



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



TEST REPORT

Applicant: FEITIAN Technologies Co., Ltd.

Address: Floor 17th, Tower B, Huizhi Mansion, No.9 Xueqing Road, Haidian District, Beijing, China

FCC ID: ZD3FTF20SC200RNA

Product Name: Android POS Terminal

Model Number: F20 FP, F20

Standard(s): 47 CFR Part 2
47 CFR Part 22, Subpart H
47 CFR Part 90
ANSI C63.26-2015
KDB 971168 D01 Power Meas License Digital Systems
v03r01

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

Report Number: CR21100011-00

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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.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Android POS Terminal
EUT Model:	F20 FP
Multiple model:	F20
Operation Frequency:	LTE Band 14: 788-798 MHz LTE Band 26: 814-849 MHz
Modulation Type:	QPSK, 16QAM
Rated Input Voltage:	DC 7.6V from battery or DC 5V from adapter
Serial Number:	CR21100011-RF-S1
EUT Received Date:	2021.10.18
EUT Received Status:	Good
Note: The Multiple models are identical with Test model, please refer to the declaration letter for more detail, which was provided by manufacturer.	

Accessory Information:

Accessory Description	Manufacturer	Model	Parameters
USB Cable	Unknown	Unknown	Un-shield, 0.8 m
Adapter 1	DEE VAN ENTERPRISE CO., LTD	DSA-10PF06-05 FUS	Input: 100-240V~50/60Hz 0.35A Output: 5V 2A
Adapter 2	SHENZHEN TEKA TECHNOLOGY CO., LTD.	TEKA-UCA20US	Input: 100-240V~50/60Hz 0.3A Output: 5V 2A

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:

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
16 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 Signaling 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, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
NS_04	6.6.2.2.2	41	20	>10	≤ 1
			5	>6	≤ 1
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				Table 6.2.4-2
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	1.4, 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.

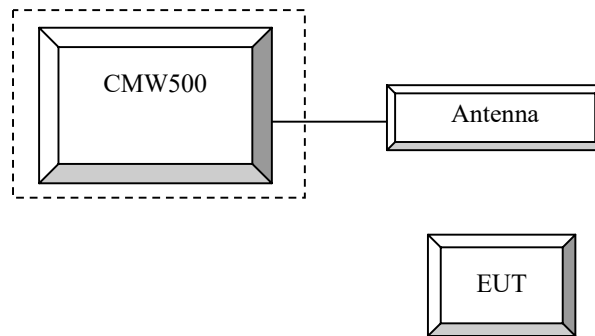
1.2.2 Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Un-Known	ANTENNA	Un-Known	Un-Known
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	149218

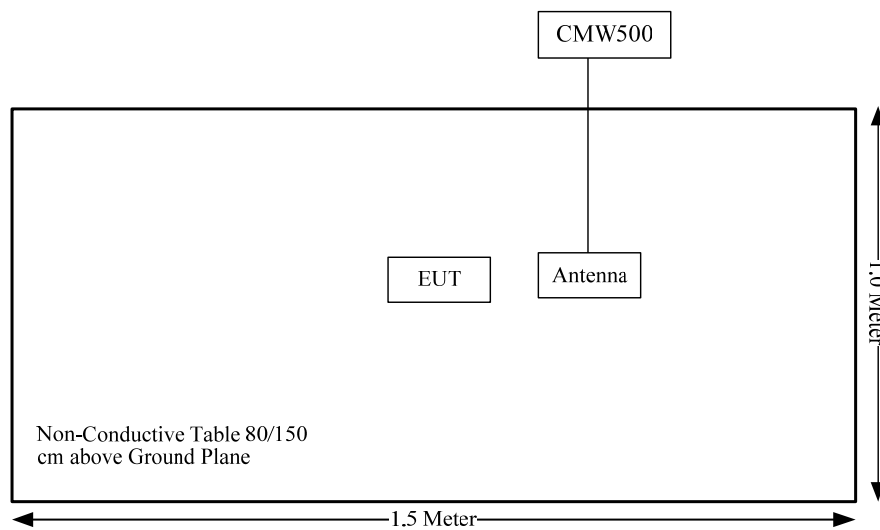
1.2.3 Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
RF cable	Yes	No	5	Antenna	CMW500

1.2.4 Configuration of Test Setup



1.2.5 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 °C
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%

2. SUMMARY OF TEST RESULTS

Rules	Description of Test	Result
FCC§2.1046; § 22.913 (a); §90.542 §90.635	RF Output Power	Compliance
FCC§ 2.1047	Modulation Characteristics	Not Applicable
FCC§ 2.1049; § 22.905 § 22.917; §90.209	Occupied Bandwidth	Compliance
FCC§ 2.1051, § 22.917 (a) ; §90.543; §90.691	Spurious Emissions at Antenna Terminal	Compliance
FCC§ 22.917 (a) ; §90.543;§90.691	Out of band emission, Band Edge	Compliance
FCC§ 2.1055 § 22.355§90.213	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance
FCC§ 2.1053 § 22.917 (a) ; §90.543;§90.691	Field Strength of Spurious Radiation	Compliance

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.

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 90:

3.2.1 RF Output Power

FCC §90.542(a)

(7) Portable stations (hand-held devices) transmitting in the 758-768 MHz band and the 788-798 MHz band are limited to 3 watts ERP.

FCC §90.635

(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

3.2.2 Spurious Emissions

FCC §90.543

(c) Out-of-band emission limit. On any frequency outside of the frequency ranges covered by the ACP tables in this section, the power of any emission must be reduced below the mean output power (P) by at least $43 + 10\log(P)$ dB measured in a 100 kHz bandwidth for frequencies less than 1 GHz, and in a 1 MHz bandwidth for frequencies greater than 1 GHz.

FCC §90.691

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10\log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

3.2.3 Frequency stability

FCC §90.213

809-824 MHz band, 2.5ppm for 2W or less output power.

3.4 Test Method:

3.4.1 RF Output Power

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.

3.4.2 Occupied Bandwidth

According to CFR Part 2.1049, 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).

3.4.3 Spurious emissions at antenna terminals

According to CFR Part 2.1051, 22.917(a), and/or 90.209, 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.

3.4.4 Out of band emission

According to CFR Part 2.1051, 22.917(a), 90.691, 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.

3.4.5 Frequency stability

According to CFR Part 2.1055, 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.

3.4.6 Field strength of spurious radiation

According to CFR Part 2.1053, 22.917(a), 90.691, ANSI C63.26-2015 Section 5.5.3:

Test setup:

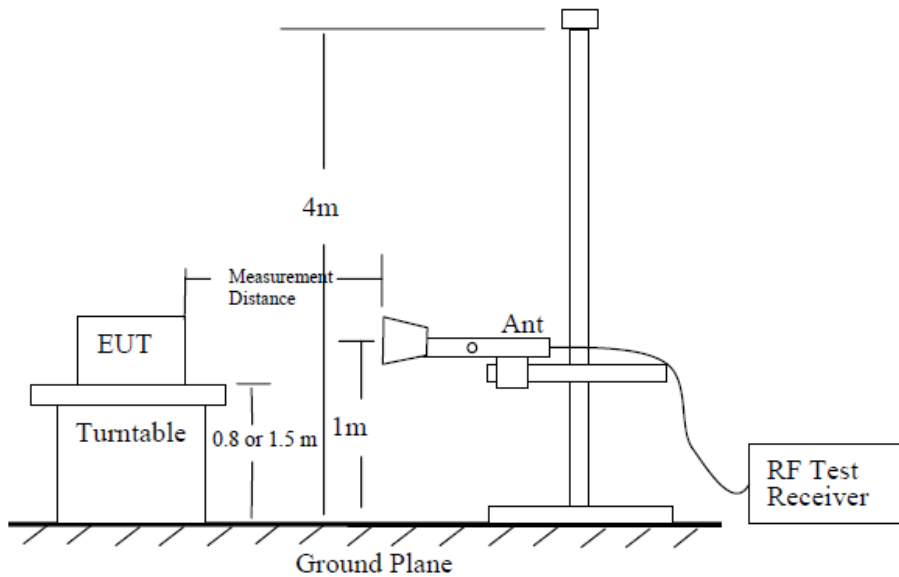


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

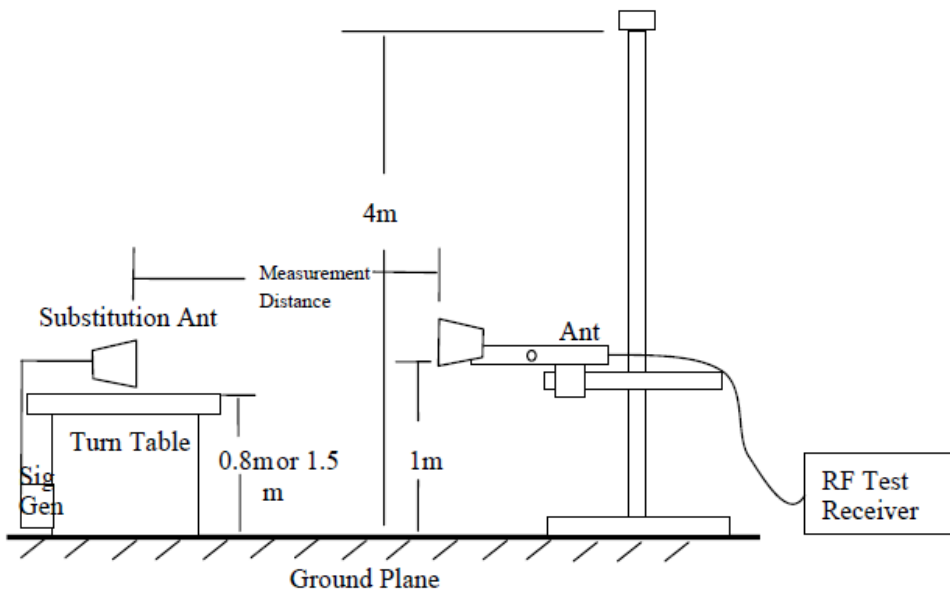


Figure 7—Substitution method set-up for radiated emission

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 dBmNOTE—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

4.2 Antenna Port Test Data and Results for LTE Band 14:

Serial Number:	CR21100011-RF-S1	Test Date:	2021/10/23~2021/10/26
Test Site:	RF	Test Mode:	Transmitting
Tester:	Mark Wang	Test Result:	Pass

Environmental Conditions:					
Temperature: (°C)	25.1~25.3	Relative Humidity: (%)	53~56	ATM Pressure: (kPa)	100.5~101.3

Test Equipment List and Details:					
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101943	2021/10/10	2022/10/9
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
zhuoxiang	Coaxial Cable	SMA-178	211003	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	2021/8/8	2022/8/7
R&S	Wideband Radio Communication Tester	CMW500	149218	2021/7/22	2022/7/21
BACL	TEMP&HUMI Test Chamber	BTH-150	30026	2021/7/22	2022/7/21

* 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).

