

Partial FCC Test Report

(PART 24)

Report No.: RF190805C27-1

FCC ID: 2ATM8EG25G

Test Model: EG25-G

Received Date: Aug. 05, 2019

Test Date: Aug. 24 ~ Sep. 15, 2019

Issued Date: Sep. 18, 2019

Applicant: HAWKEYE TECH CO LTD

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration / 427177 / TW0011

Designation Number:



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Release Control Record

Issue No.	Description	Date Issued
RF190805C27-1	Original Release	Sep. 18, 2019

1 Certificate of Conformity

Product: LTE Module

Brand: Quectel

Test Model: EG25-G

Sample Status: Engineering Sample

Applicant: HAWKEYE TECH CO LTD

Test Date: Aug. 24 ~ Sep. 15, 2019

Standards: FCC Part 24, Subpart E

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Polly Chien, **Date:** Sep. 18, 2019
Polly Chien / Specialist

Approved by : Bruce Chen, **Date:** Sep. 18, 2019
Bruce Chen / Senior Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 24.232	Effective Isotropically Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	N/A	Refer to Note
2.1046 24.232(d)	Peak to Average Ratio	N/A	Refer to Note
2.1055 24.235	Frequency Stability	N/A	Refer to Note
2.1049	Occupied Bandwidth	N/A	Refer to Note
24.238	Band Edge Measurements	N/A	Refer to Note
2.1051 24.238	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -25.06 dB at 193.08 MHz.

Note:

1. This report is a partial report. Therefore, only test item of Effective Isotropically Radiated Power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch report no.: HR/2019/1001601 for module (Brand: Quectel, Model: EG25-G)
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.0400 dB
	30 MHz ~ 200 MHz	2.0153 dB
	200 MHz ~ 1000 MHz	2.0224 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	1.0121 dB
	18 GHz ~ 40 GHz	1.1508 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9038A	MY52260177	Aug. 26, 2019	Aug. 25, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Apr. 15, 2019	Apr. 14, 2020
BILOG Antenna SCHWARZBECK	VULB 9168	9168-616	Nov. 27, 2018	Nov. 26, 2019
HORN Antenna ETS-Lindgren	3117	00143293	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Nov. 25, 2018	Nov. 24, 2019
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020
MXG Vector signal generator Agilent	N5182B	MY53050430	Nov. 19, 2018	Nov. 18, 2019
Preamplifier Agilent	310N	187226	Jun. 18, 2019	Jun. 17, 2020
Preamplifier Agilent	83017A	MY39501357	Jun. 18, 2019	Jun. 17, 2020
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 18, 2019	Jun. 17, 2020
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RFC-SMS-100-SMS-24)	Jun. 18, 2019	Jun. 17, 2020
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Communications Tester- Wireless Agilent	8960 Series 10	MY53201073	Jul. 01, 2019	Jun. 30, 2020
Radio Communication Analyzer Anritsu	MT8820C	6201300640	Aug. 19, 2019	Aug. 18, 2020

Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HsinTien Chamber 1.

3 General Information

3.1 General Description of EUT

Product	LTE Module	
Brand	Quectel	
Test Model	EG25-G	
Status of EUT	Engineering Sample	
Power Supply Rating	3.3Vdc(Host equipment)	
Modulation Type	GSM/GPRS	GMSK
	EDGE	GMSK, 8PSK
	WCDMA	QPSK
	LTE	QPSK, 16QAM
Frequency Range	GSM/GPRS/EDGE	1850.2 ~ 1909.8 MHz
	WCDMA	1852.4 ~ 1907.6 MHz
	LTE Band 2 (Channel Bandwidth: 1.4 MHz)	1850.7 ~ 1909.3 MHz
	LTE Band 2 (Channel Bandwidth: 3 MHz)	1851.5 ~ 1908.5 MHz
	LTE Band 2 (Channel Bandwidth: 5 MHz)	1852.5 ~ 1907.5 MHz
	LTE Band 2 (Channel Bandwidth: 10 MHz)	1855.0 ~ 1905.0 MHz
	LTE Band 2 (Channel Bandwidth: 15 MHz)	1857.5 ~ 1902.5 MHz
	LTE Band 2 (Channel Bandwidth: 20 MHz)	1860.0 ~ 1900.0 MHz
	LTE Band 25 (Channel Bandwidth: 1.4 MHz)	1850.7 ~ 1914.3 MHz
	LTE Band 25 (Channel Bandwidth: 3 MHz)	1851.5 ~ 1913.5 MHz
	LTE Band 25 (Channel Bandwidth: 5 MHz)	1852.5 ~ 1912.5 MHz
	LTE Band 25 (Channel Bandwidth: 10 MHz)	1855.0 ~ 1910.0 MHz
	LTE Band 25 (Channel Bandwidth: 15 MHz)	1857.5 ~ 1907.5 MHz
	LTE Band 25 (Channel Bandwidth: 20 MHz)	1860.0 ~ 1905.0 MHz
Max. EIRP Power	GSM	1132.40 mW
	EDGE	417.83 mW
	WCDMA	326.59 mW
	LTE Band 2 (Channel Bandwidth: 1.4 MHz)	319.15 mW
	LTE Band 2 (Channel Bandwidth: 3 MHz)	322.11 mW
	LTE Band 2 (Channel Bandwidth: 5 MHz)	325.09 mW
	LTE Band 2 (Channel Bandwidth: 10 MHz)	327.34 mW
	LTE Band 2 (Channel Bandwidth: 15 MHz)	330.37 mW
	LTE Band 2 (Channel Bandwidth: 20 MHz)	333.43 mW
	LTE Band 25 (Channel Bandwidth: 1.4 MHz)	310.46 mW
	LTE Band 25 (Channel Bandwidth: 3 MHz)	312.61 mW
	LTE Band 25 (Channel Bandwidth: 5 MHz)	315.50 mW
	LTE Band 25 (Channel Bandwidth: 10 MHz)	318.42 mW
	LTE Band 25 (Channel Bandwidth: 15 MHz)	321.37 mW
	LTE Band 25 (Channel Bandwidth: 20 MHz)	324.34 mW
Antenna Type	Dipole Antenna with 3 dBi gain	
Antenna Connector	SMA	
Accessory Device	N/A	
Data Cable Supplied	N/A	

Note:

1. The EUT was installed in a specific End-product.

Product	Brand	Model
Network Services Gateway		Test model: EM-6000-8S-2X-P-4G Serial mode: EM-6000XXXXXXXXXX (X=A-Z, 0-9, blank or "-")

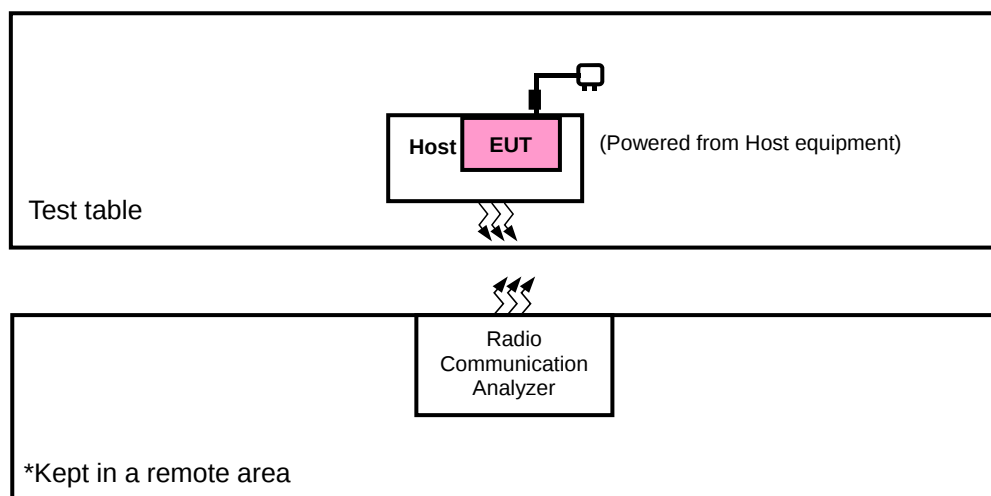
2. The End-product contains following accessory devices.

Product	Brand	Model	Description
Adapter	EDACPOWER ELEC.	EA10681U-120	I/P: 100-240 Vac, 50-60 Hz, 2.0A O/P: 12 Vdc, 6 A 1.2m DC cable with 1 core

3. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Configuration of System under Test

<Radiated Emission Test> & <E.I.R.P. Test>



3.2.1 Description of Support Units

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

No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	Radio Communication Analyzer	Anritsu	MT8820C	6201300640	N/A

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Items 1 acted as communication partners to transfer data.

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, antenna degree 90° and 180°, and antenna ports.

The worst case was found when positioned as the table below. Following channel(s) was (were) selected for the final test as listed below:

Band	EIRP	Radiated Emission
GSM	90°	90°
WCDMA	90°	90°
LTE Band 2	90°	90°
LTE Band 25	90°	90°

GSM

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	EIRP	512 to 810	512, 661, 810	GSM, EDGE
-	Radiated Emission	512 to 810	512, 661, 810	GSM, EDGE

WCDMA

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	EIRP	9262 to 9538	9262, 9400, 9538	WCDMA
-	Radiated Emission	9262 to 9538	9262, 9400, 9538	WCDMA

LTE Band 2

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	18607 to 19193	18607, 18900, 19193	1.4 MHz	QPSK, 16QAM	3 RB / 3 RB Offset
		18615 to 19185	18615, 18900, 19185	3 MHz	QPSK, 16QAM	1 RB / 8 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK, 16QAM	1 RB / 12 RB Offset
		18650 to 19150	18650, 18900, 19150	10 MHz	QPSK, 16QAM	1 RB / 24 RB Offset
		18675 to 19125	18675, 18900, 19125	15 MHz	QPSK, 16QAM	1 RB / 38 RB Offset
		18700 to 19100	18700, 18900, 19100	20 MHz	QPSK, 16QAM	1 RB / 49 RB Offset
-	Radiated Emission	18607 to 19193	18607, 18900, 19193	1.4 MHz	QPSK	3 RB / 3 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK	1 RB / 12 RB Offset
		18700 to 19100	18700, 18900, 19100	20 MHz	QPSK	1 RB / 49 RB Offset

LTE Band 25

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	26047 to 26683	26047, 26365, 26683	1.4 MHz	QPSK, 16QAM	3 RB / 1 RB Offset
		26055 to 26675	26055, 26365, 26675	3 MHz	QPSK, 16QAM	1 RB / 8 RB Offset
		26065 to 26665	26065, 26365, 26665	5 MHz	QPSK, 16QAM	1 RB / 24 RB Offset
		26090 to 26640	26090, 26365, 26640	10 MHz	QPSK, 16QAM	1 RB / 24 RB Offset
		26115 to 26615	26115, 26365, 26615	15 MHz	QPSK, 16QAM	1 RB / 38 RB Offset
		26140 to 26590	26140, 26365, 26590	20 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
-	Radiated Emission	26047 to 26683	26047, 26365, 26683	1.4 MHz	QPSK	3 RB / 1 RB Offset
		26065 to 26665	26065, 26365, 26665	5 MHz	QPSK	1 RB / 24 RB Offset
		26140 to 26590	26140, 26365, 26590	20 MHz	QPSK	50 RB / 0 RB Offset

Note:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation and RB configurations according to Module report worst maximum output power.
2. For radiated emission, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5 MHz & highest channel bandwidth for final test.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	26 deg. C, 58 % RH	3.3 Vdc	Karl Lee
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Karl Lee

3.4 EUT Operating Conditions

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

3.5 General Description of Applied Standards

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

FCC 47 CFR Part 2

FCC 47 CFR Part 24

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

ANSI 63.2 -1996

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

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

4.1.2 Test Procedures

EIRP / ERP Measurement:

- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1 MHz for GSM, EDGE and 5 MHz for WCDMA and 10 MHz for LTE mode.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G.
- d. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $E.R.P \text{ power} = E.I.R.P \text{ power} - 2.15 \text{ dB}$.

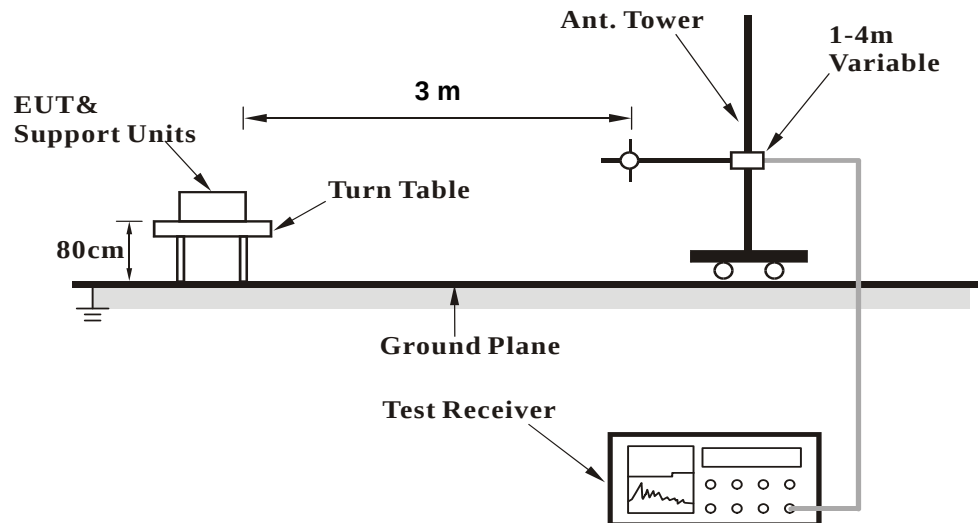
Conducted Power Measurement:

The EUT was set up for the maximum power with GSM, 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.

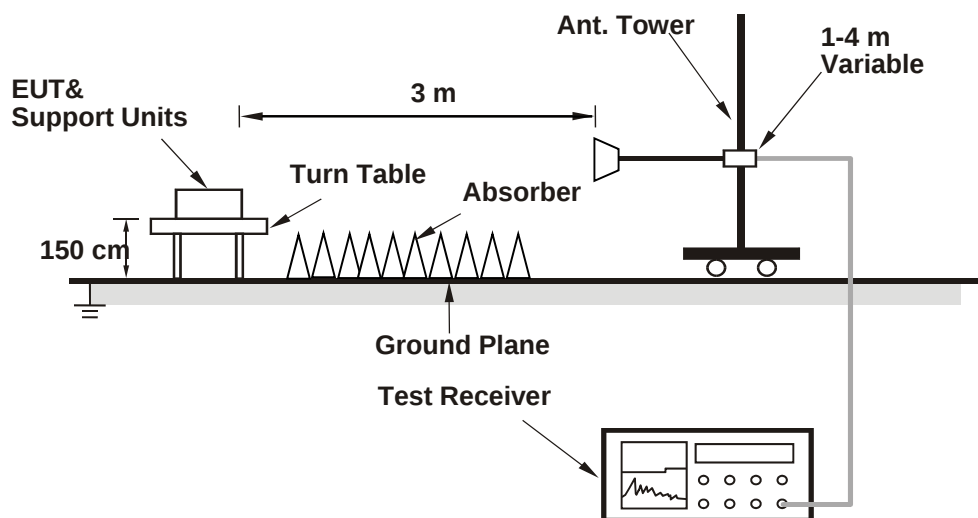
4.1.3 Test Setup

EIRP / ERP Measurement:

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.4 Test Results

EIRP Power (dBm)

GSM 1900							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
90°	512	1850.2	-7.69	38.19	30.50	1122.02	H
	661	1880.0	-8.16	38.70	30.54	1132.40	
	810	1909.8	-8.92	39.35	30.43	1104.08	
	512	1850.2	-11.06	38.48	27.42	552.08	V
	661	1880.0	-11.12	38.59	27.47	558.47	
	810	1909.8	-11.49	38.87	27.38	547.02	

EDGE 1900							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
90°	512	1850.2	-12.11	38.19	26.08	405.51	H
	661	1880.0	-12.49	38.70	26.21	417.83	
	810	1909.8	-13.34	39.35	26.01	399.02	
	512	1850.2	-15.50	38.48	22.98	198.61	V
	661	1880.0	-15.48	38.59	23.11	204.64	
	810	1909.8	-15.94	38.87	22.93	196.34	

WCDMA							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
90°	9262	1852.4	-13.11	38.19	25.08	322.11	H
	9400	1880.0	-13.56	38.70	25.14	326.59	
	9538	1907.6	-14.33	39.35	25.02	317.69	
	9262	1852.4	-16.45	38.48	22.03	159.59	V
	9400	1880.0	-16.49	38.59	22.10	162.18	
	9538	1907.6	-16.90	38.87	21.97	157.40	

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

LTE Band 2							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
90°	18607	1850.7	-19.66	44.70	25.04	319.15	H
	18900	1880.0	-19.84	44.70	24.86	306.20	
	19193	1909.3	-19.66	44.57	24.91	309.96	
	18607	1850.7	-22.26	44.27	22.01	158.85	V
	18900	1880.0	-23.02	44.87	21.85	153.11	
	19193	1909.3	-22.66	44.61	21.95	156.78	
Channel Bandwidth: 1.4 MHz / 16QAM							
90°	18607	1850.7	-20.67	44.70	24.03	252.93	H
	18900	1880.0	-20.84	44.70	23.86	243.22	
	19193	1909.3	-20.67	44.57	23.90	245.64	
	18607	1850.7	-23.27	44.27	21.00	125.89	V
	18900	1880.0	-24.02	44.87	20.85	121.62	
	19193	1909.3	-23.66	44.61	20.95	124.54	

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

LTE Band 2							
Channel Bandwidth: 3 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
90°	18615	1851.5	-19.62	44.70	25.08	322.11	H
	18900	1880.0	-19.80	44.70	24.90	309.03	
	19185	1908.5	-19.61	44.57	24.96	313.55	
	18615	1851.5	-22.22	44.27	22.05	160.32	V
	18900	1880.0	-22.98	44.87	21.89	154.53	
	19185	1908.5	-22.62	44.61	21.99	158.23	
Channel Bandwidth: 3 MHz / 16QAM							
90°	18615	1851.5	-20.62	44.70	24.08	255.86	H
	18900	1880.0	-20.81	44.70	23.89	244.91	
	19185	1908.5	-20.61	44.57	23.96	249.06	
	18615	1851.5	-23.23	44.27	21.04	127.06	V
	18900	1880.0	-23.98	44.87	20.89	122.74	
	19185	1908.5	-23.62	44.61	20.99	125.69	

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

LTE Band 2							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
90°	18625	1852.5	-19.58	44.70	25.12	325.09	H
	18900	1880.0	-19.76	44.70	24.94	311.89	
	19175	1907.5	-19.58	44.57	24.99	315.72	
	18625	1852.5	-22.18	44.27	22.09	161.81	V
	18900	1880.0	-22.93	44.87	21.94	156.31	
	19175	1907.5	-22.58	44.61	22.03	159.70	
Channel Bandwidth: 5 MHz / 16QAM							
90°	18625	1852.5	-20.59	44.70	24.11	257.63	H
	18900	1880.0	-20.77	44.70	23.93	247.17	
	19175	1907.5	-20.59	44.57	23.98	250.21	
	18625	1852.5	-23.18	44.27	21.09	128.53	V
	18900	1880.0	-23.94	44.87	20.93	123.88	
	19175	1907.5	-23.58	44.61	21.03	126.85	

