Certificate #7130.01

FCC Radio Test Report

FCC ID: ZMOSC208GL

This report concerns: Original Grant

Project No.	:	2405G016
Equipment	:	LTE Module
Brand Name	:	Fibocom
Test Model	:	SC208-GL
Series Model	:	N/A
Applicant	:	Fibocom Wireless Inc.
Address	:	1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan, Shenzhen, China
Manufacturer	:	Fibocom Wireless Inc.
Address	:	1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan, Shenzhen, China
Factory	:	Fibocom Wireless Inc.
Address	:	1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan, Shenzhen, China
Date of Receipt	:	May 08, 2024
Date of Test	:	May 09, 2024 ~ Jun. 25, 2024
Issued Date	:	Aug. 20, 2024
Report Version	:	R00
Test Sample	:	Engineering Sample No.: SSL20240508110 for radiated, SSL20240508108 for conducted.
Standard(s)	:	47 CFR FCC Part 24 Subpart E 47 CFR FCC Part 2

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

Prepared by : Abel. Cao

Abel Cao

Approved by : Steven Lu

Steven Lu

Room 108, Building 2, No.1, Yile Road, Songshan Lake Zone, Dongguan City, Guangdong, People's Republic of China

Tel: +86-769-8318-3000 Web: www.newbtl.com Service mail: btl_qa@newbtl.com

Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. BTL assumes no responsibility for the data provided by the customer, any statements, inferences or generalizations drawn by the customer or others from the reports issued by BTL.

The report must not be used by the client to claim product certification, approval, or endorsement by A2LA or any agency of the U.S. Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

BTL's laboratory quality assurance procedures are in compliance with the ISO/IEC 17025: 2017 requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.
Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-2-2405G016	R00	Original Report.	Aug. 20, 2024	Valid

1. APPLICABLE STANDARDS

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:
ANSI C63.26-2015
The following reference test guidance is not within the scope of accreditation of A2LA:
FCC KDB 971168 D01 Power Meas License Digital Systems v03r01

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part 24 Subpart E & Part 2			
Standard(s) Section	**Test Item**	**Judgment**	**Remark**
2.1046 24.232(c)	Equivalent Isotropic Radiated Power	PASS	------
2.1049	Occupied Bandwidth	PASS	------
2.1051 24.238(a)	Conducted Spurious Emissions	PASS	------
2.1053 24.238(a)	Radiated Spurious Emissions	PASS	------
24.238(a)	Band Edge Measurements	PASS	------
24.232(d)	Peak To Average Ratio	PASS	------
2.1055 24.235	Frequency Stability	PASS	------

Note:
(1) “N/A” denotes test is not applicable in this test report.

2.1 TEST FACILITY

For Radiated items:
The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Dalang, Dongguan City, Guangdong People's Republic of China.

For other items:
The test facilities used to collect the test data in this report is at the location of Room 108, Building 2, No.1, Yile Road, Songshan Lake Zone, Dongguan City, Guangdong, People's Republic of China.

BTL's Registration Number for FCC: 747969
BTL's Designation Number for FCC: CN1377

2.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))
The BTL measurement uncertainty as below table:

A. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	*U*,(dB)
DG-CB01	CISPR	9kHz ~ 30MHz	2.36

Test Site	Method	Measurement Frequency Range	Ant. H / V	*U*,(dB)
DG-CB03 (3m)	CISPR	30MHz ~ 200MHz	V	4.40
		30MHz ~ 200MHz	H	3.62
		200MHz ~ 1,000MHz	V	4.58
		200MHz ~ 1,000MHz	H	3.98

Test Site	Method	Measurement Frequency Range	*U*,(dB)
DG-CB03 (3m)	CISPR	1GHz ~ 6GHz	4.08
		6GHz ~ 18GHz	4.62

Test Site	Method	Measurement Frequency Range	*U*,(dB)
DG-CB03 (1m)	CISPR	18 ~ 26.5 GHz	3.36

B. Other Measurement:

Parameter	Uncertainty
Spectrum Bandwidth	±3.8 %
Maximum Output Power	±0.95 dB
Frequency Stability	±0.16 dB
Temperature	±0.46 °C
Time	±0.566 %
Supply voltages	±0.3 %

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

2.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By	Test Date
Output Power & EIRP	24°C	45%	DC 3.8V	Gavin Ge	May 15, 2024~ Jun. 11, 2024 Jun. 25, 2024
Occupied Bandwidth	24°C	45%	DC 3.8V	Gavin Ge	May 15, 2024~ Jun. 11, 2024
Conducted Spurious Emissions	24°C	45%	DC 3.8V	Gavin Ge	May 15, 2024~ Jun. 11, 2024
Radiated Spurious Emissions (9 kHz to 30 MHz)	23°C	42%	DC 3.8V	Hayden Chen	Jun. 12, 2024
Radiated Spurious Emissions (30 MHz to 1000 MHz)	23°C	56%	DC 3.8V	Jakyri Wen	Jun. 05, 2024
Radiated Spurious Emissions (Above 1000 MHz)	22-24°C	46-58%	DC 3.8V	Jakyri Wen	Jun. 06, 2024 Jun. 07, 2024
Band Edge	24°C	45%	DC 3.8V	Gavin Ge	May 15, 2024~ Jun. 11, 2024
Peak to Average Ratio	24°C	45%	DC 3.8V	Gavin Ge	May 15, 2024~ Jun. 11, 2024
Frequency Stability	Normal & Extreme	45%	Normal & Extreme	Gavin Ge	May 15, 2024~ Jun. 11, 2024

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	LTE Module			
Brand Name	Fibocom			
Test Model	SC208-GL			
Series Model	N/A			
Model Difference(s)	N/A			
Hardware Version	V1.0			
Software Version	SC208-GL-U16.00.026			
Power Source	DC voltage supplied from external power supply.			
Power Rating	DC 3.5V - 4.35V, Typical: 3.8V			
IMEI No.	Radiated	861822070003565		
	Conducted	861822070003996		
Modulation Type	GSM/GPRS		GMSK	
	EDGE		GMSK, 8PSK	
	WCDMA/HSDPA/HSUPA		UL: QPSK,16QAM DL: QPSK,16QAM,64QAM	
	LTE		UL: QPSK,16QAM DL: QPSK,16QAM,64QAM	
Max. EIRP (dBm)	GSM 1900 / GPRS 1900		GMSK	32.29
	EDGE 1900		8PSK	29.41
	WCDMA Band II		QPSK	26.05
	HSDPA Band II		QPSK	25.25
	HSUPA Band II		QPSK	25.17
	LTE	Channel Bandwidth (MHz)	QPSK (dBm)	16QAM (dBm)
	Band 2	1.4	25.87	25.14
		3	26.18	25.04
		5	25.87	24.92
		10	26.17	24.97
		15	26.02	25.52
		20	25.67	25.12
	Band 25	1.4	23.79	20.17
		3	23.87	20.17
		5	23.81	19.94
		10	23.97	20.91
		15	24.28	20.56
		20	24.02	20.26

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. Channel List:

PCS 1900(UL:1850-1910MHz, DL:1930-1990MHz)				
Test Frequency ID	UARFCN	Frequency of Uplink (MHz)	UARFCN	Frequency of Downlink (MHz)
Low Range	512	1850.2	528	1930.2
Mid Range	661	1880	677	1960
High Range	810	1909.8	826	1989.8

WCDMA Band II(UL:1850-1910MHz, DL:1930-1990MHz)				
Test Frequency ID	UARFCN	Frequency of Uplink (MHz)	UARFCN	Frequency of Downlink (MHz)
Low Range	9262	1852.4	9662	1932.4
Mid Range	9400	1880.0	9800	1960.0
High Range	9538	1907.6	9938	1987.6

LTE Band 2(UL:1850-1910MHz, DL:1930-1990MHz)					
Test Frequency ID	Bandwidth (MHz)	N_{UL}	Frequency of Uplink (MHz)	N_{DL}	Frequency of Downlink (MHz)
Low Range	1.4	18607	1850.7	607	1930.7
	3	18615	1851.5	615	1931.5
	5	18625	1852.5	625	1932.5
	10	18650	1855	650	1935
	15	18675	1857.5	675	1937.5
	20	18700	1860	700	1940
Mid Range	1.4/3/5/10/15/20	18900	1880	900	1960
High Range	1.4	19193	1909.3	1193	1989.3
	3	19185	1908.5	1185	1988.5
	5	19175	1907.5	1175	1987.5
	10	19150	1905	1150	1985
	15	19125	1902.5	1125	1982.5
	20	19100	1900	1100	1980

LTE Band 25(UL:1850-1915MHz, DL:1930-1995MHz)					
Test Frequency ID	Bandwidth (MHz)	N_{UL}	Frequency of Uplink (MHz)	N_{DL}	Frequency of Downlink (MHz)
Low Range	1.4	26047	1850.7	8047	1930.7
	3	26055	1851.5	8055	1931.5
	5	26065	1852.5	8065	1932.5
	10	26090	1855	8090	1935
	15	26115	1857.5	8115	1937.5
	20	26140	1860	8140	1940
Mid Range	1.4/3/5/10/15/20	26365	1882.5	8365	1962.5
High Range	1.4	26683	1914.3	8683	1994.3
	3	26675	1913.5	8675	1993.5
	5	26665	1912.5	8665	1992.5
	10	26640	1910	8640	1990
	15	26615	1907.5	8615	1987.5
	20	26590	1905	8590	1985

3. Table for Filed Antenna:

Manufacturer	P/N	Antenna Type	Connector	Gain (dBi)	Note
Shenzhen Bogesi Communication Technology Co., Ltd	GHT-019A	Dipole	SMA Male J	2.85	PCS 1900
				2.85	WCDMA Band II
				2.85	LTE Band 2
				2.77	LTE Band 25

Note: The antenna gain is provided by the manufacturer.

3.2 DESCRIPTION OF TEST MODES

Following mode(s) is (were) found to be the worst case(s) and selected for the final test.