EUT Information@LTE Band 14▲:					
Antenna Gain (dBi):	2	Antenna Gain (dBd):	-0.15	Cable Loss (dB):	0.2
Operation Voltage(V _{DC}):					
Lowest:	6.84	Normal:	7.6	Highest:	8.36

Test Frequency For Each Mode:			
Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
5MHz	790.5	793	795.5
10MHz	/	793	/

Test Data:**FCC§2.1046;§ 90.542****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	22.63	22.42	22.78	22.43	34.77
	RB1#13	22.44	22.35	22.62		
	RB1#24	22.57	22.68	22.53		
	RB15#0	21.35	21.48	21.58		
	RB15#10	21.43	21.52	21.74		
	RB25#0	21.39	21.45	21.56		
5MHz 16QAM	RB1#0	21.28	21.31	21.05	21.22	34.77
	RB1#13	21.33	21.57	21.41		
	RB1#24	21.31	21.42	21.06		
	RB15#0	20.55	20.54	20.71		
	RB15#10	20.73	20.62	20.61		
	RB25#0	20.93	20.82	20.79		
10MHz QPSK	RB1#0	/	22.83	/	22.48	34.77
	RB1#25	/	22.41	/		
	RB1#49	/	22.52	/		
	RB25#0	/	21.58	/		
	RB25#25	/	21.77	/		
	RB50#0	/	21.64	/		
10MHz 16QAM	RB1#0	/	22.02	/	21.9	34.77
	RB1#25	/	22.25	/		
	RB1#49	/	22.06	/		
	RB25#0	/	20.72	/		
	RB25#25	/	20.92	/		
	RB50#0	/	20.69	/		
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	
10MHz QPSK	RB1#0	/	3.15	/	13
	RB50#0	/	5.15	/	13
10MHz 16QAM	RB1#0	/	4.13	/	13
	RB50#0	/	6.1	/	13
Result:					Pass

FCC §2.1049, §90.209: 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	4.501	4.53	4.501	5.022	5.036	5.022
5MHz 16QAM	4.515	4.501	4.53	5.036	5.007	5.036
10MHz QPSK	/	9.001	/	/	10.043	/
10MHz 16QAM	/	9.001	/	/	9.928	/

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

FCC §2.1051, §90.543: Spurious Emissions at Antenna Terminal	
Result:	Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.

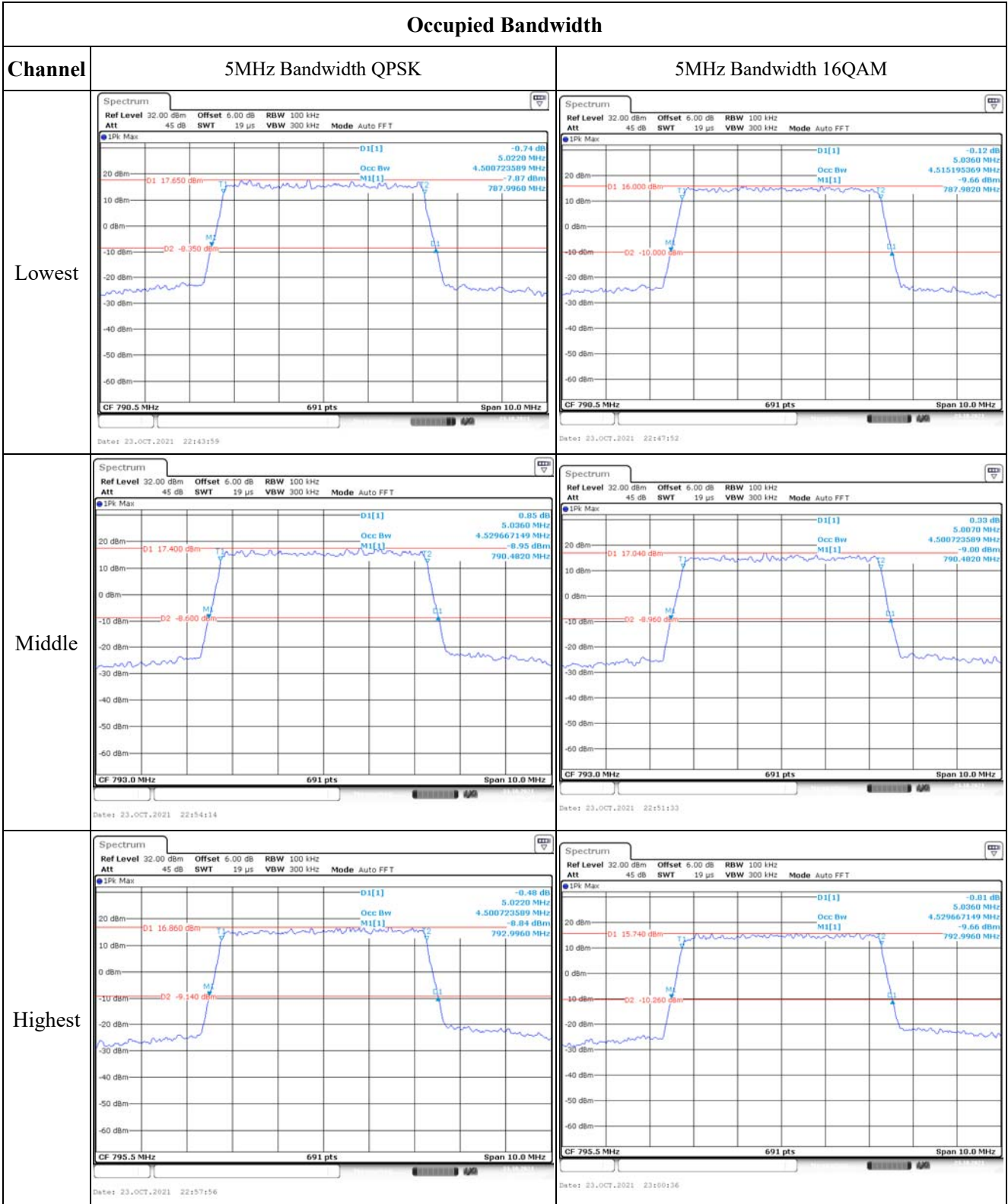
FCC §2.1051, §90.543: Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

FCC §2.1055, §90.213: Frequency Stability					
Test Mode:	10 MHz QPSK		Test Channel:	793	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	7.6	16	0.02	2.5
	-20	7.6	10	0.01	2.5
	-10	7.6	15	0.02	2.5
	0	7.6	9	0.01	2.5
	10	7.6	13	0.02	2.5
	20	7.6	12	0.02	2.5
	30	7.6	15	0.02	2.5
	40	7.6	13	0.02	2.5
Frequency Stability vs. Voltage	20	6.84	5	0.01	2.5
	20	8.36	18	0.02	2.5
Result:				Pass	

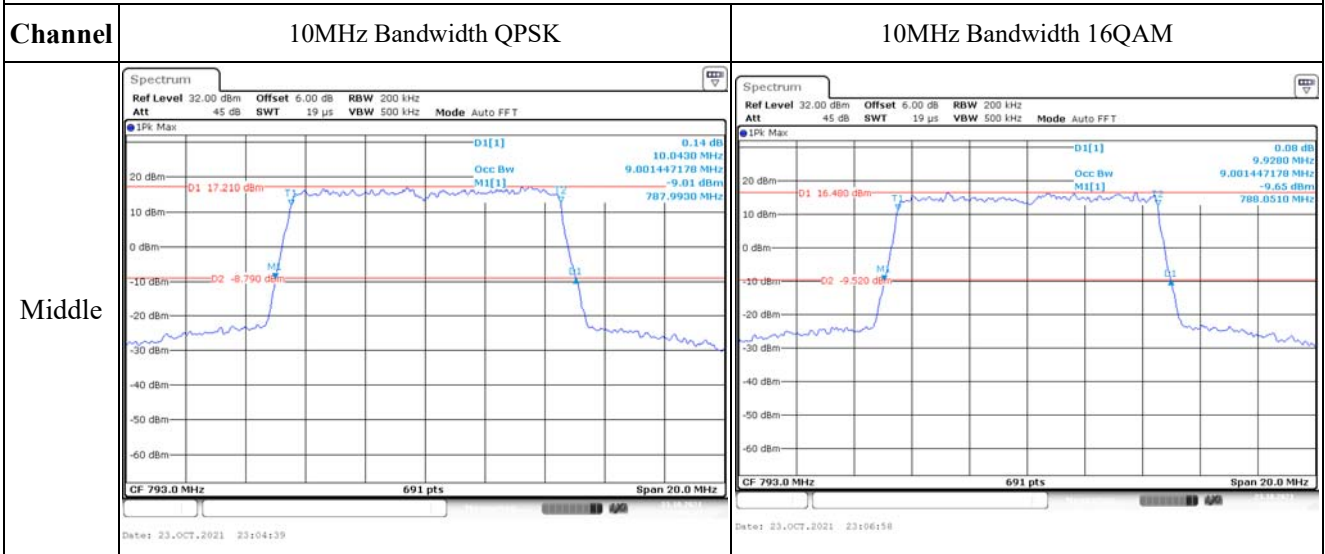
Test Mode:	10 MHz 16QAM		Test Channel:	793	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	7.6	15	0.02	2.5
	-20	7.6	6	0.01	2.5
	-10	7.6	15	0.02	2.5
	0	7.6	14	0.02	2.5
	10	7.6	16	0.02	2.5
	20	7.6	15	0.02	2.5
	30	7.6	10	0.01	2.5
	40	7.6	16	0.02	2.5
	50	7.6	14	0.02	2.5
Frequency Stability vs. Voltage	20	6.84	15	0.02	2.5
	20	8.36	18	0.02	2.5
				Result:	Pass

Test Plots:

Occupied Bandwidth



Occupied Bandwidth

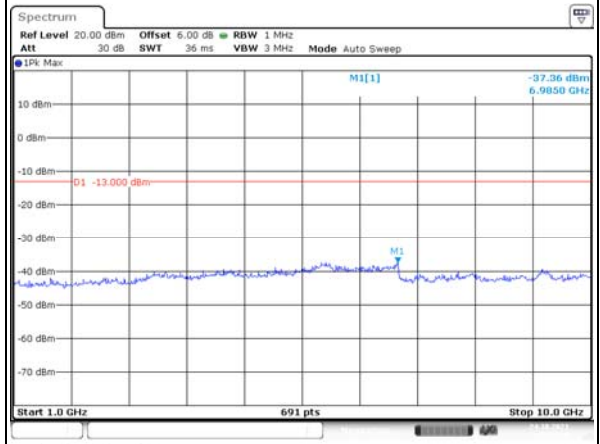
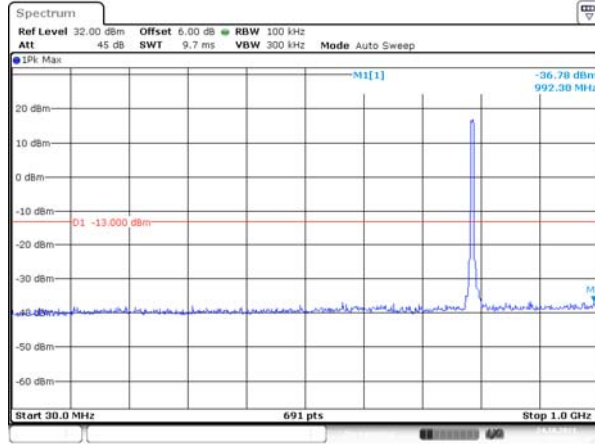