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

LTE Band 2							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
90°	18650	1855.0	-19.55	44.70	25.15	327.34	H
	18900	1880.0	-19.72	44.70	24.98	314.77	
	19150	1905.0	-19.54	44.57	25.03	318.64	
	18650	1855.0	-22.14	44.27	22.13	163.31	V
	18900	1880.0	-22.89	44.87	21.98	157.76	
	19150	1905.0	-22.54	44.61	22.07	161.18	
Channel Bandwidth: 10 MHz / 16QAM							
90°	18650	1855.0	-20.55	44.70	24.15	260.02	H
	18900	1880.0	-20.72	44.70	23.98	250.03	
	19150	1905.0	-20.54	44.57	24.03	253.10	
	18650	1855.0	-23.14	44.27	21.13	129.72	V
	18900	1880.0	-23.89	44.87	20.98	125.31	
	19150	1905.0	-23.55	44.61	21.06	127.73	

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

LTE Band 2							
Channel Bandwidth: 15 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
90°	18675	1857.5	-19.51	44.70	25.19	330.37	H
	18900	1880.0	-19.69	44.70	25.01	316.96	
	19125	1902.5	-19.50	44.57	25.07	321.59	
	18675	1857.5	-22.10	44.27	22.17	164.82	V
	18900	1880.0	-22.86	44.87	22.01	158.85	
	19125	1902.5	-22.51	44.61	22.10	162.29	
Channel Bandwidth: 15 MHz / 16QAM							
90°	18675	1857.5	-20.51	44.70	24.19	262.42	H
	18900	1880.0	-20.69	44.70	24.01	251.77	
	19125	1902.5	-20.51	44.57	24.06	254.86	
	18675	1857.5	-23.11	44.27	21.16	130.62	V
	18900	1880.0	-23.86	44.87	21.01	126.18	
	19125	1902.5	-23.51	44.61	21.10	128.91	

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

LTE Band 2							
Channel Bandwidth: 20 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
90°	18700	1860.0	-19.47	44.70	25.23	333.43	H
	18900	1880.0	-19.65	44.70	25.05	319.89	
	19100	1900.0	-19.46	44.57	25.11	324.56	
	18700	1860.0	-22.06	44.27	22.21	166.34	V
	18900	1880.0	-22.82	44.87	22.05	160.32	
	19100	1900.0	-22.48	44.61	22.13	163.42	
Channel Bandwidth: 20 MHz / 16QAM							
90°	18700	1860.0	-20.48	44.70	24.22	264.24	H
	18900	1880.0	-20.66	44.70	24.04	253.51	
	19100	1900.0	-20.46	44.57	24.11	257.81	
	18700	1860.0	-23.06	44.27	21.21	132.13	V
	18900	1880.0	-23.82	44.87	21.05	127.35	
	19100	1900.0	-23.49	44.61	21.12	129.51	

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

LTE Band 25							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
90°	26047	1850.7	-19.83	44.70	24.87	306.90	H
	26365	1882.5	-19.78	44.70	24.92	310.46	
	26683	1914.3	-19.77	44.57	24.80	302.20	
	26047	1850.7	-23.44	44.27	20.83	121.06	V
	26365	1882.5	-23.95	44.87	20.92	123.59	
	26683	1914.3	-23.88	44.61	20.73	118.39	
Channel Bandwidth: 1.4 MHz / 16QAM							
90°	26047	1850.7	-20.83	44.70	23.87	243.78	H
	26365	1882.5	-20.78	44.70	23.92	246.60	
	26683	1914.3	-20.78	44.57	23.79	239.50	
	26047	1850.7	-24.45	44.27	19.82	95.94	V
	26365	1882.5	-24.96	44.87	19.91	97.95	
	26683	1914.3	-24.88	44.61	19.73	94.04	

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

LTE Band 25							
Channel Bandwidth: 3 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
90°	26055	1851.5	-19.80	44.70	24.90	309.03	H
	26365	1882.5	-19.75	44.70	24.95	312.61	
	26675	1913.5	-19.73	44.57	24.84	305.00	
	26055	1851.5	-23.40	44.27	20.87	122.18	V
	26365	1882.5	-23.91	44.87	20.96	124.74	
	26675	1913.5	-23.85	44.61	20.76	119.21	
Channel Bandwidth: 3 MHz / 16QAM							
90°	26055	1851.5	-20.80	44.70	23.90	245.47	H
	26365	1882.5	-20.76	44.70	23.94	247.74	
	26675	1913.5	-20.74	44.57	23.83	241.71	
	26055	1851.5	-24.41	44.27	19.86	96.83	V
	26365	1882.5	-24.91	44.87	19.96	99.08	
	26675	1913.5	-24.85	44.61	19.76	94.69	

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

LTE Band 25							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
90°	26065	1852.5	-19.77	44.70	24.93	311.17	H
	26365	1882.5	-19.71	44.70	24.99	315.50	
	26665	1912.5	-19.69	44.57	24.88	307.82	
	26065	1852.5	-23.36	44.27	20.91	123.31	V
	26365	1882.5	-23.88	44.87	20.99	125.60	
	26665	1912.5	-23.81	44.61	20.80	120.31	
Channel Bandwidth: 5 MHz / 16QAM							
90°	26065	1852.5	-20.78	44.70	23.92	246.60	H
	26365	1882.5	-20.72	44.70	23.98	250.03	
	26665	1912.5	-20.69	44.57	23.88	244.51	
	26065	1852.5	-24.36	44.27	19.91	97.95	V
	26365	1882.5	-24.88	44.87	19.99	99.77	
	26665	1912.5	-24.81	44.61	19.80	95.57	

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

LTE Band 25							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
90°	26090	1855.0	-19.73	44.70	24.97	314.05	H
	26365	1882.5	-19.67	44.70	25.03	318.42	
	26640	1910.0	-19.65	44.57	24.92	310.67	
	26090	1855.0	-23.32	44.27	20.95	124.45	V
	26365	1882.5	-23.85	44.87	21.02	126.47	
	26640	1910.0	-23.77	44.61	20.84	121.42	
Channel Bandwidth: 10 MHz / 16QAM							
90°	26090	1855.0	-20.74	44.70	23.96	248.89	H
	26365	1882.5	-20.67	44.70	24.03	252.93	
	26640	1910.0	-20.66	44.57	23.91	246.21	
	26090	1855.0	-24.33	44.27	19.94	98.63	V
	26365	1882.5	-24.86	44.87	20.01	100.23	
	26640	1910.0	-24.77	44.61	19.84	96.45	

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

LTE Band 25							
Channel Bandwidth: 15 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
90°	26115	1857.5	-19.69	44.70	25.01	316.96	H
	26365	1882.5	-19.63	44.70	25.07	321.37	
	26615	1907.5	-19.61	44.57	24.96	313.55	
	26115	1857.5	-23.28	44.27	20.99	125.60	V
	26365	1882.5	-23.82	44.87	21.05	127.35	
	26615	1907.5	-23.73	44.61	20.88	122.55	
Channel Bandwidth: 15 MHz / 16QAM							
90°	26115	1857.5	-20.69	44.70	24.01	251.77	H
	26365	1882.5	-20.64	44.70	24.06	254.68	
	26615	1907.5	-20.61	44.57	23.96	249.06	
	26115	1857.5	-24.28	44.27	19.99	99.77	V
	26365	1882.5	-24.82	44.87	20.05	101.16	
	26615	1907.5	-24.73	44.61	19.88	97.34	

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

LTE Band 25							
Channel Bandwidth: 20 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
90°	26140	1860.0	-19.65	44.70	25.05	319.89	H
	26365	1882.5	-19.59	44.70	25.11	324.34	
	26590	1905.0	-19.58	44.57	24.99	315.72	
	26140	1860.0	-23.24	44.27	21.03	126.77	V
	26365	1882.5	-23.78	44.87	21.09	128.53	
	26590	1905.0	-23.69	44.61	20.92	123.68	
Channel Bandwidth: 20 MHz / 16QAM							
90°	26140	1860.0	-20.65	44.70	24.05	254.10	H
	26365	1882.5	-20.59	44.70	24.11	257.63	
	26590	1905.0	-20.58	44.57	23.99	250.78	
	26140	1860.0	-24.24	44.27	20.03	100.69	V
	26365	1882.5	-24.79	44.87	20.08	101.86	
	26590	1905.0	-24.70	44.61	19.91	98.02	

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB)

4.2 Radiated Emission Measurement

4.2.1 Limits of Radiated Emission Measurement

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 is equal to -13 dBm.

4.2.2 Test Procedure

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G.
- c. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $E.R.P \text{ power} = E.I.R.P \text{ power} - 2.15 \text{ dB}.$

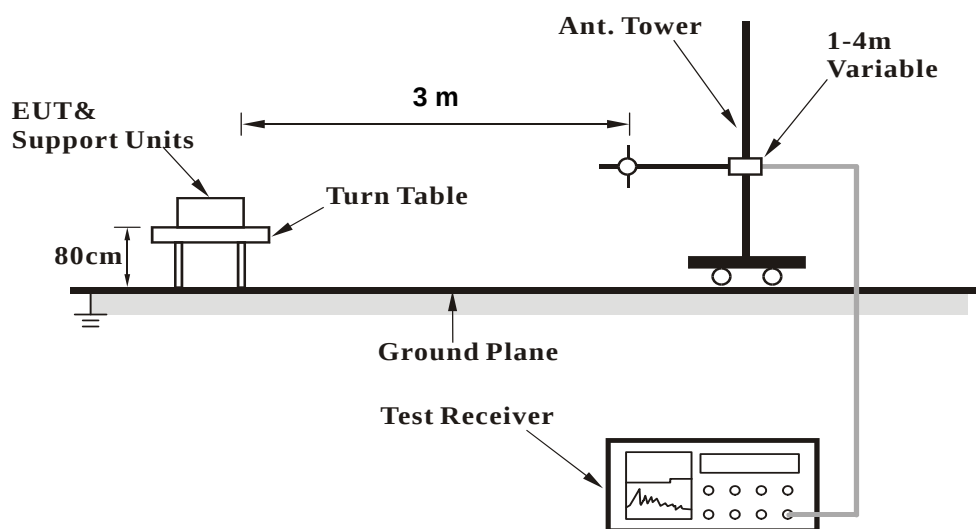
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.

4.2.3 Deviation from Test Standard

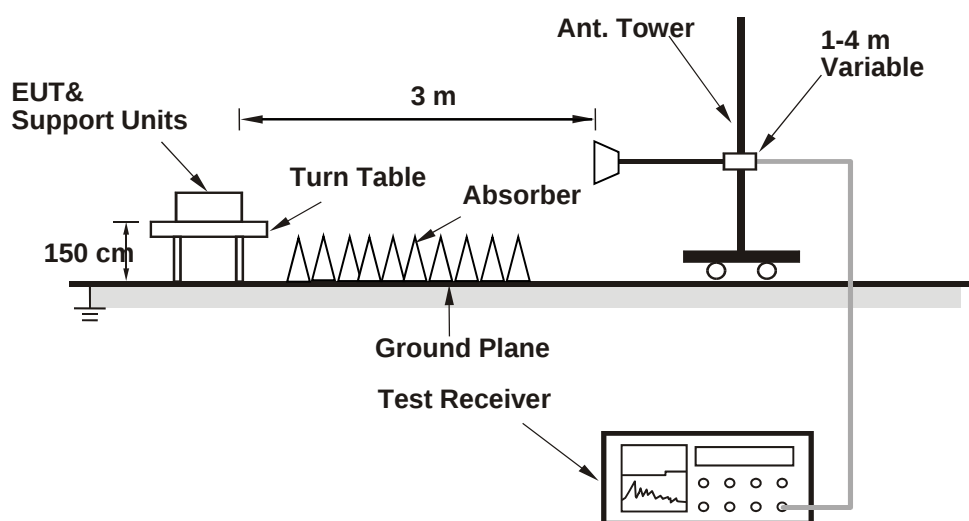
No deviation.

4.2.4 Test Setup

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.5 Test Results

GSM:

Low Channel

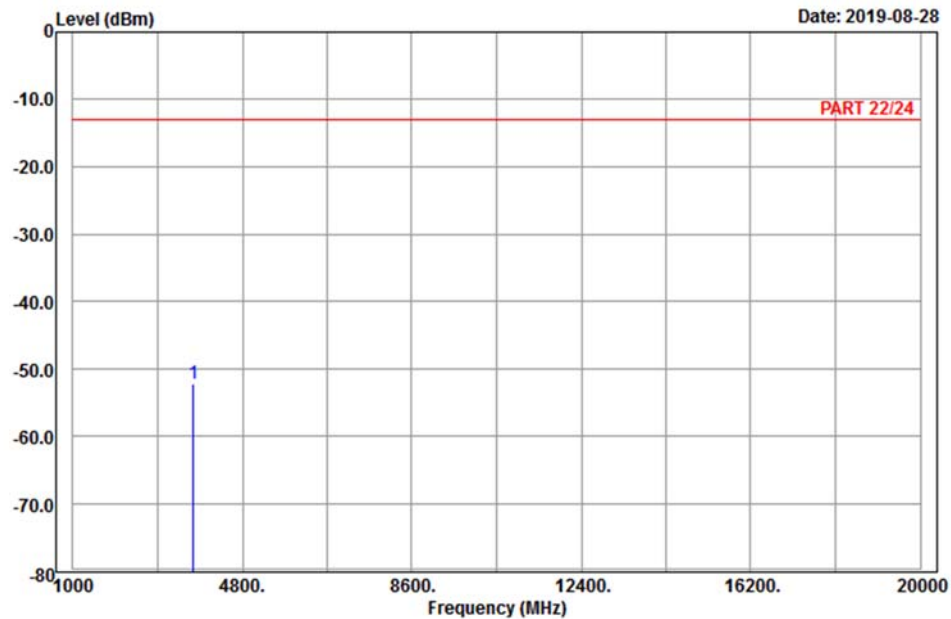


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A D T

Data: 9

Date: 2019-08-28



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : PCS 1900_Link_L-Ch
 Tested by: Harry Hsueh

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3700.40	-52.19	-68.07	15.88	-13.00	-39.19	Peak

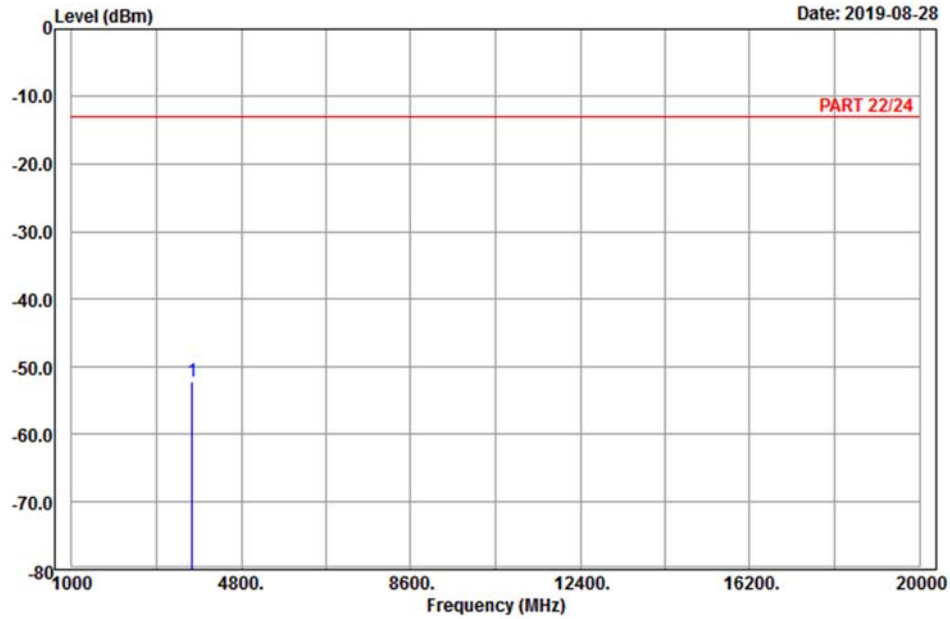


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Data: 10

Date: 2019-08-28



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : PCS 1900_Link_L-Ch
Tested by: Harry Hsueh

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3700.40	-52.02	-67.90	15.88	-13.00	-39.02	Peak

Middle Channel

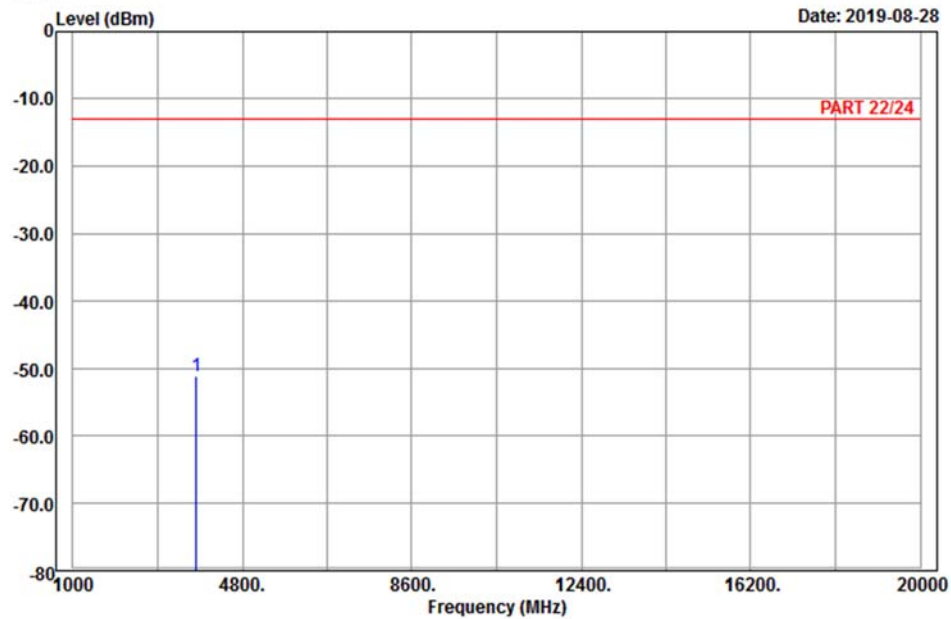


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Data: 9

Date: 2019-08-28



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : GPRS 1900_Link_M-Ch
Tested by: Harry Hsueh

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3760.00	-51.02	-67.16	16.14	-13.00	-38.02	Peak