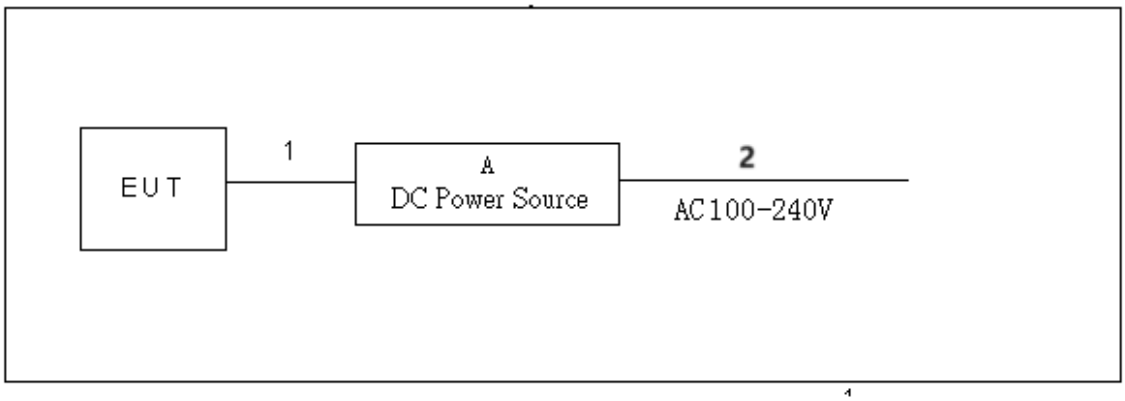
GSM MODE			
Test Item	Available Channel	Tested Channel	Mode
Output Power & EIRP	512 to 810	512, 661, 810	GSM, GPRS, EDGE
Occupied Bandwidth	512 to 810	512, 661, 810	GSM, EDGE
Conducted Spurious Emissions	512 to 810	661	GSM, EDGE
Radiated Spurious Emissions	512 to 810	661	GSM
Band Edge	512 to 810	512, 810	GSM, EDGE
Peak to Average Ratio	512 to 810	512, 661, 810	GSM, EDGE
Frequency Stability	512 to 810	512, 810	GSM

WCDMA BAND II MODE			
Test Item	Available Channel	Tested Channel	Mode
Output Power & EIRP	9262 to 9538	9262, 9400, 9538	WCDMA, HSDPA, HSUPA
Occupied Bandwidth	9262 to 9538	9262, 9400, 9538	WCDMA
Conducted Spurious Emissions	9262 to 9538	9400	WCDMA
Radiated Spurious Emissions	9262 to 9538	9400	WCDMA
Band Edge	9262 to 9538	9262, 9538	WCDMA
Peak To Average Ratio	9262 to 9538	9262, 9400, 9538	WCDMA
Frequency Stability	9262 to 9538	9262, 9538	WCDMA

LTE BAND 2 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Output Power & EIRP	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK, 16QAM	1RB/3RB/6RB
	18615 to 19185	18615 , 18900, 19185	3MHz	QPSK, 16QAM	1RB/8RB/15RB
	18625 to 19175	18625, 18900, 19175	5MHz	QPSK, 16QAM	1RB/12RB/25RB
	18650 to 19150	18650, 18900, 19150	10MHz	QPSK, 16QAM	1RB/25RB/50RB
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK, 16QAM	1RB/36RB/75RB
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK, 16QAM	1RB/50RB/100RB
Occupied Bandwidth	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK, 16QAM	6RB
	18615 to 19185	18615 , 18900, 19185	3MHz	QPSK, 16QAM	15RB
	18625 to 19175	18625, 18900, 19175	5MHz	QPSK, 16QAM	25RB
	18650 to 19150	18650, 18900, 19150	10MHz	QPSK, 16QAM	50RB
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK, 16QAM	75RB
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK, 16QAM	100RB
Conducted Spurious Emissions	18607 to 19193	18900	1.4 MHz	QPSK	1RB
	18625 to 19175	18900	5MHz	QPSK	1RB
	18700 to 19100	18900	20MHz	QPSK	1RB
Radiated Spurious Emissions	18607 to 19193	18900	1.4 MHz	QPSK	1RB
	18625 to 19175	18900	5MHz	QPSK	1RB
	18700 to 19100	18900	20MHz	QPSK	1RB
Band Edge	18607 to 19193	18607, 19193	1.4MHz	QPSK	1RB/6RB
	18615 to 19185	18615, 19185	3MHz	QPSK	1RB/15RB
	18625 to 19175	18625, 19175	5MHz	QPSK	1RB/25RB
	18650 to 19150	18650, 19150	10MHz	QPSK	1RB/50RB
	18675 to 19125	18675, 19125	15MHz	QPSK	1RB/75RB
	18700 to 19100	18700, 19100	20MHz	QPSK	1RB/100RB
Peak To Average Ratio	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK, 16QAM	1RB
	18615 to 19185	18615 , 18900, 19185	3MHz	QPSK, 16QAM	1RB
	18625 to 19175	18625, 18900, 19175	5MHz	QPSK, 16QAM	1RB
	18650 to 19150	18650, 18900, 19150	10MHz	QPSK, 16QAM	1RB
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK, 16QAM	1RB
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK, 16QAM	1RB
Frequency Stability	18700 to 19100	18700, 19100	20MHz	QPSK	100RB

LTE BAND 25 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Output Power & EIRP	26047 to 26683	26047, 26365, 22683	1.4MHz	QPSK, 16QAM	1RB/3RB/6RB
	26055 to 26675	26055, 26365, 26675	3MHz	QPSK, 16QAM	1RB/8RB/15RB
	26065 to 26665	26065, 26365, 26665	5MHz	QPSK, 16QAM	1RB/12RB/25RB
	26090 to 26640	26090, 26365, 26640	10MHz	QPSK, 16QAM	1RB/25RB/50RB
	26115 to 26615	26115, 26365, 26615	15MHz	QPSK, 16QAM	1RB/36RB/75RB
	26140 to 26590	26140, 26365, 26590	20MHz	QPSK, 16QAM	1RB/50RB/100RB
Occupied Bandwidth	26047 to 26683	26047, 26365, 22683	1.4MHz	QPSK, 16QAM	6RB
	26055 to 26675	26055, 26365, 26675	3MHz	QPSK, 16QAM	15RB
	26065 to 26665	26065, 26365, 26665	5MHz	QPSK, 16QAM	25RB
	26090 to 26640	26090, 26365, 26640	10MHz	QPSK, 16QAM	50RB
	26115 to 26615	26115, 26365, 26615	15MHz	QPSK, 16QAM	75RB
	26140 to 26590	26140, 26365, 26590	20MHz	QPSK, 16QAM	100RB
Conducted Spurious Emissions	26047 to 26683	26365	1.4MHz	QPSK	1RB
	26065 to 26665	26365	5MHz	QPSK	1RB
	26140 to 26590	26365	20MHz	QPSK	1RB
Radiated Spurious Emissions	26047 to 26683	26365	1.4MHz	QPSK	1RB
	26065 to 26665	26365	5MHz	QPSK	1RB
	26140 to 26590	26365	20MHz	QPSK	1RB
Band Edge	26047 to 26683	26047, 26683	1.4MHz	QPSK	1RB/6RB
	26055 to 26675	26055, 26675	3MHz	QPSK	1RB/15RB
	26065 to 26665	26065, 26665	5MHz	QPSK	1RB/25RB
	26090 to 26640	26090, 26640	10MHz	QPSK	1RB/50RB
	26115 to 26615	26115, 26615	15MHz	QPSK	1RB/75RB
	26140 to 26590	26140, 26590	20MHz	QPSK	1RB/100RB
Peak To Average Ratio	26047 to 26683	26047, 26365, 22683	1.4MHz	QPSK, 16QAM	1RB
	26055 to 26675	26055, 26365, 26675	3MHz	QPSK, 16QAM	1RB
	26065 to 26665	26065, 26365, 26665	5MHz	QPSK, 16QAM	1RB
	26090 to 26640	26090, 26365, 26640	10MHz	QPSK, 16QAM	1RB
	26115 to 26615	26115, 26365, 26615	15MHz	QPSK, 16QAM	1RB
	26140 to 26590	26140, 26365, 26590	20MHz	QPSK, 16QAM	1RB
Frequency Stability	26140 to 26590	26140, 26590	20MHz	QPSK	100RB

3.3 BLOCKDIGRAMSHOWINGTHECONFIGURATIONOFSYSTEMTESTED



2.4 DESCRIPTION OF SUPPORT UNITS

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

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.
A	DC Power Source	UNI-T	UDP6721	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1.2m
2	AC Cable	NO	NO	1.2m

4. TEST RESULT

4.1 OUTPUT POWER MEASUREMENT

4.1.1 LIMIT

Mobile / Portable stations are limited to 2 watts e.i.r.p.

4.1.2 TEST PROCEDURE

The testing follows FCC KDB 971168 v03r01 Section 5 or ANSI C63.26-2015 Section 5.2.

EIRP:

EIRP = Output Power + Antenan gain

Output Power:

The EUT was set up for the maximum power with GSM, GPRS, EDGE, WCDMA and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

4.1.3 TEST SETUP LAYOUT

Output Power Measurement

4.1.4 TEST DEVIATION

No deviation.

4.1.5 TEST RESULTS

Please refer to the APPENDIX A.

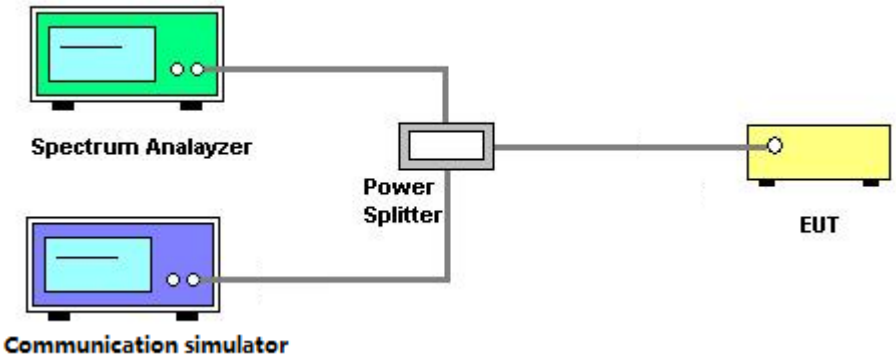
4.2 OCCUPIED BANDWIDTH MEASUREMENT

4.2.1 TEST PROCEDURE

The testing follows FCC KDB 971168 v03r01 Section 4 or ANSI C63.26-2015 Section 5.4.

1. The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth and 26dB bandwidth.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. RBW=(1% ~ 5%)*EBW
   VBW≥3* RBW
4. Set spectrum analyzer with Peak detector.

4.2.2 TEST SETUP LAYOUT



4.2.3 TEST DEVIATION

No deviation.

4.2.4 TEST RESULTS

Please refer to the APPENDIX B.

4.3 CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

4.3.1 LIMIT

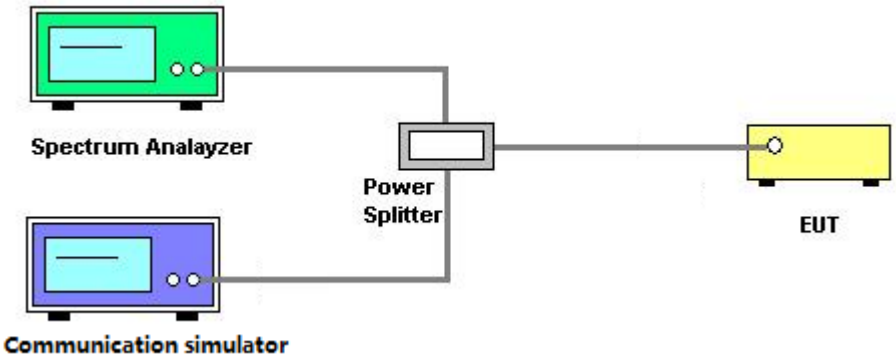
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

4.3.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 6 or ANSI C63.26-2015 Section 5.7.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured. Set RBW>=1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
3. Set spectrum analyzer with Peak or RMS detector.
4. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

4.3.3 TEST SETUP LAYOUT



4.3.4 TEST DEVIATION

No deviation.

4.3.5 TEST RESULTS

Please refer to the APPENDIX C.