Spurious Emissions at Antenna Terminal

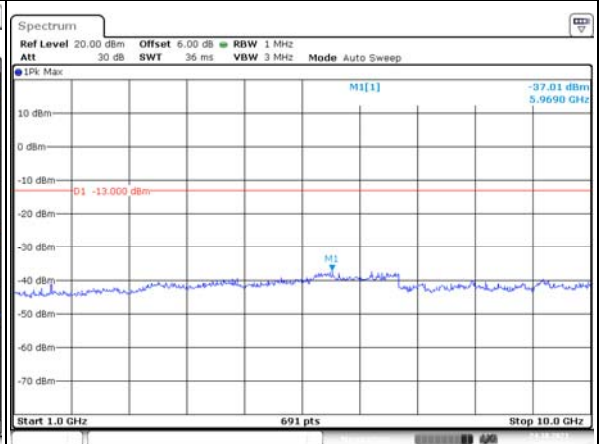
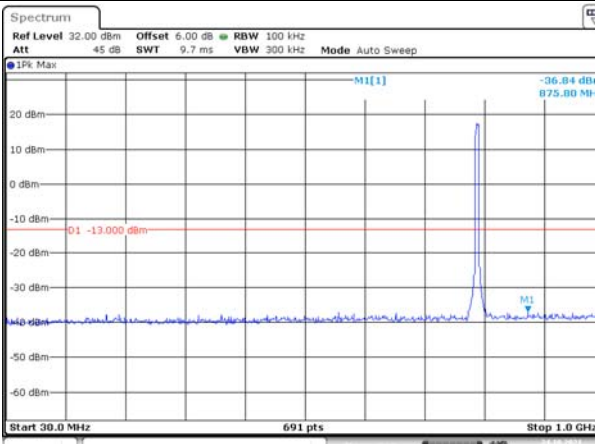
Channel

5MHz Bandwidth QPSK

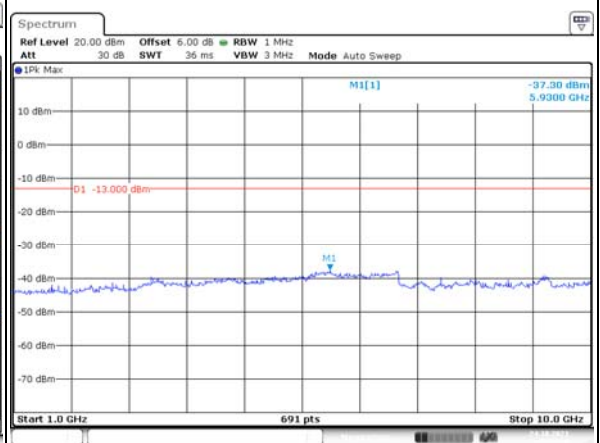
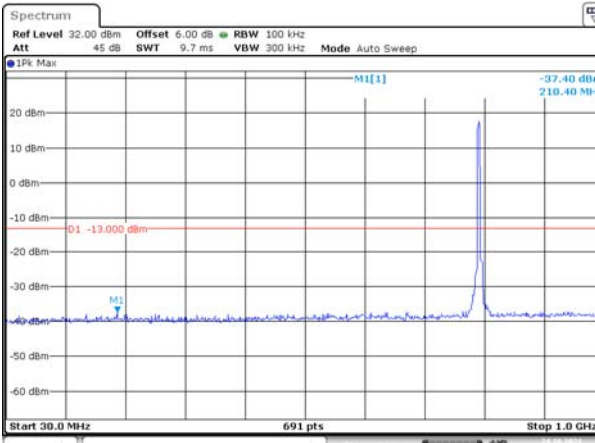
Lowest



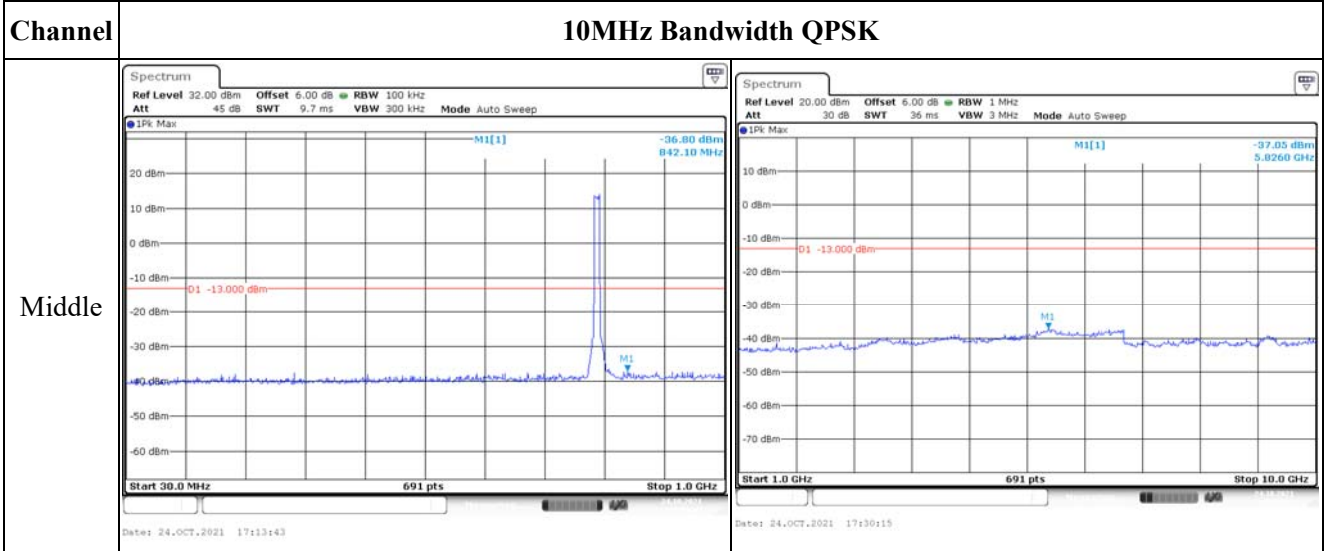
Middle



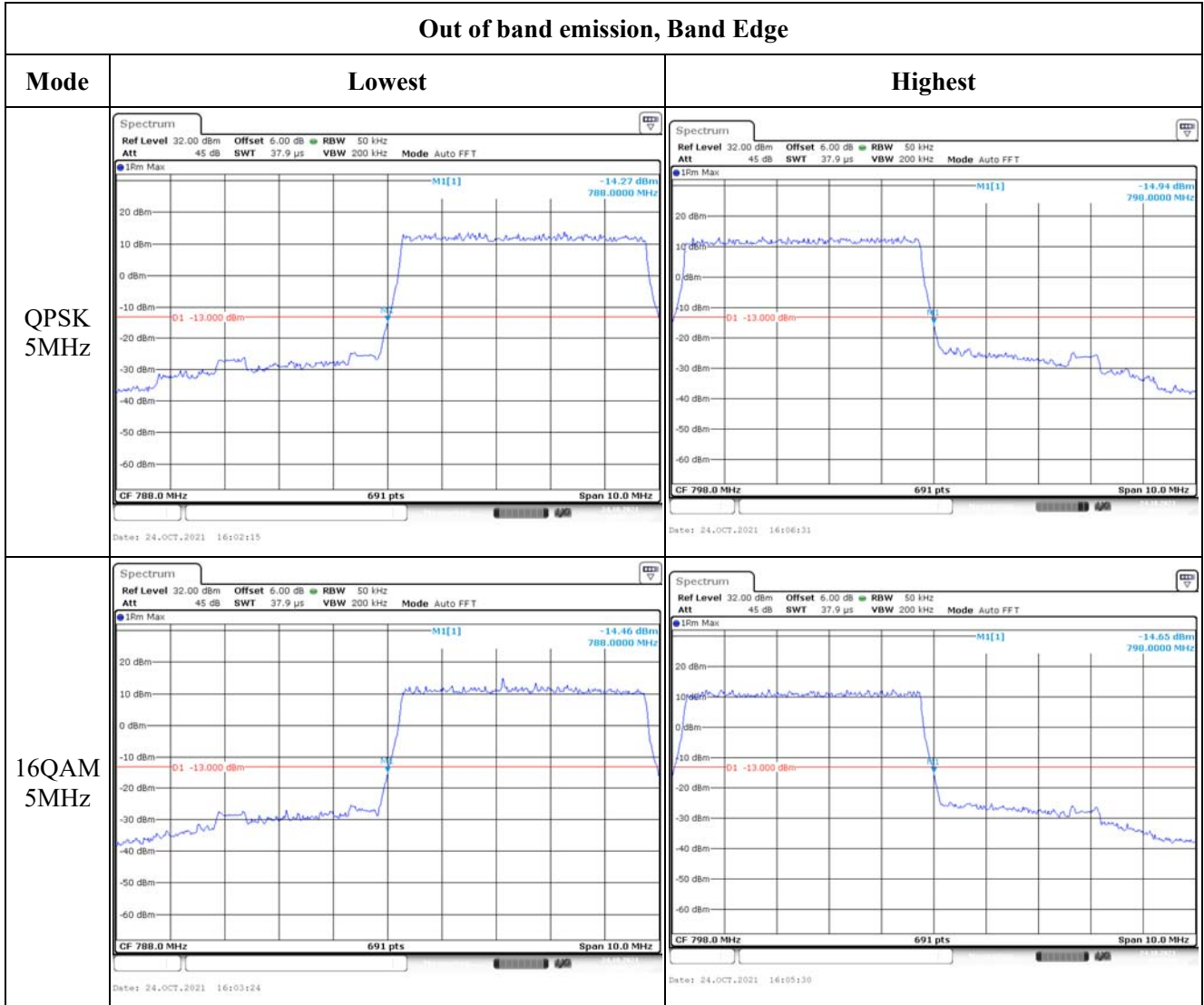
Highest



Spurious Emissions at Antenna Terminal



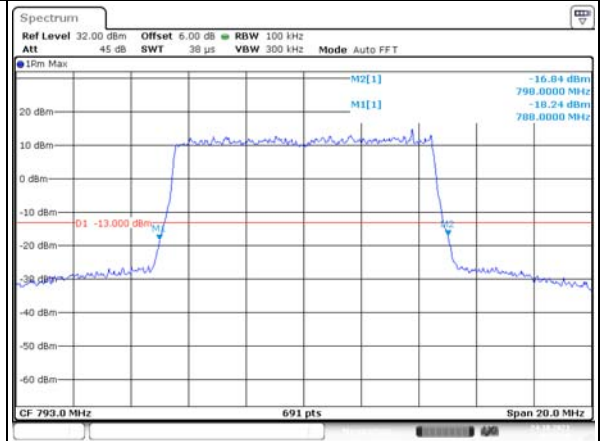
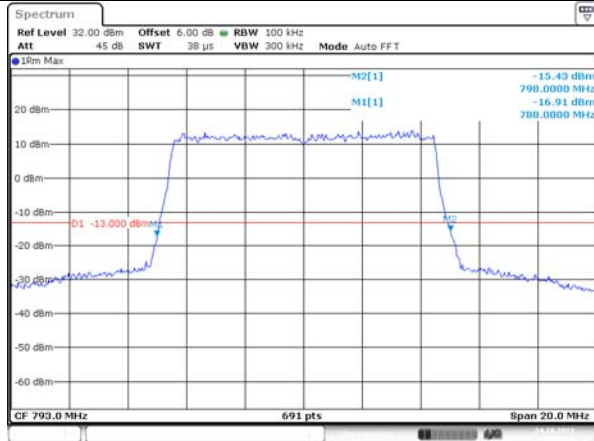
Out of band emission, Band Edge