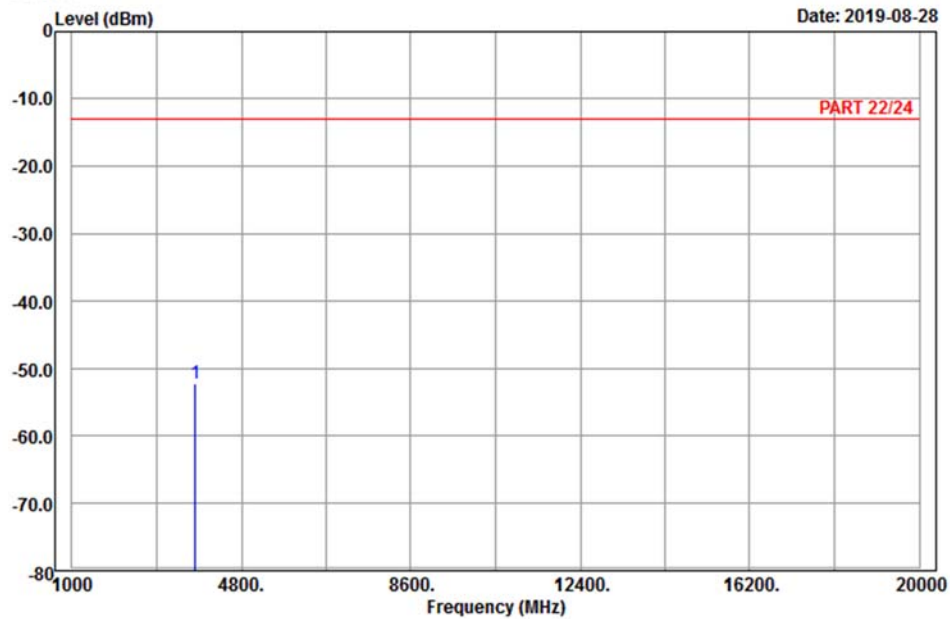


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Data: 10

Date: 2019-08-28



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : GPRS 1900_Link_M-Ch
Tested by: Harry Hsueh

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3760.00	-52.15	-68.29	16.14	-13.00	-39.15	Peak

High Channel

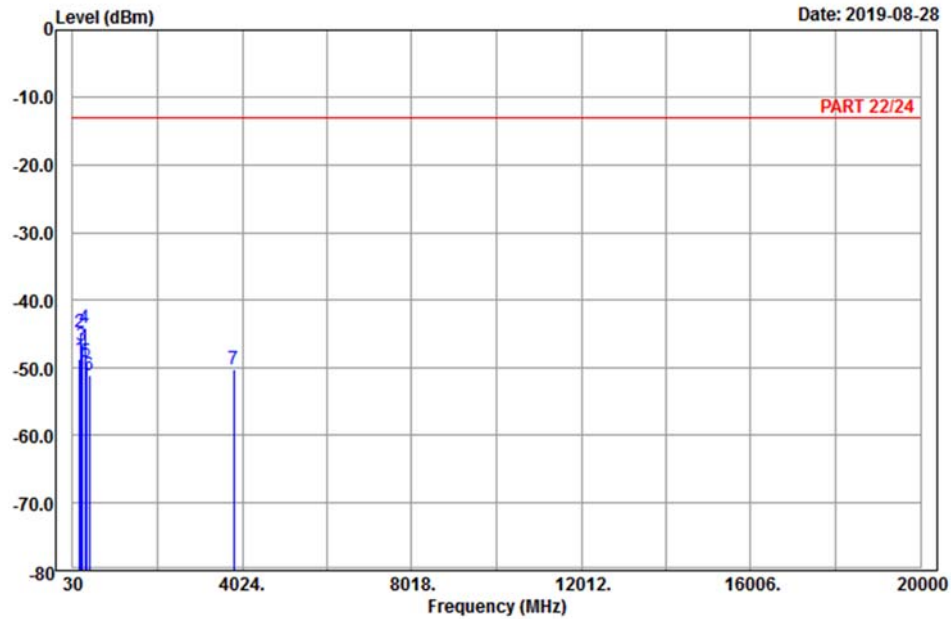


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Data: 13

Date: 2019-08-28



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : GPRS 1900_Link_H-Ch
Tested by: Harry Hsueh

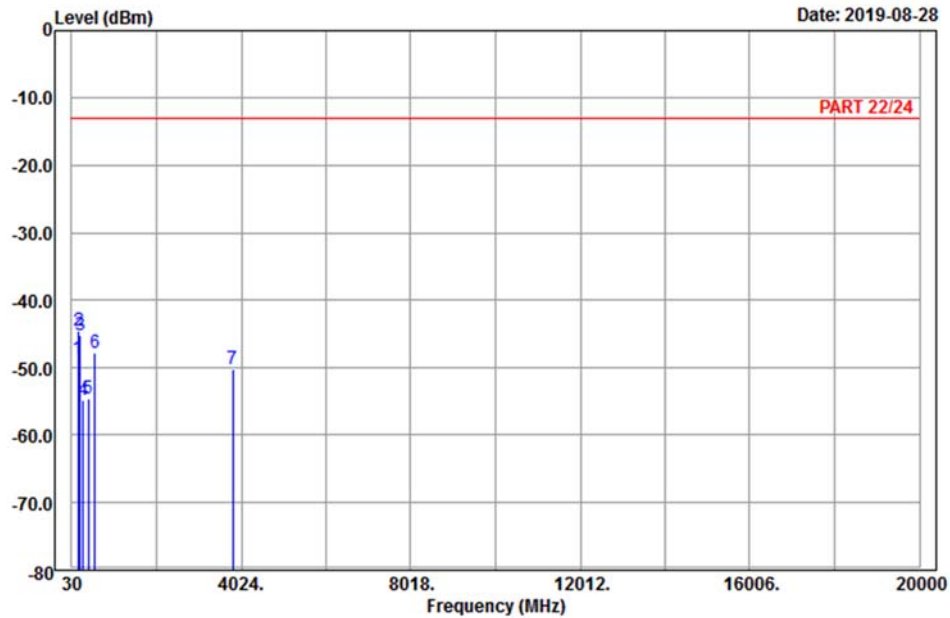
	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB
1	197.67	-48.66	-42.57	-6.09	-13.00	-35.66 Peak
2	219.81	-44.62	-38.71	-5.91	-13.00	-31.62 Peak
3	253.56	-46.58	-41.05	-5.53	-13.00	-33.58 Peak
4 pp	321.00	-43.96	-38.25	-5.71	-13.00	-30.96 Peak
5	353.20	-49.11	-43.89	-5.22	-13.00	-36.11 Peak
6	424.60	-51.04	-47.75	-3.29	-13.00	-38.04 Peak
7	3819.60	-50.16	-66.66	16.50	-13.00	-37.16 Peak



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Data: 14



Site : 966 chamber 1
 Condition: PART 22/24 Vertical
 Remark : GPRS 1900_Link_H-Ch
 Tested by: Harry Hsueh

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB
1	170.67	-48.54	-41.94	-6.60	-13.00	-35.54 Peak
2	191.19	-44.55	-38.77	-5.78	-13.00	-31.55 Peak
3	222.24	-45.22	-39.34	-5.88	-13.00	-32.22 Peak
4	303.50	-54.68	-48.77	-5.91	-13.00	-41.68 Peak
5	428.10	-54.53	-51.17	-3.36	-13.00	-41.53 Peak
6	578.60	-47.81	-47.35	-0.46	-13.00	-34.81 Peak
7	3819.60	-50.11	-66.61	16.50	-13.00	-37.11 Peak

EDGE:
Low Channel

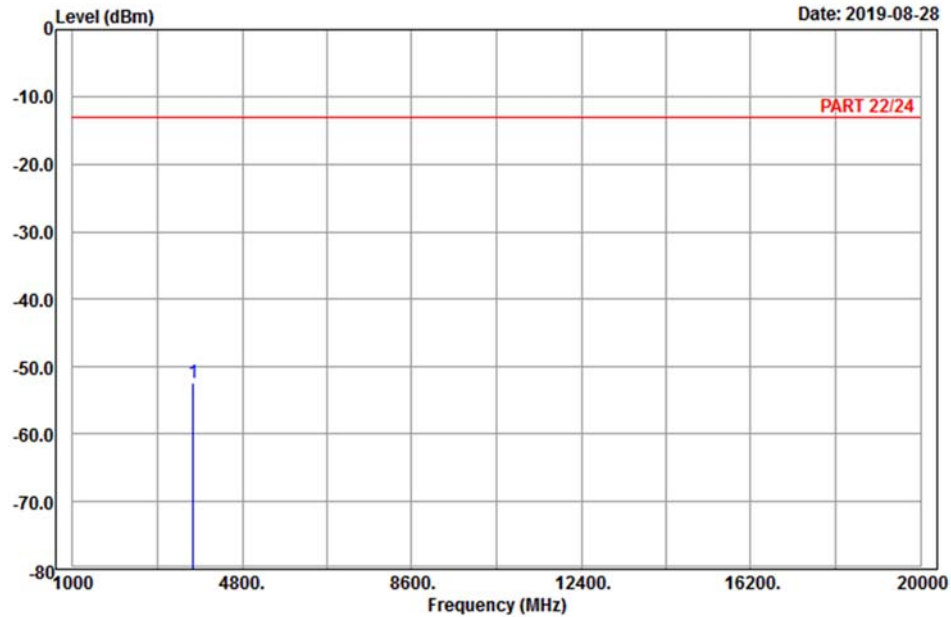


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Data: 9

Date: 2019-08-28



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : EDGE 1900_Link_L-Ch
Tested by: Harry Hsueh

		Read	Limit	Over	
Freq	Level	Level	Factor	Line	Limit Remark
MHz	dBm	dBm	dB	dBm	dB
1 pp 3700.40	-52.28	-68.16	15.88	-13.00	-39.28 Peak

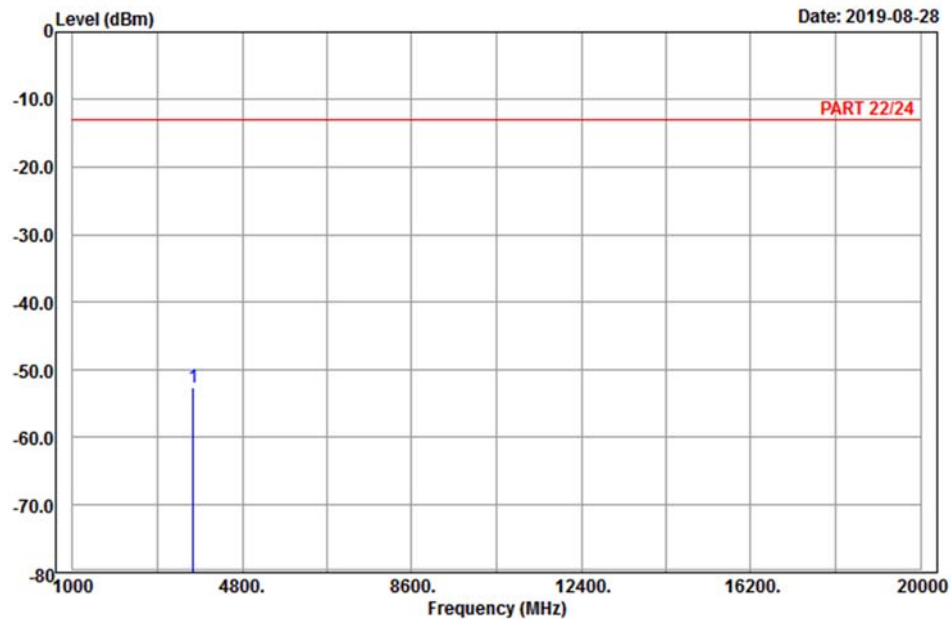


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Data: 10

Date: 2019-08-28



Site : 966 chamber 1
 Condition: PART 22/24 Vertical
 Remark : EDGE 1900_Link_L-Ch
 Tested by: Harry Hsueh

Freq	Level	Read	Limit	Over	
MHz	dBm	Level	Line	Limit	Remark
		dBm	dB	dBm	dB
1 pp 3700.40	-52.49	-68.37	15.88	-13.00	-39.49 Peak

Middle Channel

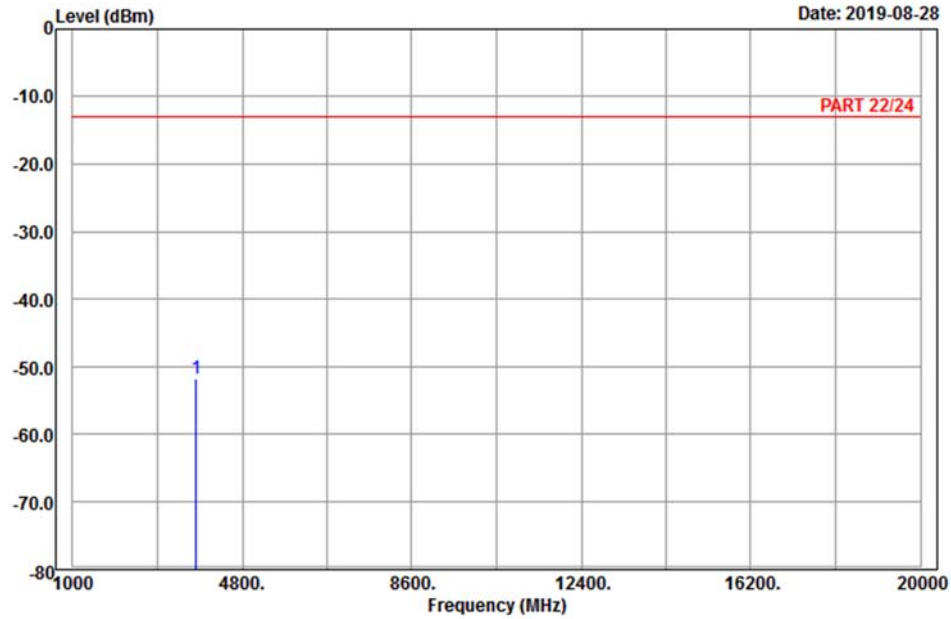


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Data: 9

Date: 2019-08-28



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : EDGE 1900_Link_M-Ch
Tested by: Harry Hsueh

Freq	Level	Read	Limit	Over	
MHz	dBm	Level	Line	Limit	Remark
	dBm	dB	dBm	dB	
1 pp 3760.00	-51.69	-67.83	16.14	-13.00	-38.69 Peak

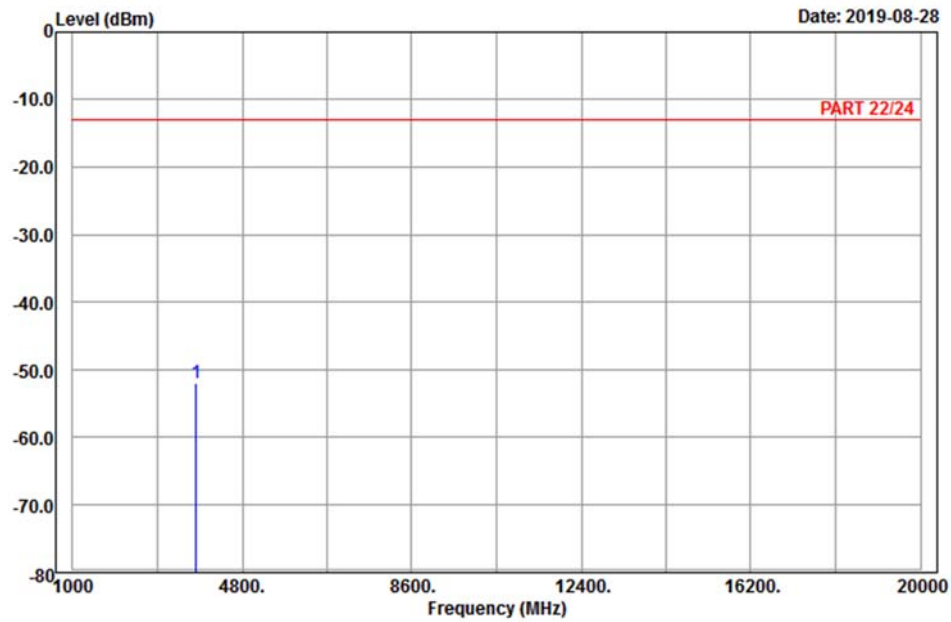


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Data: 10

Date: 2019-08-28



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : EDGE 1900_Link_M-Ch
Tested by: Harry Hsueh

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3760.00	-51.84	-67.98	16.14	-13.00	-38.84	Peak

High Channel

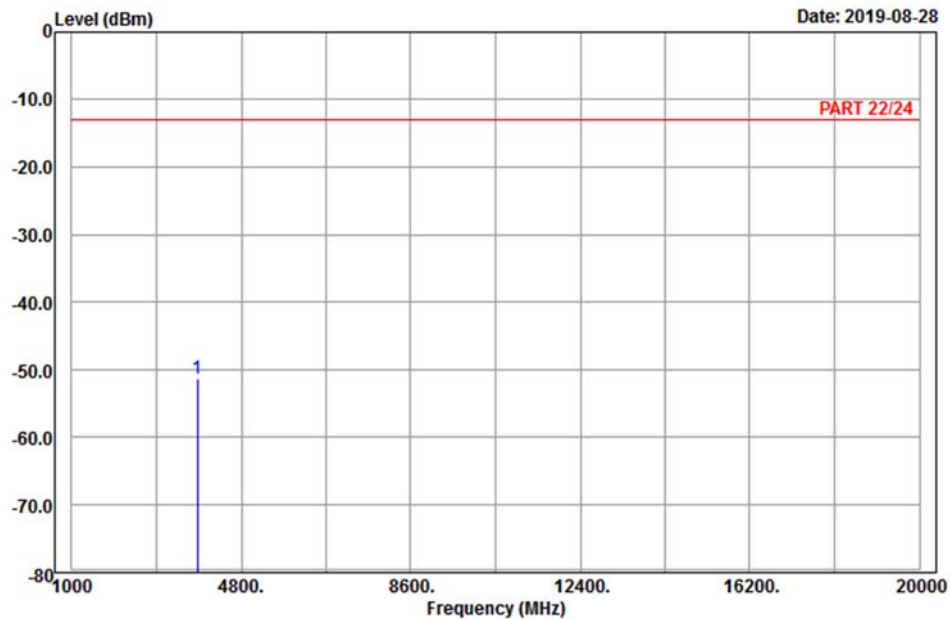


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Data: 9

Date: 2019-08-28



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : EDGE 1900_Link_H-Ch
 Tested by: Harry Hsueh

Freq	Level	Read	Limit	Over	
MHz	dBm	Level	Line	Limit	Remark
		Factor			
		dB	dBm	dB	
1 pp 3819.60	-51.19	-67.69	16.50	-13.00	-38.19 Peak

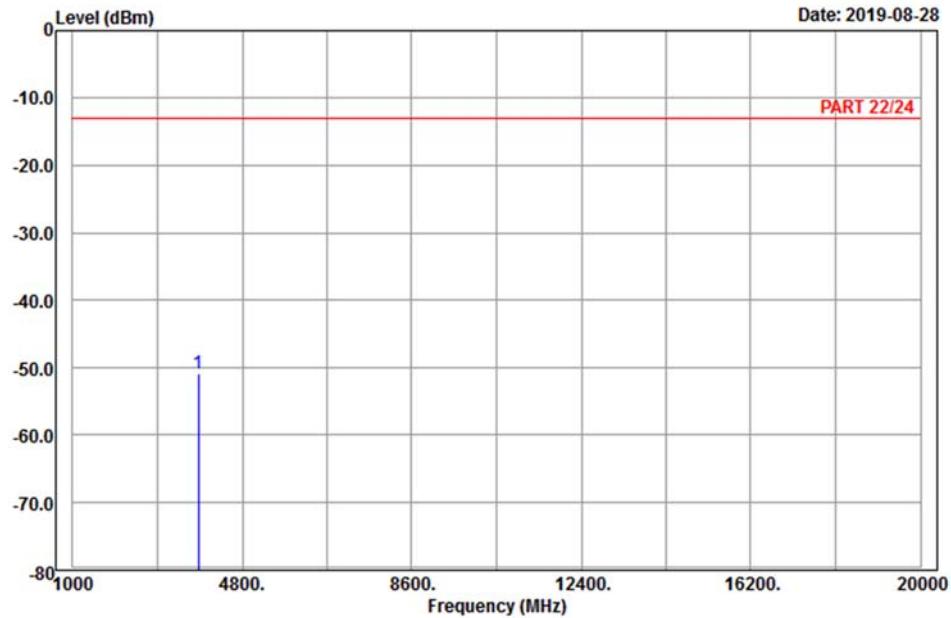


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Data: 10

Date: 2019-08-28



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : EDGE 1900_Link_H-Ch
Tested by: Harry Hsueh

