.21	-64.50	9.94	1.06	-55.62	-13.00	42.62
QPSK, 5MHz, Frequency: 713.5 MHz								
462.62	H	20.52	-56.07	0.00	0.42	-56.49	-13.00	43.49
622.81	V	20.70	-50.62	0.00	0.48	-51.10	-13.00	38.10
1427.000	H	36.20	-67.44	8.30	0.73	-59.87	-13.00	46.87
1427.000	V	39.67	-64.02	8.30	0.73	-56.45	-13.00	43.45
2140.500	H	43.01	-59.06	9.18	0.93	-50.81	-13.00	37.81
2140.500	V	43.06	-59.02	9.18	0.93	-50.77	-13.00	37.77
2854.000	H	35.11	-64.58	9.97	1.07	-55.68	-13.00	42.68
2854.000	V	36.85	-62.83	9.97	1.07	-53.93	-13.00	40.93

LTE Band 66(30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1.4MHz QPSK, Frequency: 1710.7 MHz								
204.97	H	48.60	-64.19	0.00	0.26	-64.45	-13.00	51.45
47.16	V	47.86	-50.57	-17.68	0.12	-68.37	-13.00	55.37
3421.400	H	34.89	-62.87	10.37	1.17	-53.67	-13.00	40.67
3421.400	V	35.41	-62.32	10.37	1.17	-53.12	-13.00	40.12
5132.100	H	36.01	-57.56	11.28	1.47	-47.75	-13.00	34.75
5132.100	V	37.36	-56.10	11.28	1.47	-46.29	-13.00	33.29
1.4MHz QPSK, Frequency: 1745 MHz								
226.08	H	48.83	-63.54	0.00	0.28	-63.82	-13.00	50.82
47.65	V	47.74	-51.17	-17.20	0.12	-68.49	-13.00	55.49
3490.000	H	35.24	-62.60	10.40	1.17	-53.37	-13.00	40.37
3490.000	V	35.01	-62.77	10.40	1.17	-53.54	-13.00	40.54
5235.000	H	34.87	-59.03	11.34	1.46	-49.15	-13.00	36.15
5235.000	V	36.02	-57.69	11.34	1.46	-47.81	-13.00	34.81
1.4MHz QPSK, Frequency: 1779.3 MHz								
209.32	H	48.68	-64.03	0.00	0.26	-64.29	-13.00	51.29
49.87	V	47.82	-53.28	-15.03	0.12	-68.43	-13.00	55.43
3558.600	H	36.12	-61.55	10.46	1.22	-52.31	-13.00	39.31
3558.600	V	35.22	-62.35	10.46	1.22	-53.11	-13.00	40.11
5337.900	H	35.78	-57.69	11.40	1.47	-47.76	-13.00	34.76
5337.900	V	36.02	-57.31	11.40	1.47	-47.38	-13.00	34.38

LTE Band 71 (30MHz-10GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
5MHz QPSK, Frequency: 665.5 MHz								
440.48	H	20.54	-56.50	0.00	0.42	-56.92	-13.00	43.92
524.72	V	20.61	-51.01	0.00	0.42	-51.43	-13.00	38.43
1331.000	H	36.45	-66.58	8.03	0.76	-59.31	-13.00	46.31
1331.000	V	35.82	-67.54	8.03	0.76	-60.27	-13.00	47.27
1996.500	H	35.13	-67.03	9.10	0.89	-58.82	-13.00	45.82
1996.500	V	36.96	-64.58	9.10	0.89	-56.37	-13.00	43.37
2662.000	H	37.02	-62.94	9.66	1.06	-54.34	-13.00	41.34
2662.000	V	36.55	-63.33	9.66	1.06	-54.73	-13.00	41.73
5MHz QPSK, Frequency: 680.5 MHz								
610.12	H	20.70	-53.11	0.00	0.47	-53.58	-13.00	40.58
494.38	V	20.53	-51.27	0.00	0.45	-51.72	-13.00	38.72
1361.000	H	35.84	-67.49	8.11	0.77	-60.15	-13.00	47.15
1361.000	V	36.23	-67.30	8.11	0.77	-59.96	-13.00	46.96
2041.500	H	36.30	-65.73	9.12	0.91	-57.52	-13.00	44.52
2041.500	V	35.29	-66.35	9.12	0.91	-58.14	-13.00	45.14
2722.000	H	37.41	-62.56	9.76	1.05	-53.85	-13.00	40.85
2722.000	V	36.58	-63.33	9.76	1.05	-54.62	-13.00	41.62
5MHz QPSK, Frequency: 695.5 MHz								
560.90	H	20.59	-54.04	0.00	0.47	-54.51	-13.00	41.51
584.91	V	20.67	-51.04	0.00	0.46	-51.50	-13.00	38.50
1391.000	H	35.56	-68.06	8.19	0.72	-60.59	-13.00	47.59
1391.000	V	36.54	-67.16	8.19	0.72	-59.69	-13.00	46.69
2086.500	H	35.21	-66.70	9.15	0.91	-58.46	-13.00	45.46
2086.500	V	35.66	-66.13	9.15	0.91	-57.89	-13.00	44.89
2782.000	H	36.69	-63.25	9.85	1.05	-54.45	-13.00	41.45
2782.000	V	35.78	-64.05	9.85	1.05	-55.25	-13.00	42.25

Note:

- 1) The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.
- 2) Absolute Level = Substituted Level - Cable loss + Antenna Gain
- 3) Margin = Limit-Absolute Level

5. EUT PHOTOGRAPHS

Please refer to the attachment CR230954515-EXP EUT EXTERNAL PHOTOGRAPHS and
CR230954515-INP EUT INTERNAL PHOTOGRAPHS

6. TEST SETUP PHOTOGRAPHS

Please refer to the attachment CR230954515-00E-TSP TEST SETUP PHOTOGRAPHS.

==== END OF REPORT =====