Out of band emission, Band Edge

QPSK
10MHz

16QAM
10MHz



4.3 Antenna Port Test Data and Results for LTE Band 26:

Serial Number:	CR21100011-RF-S1	Test Date:	2021/10/23~2021/10/26
Test Site:	RF	Test Mode:	Transmitting
Tester:	Mark Wang	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.1~25.3	Relative Humidity: (%)	53~56	ATM Pressure: (kPa)	100.5~101.3
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101943	2021/10/10	2022/10/9
zhuoxiang	Coaxial Cable	SMA-178	211001	Each time	N/A
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
zhuoxiang	Coaxial Cable	SMA-178	211003	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554403	2021/8/8	2022/8/7
R&S	Wideband Radio Communication Tester	CMW500	149218	2021/7/22	2022/7/21
BACL	TEMP&HUMI Test Chamber	BTH-150	30026	2021/7/22	2022/7/21

* 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).

EUT Information@ LTE Band 26▲:

Antenna Gain (dBi):	-1.0	Antenna Gain (dBd):	-3.15	Cable Loss (dB):	0.2
Operation Voltage(V _{DC}):					
Lowest:	6.84	Normal:	7.6	Highest:	8.36

Test Frequency For Each Mode:

Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
1.4MHz	814.7	831.5	848.3
3MHz	815.5	831.5	847.5
5MHz	816.5	831.5	846.5
10MHz	819	831.5	844
15MHz	821.5	831.5	841.5

Test Data:**FCC§2.1046;§ 22.913 (a),§ 90.542****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		
1.4MHz QPSK	RB1#0	22.68	23.16	23.06	19.84	38.45
	RB1#3	22.68	23.17	23.19		
	RB1#5	22.74	23.02	23.11		
	RB3#0	22.1	22.64	22.6		
	RB3#3	22.2	22.55	22.53		
	RB6#0	21.95	22.35	22.37		
1.4MHz 16QAM	RB1#0	22.2	22.49	22.54	19.35	38.45
	RB1#3	22.13	22.43	22.7		
	RB1#5	22.31	22.48	22.63		
	RB3#0	21.56	21.52	21.78		
	RB3#3	21.51	21.77	21.65		
	RB6#0	21.47	21.48	21.64		
3MHz QPSK	RB1#0	22.5	23.13	22.27	19.78	38.45
	RB1#8	22.51	22.94	22.41		
	RB1#14	22.48	23.12	22.22		
	RB6#0	22.2	22.54	22.44		
	RB6#9	22.28	22.62	22.43		
	RB15#0	22	22.4	22.24		
3MHz 16QAM	RB1#0	22.37	22.34	22.48	19.22	38.45
	RB1#8	22.18	22.5	22.29		
	RB1#14	22.42	22.25	22.57		
	RB6#0	21.45	21.72	21.38		
	RB6#9	21.4	21.76	21.47		
	RB15#0	21.2	21.58	21.37		
5MHz QPSK	RB1#0	22.46	22.91	23.17	19.92	38.45
	RB1#13	22.59	23.08	23.27		
	RB1#24	22.38	22.92	23.18		
	RB15#0	22.37	22.6	22.35		
	RB15#10	22.2	22.55	22.26		
	RB25#0	22.14	22.41	22.24		
5MHz 16QAM	RB1#0	21.72	22.06	22.33	18.98	38.45
	RB1#13	21.8	22.01	22.15		
	RB1#24	21.59	22.07	22.19		
	RB15#0	21.29	21.5	21.63		
	RB15#10	21.53	21.55	21.51		
	RB25#0	21.24	21.49	21.36		
10MHz QPSK	RB1#0	22.66	23.04	22.68	19.78	38.45
	RB1#25	22.75	22.94	22.66		
	RB1#49	22.77	23.13	22.81		

	RB25#0	22.07	22.63	22.5		
	RB25#25	22.25	22.54	22.58		
	RB50#0	22.07	22.35	22.29		
10MHz 16QAM	RB1#0	22.21	22.63	22.39	19.46	38.45
	RB1#25	22.28	22.8	22.52		
	RB1#49	22.02	22.81	22.47		
	RB25#0	21.22	21.61	21.46		
	RB25#25	21.31	21.43	21.53		
	RB50#0	21.18	21.42	21.27		
15MHz QPSK	RB1#0	22.81	23.2	23.34	19.99	38.45
	RB1#38	22.63	23.05	23.16		
	RB1#74	22.63	23.16	23.13		
	RB36#0	22.18	22.43	22.65		
	RB36#39	22.44	22.47	22.47		
	RB75#0	22.16	22.35	22.42		
15MHz 16QAM	RB1#0	21.72	22.15	23.07	19.72	38.45
	RB1#38	21.73	22	23.03		
	RB1#74	21.68	22.06	23.05		
	RB36#0	21.43	21.83	21.59		
	RB36#39	21.37	21.55	21.37		
	RB75#0	21.2	21.54	21.35		

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	
15MHz QPSK	RB1#0	3.16	3.13	3.13	13
	RB75#0	5.1	5.01	5.15	13
15MHz 16QAM	RB1#0	4.04	4.06	4.07	13
	RB75#0	6.13	6.08	6.16	13
				Result:	Pass

FCC §2.1049, §22.905, §90.209: 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	1.103	1.103	1.098	1.32	1.294	1.324
1.4MHz 16QAM	1.098	1.098	1.103	1.298	1.307	1.311
3MHz QPSK	2.735	2.735	2.735	3.065	3.056	3.065
3MHz 16QAM	2.761	2.726	2.735	3.074	3.056	3.065
5MHz QPSK	4.515	4.501	4.486	5.036	5.051	5.022
5MHz 16QAM	4.501	4.53	4.515	5.022	5.036	5.022
10MHz QPSK	9.03	8.944	8.944	10.101	9.928	9.841
10MHz 16QAM	9.001	8.973	8.944	9.928	9.928	9.841
15MHz QPSK	13.502	13.372	13.415	14.891	14.674	14.805
15MHz 16QAM	13.502	13.459	13.415	14.805	14.631	14.761

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

FCC §2.1051, §22.917(a), §90.543: Spurious Emissions at Antenna Terminal	
Result:	Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.

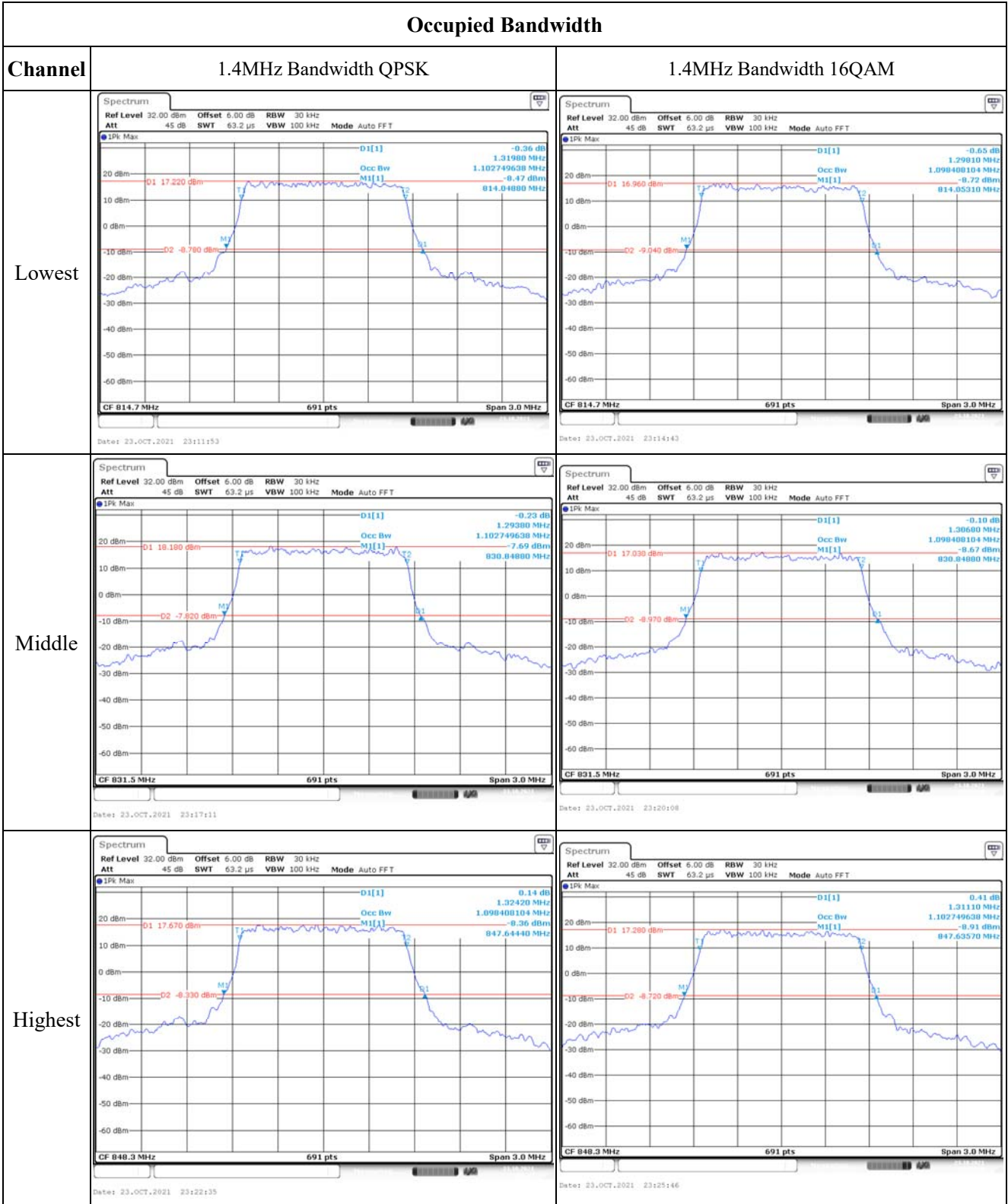
FCC §2.1051, §22.917(a), §90.543: Out of band emission, Band Edge	
Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.