	Freq	Level	Read Level Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dB	
1 pp	3819.60	-50.84	-67.34	16.50	-13.00	-37.84 Peak

WCDMA:
Low Channel

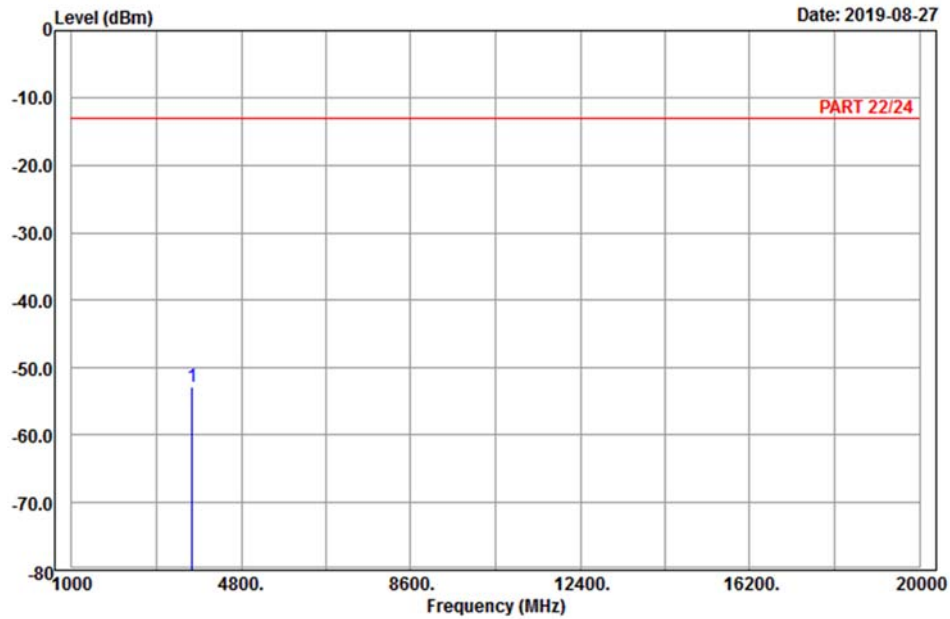


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Data: 9

Date: 2019-08-27



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : Band II _Link_L-Ch
Tested by: Charles Hsiao

		Read	Limit	Over	
Freq	Level	Level	Factor	Line	Limit Remark
MHz	dBm	dBm	dB	dBm	dB
1 pp 3704.80	-52.80	-68.68	15.88	-13.00	-39.80 Peak

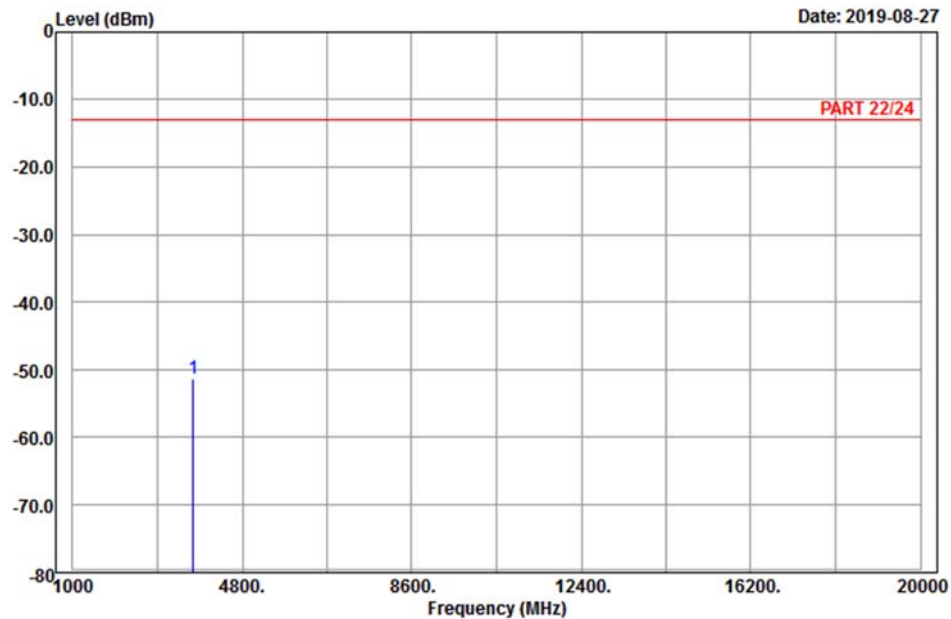


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A D T

Data: 10

Date: 2019-08-27



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : Band II_Link_L-Ch
Tested by: Charles Hsiao

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3704.80	-51.20	-67.08	15.88	-13.00	-38.20	Peak

Middle Channel

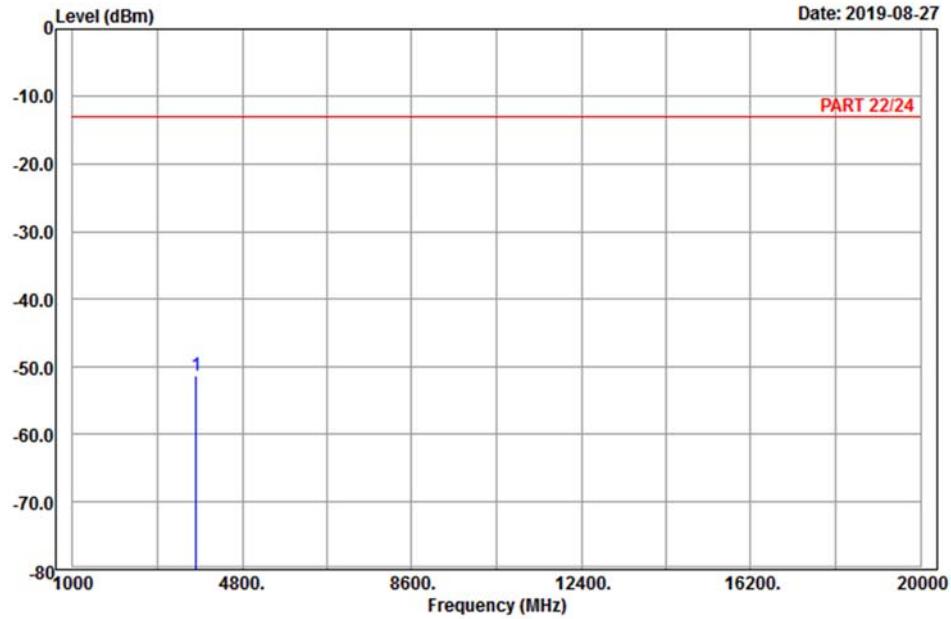


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A D T

Data: 9

Date: 2019-08-27



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : Band II _Link_M-Ch
Tested by: Charles Hsiao

Freq	Level	Read	Limit	Over	
MHz	dBm	Level	Line	Limit	Remark
	dBm	dB	dBm	dB	
1 pp 3760.00	-51.28	-67.42	16.14	-13.00	-38.28 Peak

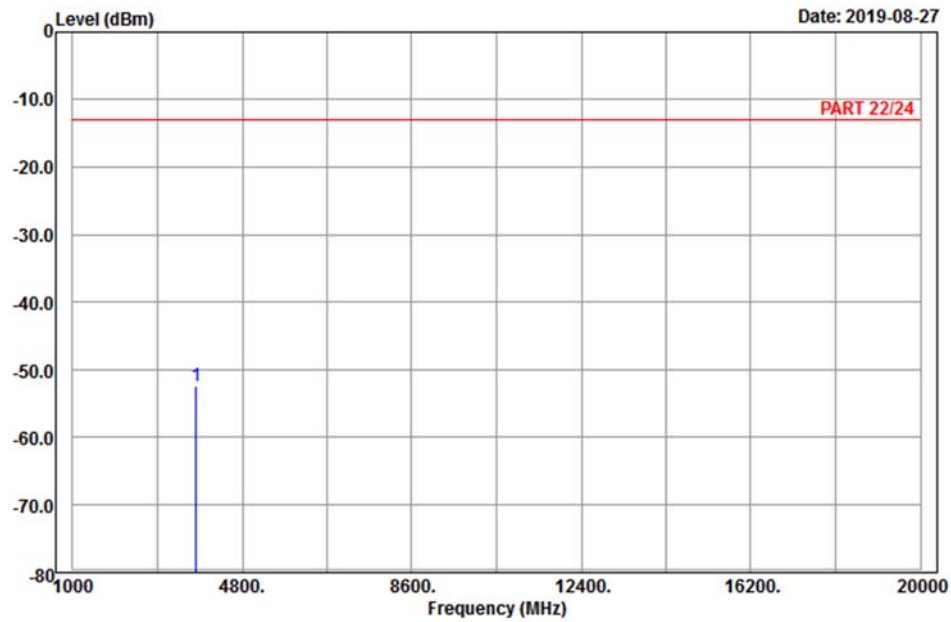


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-27



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : Band II_Link_M-Ch
Tested by: Charles Hsiao

Freq	Level	Read	Limit	Over	
MHz	dBm	Level	Line	Limit	Remark
	dBm	dB	dBm	dB	
1 pp 3760.00	-52.27	-68.41	16.14	-13.00	-39.27 Peak

High Channel

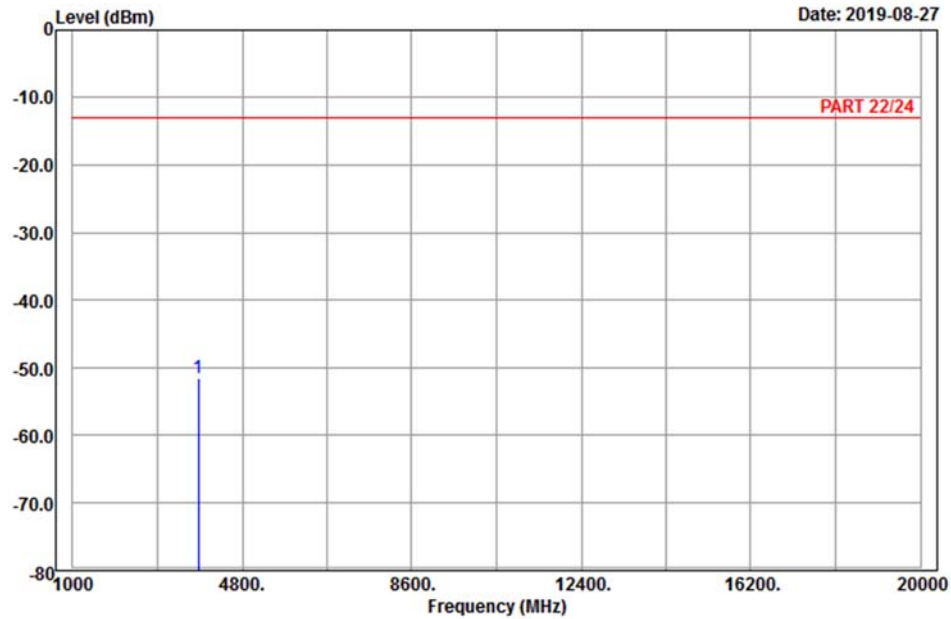


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-27



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : Band II_Link_H-Ch
 Tested by: Charles Hsiao

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3815.20	-51.34	-67.75	16.41	-13.00	-38.34	Peak

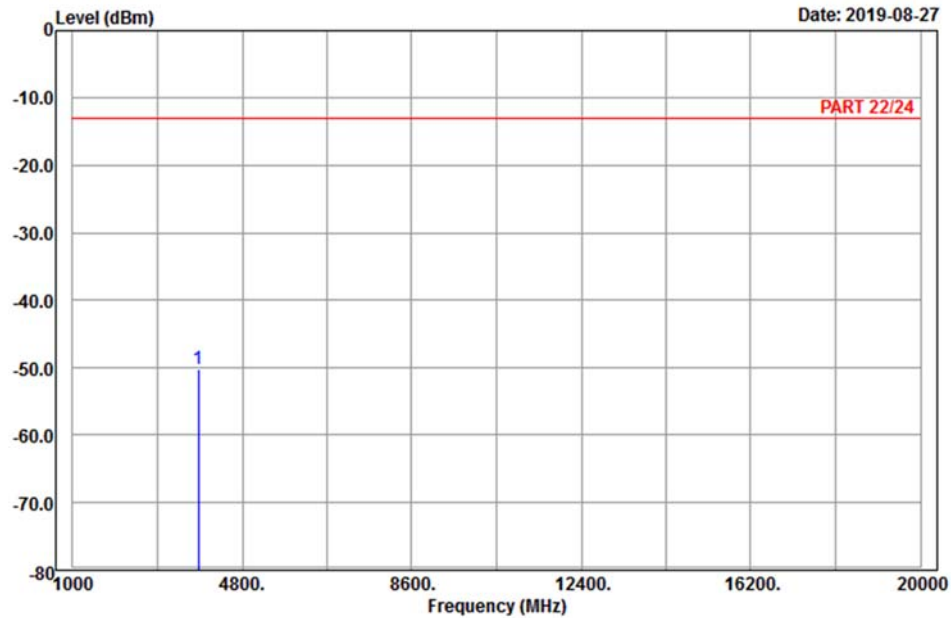


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-27



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : Band II _Link_H-Ch
Tested by: Charles Hsiao

Freq	Level	Read	Factor	Limit	Over	Remark
		Level		Line	Limit	
MHz	dBm	dBm	dB	dBm	dB	
1 pp 3815.20	-50.16	-66.57	16.41	-13.00	-37.16	Peak

LTE Band 2
Channel Bandwidth: 1.4 MHz / QPSK
Low Channel

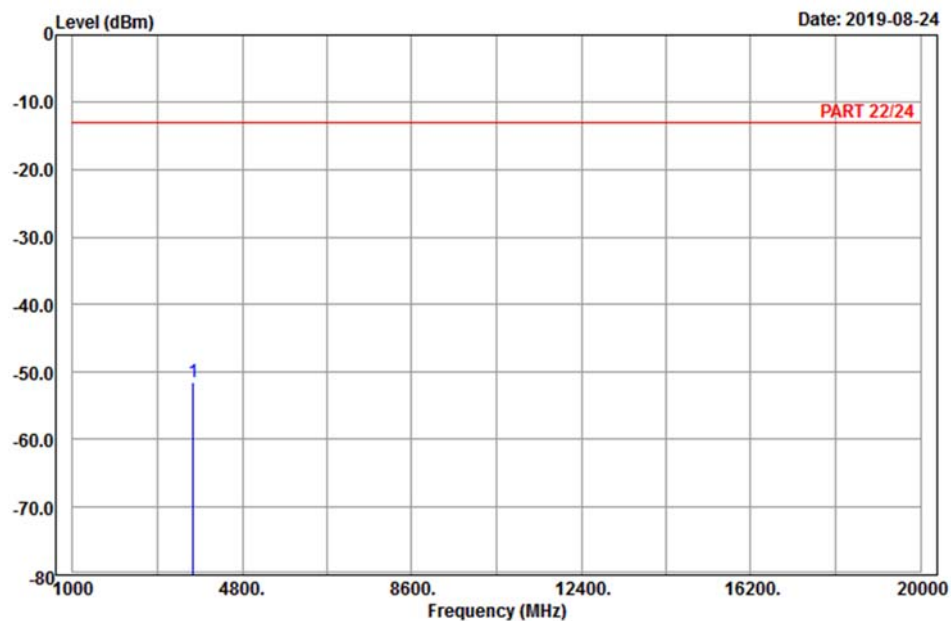


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-24



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 2_Link_L-CH
Tested by: Karl Lee

		Read	Limit	Over	
Freq	Level	Level	Factor	Line	Limit Remark
MHz	dBm	dBm	dB	dBm	dB
1 pp 3701.40	-51.42	-67.30	15.88	-13.00	-38.42 Peak

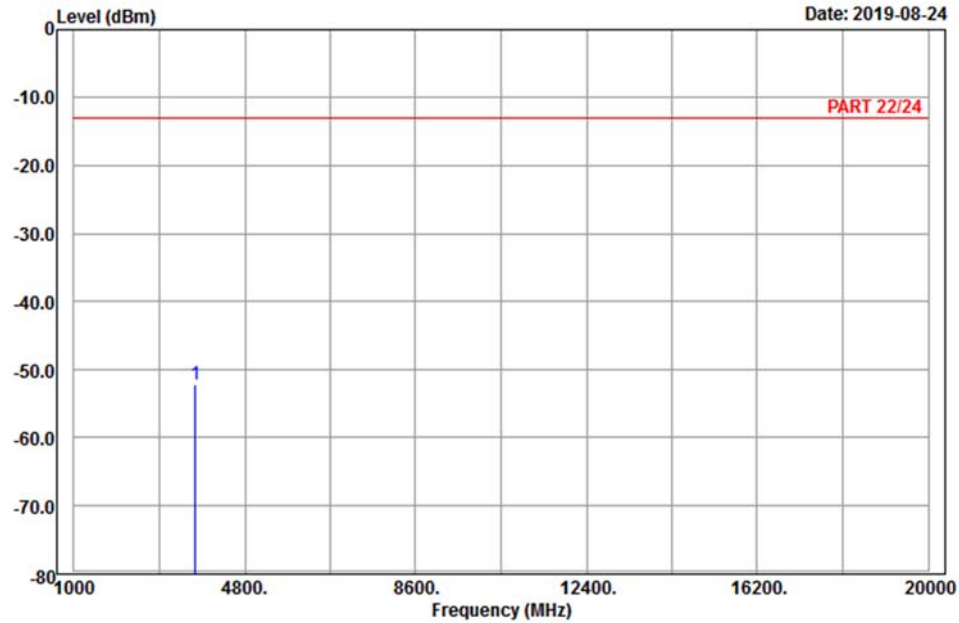


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-24



Site : 966 chamber 1
 Condition: PART 22/24 Vertical
 Remark : LTE_Band 2_Link_L-CH
 Tested by: Karl Lee

	Read	Limit	Over	
Freq	Level	Level	Factor	Line
MHz	dBm	dBm	dB	dBm
1 pp 3701.40	-52.09	-67.97	15.88	-13.00
				-39.09
				Peak