4.4 RADIATED SPURIOUS EMISSIONS MEASUREMENT

4.4.1 LIMIT

The power of any emission outside of theauthorized operating frequency ranges must be attenuated below the transmitting power (P) by a factorof at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

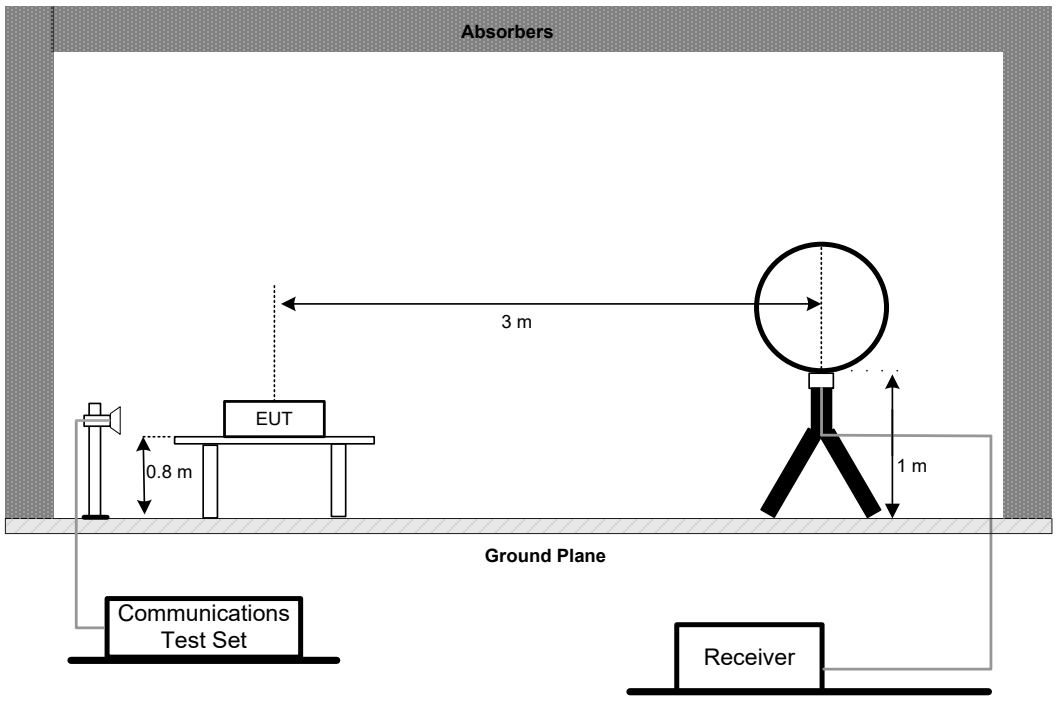
4.4.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 6.2 or ANSI C63.26-2015 Section 5.5.

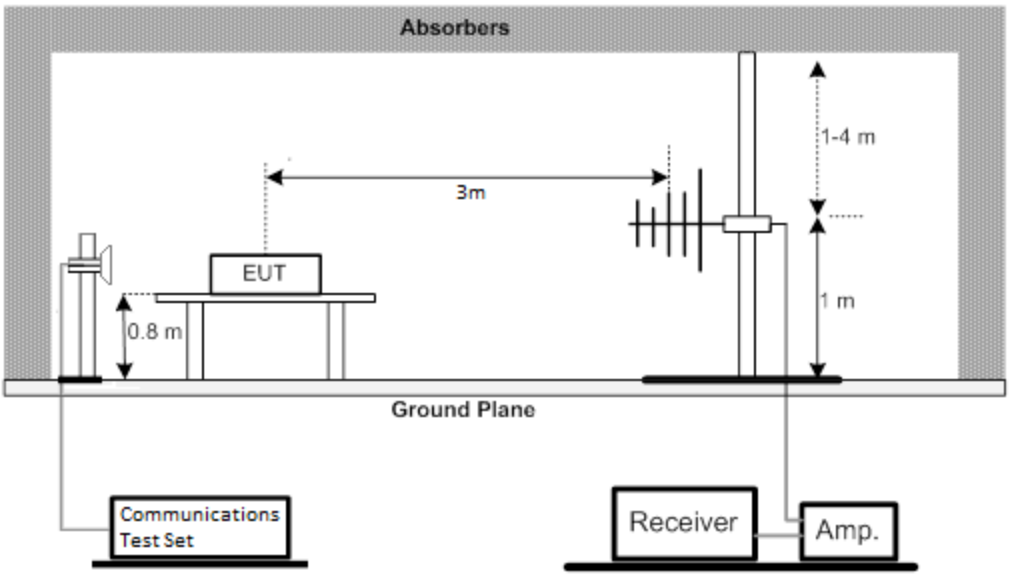
1. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
3. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
4. Start the test, rotate the table 360° to find the worst Angle, maintain the worst Angle, raise the antenna to 1-4m to find the worst height, maintain the worst height, then rotate the table to determine the final worst Angle, grab the spectrum diagram.
5. EUT shall be placed in accordance with X,Y,Z as required by Figure 5 in ANSI C63.26.
   Repeat Step 5 above to find the worst placement. Test all bands according to the worst placement.
6. Then EIRP is then converted to field strength as follows in Equation
7. E (dBuV/m) = EIRP (dBm) - 20log(D) + 104.8; where D is the measurement distance (in the far field region) in m.The emission limit equal to 82.26dBuV/m.

4.4.3 TEST SETUP LAYOUT

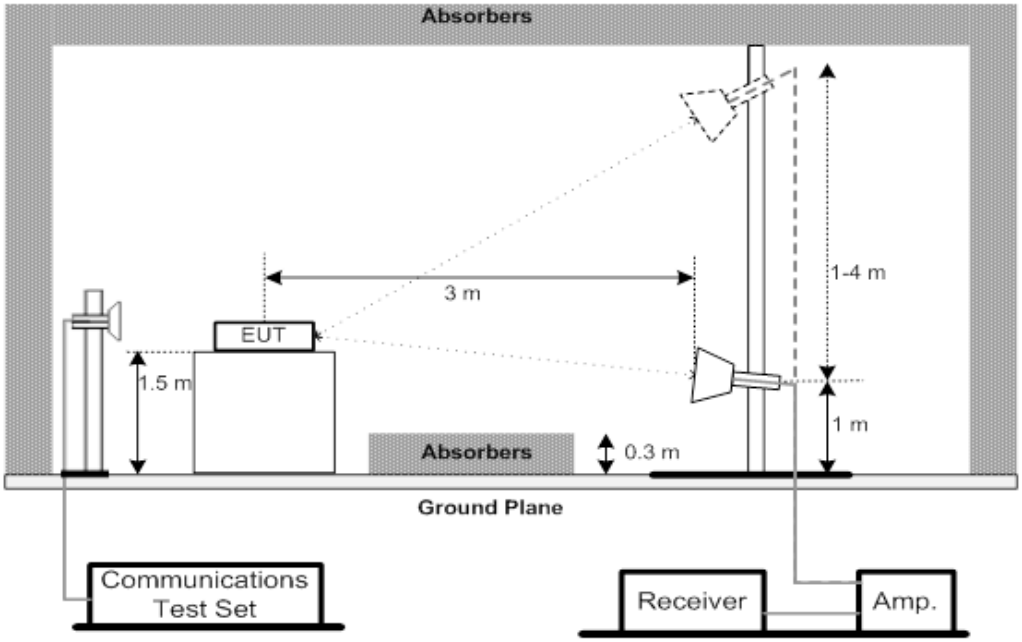
Below 30MHz



30MHz to 1000MHz



Above 1GHz



4.4.4 TEST DEVIATION

No deviation.

4.4.5 TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the APPENDIX D.

4.4.6 TEST RESULTS (30MHZ TO 1000MHZ)

Please refer to the APPENDIX E.

4.4.7 TEST RESULTS (ABOVE 1000MHZ)

Please refer to the APPENDIX F.

4.5 BAND EDGE MEASUREMENT

4.5.1 LIMIT

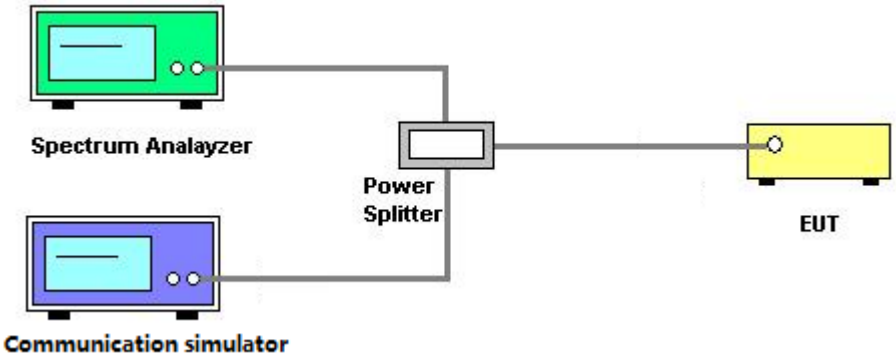
A Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

4.5.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 6 or ANSI C63.26-2015 Section 5.7.

1. All measurements were done at low and high operational frequency range.
2. Record the max trace plot into the test report.

4.5.3 TEST SETUP LAYOUT



4.5.4 TEST DEVIATION

No deviation.

4.5.5 TEST RESULTS

Please refer to the APPENDIX G.

4.6 PEAK TO AVERAGE RATIO MEASUREMENT

4.6.1 LIMIT

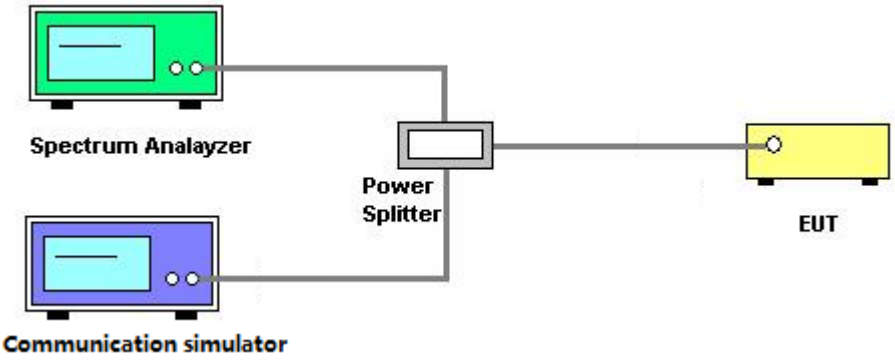
In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

4.6.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 5.7 or ANSI C63.26-2015 Section 5.2.6.

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.

4.6.3 TEST SETUP LAYOUT



4.6.4 TEST DEVIATION

No deviation.

4.6.5 TEST RESULTS

Please refer to the APPENDIX H.