FCC §2.1055, §22.355, §90.213: Frequency Stability					
Test Mode:	15 MHz QPSK		Test Channel:	831.5	MHz
Test Item	Temperature(°C)	Voltage(V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	7.6	18	0.02	2.5
	-20	7.6	18	0.02	2.5
	-10	7.6	9	0.01	2.5
	0	7.6	13	0.02	2.5
	10	7.6	11	0.01	2.5
	20	7.6	17	0.02	2.5
	30	7.6	14	0.02	2.5
	40	7.6	12	0.01	2.5
	50	7.6	11	0.01	2.5
Frequency Stability vs. Voltage	20	6.84	21	0.03	2.5
	20	8.36	10	0.01	2.5
Result:				Pass	

Test Mode:	15 MHz 16QAM		Test Channel:	831.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	7.6	18	0.02	2.5
	-20	7.6	22	0.03	2.5
	-10	7.6	11	0.01	2.5
	0	7.6	18	0.02	2.5
	10	7.6	13	0.02	2.5
	20	7.6	16	0.02	2.5
	30	7.6	17	0.02	2.5
	40	7.6	16	0.02	2.5
	50	7.6	15	0.02	2.5
Frequency Stability vs. Voltage	20	6.84	11	0.01	2.5
	20	8.36	13	0.02	2.5
				Result:	Pass

Test Plots:

Occupied Bandwidth



Occupied Bandwidth

Channel	3MHz Bandwidth QPSK	3MHz Bandwidth 16QAM
Lowest	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>D1[1] 0.60 dB 3.06510 MHz 2.735166425 MHz -7.20 dBm 813.96310 MHz</p> <p>01 19.110 dBm 02 -6.990 dBm</p> <p>CF 815.5 MHz 691 pts Span 6.0 MHz</p> <p>Date: 23.OCT.2021 23:29:50</p>	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>D1[1] 0.56 dB 3.07300 MHz 2.761215630 MHz -7.53 dBm 813.97100 MHz</p> <p>01 18.550 dBm 02 -7.450 dBm</p> <p>CF 815.5 MHz 691 pts Span 6.0 MHz</p> <p>Date: 23.OCT.2021 23:31:38</p>
Middle	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>D1[1] 0.17 dB 3.05640 MHz 2.735166425 MHz -6.42 dBm 829.96310 MHz</p> <p>01 19.580 dBm 02 -6.420 dBm</p> <p>CF 831.5 MHz 691 pts Span 6.0 MHz</p> <p>Date: 23.OCT.2021 23:33:51</p>	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>D1[1] -0.20 dB 3.05640 MHz 2.726483357 MHz -7.80 dBm 829.97100 MHz</p> <p>01 18.740 dBm 02 -7.260 dBm</p> <p>CF 831.5 MHz 691 pts Span 6.0 MHz</p> <p>Date: 23.OCT.2021 23:35:57</p>
Highest	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>D1[1] -0.30 dB 3.06510 MHz 2.735166425 MHz -6.41 dBm 845.95440 MHz</p> <p>01 19.420 dBm 02 -6.580 dBm</p> <p>CF 847.5 MHz 691 pts Span 6.0 MHz</p> <p>Date: 23.OCT.2021 23:38:27</p>	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 100 kHz Att 45 dB SWT 19 μs VBW 300 kHz Mode Auto FFT</p> <p>1Pk Max</p> <p>D1[1] 0.36 dB 3.06510 MHz 2.735166425 MHz -7.57 dBm 845.95440 MHz</p> <p>01 18.220 dBm 02 -7.780 dBm</p> <p>CF 847.5 MHz 691 pts Span 6.0 MHz</p> <p>Date: 23.OCT.2021 23:40:22</p>

Occupied Bandwidth

Channel	5MHz Bandwidth QPSK	5MHz Bandwidth 16QAM
Lowest		
Middle		
Highest		

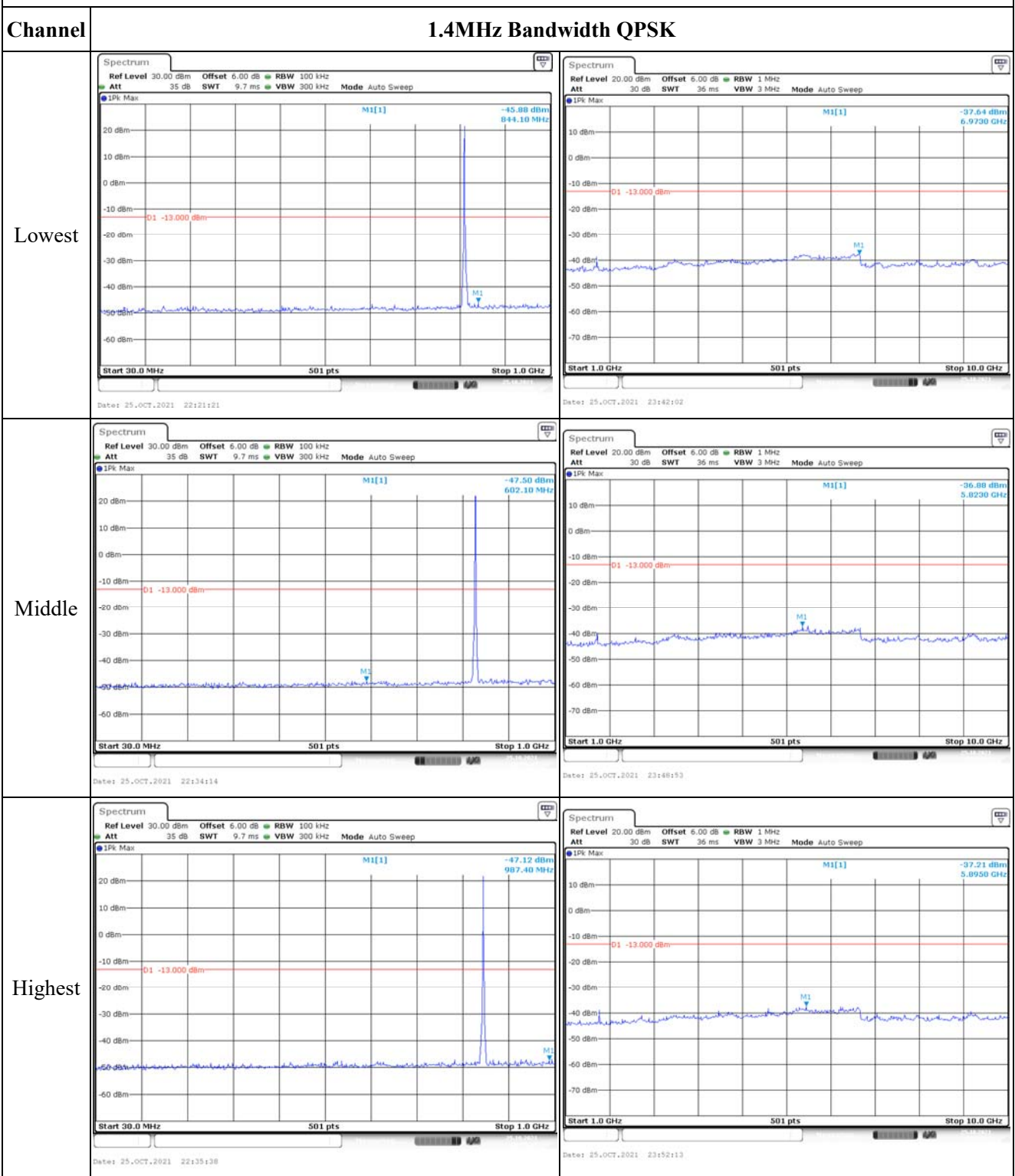
Occupied Bandwidth

Channel	10MHz Bandwidth QPSK	10MHz Bandwidth 16QAM
Lowest	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 200 kHz Att 45 dB SWT 19 μs VBW 500 kHz Mode Auto FFT</p> <p>D1[1] -0.21 dB 9.03090738 MHz MI[1] -9.09 dBm Occ Bw 9.03090738 MHz 813.9640 MHz</p> <p>CF 819.0 MHz 691 pts Span 20.0 MHz</p> <p>Date: 24.OCT.2021 15:25:19</p>	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 200 kHz Att 45 dB SWT 19 μs VBW 500 kHz Mode Auto FFT</p> <p>D1[1] -0.71 dB 9.001447178 MHz MI[1] -9.50 dBm Occ Bw 9.001447178 MHz 814.0510 MHz</p> <p>CF 819.0 MHz 691 pts Span 20.0 MHz</p> <p>Date: 24.OCT.2021 15:27:33</p>
Middle	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 200 kHz Att 45 dB SWT 19 μs VBW 500 kHz Mode Auto FFT</p> <p>D1[1] -0.15 dB 8.943560050 MHz MI[1] -8.12 dBm Occ Bw 8.943560050 MHz 826.5220 MHz</p> <p>CF 831.5 MHz 691 pts Span 20.0 MHz</p> <p>Date: 24.OCT.2021 15:30:57</p>	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 200 kHz Att 45 dB SWT 19 μs VBW 500 kHz Mode Auto FFT</p> <p>D1[1] -0.11 dB 8.972503618 MHz MI[1] -9.14 dBm Occ Bw 8.972503618 MHz 826.4930 MHz</p> <p>CF 831.5 MHz 691 pts Span 20.0 MHz</p> <p>Date: 24.OCT.2021 15:33:26</p>
Highest	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 200 kHz Att 45 dB SWT 19 μs VBW 500 kHz Mode Auto FFT</p> <p>D1[1] 0.52 dB 8.943560050 MHz MI[1] -7.84 dBm Occ Bw 8.943560050 MHz 839.0510 MHz</p> <p>CF 844.0 MHz 691 pts Span 20.0 MHz</p> <p>Date: 24.OCT.2021 15:35:15</p>	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 200 kHz Att 45 dB SWT 19 μs VBW 500 kHz Mode Auto FFT</p> <p>D1[1] -0.30 dB 8.943560050 MHz MI[1] -8.88 dBm Occ Bw 8.943560050 MHz 839.0800 MHz</p> <p>CF 844.0 MHz 691 pts Span 20.0 MHz</p> <p>Date: 24.OCT.2021 15:37:03</p>