Middle Channel

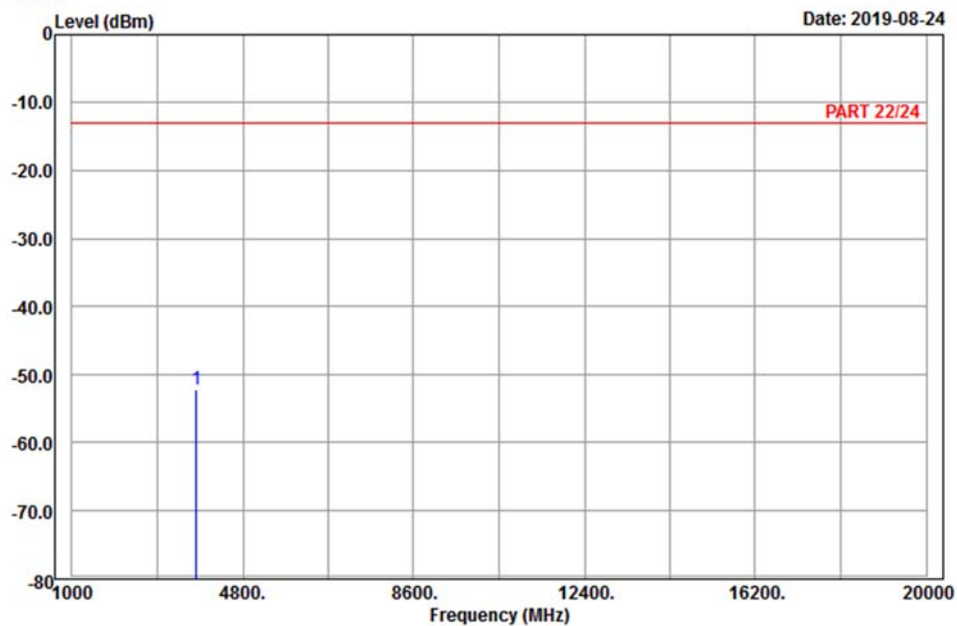


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-24



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : LTE_Band 2_Link_M-CH
 Tested by: Karl Lee

	Read	Limit	Over	
Freq	Level	Level	Factor	Line
MHz	dBm	dBm	dB	dBm
1 pp 3760.00	-52.02	-68.16	16.14	-13.00
				-39.02
				Peak

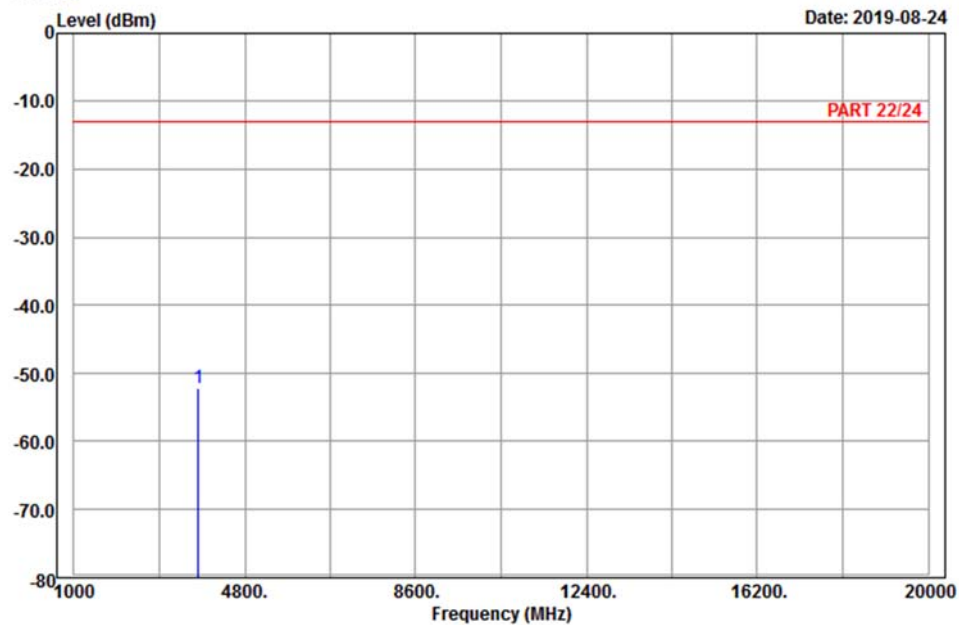


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-24



Site : 966 chamber 1
 Condition: PART 22/24 Vertical
 Remark : LTE_Band 2_Link_M-CH
 Tested by: Karl Lee

		Read	Limit	Over	
Freq	Level	Level	Factor	Line	Limit Remark
MHz	dBm	dBm	dB	dBm	dB
1 pp 3760.00	-51.99	-68.13	16.14	-13.00	-38.99 Peak

High Channel

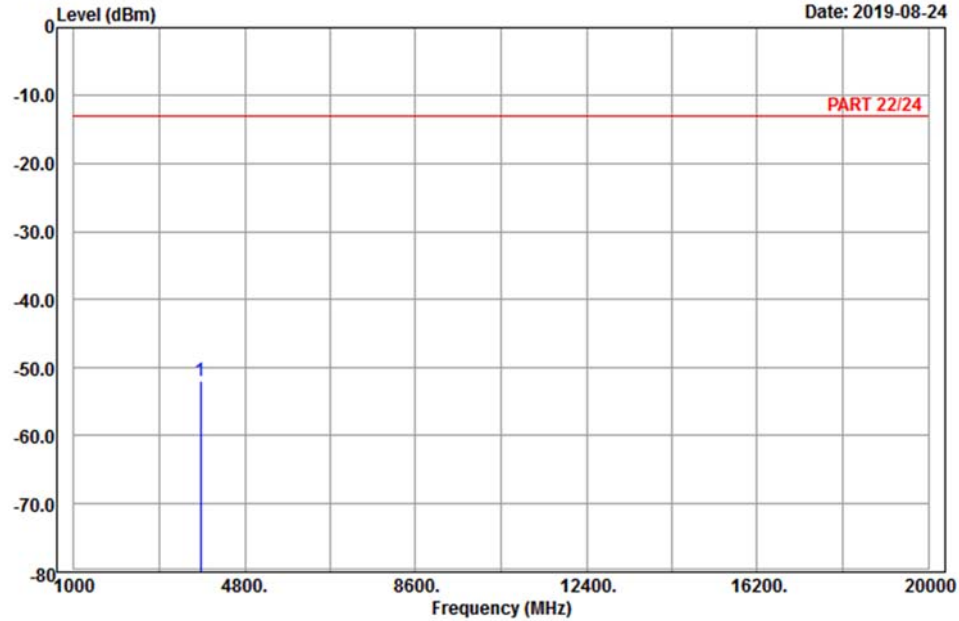


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-24



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : LTE_Band 2_Link_H-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3818.60	-51.90	-68.40	16.50	-13.00	-38.90	Peak

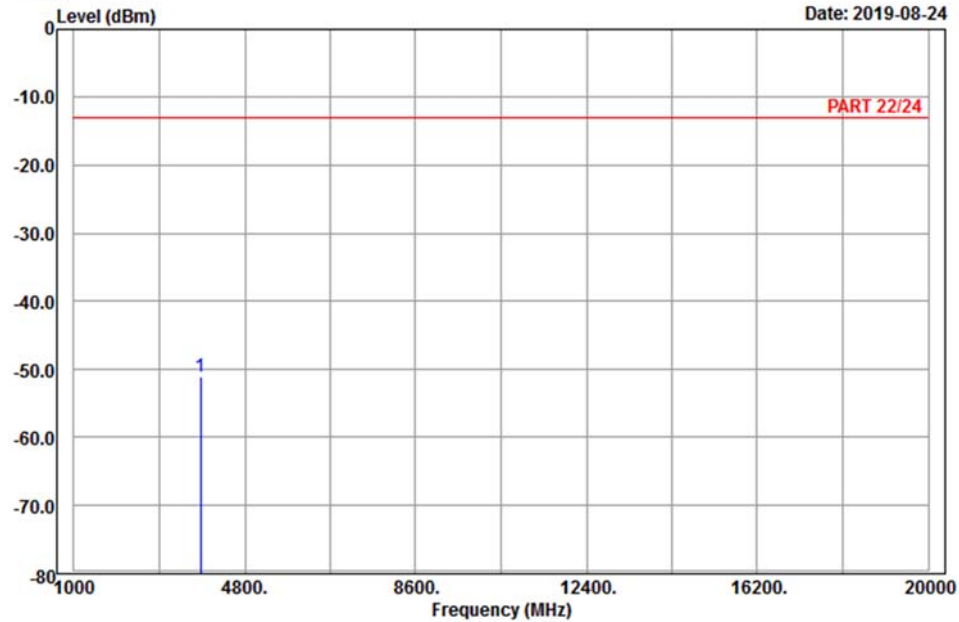


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-24



Site : 966 chamber 1
 Condition: PART 22/24 Vertical
 Remark : LTE_Band 2_Link_H-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3818.60	-51.03	-67.53	16.50	-13.00	-38.03	Peak

Channel Bandwidth: 5 MHz / QPSK

Low Channel

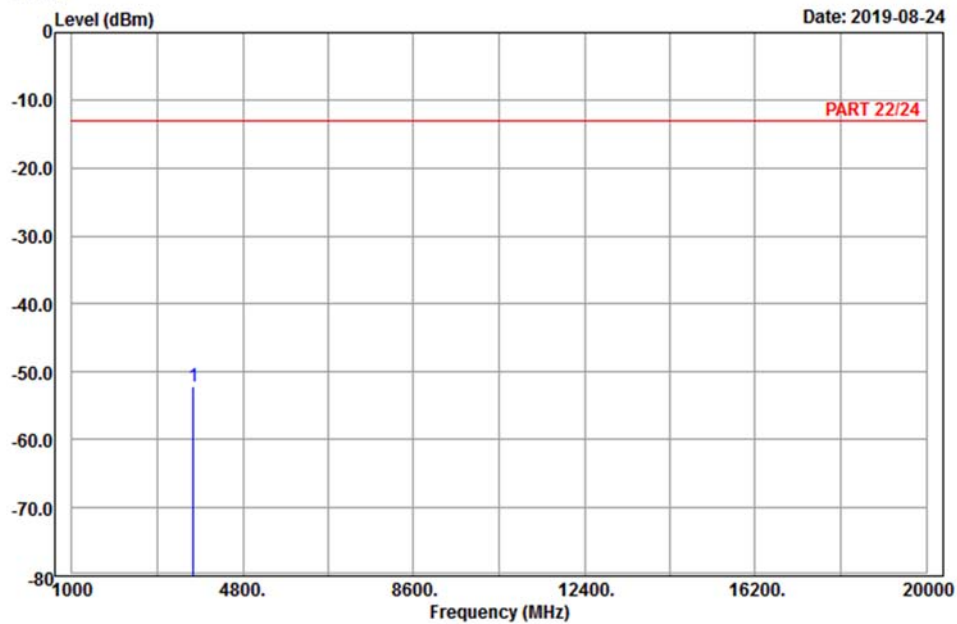


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-24



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 2_Link_L-CH
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3705.00	-52.11	-67.99	15.88	-13.00	-39.11	Peak

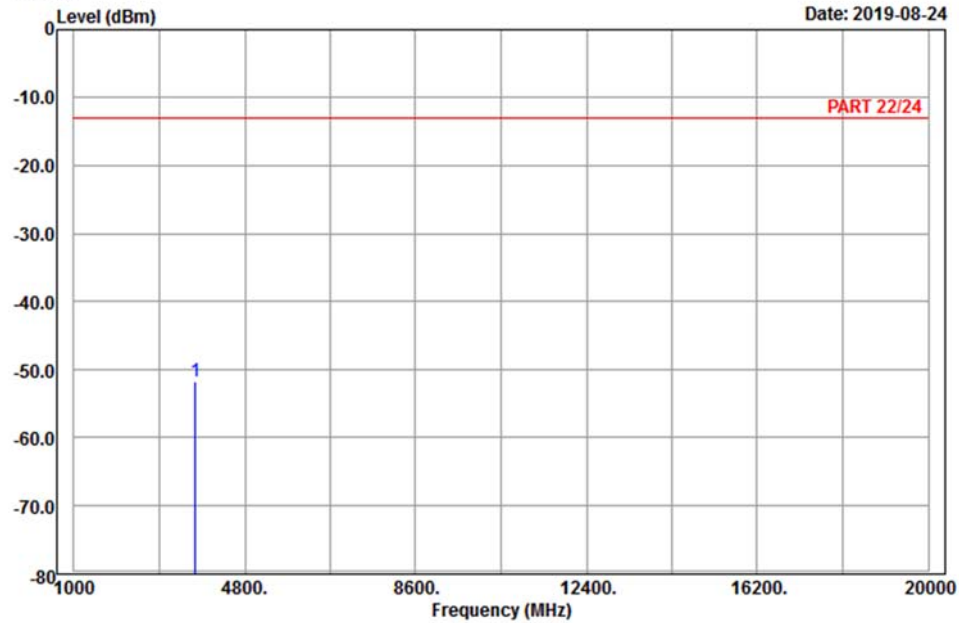


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-24



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 2_Link_L-CH
Tested by: Karl Lee

	Read	Limit	Over	
Freq	Level	Level	Factor	Line
MHz	dBm	dBm	dB	dBm
1 pp 3705.00	-51.60	-67.48	15.88	-13.00
				-38.60
				Peak

Middle Channel

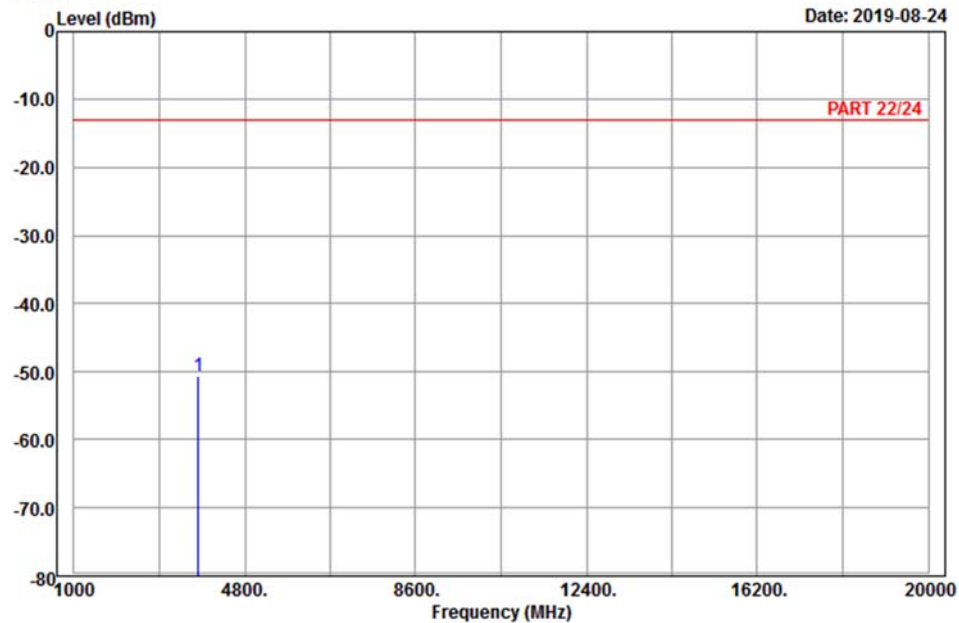


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-24



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : LTE_Band 2_Link_M-CH
 Tested by: Karl Lee

	Read	Limit	Over	
Freq	Level	Level	Factor	Line
MHz	dBm	dBm	dB	dBm
1 pp 3760.00	-50.53	-66.67	16.14	-13.00
				-37.53
				Peak

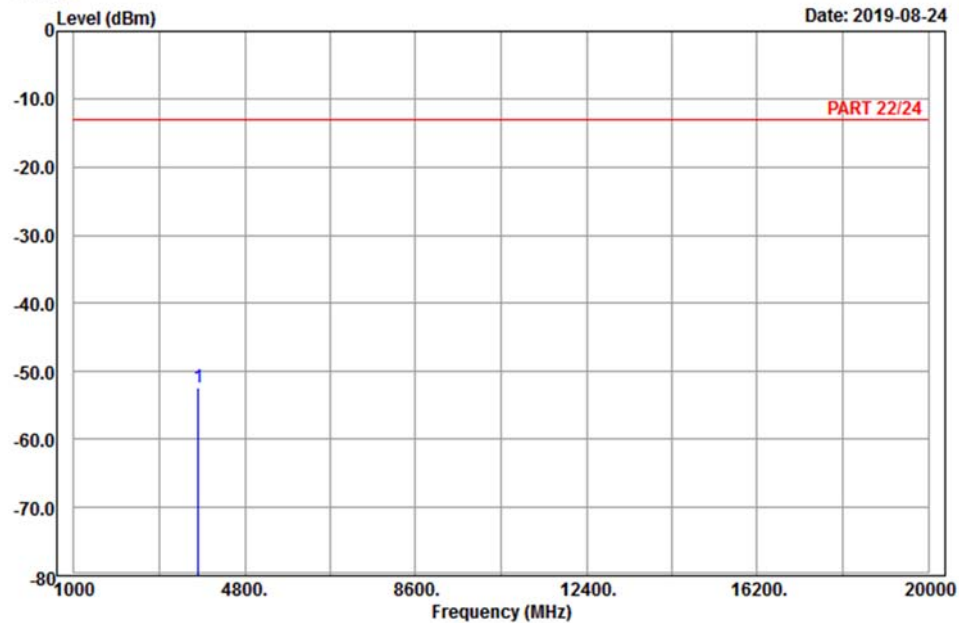


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-24



Site : 966 chamber 1
 Condition: PART 22/24 Vertical
 Remark : LTE_Band 2_Link_M-CH
 Tested by: Karl Lee

		Read	Limit	Over	
Freq	Level	Level	Factor	Line	Limit Remark
MHz	dBm	dBm	dB	dBm	dB
1 pp 3760.00	-52.29	-68.43	16.14	-13.00	-39.29 Peak

High Channel

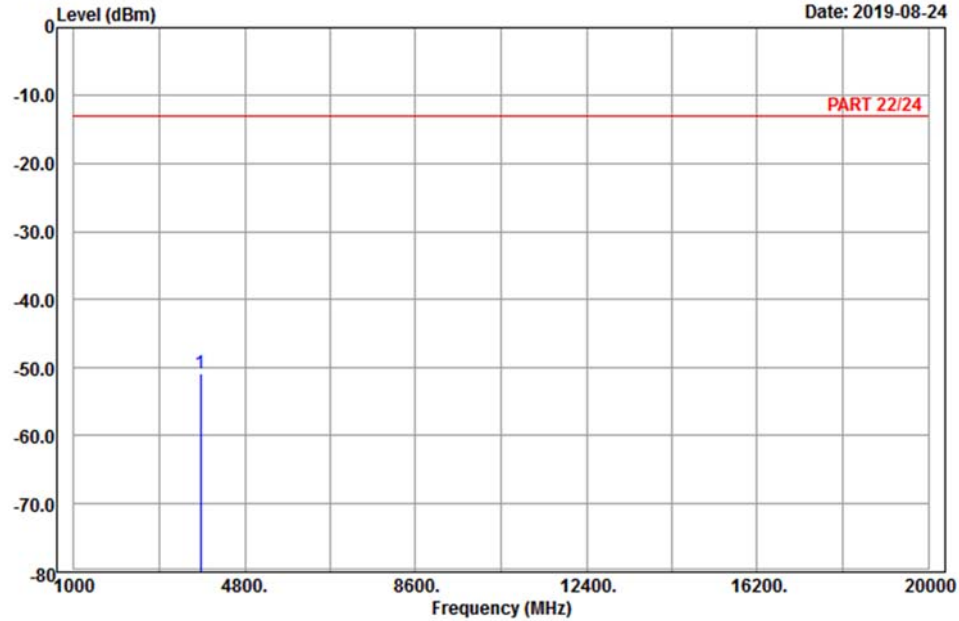


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-24



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : LTE_Band 2_Link_CH-H
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3815.00	-50.81	-67.22	16.41	-13.00	-37.81	Peak