4.7 FREQUENCY STABILITY MEASUREMENT

4.7.1 LIMIT

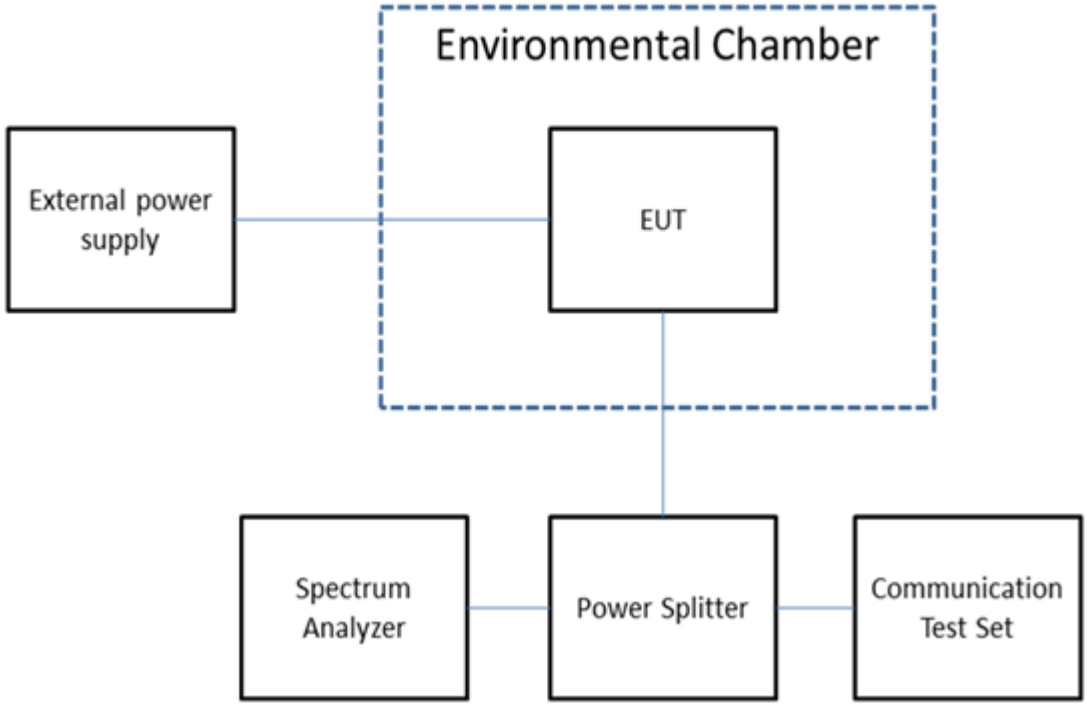
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

4.7.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 9 or ANSI C63.26-2015 Section 5.6.

1. A reference point shall be established at the applicable unwanted emissions limit using a RBW equal to the RBW required by the unwantedemissions specification of the applicable regulatory standard. These reference points measuredusing the lowest and highest channel of operation shall be identified as f L and f H respectively. The worst-case frequency offset determined in the above methods shall be added or subtracted from the values of f L and f H and the resulting frequencies must remain within the band.
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

4.7.3 TEST SETUP LAYOUT



4.7.4 TEST DEVIATION

No deviation.

4.7.5 TEST RESULTS

Please refer to the APPENDIX I.

4. LIST OF MEASUREMENT EQUIPMENTS

Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Active Loop Antenna	Schwarzbeck	FMZB 1513-60B	1513-60 B-034	Mar. 30, 2025
2*	MXE EMI Receiver	Keysight	N9038A	MY56400091	Dec. 22, 2024
3	Cable	N/A	RW2350-3.8A-NMBM-1.5M	N/A	Jun. 09, 2025
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
5	966 Chamber room	ETS	9*6*6	N/A	Jul. 11, 2024
6	DC power supply	UNI-T	UDP6721	AWP7224050031	Mar. 20, 2025
7	Wideband Radio Communication tester	R&S	CMW500	168838	Jul. 07, 2024

Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	1462	Dec.13, 2024
2	Attenuator	EMC INSTRUMENT	EMCI-N-6-06	AT-06009	Dec.13, 2024
3	Preamplifier	EMC INSTRUMENT	EMC001330	980863	Apr. 07, 2025
4	Cable	RegalWay	LMR400-NMNM-12.5m	N/A	Jul. 04, 2024
5	Cable	RegalWay	LMR400-NMNM-3m	N/A	Jul. 04, 2024
6	Cable	RegalWay	LMR400-NMNM-0.5m	N/A	Jul. 04, 2024
7	Receiver	Agilent	N9038A	MY52130039	Dec. 22, 2024
8	Positioning Controller	MF	MF-7802	N/A	N/A
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
10	966 Chamber room	CM	9*6*6	N/A	May 16, 2025
11	DC power supply	UNI-T	UDP6721	AWP7224050031	Mar. 20, 2025
12	Wideband Radio Communication tester	R&S	CMW500	168838	Jul. 07, 2024

Radiated Emissions - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Receiver	Agilent	N9038A	MY52130039	Dec. 22, 2024
2	Preamplifier	EMC INSTRUMENT	EMC118A45SE	980888	Nov. 17, 2024
3	EXA Spectrum Analyzer	Keysight	N9010A	MY55150209	May 31, 2025
4	Double Ridged Guide Antenna	ETS	3115	75846	Mar 20, 2025
5	Cable	RegalWay	RWLP50-4.0A-SMSM-12.5M	N/A	Feb. 19, 2025
6	Cable	RegalWay	RWLP50-4.0A-NMRASM-2.5M	N/A	Aug. 08, 2024
7	Cable	RegalWay	RWLP50-4.0A-NMRASMRA-0.8M	N/A	Aug. 08, 2024
8	Low Noise Amplifier	CONNPHY	CLN-18G40G-4330-K	619413	Jul. 06, 2024
9	Cable	RegalWay	RWLP50-2.6A-2.92M2.92M-1.1M	N/A	Jul. 26, 2024
10	Cable	Tonscend	HF160-KMKM-3M	N/A	Jul. 26, 2024
11	Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	1227	Oct. 10, 2024
12	966 Chamber room	CM	9*6*6	N/A	May 19, 2025
13	Positioning Controller	MF	MF-7802	N/A	N/A
14	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
15	DC power supply	UNI-T	UDP6721	AWP7224050031	Mar. 20, 2025
16	Broadband double ridged horn antenna	Regalway	RW10180-N	1911004	N/A
17	Wideband Radio Communication tester	R&S	CMW500	168838	Jul. 07, 2024

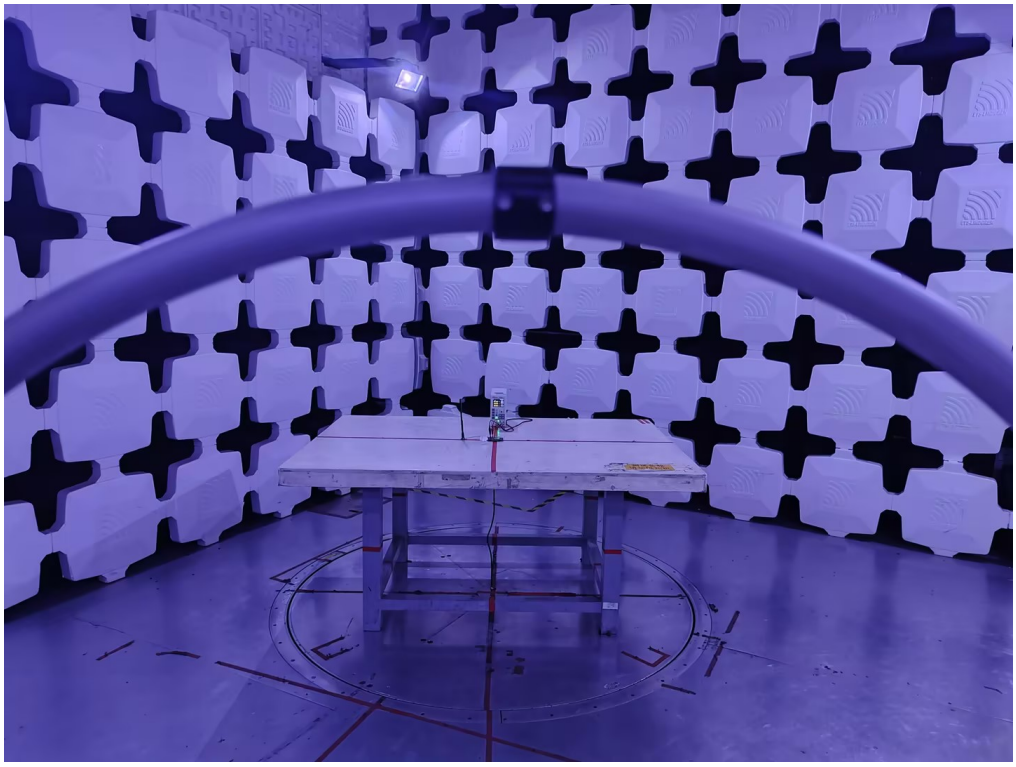
Conducted Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Wideband Radio Communication Tester	R&S	CWM 500	131463	Jan. 19, 2025
2	MXA Signal Analyzer	Agilent Technologies	N9020A	MY49100060	Jul. 07, 2024
3	DC power supply	UNI-T	UDP6721	AWP7224050018	Mar. 20, 2025
4	8960 SERIES 10 Wireless Communications Test Set	Agilent Technologies	E5515E	MY52112163	Jul. 08, 2024
5	Temperature Chamber	ESPEC	SU-242	93018777	Jul. 07, 2024

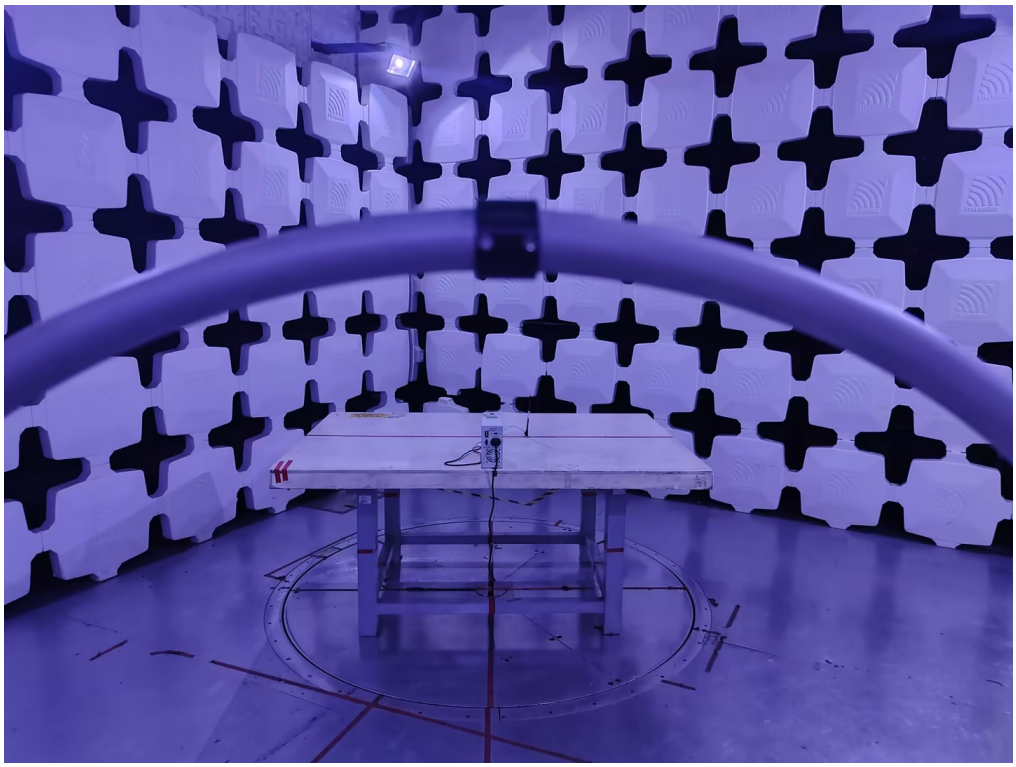
Remark: ”N/A” denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