Occupied Bandwidth

Channel	15MHz Bandwidth QPSK	15MHz Bandwidth 16QAM
Lowest	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 300 kHz Att 45 dB SWT 12.6 μs VBW 1 MHz Mode Auto FFT</p> <p>1Pk Max</p> <p>D1[1] -0.63 dBm Occ Bw 13.502170767 MHz M1[1] -7.71 dBm</p> <p>CF 821.5 MHz 691 pts Span 30.0 MHz</p> <p>Date: 24.OCT.2021 15:43:29</p>	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 300 kHz Att 45 dB SWT 12.6 μs VBW 1 MHz Mode Auto FFT</p> <p>1Pk Max</p> <p>D1[1] -0.46 dBm Occ Bw 13.502170767 MHz M1[1] -9.78 dBm</p> <p>CF 821.5 MHz 691 pts Span 30.0 MHz</p> <p>Date: 24.OCT.2021 15:45:13</p>
Middle	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 300 kHz Att 45 dB SWT 12.6 μs VBW 1 MHz Mode Auto FFT</p> <p>1Pk Max</p> <p>D1[1] -0.20 dBm Occ Bw 13.371924747 MHz M1[1] -7.91 dBm</p> <p>CF 831.5 MHz 691 pts Span 30.0 MHz</p> <p>Date: 24.OCT.2021 15:47:35</p>	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 300 kHz Att 45 dB SWT 12.6 μs VBW 1 MHz Mode Auto FFT</p> <p>1Pk Max</p> <p>D1[1] -0.05 dBm Occ Bw 13.458755427 MHz M1[1] -8.56 dBm</p> <p>CF 831.5 MHz 691 pts Span 30.0 MHz</p> <p>Date: 24.OCT.2021 15:49:12</p>
Highest	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 300 kHz Att 45 dB SWT 12.6 μs VBW 1 MHz Mode Auto FFT</p> <p>1Pk Max</p> <p>D1[1] -0.49 dBm Occ Bw 13.415340007 MHz M1[1] -9.37 dBm</p> <p>CF 841.5 MHz 691 pts Span 30.0 MHz</p> <p>Date: 24.OCT.2021 15:51:17</p>	<p>Ref Level 32.00 dBm Offset 6.00 dB RBW 300 kHz Att 45 dB SWT 12.6 μs VBW 1 MHz Mode Auto FFT</p> <p>1Pk Max</p> <p>D1[1] -0.05 dBm Occ Bw 13.415340007 MHz M1[1] -9.57 dBm</p> <p>CF 841.5 MHz 691 pts Span 30.0 MHz</p> <p>Date: 24.OCT.2021 15:53:01</p>

Spurious Emissions at Antenna Terminal



Spurious Emissions at Antenna Terminal

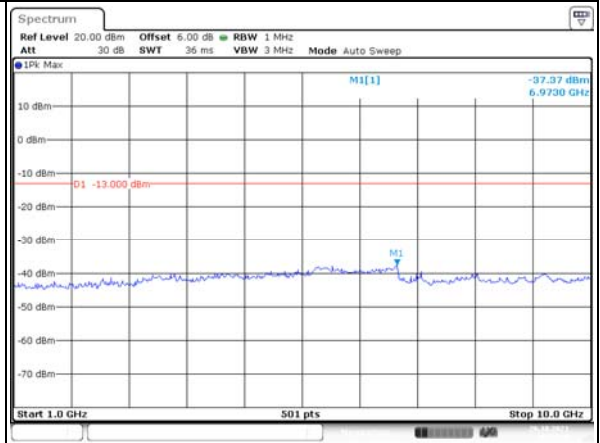
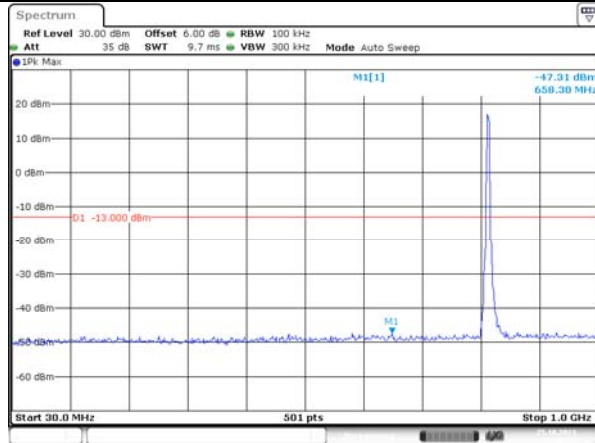
Channel	3MHz Bandwidth QPSK	
Lowest	<p>Ref Level 30.00 dBm Offset 6.00 dB RBW 100 kHz Att 35 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -47.18 dBm 865.40 MHz</p> <p>D1 -13.000 dBm</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>Date: 25.OCT.2021 22:43:18</p>	<p>Ref Level 20.00 dBm Offset 6.00 dB RBW 1 MHz Att 30 dB SWT 36 ms VBW 3 MHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -37.15 dBm 5.7070 GHz</p> <p>D1 -13.000 dBm</p> <p>Start 1.0 GHz 501 pts Stop 10.0 GHz</p> <p>Date: 25.OCT.2021 23:56:56</p>
Middle	<p>Ref Level 30.00 dBm Offset 6.00 dB RBW 100 kHz Att 35 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -45.95 dBm 797.70 MHz</p> <p>D1 -13.000 dBm</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>Date: 25.OCT.2021 22:48:43</p>	<p>Ref Level 20.00 dBm Offset 6.00 dB RBW 1 MHz Att 30 dB SWT 36 ms VBW 3 MHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -37.12 dBm 6.0750 GHz</p> <p>D1 -13.000 dBm</p> <p>Start 1.0 GHz 501 pts Stop 10.0 GHz</p> <p>Date: 25.OCT.2021 23:59:19</p>
Highest	<p>Ref Level 30.00 dBm Offset 6.00 dB RBW 100 kHz Att 35 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -46.67 dBm 997.10 MHz</p> <p>D1 -13.000 dBm</p> <p>Start 30.0 MHz 501 pts Stop 1.0 GHz</p> <p>Date: 25.OCT.2021 22:51:20</p>	<p>Ref Level 20.00 dBm Offset 6.00 dB RBW 1 MHz Att 30 dB SWT 36 ms VBW 3 MHz Mode Auto Sweep</p> <p>1Pk Max M1[1] -37.82 dBm 6.9190 GHz</p> <p>D1 -13.000 dBm</p> <p>Start 1.0 GHz 501 pts Stop 10.0 GHz</p> <p>Date: 26.OCT.2021 00:01:16</p>

Spurious Emissions at Antenna Terminal

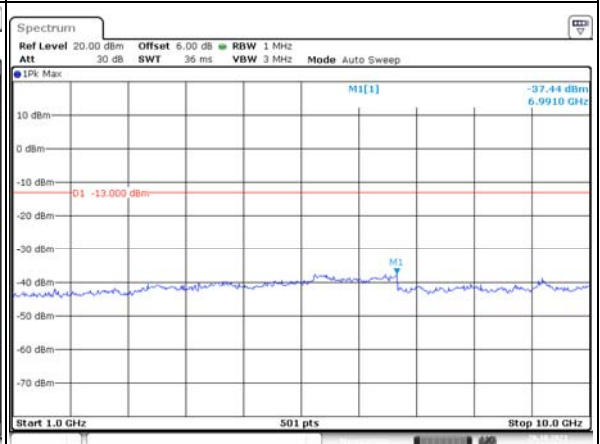
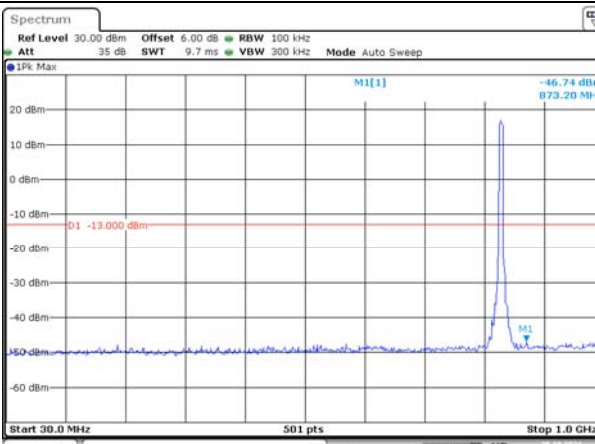
Channel

5MHz Bandwidth QPSK

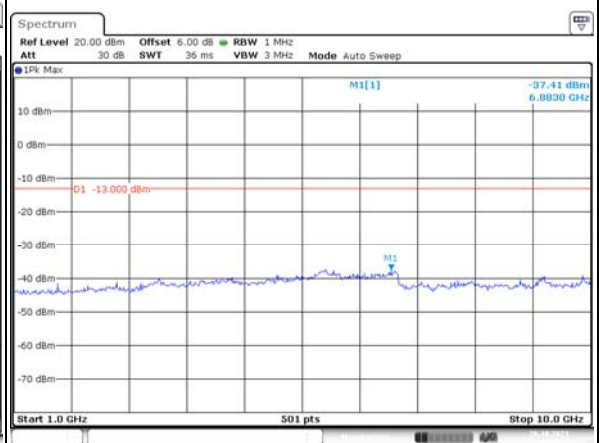
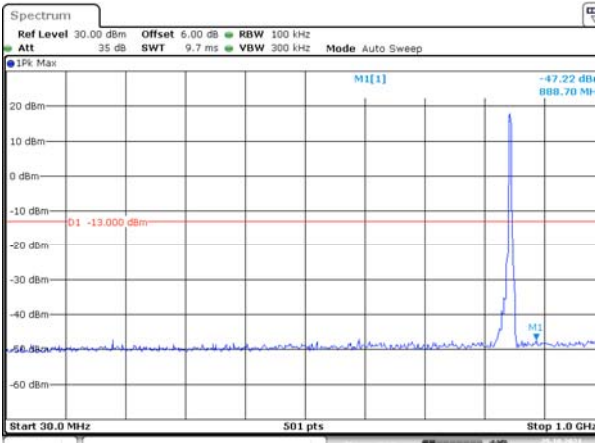
Lowest