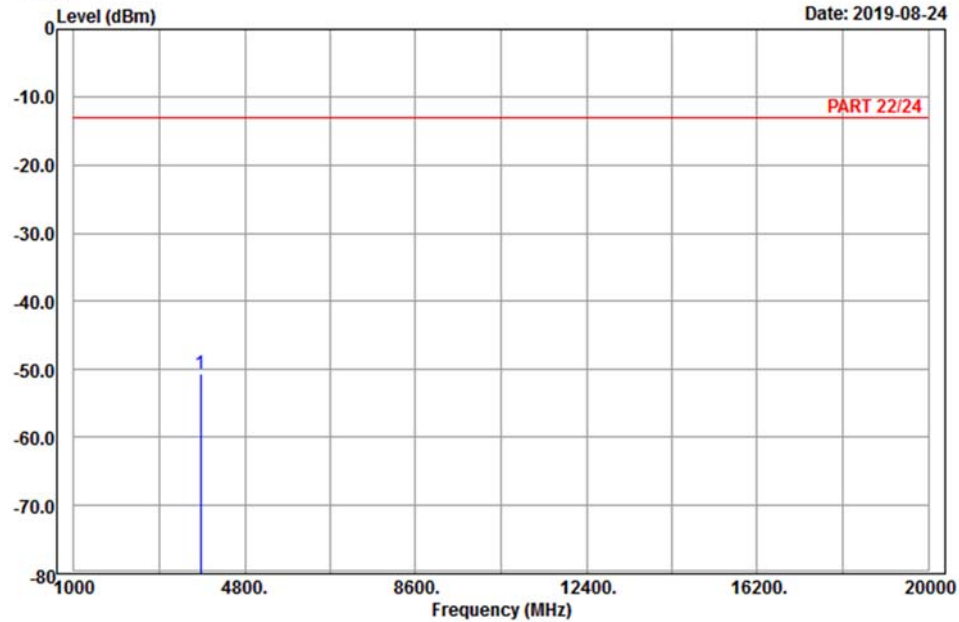


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-24



Site : 966 chamber 1
 Condition: PART 22/24 Vertical
 Remark : LTE_Band 2_Link_H-Ch
 Tested by: Karl Lee

Freq	Level	Read	Limit	Over	
MHz	dBm	Level	Line	Limit	Remark
		dBm	dB	dBm	dB
1 pp 3815.00	-50.47	-66.88	16.41	-13.00	-37.47 Peak

Channel Bandwidth: 20 MHz / QPSK

Low Channel

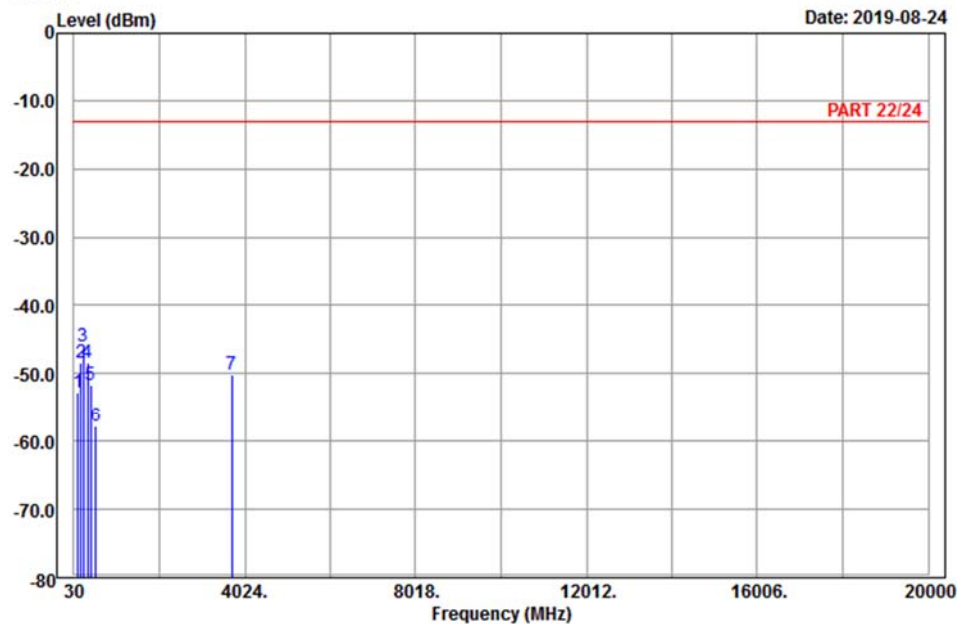


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 13

Date: 2019-08-24



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 2_Link_L-CH
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	120.45	-52.68	-44.43	-8.25	-13.00	-39.68	Peak
2	192.00	-48.29	-42.47	-5.82	-13.00	-35.29	Peak
3 pp	239.79	-46.10	-40.45	-5.65	-13.00	-33.10	Peak
4	344.80	-48.47	-43.04	-5.43	-13.00	-35.47	Peak
5	425.30	-51.56	-48.25	-3.31	-13.00	-38.56	Peak
6	534.50	-57.71	-54.91	-2.80	-13.00	-44.71	Peak
7	3720.00	-50.21	-66.18	15.97	-13.00	-37.21	Peak

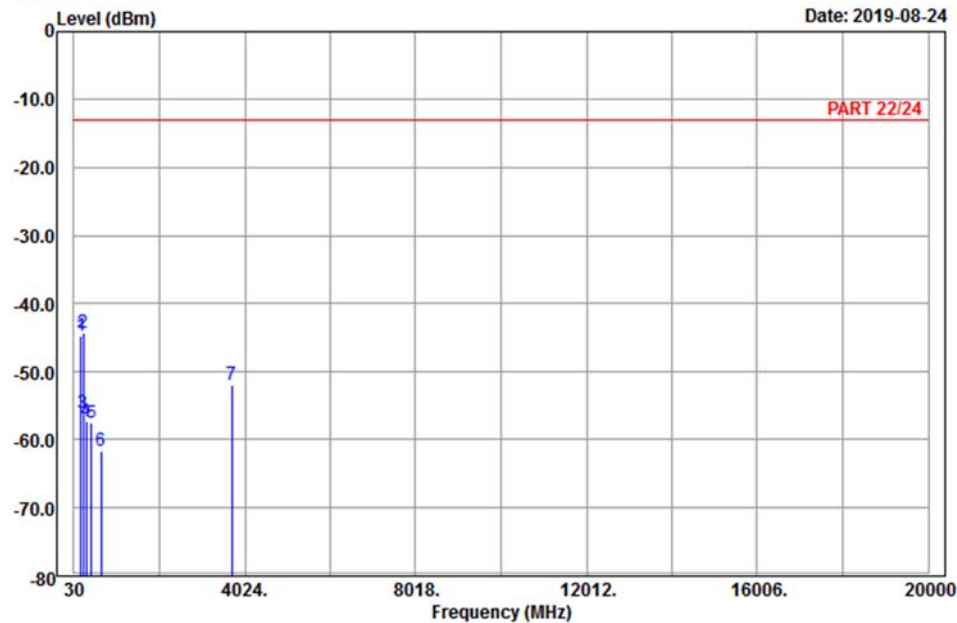


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 14

Date: 2019-08-24



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 2_Link_L-CH
Tested by: Karl Lee

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB
1	190.65	-44.70	-38.92	-5.78	-13.00	-31.70 Peak
2	239.25	-44.17	-38.52	-5.65	-13.00	-31.17 Peak
3	254.91	-56.10	-50.55	-5.55	-13.00	-43.10 Peak
4	315.40	-57.31	-51.53	-5.78	-13.00	-44.31 Peak
5	444.90	-57.48	-53.74	-3.74	-13.00	-44.48 Peak
6	662.60	-61.60	-61.40	-0.20	-13.00	-48.60 Peak
7	3720.00	-51.84	-67.81	15.97	-13.00	-38.84 Peak

Middle Channel

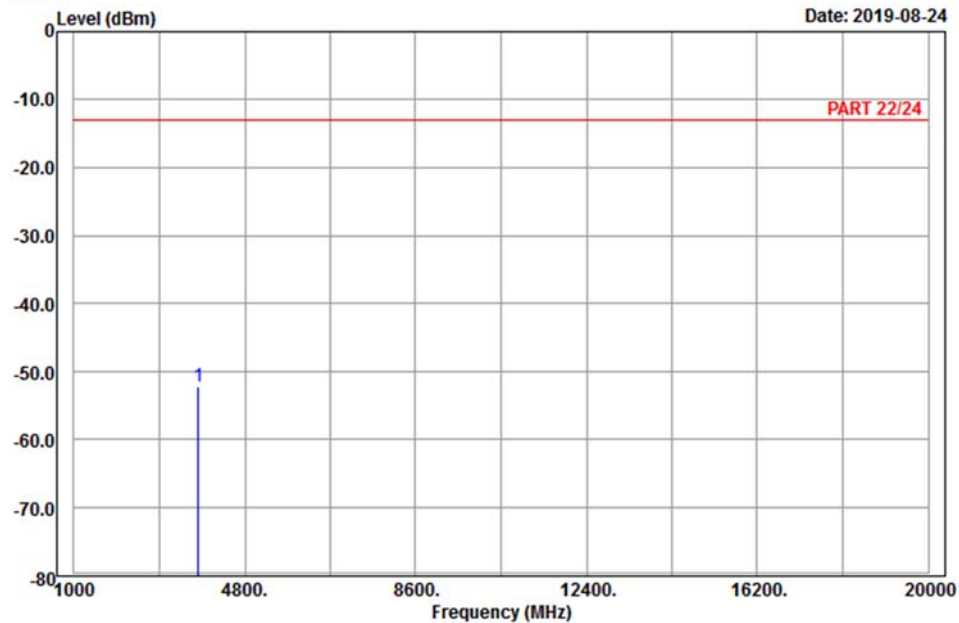


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-24



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : LTE_Band 2_Link_CH-M
 Tested by: Karl Lee

	Read	Limit	Over	
Freq	Level	Level	Factor	Line
MHz	dBm	dBm	dB	dBm
1 pp 3760.00	-52.17	-68.31	16.14	-13.00
				-39.17
				Peak

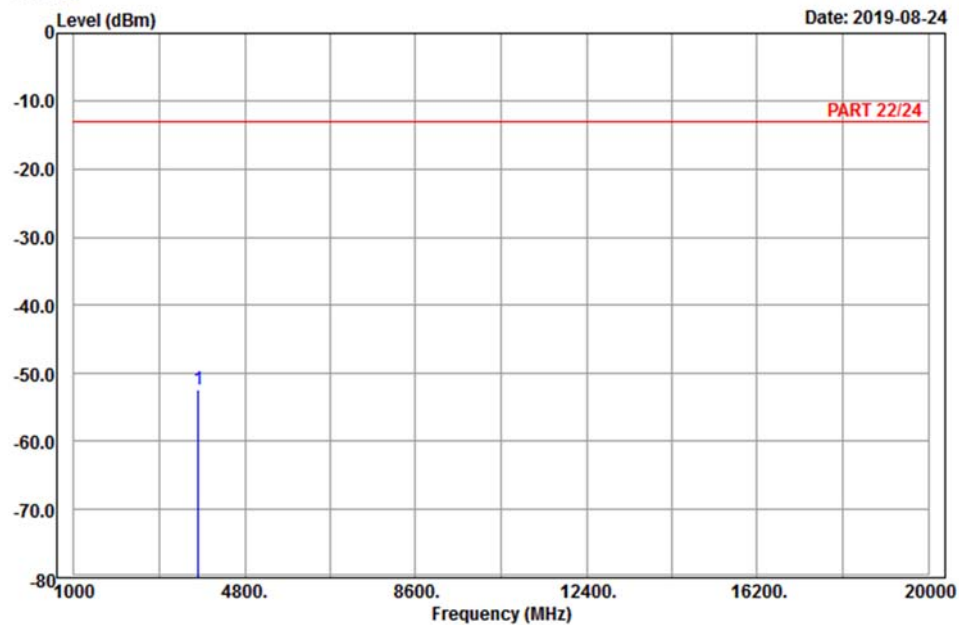


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-24



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 2_Link_CH-M
Tested by: Karl Lee

		Read	Limit	Over	
Freq	Level	Level	Factor	Line	Limit Remark
MHz	dBm	dBm	dB	dBm	dB
1 pp 3760.00	-52.25	-68.39	16.14	-13.00	-39.25 Peak

High Channel

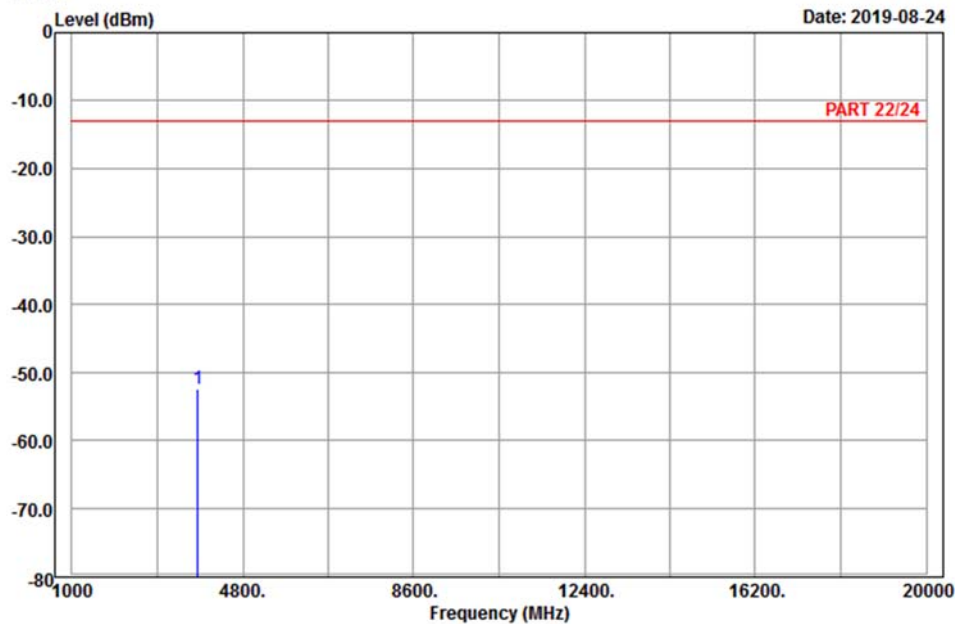


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-24



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : LTE_Band 2_Link_H-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3800.00	-52.21	-68.62	16.41	-13.00	-39.21	Peak

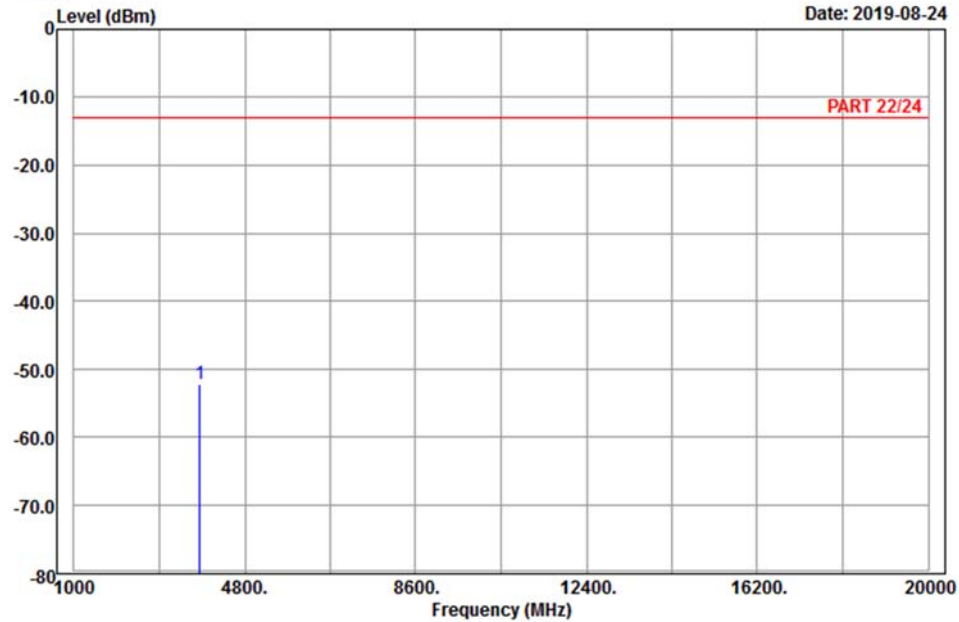


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-24



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 2_Link_H-Ch
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3800.00	-52.18	-68.59	16.41	-13.00	-39.18	Peak

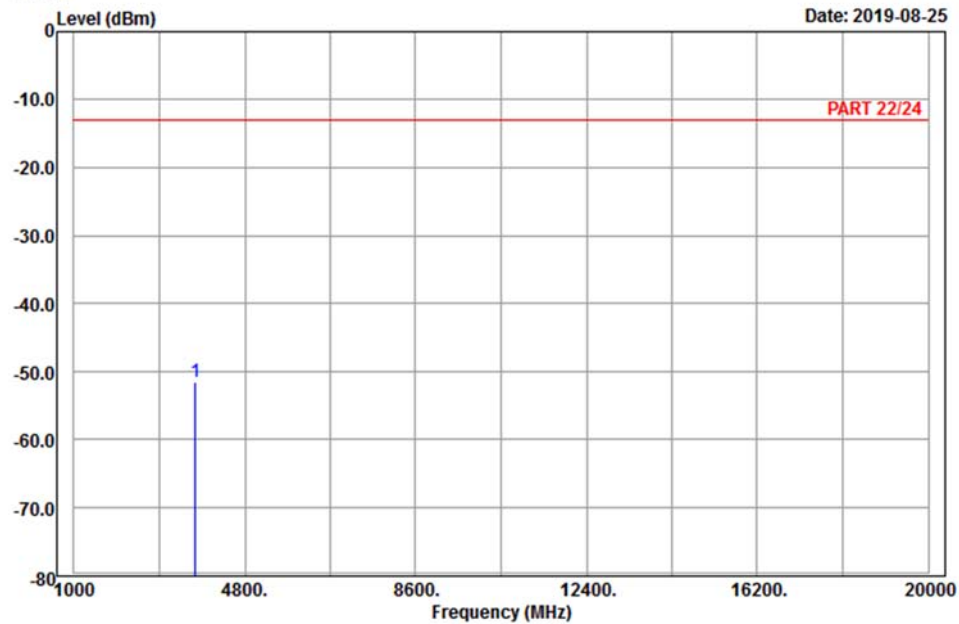
LTE Band 25
Channel Bandwidth: 1.4 MHz / QPSK
Low Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 25_Link_L-Ch
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3701.40	-51.42	-67.30	15.88	-13.00	-38.42	Peak