5. EUT TEST PHOTO

Radiated Emissions Test Photos

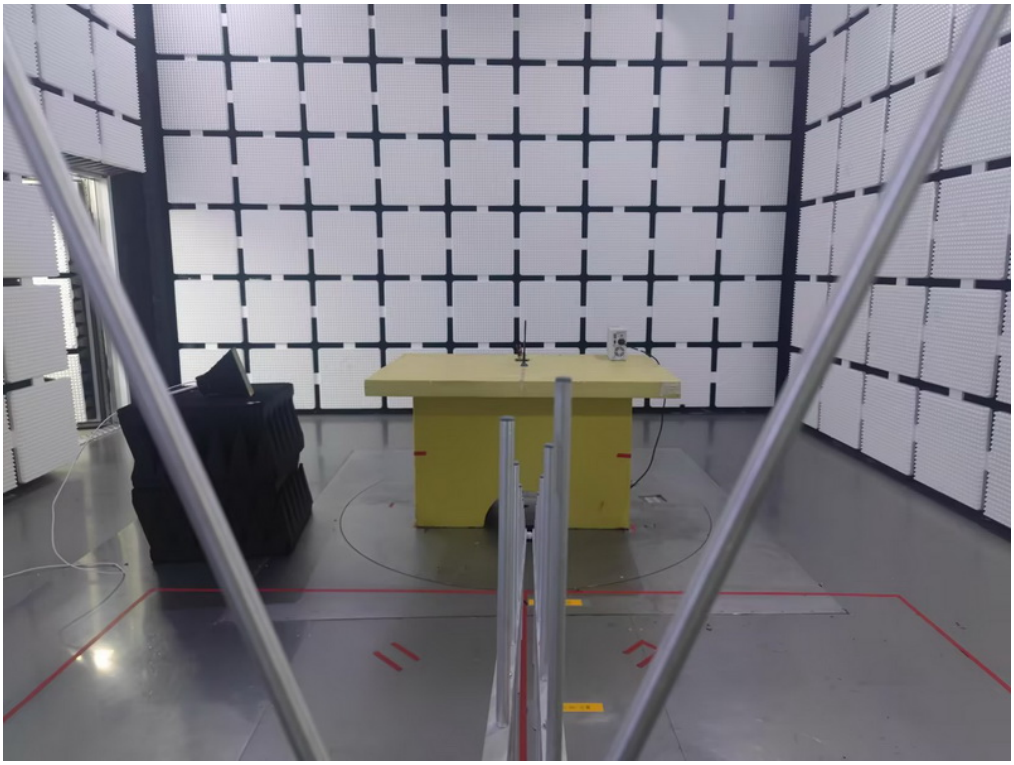
9 kHz to 30 MHz

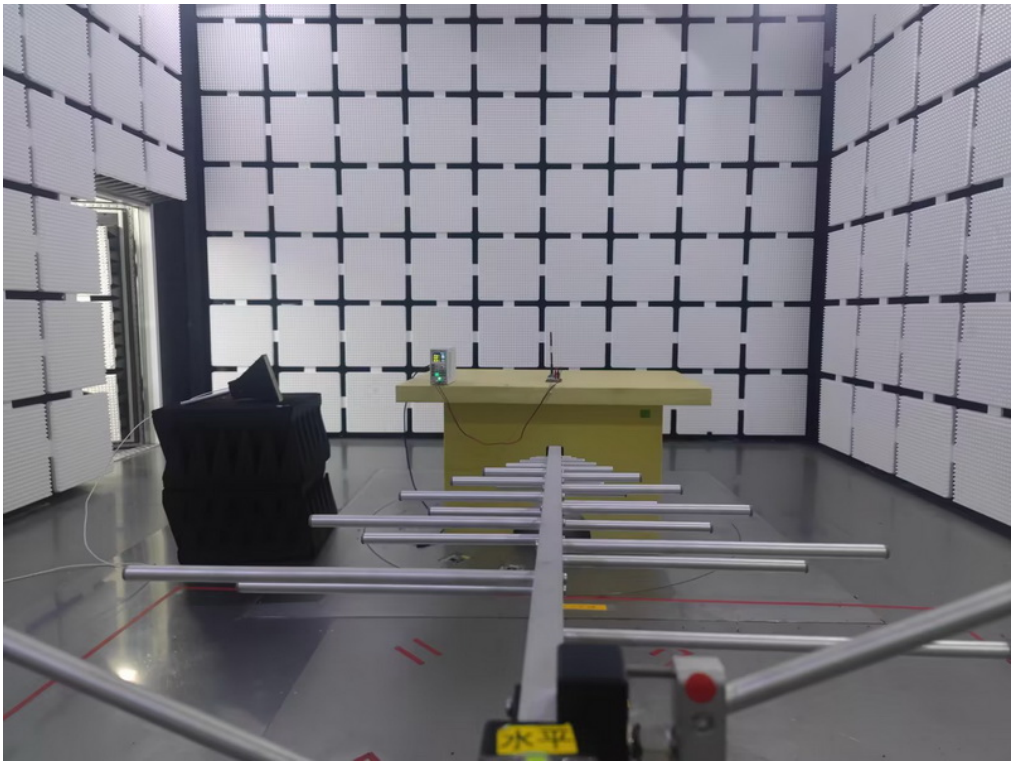




Radiated Emissions Test Photos

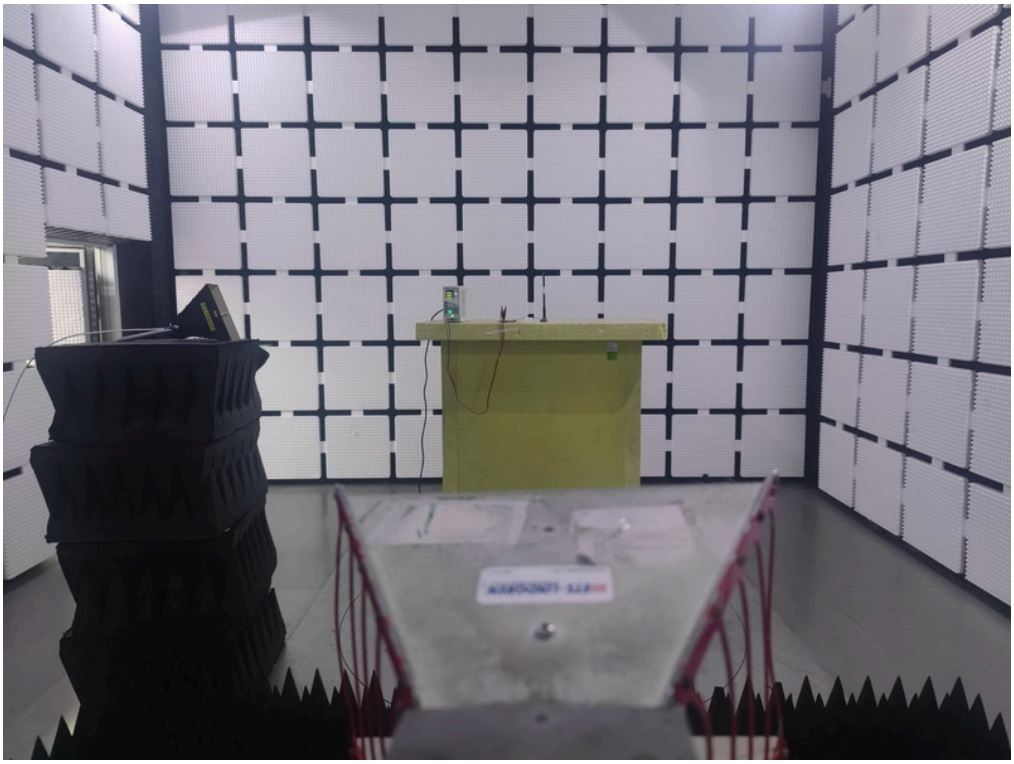
30 MHz to 1 GHz





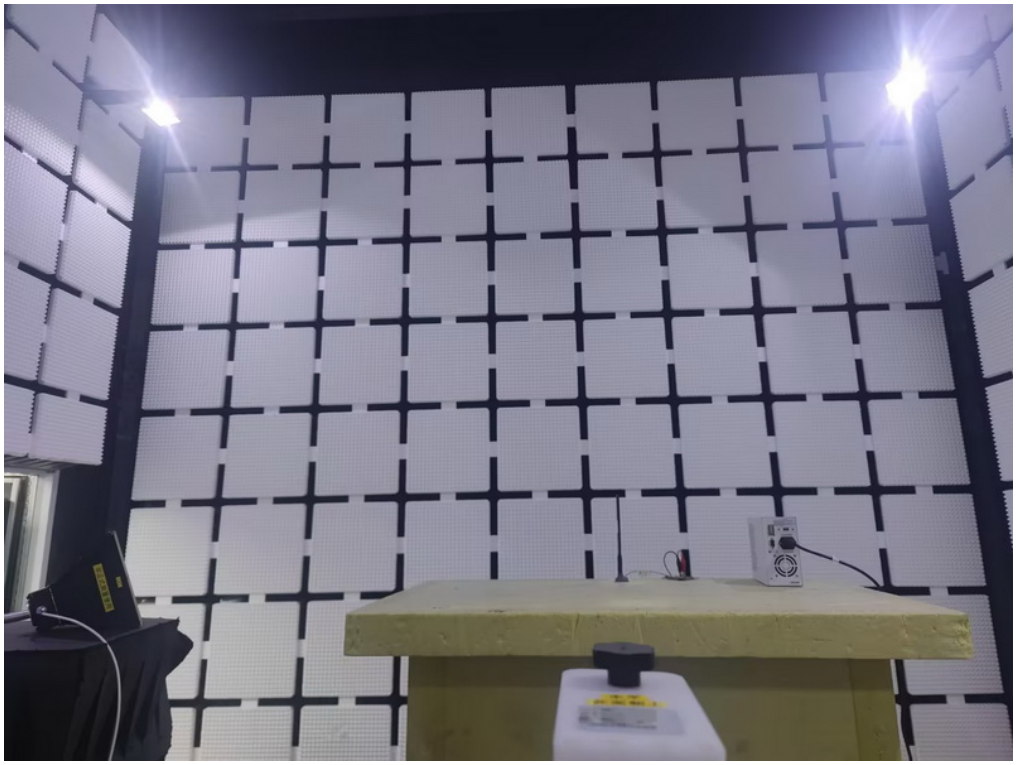
Radiated Emissions Test Photos

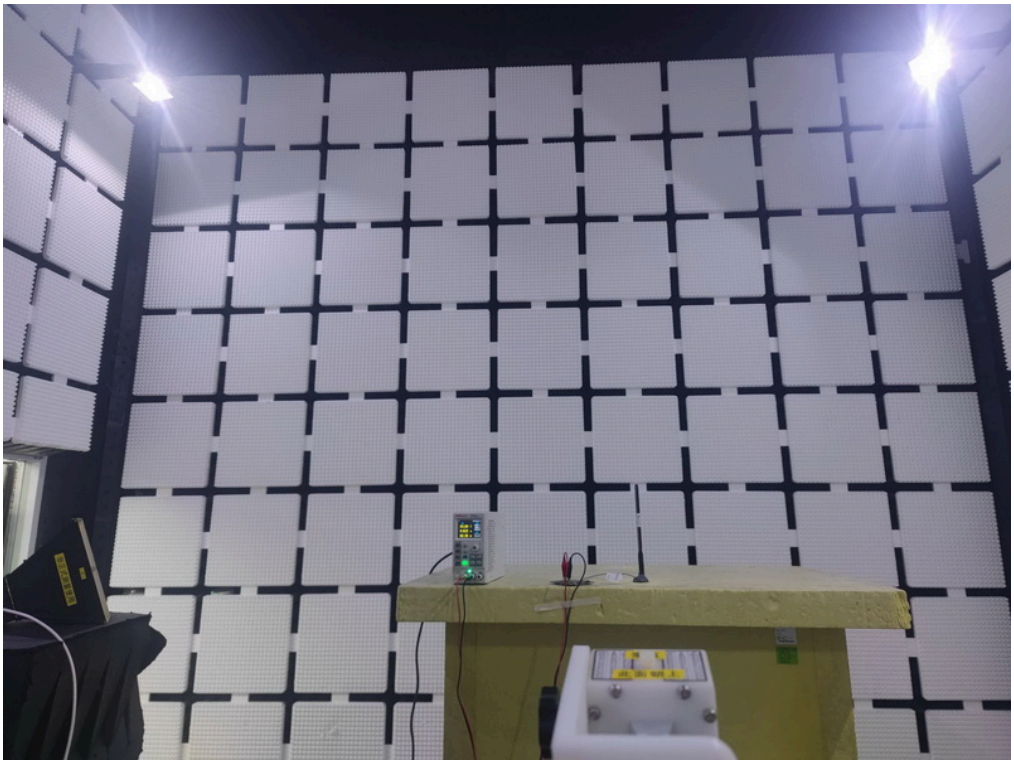
1 GHz to 18 GHz



Radiated Emissions Test Photos

Above 18 GHz





APPENDIX A - OUTPUT POWER

Output Power (dBm)

PCS1900		512CH	661CH	810CH
		1850.2MHz	1880MHz	1909.8MHz
GSM (CS)		29.4	29.16	28.83
GPRS/EDGE (GMSK)	1 Tx Slot	29.44	29.12	28.81
	2 Tx Slot	29.35	29.06	28.75
	3 Tx Slot	28.41	28.03	27.64
	4 Tx Slot	26.43	26.12	25.69
EDGE (8PSK)	1 Tx Slot	26.56	26.04	26.03
	2 Tx Slot	25.49	24.87	25.07
	3 Tx Slot	24.55	24.14	23.65
	4 Tx Slot	23.5	22.99	22.70

Modulation	Band	WCDMA Band II		
	Tx Channel	9262CH	9400CH	9538CH
	Frequency	1852.4MHz	1880MHz	1907.6MHz
QPSK	RMC 12.2K	23.15	23.12	23.2
	RMC 64K	23.2	23.12	23.07
	RMC 144K	23.17	23.09	23.14
	RMC 384K	23.19	23.14	23.05
	HSDPA Subtest-1	22.4	22.16	22
	HSDPA Subtest-2	22.38	22.23	21.96
	HSDPA Subtest-3	22.35	22.13	21.92
	HSDPA Subtest-4	22.18	22.01	21.88
	HSUPA Subtest-1	22.32	22.1	21.93
	HSUPA Subtest-2	20.39	20.15	19.99
	HSUPA Subtest-3	21.25	21.11	20.99
	HSUPA Subtest-4	19.41	20.18	20
	HSUPA Subtest-5	22.26	22.19	21.92

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18607CH	18900CH	19193CH
				1850.7MHz	1880MHz	1909.3MHz
2 / 1.4MHz	QPSK	1	0	23.02	22.63	22.50
		1	2	23.01	22.56	22.49
		1	5	22.98	22.49	22.47
		3	0	22.91	22.46	22.50
		3	1	22.98	22.60	22.64
		3	2	22.87	22.57	22.60
		6	0	22.12	21.68	21.55
	16QAM	1	0	21.95	21.68	21.77
		1	2	22.29	21.84	21.78
		1	5	22.04	21.59	21.77
		3	0	22.27	21.83	21.39
		3	1	22.18	21.65	21.45
		3	2	22.13	21.70	21.50
		6	0	21.38	20.53	20.68

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18615CH	18900CH	19185CH
				1851.5MHz	1880MHz	1908.5MHz
2 / 3MHz	QPSK	1	0	23.10	22.43	22.76
		1	7	23.33	22.89	22.76
		1	14	23.08	22.47	22.60
		8	0	21.98	21.79	21.78
		8	4	21.88	21.74	21.70
		8	7	22.02	21.79	21.69
		15	0	22.04	21.77	21.74
	16QAM	1	0	21.99	21.82	21.90
		1	7	21.89	21.83	22.19
		1	14	21.82	21.74	21.84
		8	0	21.11	21.03	20.62
		8	4	21.21	21.06	20.55
		8	7	21.29	21.02	20.65
		15	0	21.07	20.88	20.81

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18625CH	18900CH	19175CH
				1852.5MHz	1880MHz	1907.5MHz
2 / 5MHz	QPSK	1	0	22.66	22.40	22.26
		1	13	23.02	22.32	22.25
		1	24	22.80	22.11	22.14
		12	0	22.06	21.73	21.79
		12	6	22.02	21.74	21.80
		12	11	21.99	21.74	21.79
		25	0	22.06	21.74	21.78
	16QAM	1	0	22.07	21.68	21.86
		1	13	21.50	21.77	21.86
		1	24	21.72	21.36	21.15
		12	0	21.03	20.68	20.69
		12	6	21.02	20.75	20.75
		12	11	20.99	20.77	20.76
		25	0	21.27	21.01	20.84

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18650CH	18900CH	19150CH
				1855MHz	1880MHz	1905MHz
2 / 10MHz	QPSK	1	0	23.16	22.53	22.57
		1	25	23.32	22.78	22.86
		1	49	22.78	22.40	22.45
		25	0	22.07	21.83	21.84
		25	13	22.12	21.81	21.89
		25	25	21.94	21.77	21.77
		50	0	22.09	21.75	21.92
	16QAM	1	0	22.12	21.57	21.98
		1	25	22.12	21.77	21.94
		1	49	22.09	21.58	21.75
		25	0	21.11	20.97	21.25
		25	13	21.16	21.01	21.25
		25	25	21.14	20.89	21.11
		50	0	21.19	20.86	21.05

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18675CH	18900CH	19125CH