Middle



Highest



Spurious Emissions at Antenna Terminal

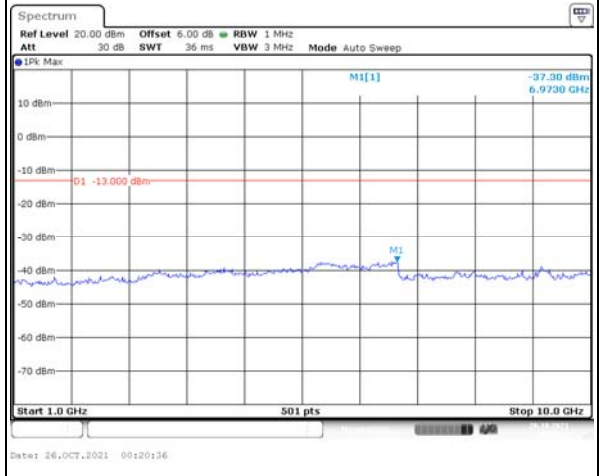
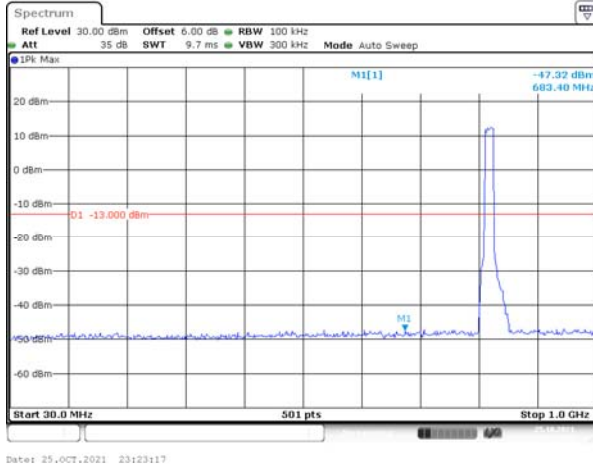
Channel	10MHz Bandwidth QPSK	
Lowest	<p>Ref Level 30.00 dBm Offset 6.00 dB RBW 100 kHz Att 35 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep 1Pk Max M1[1] -46.44 dBm 772.50 MHz -13.000 dBm Start 30.0 MHz 501 pts Stop 1.0 GHz Date: 25.OCT.2021 23:07:25</p>	<p>Ref Level 20.00 dBm Offset 6.00 dB RBW 1 MHz Att 30 dB SWT 36 ms VBW 3 MHz Mode Auto Sweep 1Pk Max M1[1] -37.75 dBm 6.7040 GHz -13.000 dBm Start 1.0 GHz 501 pts Stop 10.0 GHz Date: 26.OCT.2021 00:13:07</p>
Middle	<p>Ref Level 30.00 dBm Offset 6.00 dB RBW 100 kHz Att 35 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep 1Pk Max M1[1] -46.51 dBm 954.50 MHz -13.000 dBm Start 30.0 MHz 501 pts Stop 1.0 GHz Date: 25.OCT.2021 23:14:34</p>	<p>Ref Level 20.00 dBm Offset 6.00 dB RBW 1 MHz Att 30 dB SWT 36 ms VBW 3 MHz Mode Auto Sweep 1Pk Max M1[1] -36.79 dBm 5.8050 GHz -13.000 dBm Start 1.0 GHz 501 pts Stop 10.0 GHz Date: 26.OCT.2021 00:14:51</p>
Highest	<p>Ref Level 30.00 dBm Offset 6.00 dB RBW 100 kHz Att 35 dB SWT 9.7 ms VBW 300 kHz Mode Auto Sweep 1Pk Max M1[1] -46.20 dBm 902.20 MHz -13.000 dBm Start 30.0 MHz 501 pts Stop 1.0 GHz Date: 25.OCT.2021 23:18:19</p>	<p>Ref Level 20.00 dBm Offset 6.00 dB RBW 1 MHz Att 30 dB SWT 36 ms VBW 3 MHz Mode Auto Sweep 1Pk Max M1[1] -37.22 dBm 5.8770 GHz -13.000 dBm Start 1.0 GHz 501 pts Stop 10.0 GHz Date: 26.OCT.2021 00:16:46</p>

Spurious Emissions at Antenna Terminal

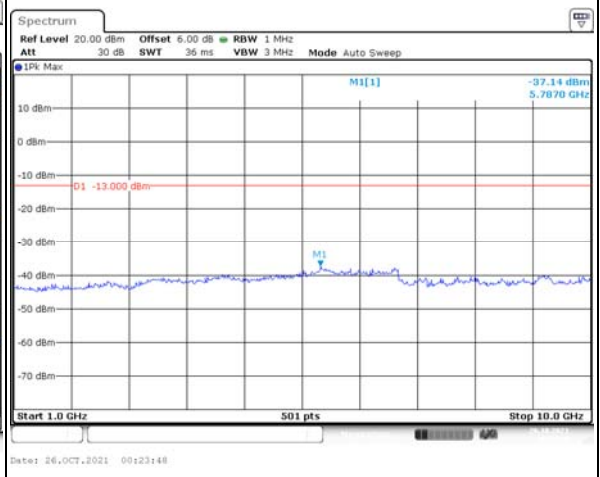
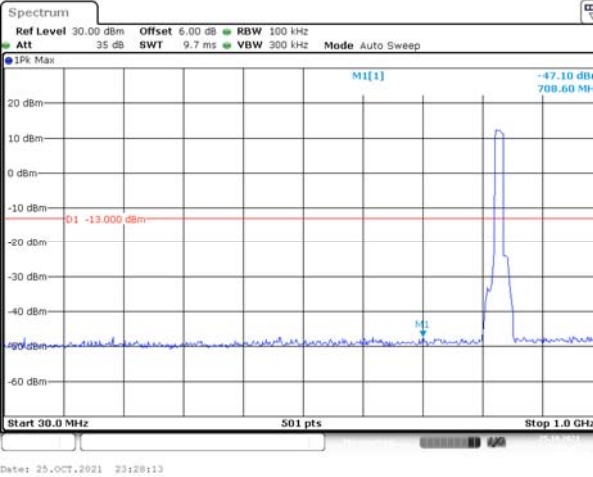
Channel

15MHz Bandwidth QPSK

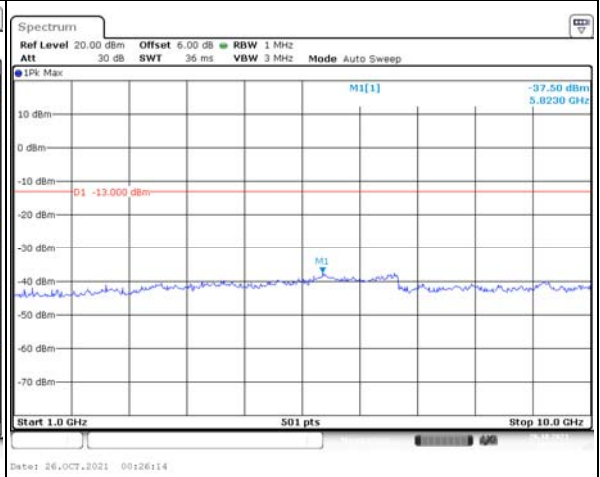
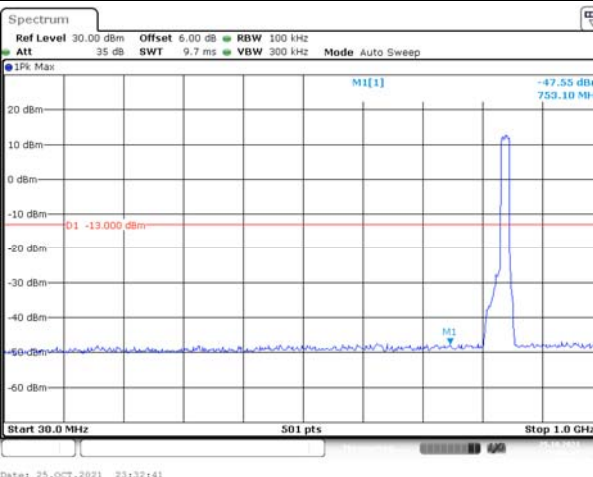
Lowest