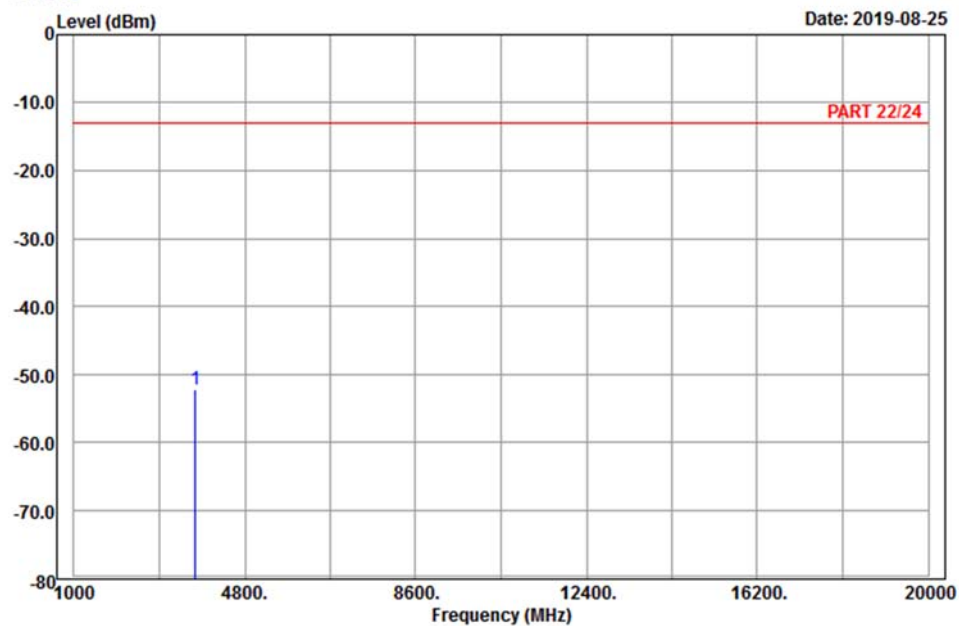


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-25



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 25_Link_L-Ch
Tested by: Karl Lee

	Read	Limit	Over	
Freq	Level	Level	Factor	Line
MHz	dBm	dBm	dB	dBm
1 pp 3701.40	-52.09	-67.97	15.88	-13.00
				-39.09
				Peak

Middle Channel

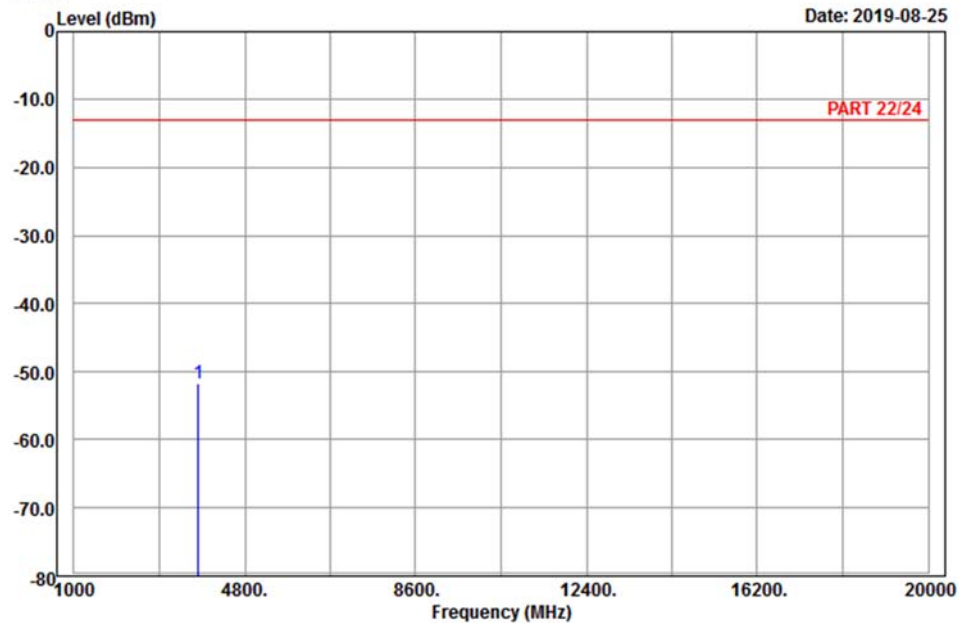


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-25



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : LTE_Band 25_Link_M-Ch
 Tested by: Karl Lee

	Read	Limit	Over	
Freq	Level	Level	Factor	Line
MHz	dBm	dBm	dB	dBm
1 pp 3765.00	-51.62	-67.85	16.23	-13.00
				-38.62
				Peak

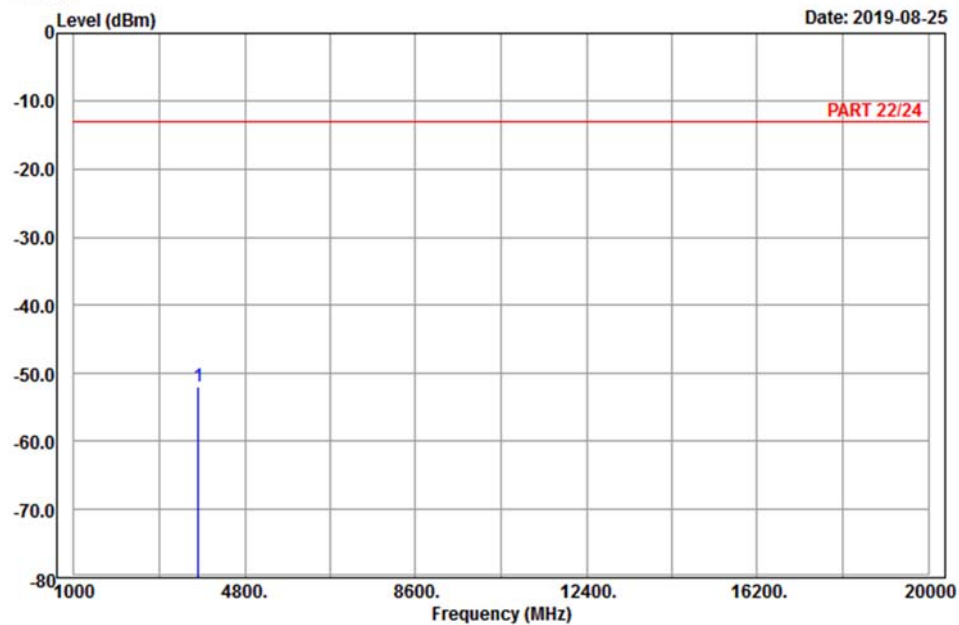


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-25



Site : 966 chamber 1
 Condition: PART 22/24 Vertical
 Remark : LTE_Band 25_Link_M-Ch
 Tested by: Karl Lee

		Read	Limit	Over	
Freq	Level	Level	Factor	Line	Limit
MHz	dBm	dBm	dB	dBm	dB
1 pp 3765.00	-51.93	-68.16	16.23	-13.00	-38.93

High Channel

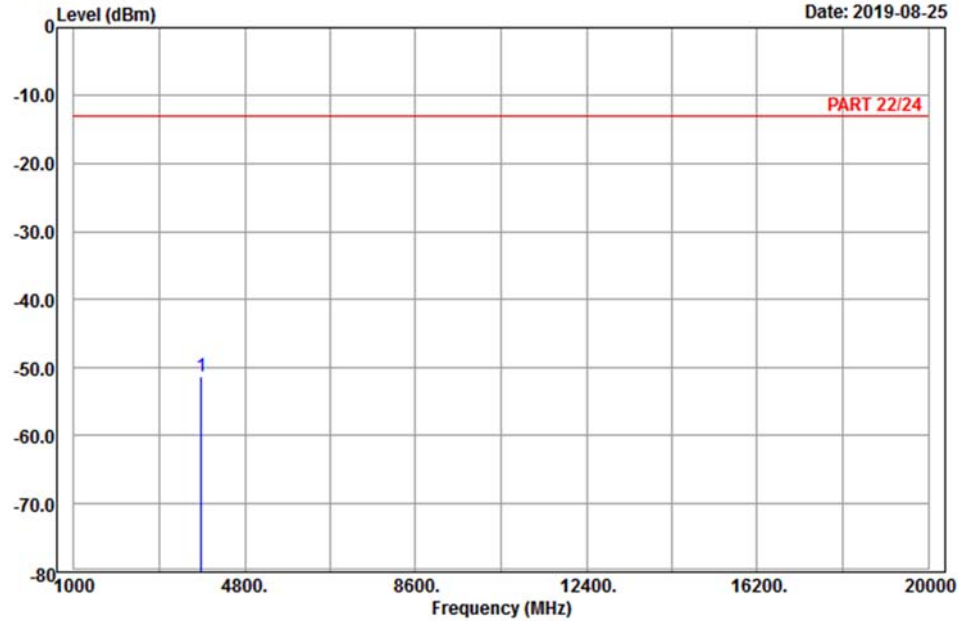


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-25



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : LTE_Band 25_Link_H-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3828.60	-51.17	-67.67	16.50	-13.00	-38.17	Peak

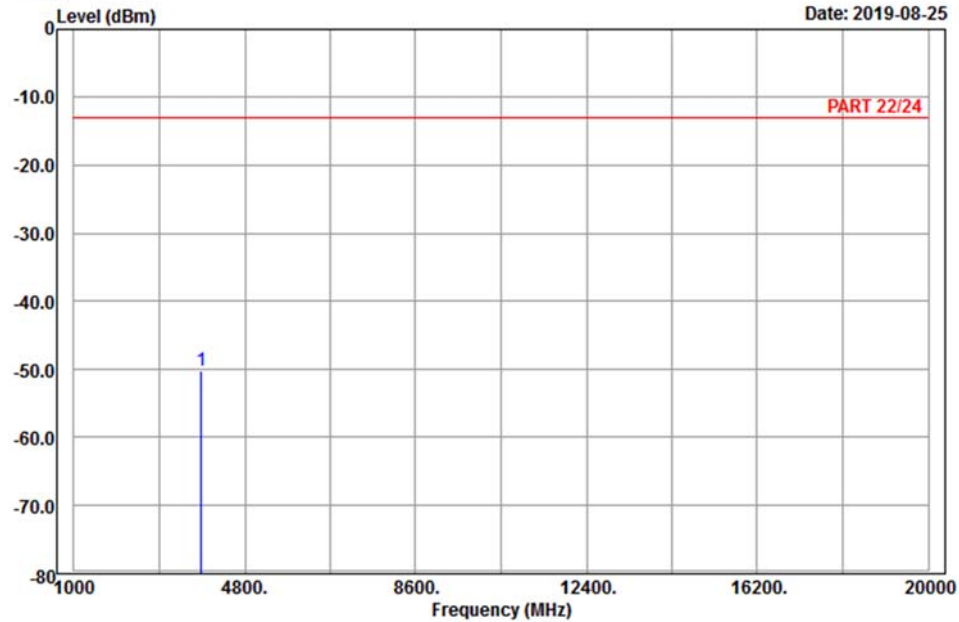


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-25



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 25_Link_H-Ch
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3828.60	-50.21	-66.71	16.50	-13.00	-37.21	Peak

Channel Bandwidth: 5 MHz / QPSK
Low Channel

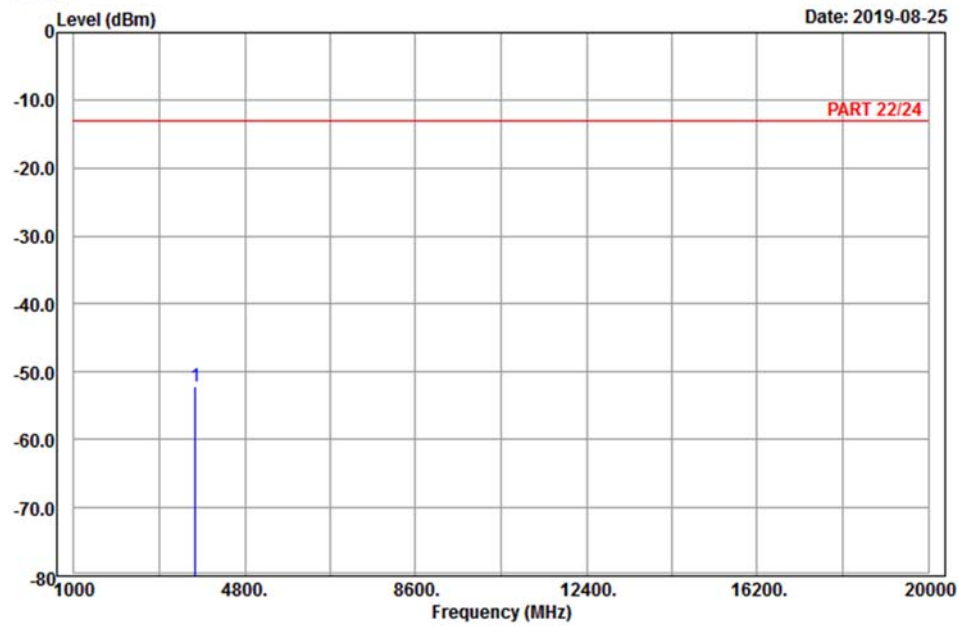


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-25



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 25_Link_L-Ch
Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3705.00	-52.10	-67.98	15.88	-13.00	-39.10	Peak

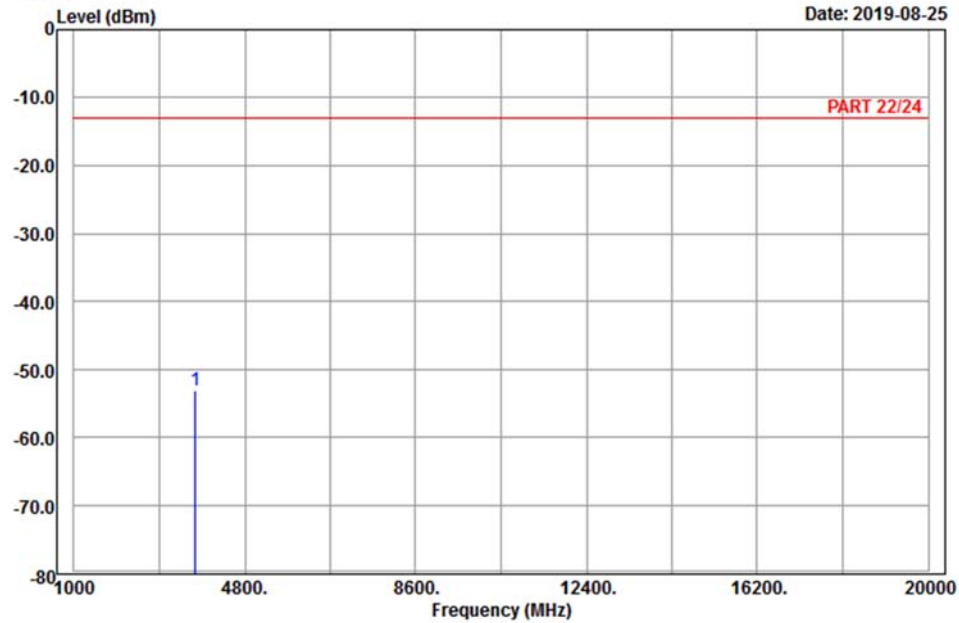


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-25



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 25_Link_L-Ch
Tested by: Karl Lee

	Read	Limit	Over	
Freq	Level	Level	Factor	Line
MHz	dBm	dBm	dB	dBm
1 pp 3705.00	-52.98	-68.86	15.88	-13.00
				-39.98
				Peak

Middle Channel

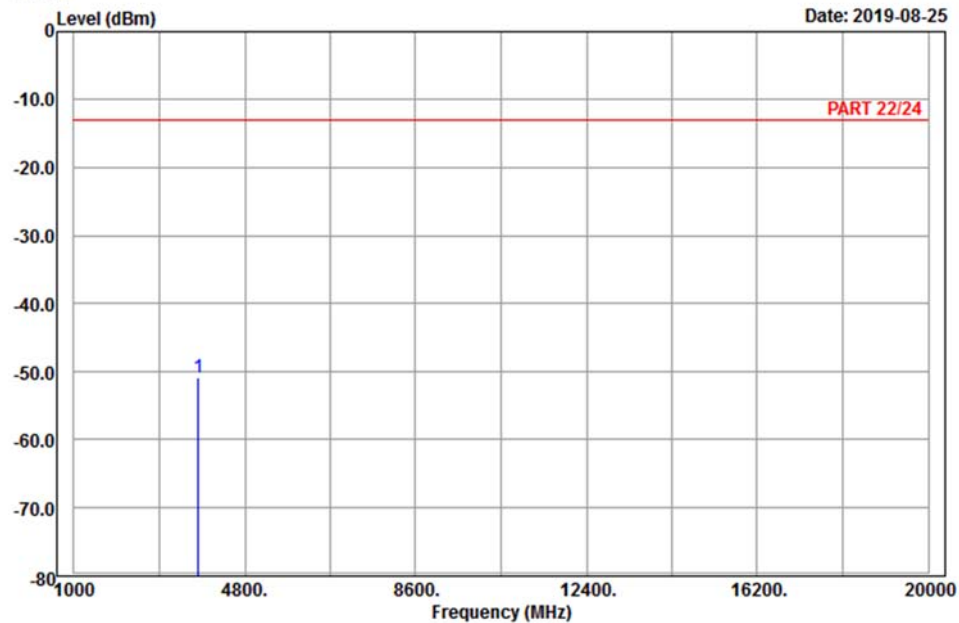


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-25



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : LTE_Band 25_Link_M-Ch
 Tested by: Karl Lee

	Read	Limit	Over	
Freq	Level	Level	Factor	Line
MHz	dBm	dBm	dB	dBm
1 pp 3765.00	-50.83	-67.06	16.23	-13.00
				-37.83
				Peak

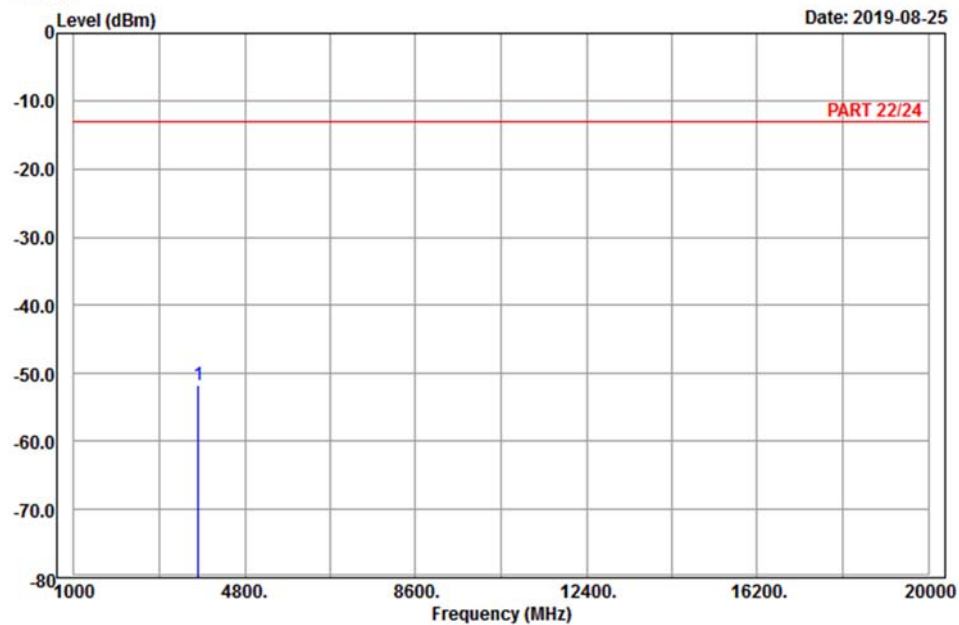


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-25



Site : 966 chamber 1
 Condition: PART 22/24 Vertical
 Remark : LTE_Band 25_Link_M-Ch
 Tested by: Karl Lee