				1857.5MHz	1880MHz	1902.5MHz
2 / 15MHz	QPSK	1	0	23.17	22.72	22.50
		1	38	22.93	22.64	22.70
		1	74	23.03	22.43	22.44
		36	0	22.12	21.89	21.75
		36	18	21.98	21.81	21.90
		36	39	21.91	21.78	21.92
		75	0	22.02	21.83	21.81
	16QAM	1	0	22.67	21.57	22.39
		1	38	21.94	21.81	22.50
		1	74	21.74	21.26	22.21
		36	0	21.20	21.07	20.84
		36	18	21.16	21.02	20.98
		36	39	20.95	20.94	20.92
		75	0	21.05	20.89	20.94

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18700CH	18900CH	19100CH
				1860MHz	1880MHz	1900MHz
2 / 20MHz	QPSK	1	0	22.76	22.82	22.53
		1	50	22.52	22.73	22.78
		1	99	22.28	22.53	22.15
		50	0	22.11	21.85	21.77
		50	25	21.98	21.80	21.78
		50	50	21.96	21.76	21.84
		100	0	21.98	21.78	21.84
	16QAM	1	0	21.81	21.46	21.38
		1	50	22.27	21.69	21.64
		1	99	21.54	21.43	21.35
		50	0	21.31	21.02	20.78
		50	25	20.97	21.00	20.87
		50	50	21.05	20.99	21.01
		100	0	21.10	20.92	20.90

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26047CH	18900CH	26683CH
				1850.7MHz	1882.5MHz	1914.3MHz
25 / 1.4MHz	QPSK	1	0	23.17	22.90	23.04
		1	2	23.24	23.14	23.04
		1	5	23.21	22.79	23.00
		3	0	23.22	23.06	23.12
		3	1	23.39	23.20	23.62
		3	2	23.28	23.05	23.11
		6	0	22.22	22.08	22.07
	16QAM	1	0	22.30	21.85	22.16
		1	2	22.32	22.28	21.99
		1	5	22.32	22.02	22.13
		3	0	22.00	21.98	21.94
		3	1	22.04	22.05	21.92
		3	2	22.00	21.99	21.91
		6	0	20.86	21.03	20.94

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26055CH	18900CH	26675CH
				1851.5MHz	1882.5MHz	1913.5MHz
25 / 3MHz	QPSK	1	0	23.25	23.14	22.86
		1	7	23.24	23.23	22.93
		1	14	23.00	22.96	22.90
		8	0	22.28	22.06	22.20
		8	4	22.27	22.15	22.17
		8	7	22.19	22.09	22.20
		15	0	22.24	22.09	22.24
	16QAM	1	0	22.29	22.04	22.31
		1	7	22.28	21.98	22.32
		1	14	22.12	22.06	21.87
		8	0	21.06	21.13	21.03
		8	4	21.03	21.23	20.95
		8	7	20.91	21.09	20.96
		15	0	21.19	21.06	20.93

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26065CH	18900CH	26665CH
				1852.5MHz	1882.5MHz	1912.5MHz
25 / 5MHz	QPSK	1	0	23.19	22.55	22.86
		1	13	23.05	22.77	23.08
		1	24	23.10	22.61	23.04
		12	0	22.28	21.98	22.12
		12	6	22.22	22.00	22.19
		12	11	22.19	22.04	22.37
		25	0	22.17	22.04	22.15
	16QAM	1	0	21.70	22.09	21.40
		1	13	22.06	21.93	22.06
		1	24	21.74	21.60	21.29
		12	0	21.29	21.07	20.94
		12	6	21.13	21.11	21.04
		12	11	21.01	21.06	21.18
		25	0	21.23	20.94	21.11

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26090CH	18900CH	26640CH
				1855MHz	1882.5MHz	1910MHz
25 / 10MHz	QPSK	1	0	23.35	23.00	23.15
		1	25	23.52	23.21	23.09
		1	49	23.26	22.99	23.17
		25	0	22.27	22.17	22.05
		25	13	22.19	22.16	22.15
		25	25	22.27	22.11	22.14
		50	0	22.25	22.14	22.14
	16QAM	1	0	22.33	22.06	22.32
		1	25	23.06	22.14	22.22
		1	49	22.14	21.44	22.23
		25	0	21.02	21.15	21.27
		25	13	21.08	21.15	21.26
		25	25	21.14	21.09	21.15
		50	0	21.21	21.00	21.07

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26115CH	18900CH	26615CH
				1857.5MHz	1882.5MHz	1907.5MHz
25 / 15MHz	QPSK	1	0	23.66	23.12	22.90
		1	38	23.36	23.03	23.05
		1	74	23.18	22.97	23.15
		36	0	22.26	22.18	22.10
		36	18	22.29	22.13	22.13
		36	39	22.17	22.13	22.25
		75	0	22.19	22.04	22.11
	16QAM	1	0	22.38	21.71	21.62
		1	38	22.71	22.15	22.03
		1	74	22.01	21.59	21.66
		36	0	21.17	21.16	21.03
		36	18	21.11	21.14	21.03
		36	39	21.00	21.12	21.00
		75	0	21.15	21.03	20.84