Middle



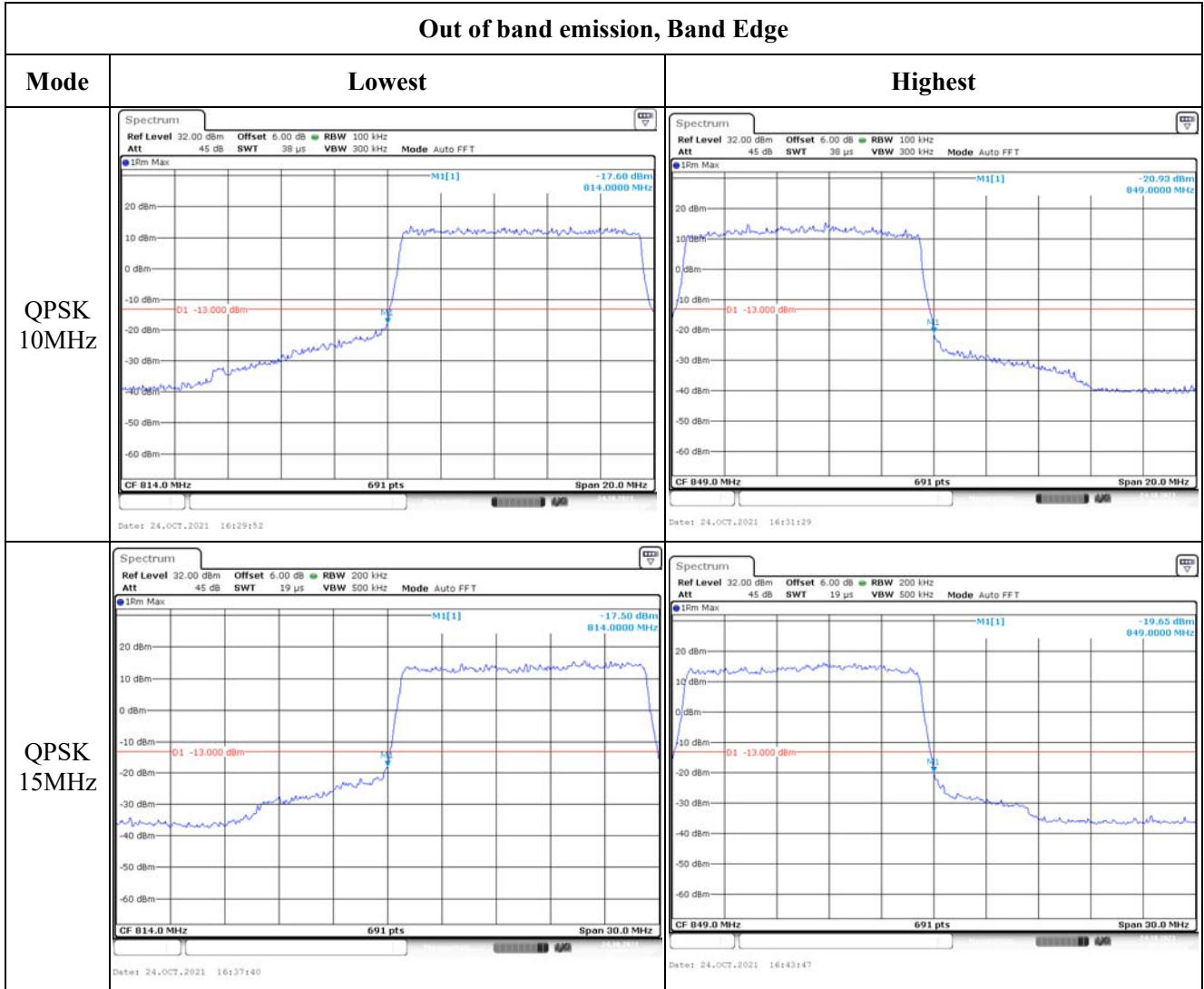
Highest



Out of band emission, Band Edge

Mode	Lowest	Highest
QPSK 1.4MHz		
QPSK 3MHz		
QPSK 5MHz		

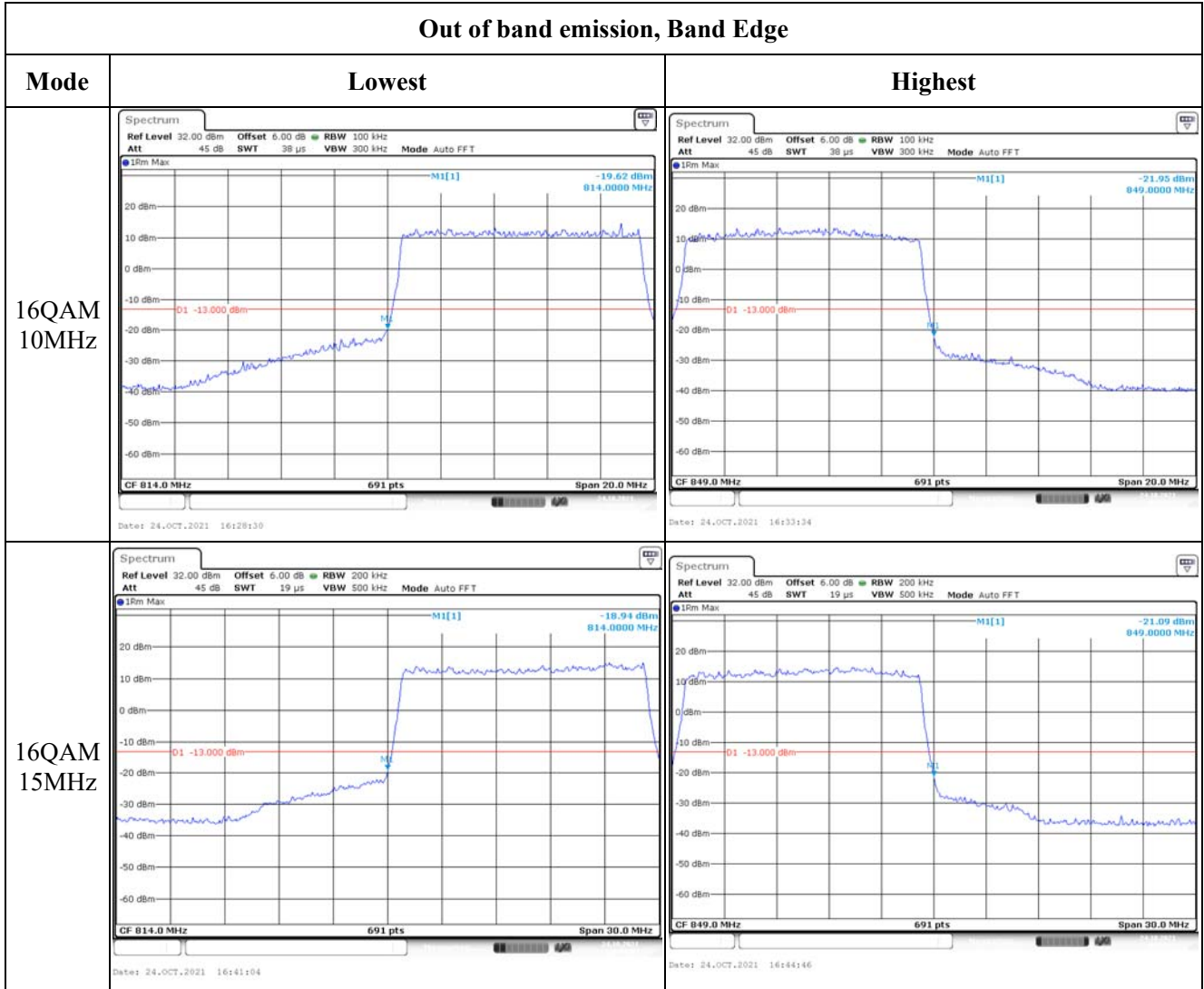
Out of band emission, Band Edge



Out of band emission, Band Edge

Mode	Lowest	Highest
16QAM 1.4MHz		
16QAM 3MHz		
16QAM 5MHz		

Out of band emission, Band Edge



4.4 Spurious Emissions

Serial Number:	CR21100011-RF-S1	Test Date:	2021-10-26~2021-10-27
Test Site:	966-2, 966-1	Test Mode:	Transmitting
Tester:	Allen Wu	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.6~26.1	Relative Humidity: (%)	58~66	ATM Pressure: (kPa)	100.6~101.4
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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	2021-07-22	2022-07-21
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2021-07-18	2022-07-17
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2021-07-18	2022-07-17
Sonoma	Amplifier	310N	186165	2021-07-18	2022-07-17
Audix	Test Software	E3	201021 (V9)	N/A	N/A
Mini Circuits	High Pass Filter	VHF-1200+	15542	2021-08-08	2022-08-07
ETS-Lindgren	Horn Antenna	3115	9912-5985	2020-10-13	2023-10-12
R&S	Spectrum Analyzer	FSV40	101591	2021-07-22	2022-07-21
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2021-08-08	2022-08-07
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2021-08-08	2022-08-07
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2021-08-08	2022-08-07

* 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:**LTE Band 14 (30MHz-10GHz):**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dB μ V)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
5M QPSK, Frequency: 790.5 MHz								
1581.00	H	37.44	-66.70	8.60	0.81	-58.91	-13.00	45.91
1581.00	V	37.38	-66.80	8.60	0.81	-59.01	-13.00	46.01
2371.50	H	35.46	-65.72	9.32	0.97	-57.37	-13.00	44.37
2371.50	V	35.66	-65.27	9.32	0.97	-56.92	-13.00	43.92
3162.00	H	36.03	-60.80	10.26	1.13	-51.67	-13.00	38.67
3162.00	V	35.85	-60.77	10.26	1.13	-51.64	-13.00	38.64
333.70	H	27.87	-82.34	0.00	0.35	-82.69	-13.00	69.69
261.10	V	27.94	-82.55	0.00	0.31	-82.86	-13.00	69.86
5M QPSK, Frequency: 793 MHz								
1586.00	H	36.71	-67.46	8.60	0.82	-59.68	-13.00	46.68
1586.00	V	37.36	-66.85	8.60	0.82	-59.07	-13.00	46.07
2379.00	H	35.31	-65.79	9.33	0.98	-57.44	-13.00	44.44
2379.00	V	34.90	-65.95	9.33	0.98	-57.60	-13.00	44.60
3172.00	H	35.69	-61.10	10.27	1.13	-51.96	-13.00	38.96
3172.00	V	36.09	-60.49	10.27	1.13	-51.35	-13.00	38.35
305.68	H	28.48	-82.15	0.00	0.34	-82.49	-13.00	69.49
30.21	V	25.69	-54.44	-26.20	0.10	-80.74	-13.00	67.74
5M QPSK, Frequency: 795.5 MHz								
1591.00	H	37.05	-67.16	8.61	0.82	-59.37	-13.00	46.37
1591.00	V	36.70	-67.54	8.61	0.82	-59.75	-13.00	46.75
2386.50	H	34.98	-66.05	9.33	0.98	-57.70	-13.00	44.70
2386.50	V	35.37	-65.40	9.33	0.98	-57.05	-13.00	44.05
3182.00	H	36.15	-60.61	10.27	1.12	-51.46	-13.00	38.46
3182.00	V	36.19	-60.34	10.27	1.12	-51.19	-13.00	38.19
627.09	H	28.92	-75.84	0.00	0.48	-76.32	-13.00	63.32
311.08	V	28.87	-79.65	0.00	0.34	-79.99	-13.00	66.99

LTE Band 26 (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)			
1.4M QPSK, Frequency: 814.7 MHz								
1629.40	H	37.23	-67.05	8.66	0.81	-59.20	-13.00	46.20
1629.40	V	36.72	-67.62	8.66	0.81	-59.77	-13.00	46.77
2444.10	H	35.73	-65.06	9.37	1.00	-56.69	-13.00	43.69
2444.10	V	35.30	-65.36	9.37	1.00	-56.99	-13.00	43.99
3258.80	H	36.85	-59.49	10.30	1.17	-50.36	-13.00	37.36
3258.80	V	36.02	-60.07	10.30	1.17	-50.94	-13.00	37.94
715.04	H	29.22	-75.05	0.00	0.50	-75.55	-13.00	62.55
724.26	V	32.17	-68.49	0.00	0.51	-69.00	-13.00	56.00
1.4M QPSK, Frequency: 831.5 MHz								
1663.00	H	36.36	-67.92	8.70	0.83	-60.05	-13.00	47.05
1663.00	V	37.04	-67.34	8.70	0.83	-59.47	-13.00	46.47
2494.50	H	35.05	-65.62	9.40	1.01	-57.23	-13.00	44.23
2494.50	V	35.16	-65.53	9.40	1.01	-57.14	-13.00	44.14
3326.00	H	36.68	-59.59	10.33	1.16	-50.42	-13.00	37.42
3326.00	V	36.14	-59.95	10.33	1.16	-50.78	-13.00	37.78
660.02	H	29.66	-75.03	0.00	0.51	-75.54	-13.00	62.54
681.16	V	28.31	-73.43	0.00	0.52	-73.95	-13.00	60.95
1.4M QPSK, Frequency: 848.3 MHz								
1696.60	H	37.31	-66.98	8.74	0.89	-59.13	-13.00	46.13
1696.60	V	36.86	-67.56	8.74	0.89	-59.71	-13.00	46.71
2544.90	H	35.90	-64.39	9.47	1.01	-55.93	-13.00	42.93
2544.90	V	34.98	-65.26	9.47	1.01	-56.80	-13.00	43.80
3393.20	H	35.98	-60.79	10.36	1.19	-51.62	-13.00	38.62
3393.20	V	36.66	-60.07	10.36	1.19	-50.90	-13.00	37.90
728.58	H	29.06	-74.90	0.00	0.52	-75.42	-13.00	62.42
312.18	V	28.30	-80.19	0.00	0.34	-80.53	-13.00	67.53

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

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