		Read	Limit	Over	
Freq	Level	Level	Factor	Line	Limit Remark
MHz	dBm	dBm	dB	dBm	dB
1 pp 3765.00	-51.55	-67.78	16.23	-13.00	-38.55 Peak

High Channel

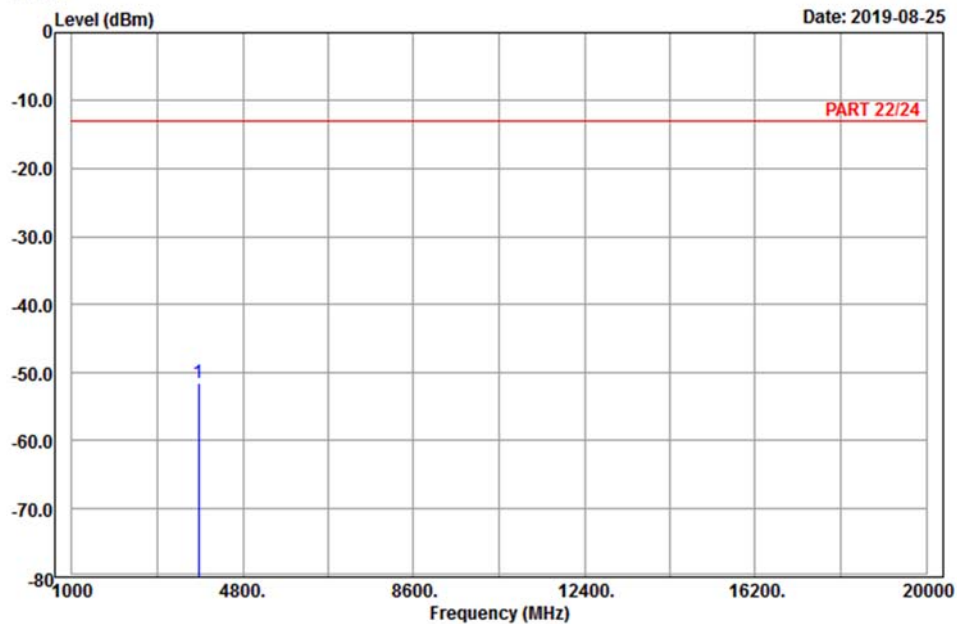


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-25



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : LTE_Band 25_Link_H-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3825.00	-51.54	-68.04	16.50	-13.00	-38.54	Peak

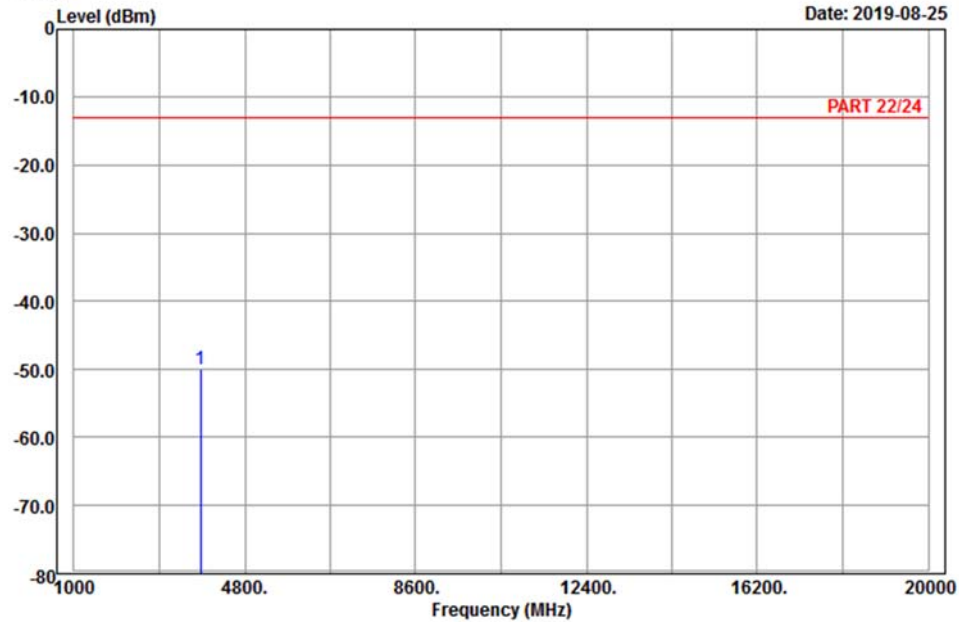


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2019-08-25



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 25_Link_H-Ch
Tested by: Karl Lee

Freq	Level	Read	Limit	Over	
MHz	dBm	Level	Line	Limit	Remark
		dBm	dB	dBm	dB
1 pp 3825.00	-50.00	-66.50	16.50	-13.00	-37.00 Peak

Channel Bandwidth: 20 MHz / QPSK

Low Channel

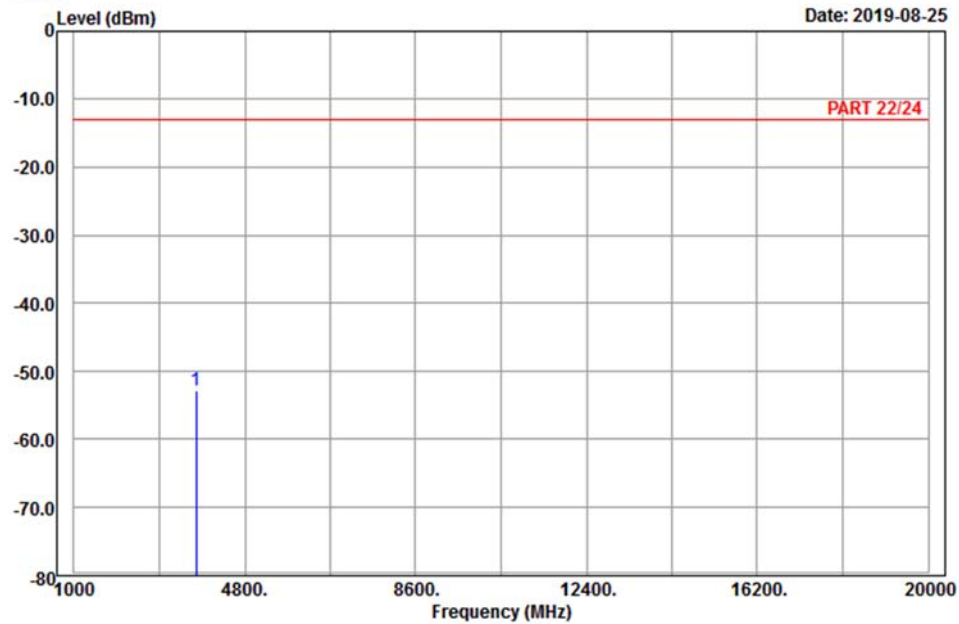


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-25



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : LTE_Band 25_Link_L-Ch
 Tested by: Karl Lee

		Read	Limit	Over	
Freq	Level	Level	Factor	Line	Limit
MHz	dBm	dBm	dB	dBm	dB
1 pp 3720.00	-52.82	-68.79	15.97	-13.00	-39.82
					Peak

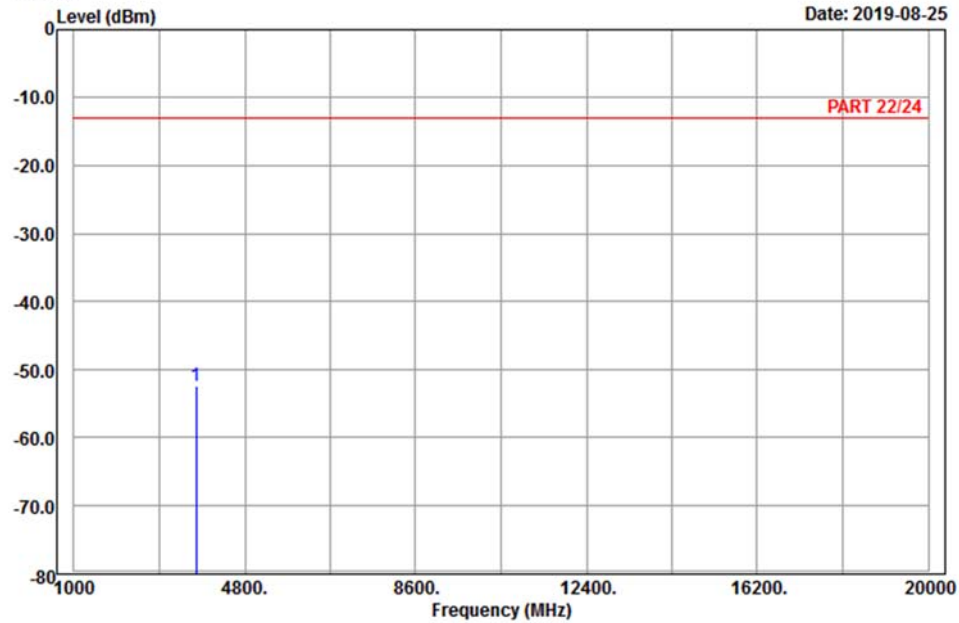


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

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Data: 10

Date: 2019-08-25



Site : 966 chamber 1
 Condition: PART 22/24 Vertical
 Remark : LTE_Band 25_Link_L-Ch
 Tested by: Karl Lee

	Read	Limit	Over	
Freq	Level	Level	Factor	Line
MHz	dBm	dBm	dB	dBm
1 pp 3720.00	-52.38	-68.35	15.97	-13.00
				-39.38
				Peak

Middle Channel

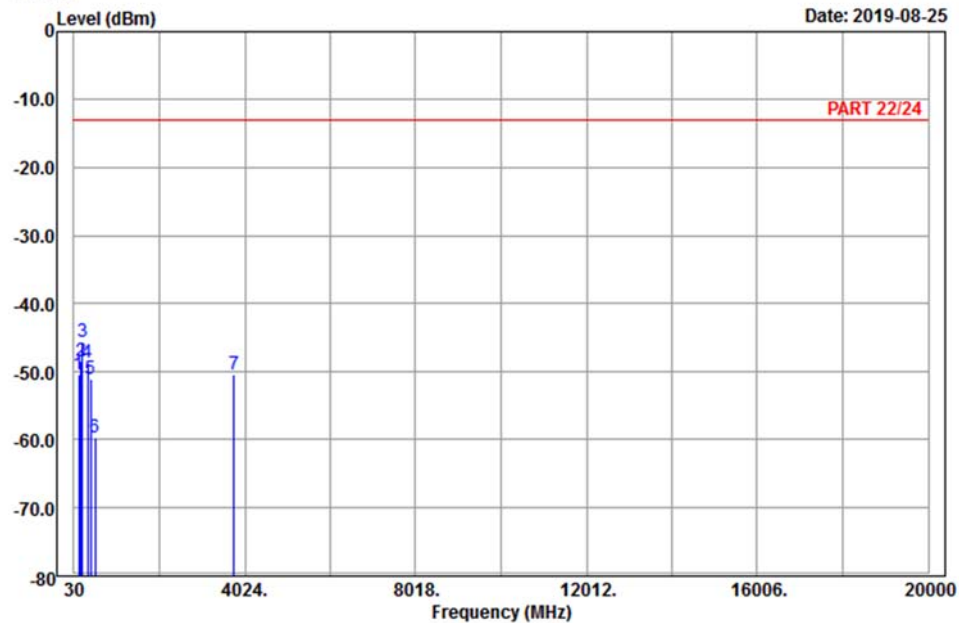


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Data: 13

Date: 2019-08-25



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 25_Link_M-Ch
Tested by: Karl Lee

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB
1	137.19	-50.26	-42.58	-7.68	-13.00	-37.26 Peak
2	197.67	-48.50	-42.41	-6.09	-13.00	-35.50 Peak
3 pp	226.02	-45.66	-39.83	-5.83	-13.00	-32.66 Peak
4	344.80	-48.57	-43.14	-5.43	-13.00	-35.57 Peak
5	427.40	-50.93	-47.57	-3.36	-13.00	-37.93 Peak
6	526.80	-59.83	-56.46	-3.37	-13.00	-46.83 Peak
7	3765.00	-50.41	-66.64	16.23	-13.00	-37.41 Peak

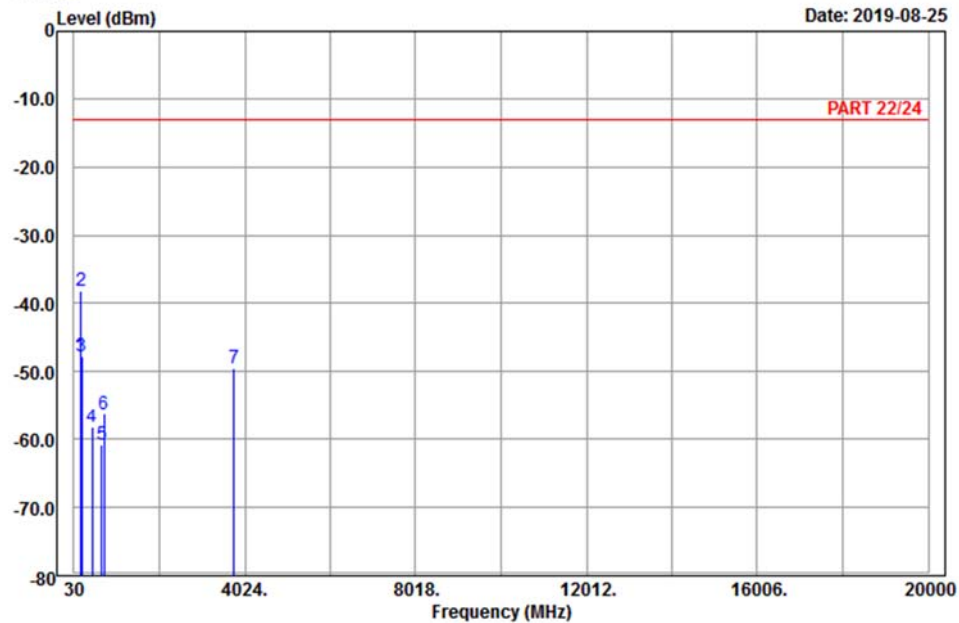


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Data: 14

Date: 2019-08-25



Site : 966 chamber 1
 Condition: PART 22/24 Vertical
 Remark : LTE_Band 25_Link_M-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	171.48	-47.66	-41.16	-6.50	-13.00	-34.66	Peak
2 pp	193.08	-38.06	-32.19	-5.87	-13.00	-25.06	Peak
3	217.38	-47.65	-41.70	-5.95	-13.00	-34.65	Peak
4	456.80	-58.11	-54.07	-4.04	-13.00	-45.11	Peak
5	675.90	-60.71	-60.45	-0.26	-13.00	-47.71	Peak
6	730.50	-56.31	-55.36	-0.95	-13.00	-43.31	Peak
7	3765.00	-49.40	-65.63	16.23	-13.00	-36.40	Peak

High Channel

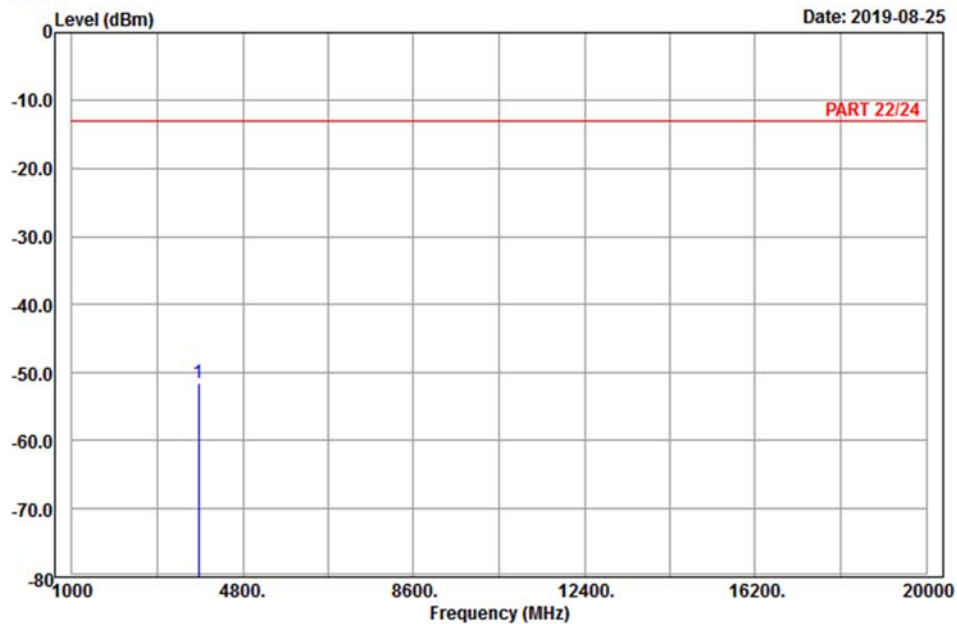


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2019-08-25



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : LTE_Band 25_Link_H-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3810.00	-51.36	-67.77	16.41	-13.00	-38.36	Peak

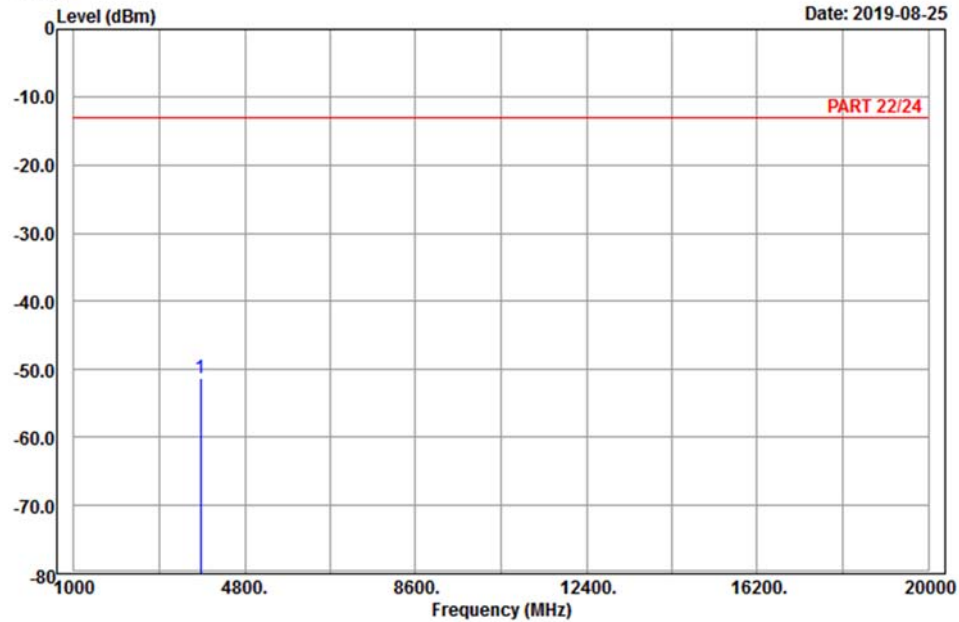


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A D T

Data: 10

Date: 2019-08-25



Site : 966 chamber 1
 Condition: PART 22/24 Vertical
 Remark : LTE_Band 25_Link_H-Ch
 Tested by: Karl Lee

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1 pp	3810.00	-51.27	-67.68	16.41	-13.00	-38.27	Peak

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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