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26140CH	18900CH	26590CH
				1860MHz	1882.5MHz	1905MHz
25 / 20MHz	QPSK	1	0	23.31	23.40	22.94
		1	50	23.12	23.36	22.83
		1	99	22.75	23.14	22.95
		50	0	22.30	22.28	22.20
		50	25	22.13	22.25	22.14
		50	50	22.15	22.21	22.26
		100	0	22.18	22.28	22.12
	16QAM	1	0	22.33	21.59	21.75
		1	50	22.41	21.91	21.95
		1	99	21.68	21.46	21.84
		50	0	21.21	20.99	21.08
		50	25	21.19	20.98	21.00
		50	50	21.24	20.98	21.10
		100	0	21.09	21.10	20.93

EIRP (dBm)

PCS1900		512CH	661CH	810CH
		1850.2MHz	1880MHz	1909.8MHz
GSM (CS)		32.25	32.01	31.68
GPRS/EDGE (GMSK)	1 Tx Slot	32.29	31.97	31.66
	2 Tx Slot	32.20	31.91	31.60
	3 Tx Slot	31.26	30.88	30.49
	4 Tx Slot	29.28	28.97	28.54
EDGE (8PSK)	1 Tx Slot	29.41	28.89	28.88
	2 Tx Slot	28.34	27.72	27.92
	3 Tx Slot	27.40	26.99	26.50
	4 Tx Slot	26.35	25.84	25.55

Modulation	Band	WCDMA Band II		
	Tx Channel	9262CH	9400CH	9538CH
	Frequency	1852.4MHz	1880MHz	1907.6MHz
QPSK	RMC 12.2K	26.00	25.97	26.05
	RMC 64K	26.05	25.97	25.92
	RMC 144K	26.02	25.94	25.99
	RMC 384K	26.04	25.99	25.90
	HSDPA Subtest-1	25.25	25.01	24.85
	HSDPA Subtest-2	25.23	25.08	24.81
	HSDPA Subtest-3	25.20	24.98	24.77
	HSDPA Subtest-4	25.03	24.86	24.73
	HSUPA Subtest-1	25.17	24.95	24.78
	HSUPA Subtest-2	23.24	23.00	22.84
	HSUPA Subtest-3	24.10	23.96	23.84
	HSUPA Subtest-4	22.26	23.03	22.85
	HSUPA Subtest-5	25.11	25.04	24.77

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18607CH	18900CH	19193CH
				1850.7MHz	1880MHz	1909.3MHz
2 / 1.4MHz	QPSK	1	0	25.87	25.48	25.35
		1	2	25.86	25.41	25.34
		1	5	25.83	25.34	25.32
		3	0	25.76	25.31	25.35
		3	1	25.83	25.45	25.49
		3	2	25.72	25.42	25.45
		6	0	24.97	24.53	24.40
	16QAM	1	0	24.80	24.53	24.62
		1	2	25.14	24.69	24.63
		1	5	24.89	24.44	24.62
		3	0	25.12	24.68	24.24
		3	1	25.03	24.50	24.30
		3	2	24.98	24.55	24.35
		6	0	24.23	23.38	23.53

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18615CH	18900CH	19185CH
				1851.5MHz	1880MHz	1908.5MHz
2 / 3MHz	QPSK	1	0	25.95	25.28	25.61
		1	7	26.18	25.74	25.61
		1	14	25.93	25.32	25.45
		8	0	24.83	24.64	24.63
		8	4	24.73	24.59	24.55
		8	7	24.87	24.64	24.54
		15	0	24.89	24.62	24.59
	16QAM	1	0	24.84	24.67	24.75
		1	7	24.74	24.68	25.04
		1	14	24.67	24.59	24.69
		8	0	23.96	23.88	23.47
		8	4	24.06	23.91	23.40
		8	7	24.14	23.87	23.50
		15	0	23.92	23.73	23.66

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18625CH	18900CH	19175CH
				1852.5MHz	1880MHz	1907.5MHz
2 / 5MHz	QPSK	1	0	25.51	25.25	25.11
		1	13	25.87	25.17	25.10
		1	24	25.65	24.96	24.99
		12	0	24.91	24.58	24.64
		12	6	24.87	24.59	24.65
		12	11	24.84	24.59	24.64
		25	0	24.91	24.59	24.63
	16QAM	1	0	24.92	24.53	24.71
		1	13	24.35	24.62	24.71
		1	24	24.57	24.21	24.00
		12	0	23.88	23.53	23.54
		12	6	23.87	23.60	23.60
		12	11	23.84	23.62	23.61
		25	0	24.12	23.86	23.69

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18650CH	18900CH	19150CH
				1855MHz	1880MHz	1905MHz
2 / 10MHz	QPSK	1	0	26.01	25.38	25.42
		1	25	26.17	25.63	25.71
		1	49	25.63	25.25	25.30
		25	0	24.92	24.68	24.69
		25	13	24.97	24.66	24.74
		25	25	24.79	24.62	24.62
		50	0	24.94	24.60	24.77
	16QAM	1	0	24.97	24.42	24.83
		1	25	24.97	24.62	24.79
		1	49	24.94	24.43	24.60
		25	0	23.96	23.82	24.10
		25	13	24.01	23.86	24.10
		25	25	23.99	23.74	23.96
		50	0	24.04	23.71	23.90

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18675CH	18900CH	19125CH
				1857.5MHz	1880MHz	1902.5MHz
2 / 15MHz	QPSK	1	0	26.02	25.57	25.35
		1	38	25.78	25.49	25.55
		1	74	25.88	25.28	25.29
		36	0	24.97	24.74	24.60
		36	18	24.83	24.66	24.75
		36	39	24.76	24.63	24.77
		75	0	24.87	24.68	24.66
	16QAM	1	0	25.52	24.42	25.24
		1	38	24.79	24.66	25.35
		1	74	24.59	24.11	25.06
		36	0	24.05	23.92	23.69
		36	18	24.01	23.87	23.83
		36	39	23.80	23.79	23.77
		75	0	23.90	23.74	23.79

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18700CH	18900CH	19100CH
				1860MHz	1880MHz	1900MHz
2 / 20MHz	QPSK	1	0	25.61	25.67	25.38
		1	50	25.37	25.58	25.63
		1	99	25.13	25.38	25.00
		50	0	24.96	24.70	24.62
		50	25	24.83	24.65	24.63
		50	50	24.81	24.61	24.69
		100	0	24.83	24.63	24.69
	16QAM	1	0	24.66	24.31	24.23
		1	50	25.12	24.54	24.49
		1	99	24.39	24.28	24.20
		50	0	24.16	23.87	23.63
		50	25	23.82	23.85	23.72
		50	50	23.90	23.84	23.86
		100	0	23.95	23.77	23.75

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26047CH	18900CH	26683CH
				1850.7MHz	1882.5MHz	1914.3MHz
25 / 1.4MHz	QPSK	1	0	23.79	23.52	23.66
		1	2	21.09	20.99	20.89
		1	5	21.06	20.64	20.85
		3	0	21.07	20.91	20.97
		3	1	21.24	21.05	21.47
		3	2	21.13	20.90	20.96
		6	0	20.07	19.93	19.92
	16QAM	1	0	20.15	19.70	20.01
		1	2	20.17	20.13	19.84
		1	5	20.17	19.87	19.98
		3	0	19.85	19.83	19.79
		3	1	19.89	19.90	19.77
		3	2	19.85	19.84	19.76
		6	0	18.71	18.88	18.79

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26055CH	18900CH	26675CH
				1851.5MHz	1882.5MHz	1913.5MHz
25 / 3MHz	QPSK	1	0	23.87	23.76	23.48
		1	7	21.09	21.08	20.78
		1	14	20.85	20.81	20.75
		8	0	20.13	19.91	20.05
		8	4	20.12	20.00	20.02
		8	7	20.04	19.94	20.05
		15	0	20.09	19.94	20.09
	16QAM	1	0	20.14	19.89	20.16
		1	7	20.13	19.83	20.17
		1	14	19.97	19.91	19.72
		8	0	18.91	18.98	18.88
		8	4	18.88	19.08	18.80
		8	7	18.76	18.94	18.81
		15	0	19.04	18.91	18.78

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26065CH	18900CH	26665CH
				1852.5MHz	1882.5MHz	1912.5MHz
25 / 5MHz	QPSK	1	0	23.81	23.17	23.48
		1	13	20.90	20.62	20.93
		1	24	20.95	20.46	20.89
		12	0	20.13	19.83	19.97
		12	6	20.07	19.85	20.04
		12	11	20.04	19.89	20.22
		25	0	20.02	19.89	20.00
	16QAM	1	0	19.55	19.94	19.25
		1	13	19.91	19.78	19.91
		1	24	19.59	19.45	19.14
		12	0	19.14	18.92	18.79
		12	6	18.98	18.96	18.89
		12	11	18.86	18.91	19.03
		25	0	19.08	18.79	18.96

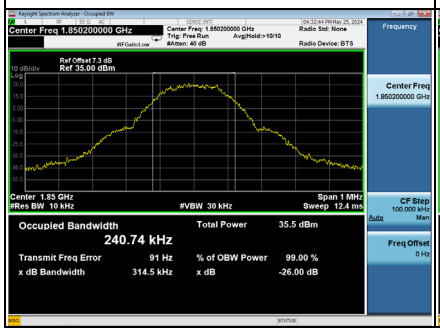
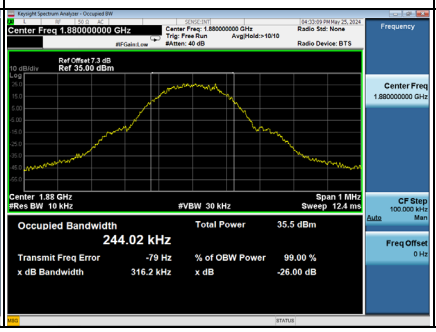
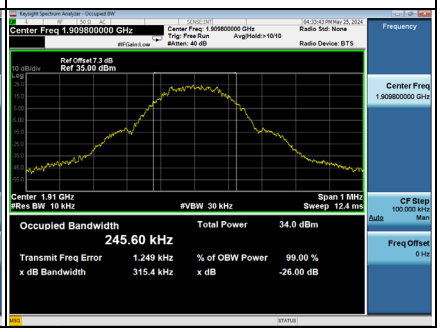
LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26090CH	18900CH	26640CH
				1855MHz	1882.5MHz	1910MHz
25 / 10MHz	QPSK	1	0	23.97	23.62	23.77
		1	25	21.37	21.06	20.94
		1	49	21.11	20.84	21.02
		25	0	20.12	20.02	19.90
		25	13	20.04	20.01	20.00
		25	25	20.12	19.96	19.99
		50	0	20.10	19.99	19.99
	16QAM	1	0	20.18	19.91	20.17
		1	25	20.91	19.99	20.07
		1	49	19.99	19.29	20.08
		25	0	18.87	19.00	19.12
		25	13	18.93	19.00	19.11
		25	25	18.99	18.94	19.00
		50	0	19.06	18.85	18.92

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26115CH	18900CH	26615CH
				1857.5MHz	1882.5MHz	1907.5MHz
25 / 15MHz	QPSK	1	0	24.28	23.74	23.52
		1	38	21.21	20.88	20.90
		1	74	21.03	20.82	21.00
		36	0	20.11	20.03	19.95
		36	18	20.14	19.98	19.98
		36	39	20.02	19.98	20.10
		75	0	20.04	19.89	19.96
	16QAM	1	0	20.23	19.56	19.47
		1	38	20.56	20.00	19.88
		1	74	19.86	19.44	19.51
		36	0	19.02	19.01	18.88
		36	18	18.96	18.99	18.88
		36	39	18.85	18.97	18.85
		75	0	19.00	18.88	18.69

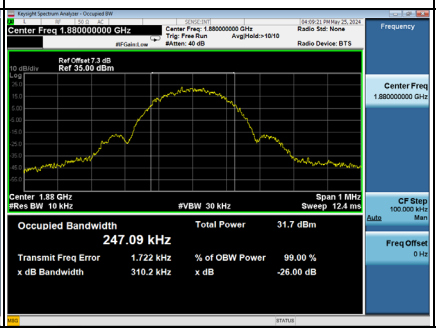
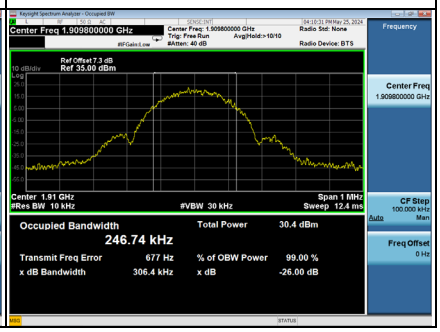
LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				26140CH	18900CH	26590CH
				1860MHz	1882.5MHz	1905MHz
25 / 20MHz	QPSK	1	0	23.93	24.02	23.56
		1	50	20.97	21.21	20.68
		1	99	20.60	20.99	20.80
		50	0	20.15	20.13	20.05
		50	25	19.98	20.10	19.99
		50	50	20.00	20.06	20.11
		100	0	20.03	20.13	19.97
	16QAM	1	0	20.18	19.44	19.60
		1	50	20.26	19.76	19.80
		1	99	19.53	19.31	19.69
		50	0	19.06	18.84	18.93
		50	25	19.04	18.83	18.85
		50	50	19.09	18.83	18.95
		100	0	18.94	18.95	18.78

APPENDIX B - OCCUPIED BANDWIDTH

PCS1900_GSM			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
		QPSK	QPSK
512	1850.2	0.2475	0.3145
661	1880	0.2440	0.3162
810	1909.8	0.2456	0.3154-

Spectrum Plot		
512	661	810
		

PCS1900_EDGE			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
		QPSK	QPSK
512	1850.2	0.2451	0.3136
661	1880	0.2471	0.3102
810	1909.8	0.2467	0.3064

Spectrum Plot		
512	661	810
		

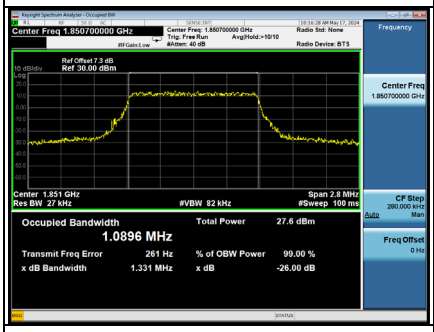
WCDMA Band II_WCDMA			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
		QPSK	QPSK
9262	1852.4	4.1151	4.702
9400	1880	4.1160	4.687
9538	1907.6	4.1258	4.705

Spectrum Plot		
9262	9400	9538
		

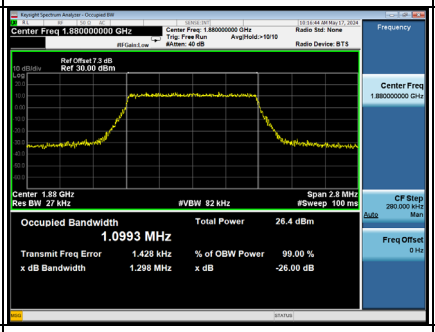
LTE Band 2_1.4MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
18607	1850.7	1.0896	1.0879	1.331	1.294
18900	1880	1.0993	1.0924	1.298	1.292
19193	1909.3	1.0862	1.0966	1.280	1.300

Spectrum Plot

QPSK-18607



QPSK-18900



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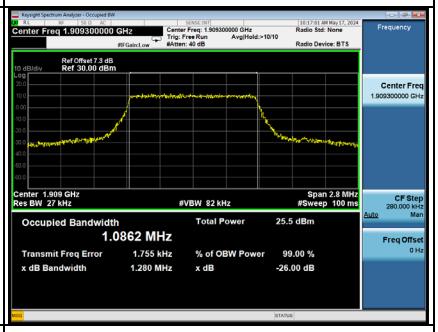

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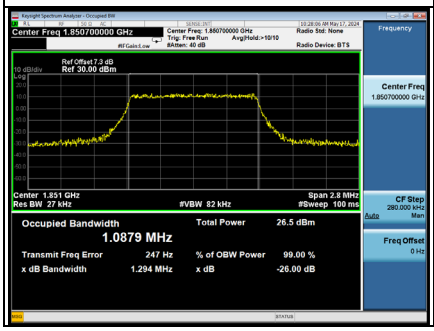


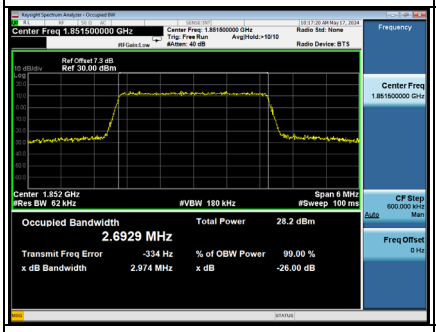
16QAM-18900

16QAM-19193

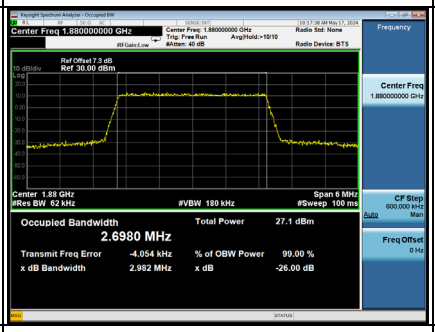
LTE Band 2_3MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
18615	1851.5	2.6929	2.6969	2.974	2.976
18900	1880	2.6980	2.6981	2.982	2.973
19185	1908.5	2.7018	2.6957	2.977	3.001

Spectrum Plot

QPSK-18615



QPSK-18900



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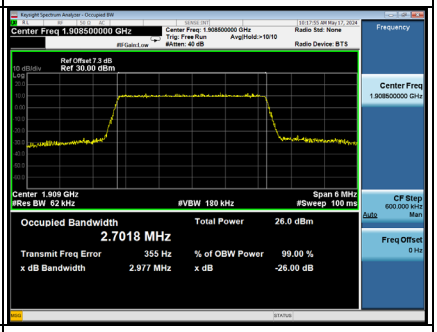
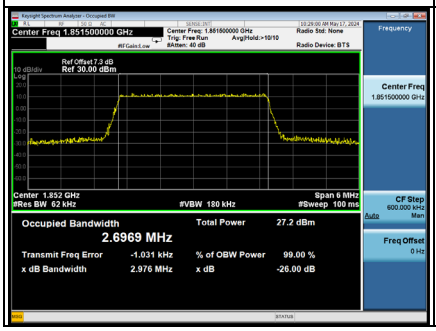


16QAM-18615



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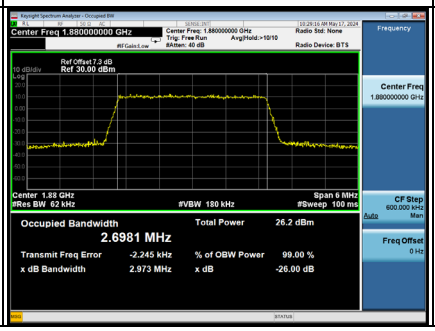

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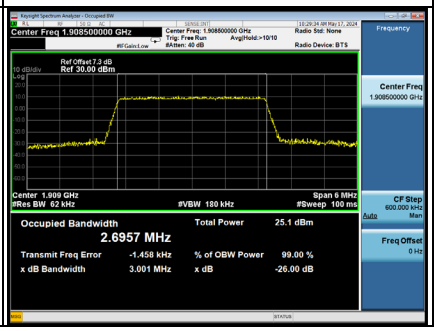
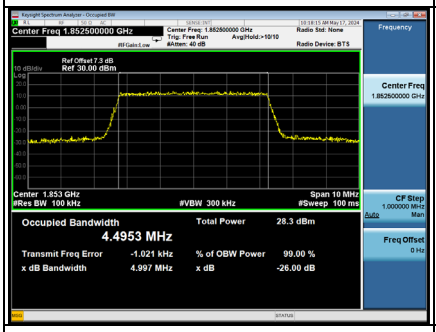


LTE Band 2_5MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
18625	1852.5	4.4953	4.4944	4.997	4.980
18900	1880	4.5036	4.4952	4.944	4.974
19175	1907.5	4.5033	4.4950	4.963	4.945

Spectrum Plot

QPSK-18625



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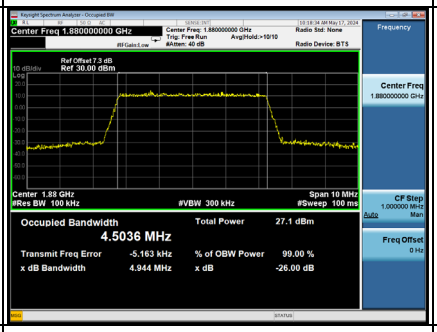
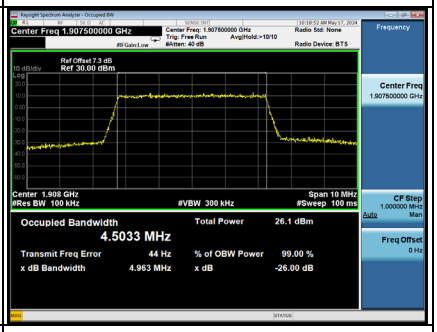


QPSK-19175



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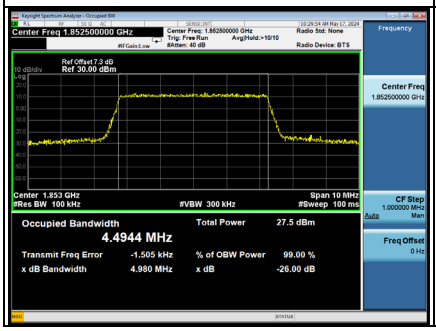

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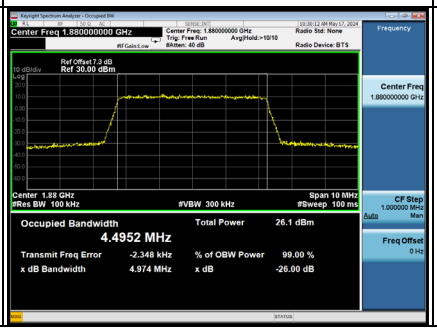

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