

Partial FCC Test Report

(PART 27)

Report No.: RF180907C14-10

FCC ID: QYLEM7511V

Test Model: EM7511

Received Date: Sep. 07, 2018

Test Date: Sep. 20, 2018 ~ Sep. 28, 2018

Issued Date: Oct. 05, 2018

Applicant: Getac Technology Corporation.

Address: 5F., Building A, No. 209, Sec.1, Nangang Rd., Nangang Dist., Taipei City 11568, Taiwan, R.O.C.

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C)

Test Location (1): No. 19, Hwa Ya 2nd Rd, Wen Hwa Vil, Kwei Shan Dist., Taoyuan City 33383, Taiwan (R.O.C)

Test Location (2): B2F., No.215, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan, R.O.C

**FCC Registration /
Designation Number:** 427177 / TW0011



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies

Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 Summary of Test Results.....	5
2.1 Measurement Uncertainty.....	7
2.2 Test Site and Instruments	8
3 General Information	9
3.1 General Description of EUT	9
3.2 Configuration of System under Test.....	11
3.2.1 Description of Support Units.....	11
3.3 Test Mode Applicability and Tested Channel Detail	12
3.4 EUT Operating Conditions	15
3.5 General Description of Applied Standards.....	15
4 Test Types and Results	16
4.1 Output Power Measurement.....	16
4.1.1 Limits of Output Power Measurement	16
4.1.2 Test Procedures.....	16
4.1.3 Test Setup.....	17
4.1.4 Test Results	18
4.2 Radiated Emission Measurement.....	40
4.2.1 Limits of Radiated Emission Measurement	40
4.2.2 Test Procedure	40
4.2.3 Deviation from Test Standard	40
4.2.4 Test Setup.....	41
4.2.5 Test Results	42
5 Pictures of Test Arrangements.....	110
Appendix – Information on the Testing Laboratories	111

Release Control Record

Issue No.	Description	Date Issued
RF180907C14-10	Original Release	Oct. 05, 2018

1 Certificate of Conformity

Product: Radio Module

Brand: Sierra wireless Inc.

Test Model: EM7511

Sample Status: Identical Prototype

Applicant: Getac Technology Corporation.

Test Date: Sep. 20, 2018 ~ Sep. 28, 2018

Standards: FCC Part 27, Subpart C, H, F, L

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 : Gina Liu, **Date:** Oct. 05, 2018
Gina Liu / Specialist

Approved by : Dylan Chiou, **Date:** Oct. 05, 2018
Dylan Chiou / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2 (WCDMA)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(d)(4)	Equivalent Isotropic Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	N/A	Refer to Note
2.1055 27.54	Frequency Stability	N/A	Refer to Note
2.1049 27.53(h)(3)	Occupied Bandwidth	N/A	Refer to Note
27.50(d)(5)	Peak to Average Ratio	N/A	Refer to Note
27.53(h)	Band Edge Measurements	N/A	Refer to Note
2.1051 27.53(h)	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -35.33 dB at 210.36 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 4)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(d)(4)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	N/A	Refer to Note
2.1055 27.54	Frequency Stability	N/A	Refer to Note
2.1049 27.53(h)(3)	Occupied Bandwidth	N/A	Refer to Note
27.50(d)(5)	Peak to Average Ratio	N/A	Refer to Note
27.53(h)	Band Edge Measurements	N/A	Refer to Note
2.1051 27.53(h)	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -37.99 dB at 3465.00 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 12)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(c)(10)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	N/A	Refer to Note
2.1055 27.54	Frequency Stability	N/A	Refer to Note
2.1049	Occupied Bandwidth	N/A	Refer to Note
27.50(d)(5)	Peak to Average Ratio	N/A	Refer to Note
27.53(g)	Band Edge Measurements	N/A	Refer to Note
2.1051 27.53(g)	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 27.53(g)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -44.56 dB at 1415.00 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 13)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(b)(10)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	N/A	Refer to Note
2.1055 27.54	Frequency Stability	N/A	Refer to Note
2.1049	Occupied Bandwidth	N/A	Refer to Note
27.50(d)(5)	Peak to Average Ratio	N/A	Refer to Note
27.53(c)	Band Edge Measurements	N/A	Refer to Note
2.1051 27.53(c)	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 27.53(c)(f)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -14.79 dB at 1564.00 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 66)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(d)(4)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	N/A	Refer to Note
2.1055 27.54	Frequency Stability	N/A	Refer to Note
2.1049	Occupied Bandwidth	N/A	Refer to Note
27.50(d)(5)	Peak to Average Ratio	N/A	Refer to Note
27.53(h)	Band Edge Measurements	N/A	Refer to Note
2.1051 27.53(h)	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -36.24 dB at 3490.00 MHz.

Note:

This report is a Class II change Partial report. Therefore, only test item of Equivalent Isotropic Radiated Power / Maximum Peak Output Power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to SPORTON report no.: FG791919A, FG791919B for module (Brand: Sierra wireless Inc., Model: EM7455)

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	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	N9038A	MY51210203	Mar. 16, 2018	Mar. 15, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Jan. 11, 2018	Jan. 10, 2019
BILOG Antenna SCHWARZBECK	VULB 9168	9168-616	Dec. 14, 2017	Dec. 13, 2018
Horn Antenna ETS-Lindgren	3117	00143293	Dec. 13, 2017	Dec. 12, 2018
Horn Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 01, 2017	Nov. 30, 2018
Fixed Attenuator Mini-Circuits	BW-N4W5+	PAD-ATT4-01	Jan. 29, 2018	Jan. 28, 2019
MXG Vector signal generator Agilent	N5182B	MY53050430	Oct. 24, 2017	Oct. 23, 2018
Preamplifier Agilent	310N	187226	Jun. 19, 2018	Jun. 18, 2019
Preamplifier Agilent	83017A	MY39501357	Jun. 19, 2018	Jun. 18, 2019
HORN Antenna EMCI	EMC 184045	980116	Dec. 12, 2017	Dec. 11, 2018
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RF C-SMS-100-SMS- 120+RFC-SMS-1 00-SMS-400)	Jun. 19, 2018	Jun. 18, 2019
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RF C-SMS-100-SMS- 24)	Jun. 19, 2018	Jun. 18, 2019
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
Radio Communication Analyzer Anritsu	MT8820C	6201010284	Dec. 28, 2017	Dec. 27, 2018
Temperature & Humidity Chamber	GTH-120-40-CP-AR	MAA1306-019	Sep. 08, 2017	Sep. 07, 2018
Radio Communication Analyzer	MT8821C	6261786083	Dec. 21, 2017	Dec. 20, 2018

- Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HsinTien Chamber 1.
 3. The horn antenna and preamplifier (model: 83017A) are used only for the measurement of emission frequency above 1 GHz if tested.
 4. The IC Site Registration No. is IC7450I-1.

3 General Information

3.1 General Description of EUT

Product	Radio Module	
Brand	Sierra wireless Inc.	
Test Model	EM7511	
Status of EUT	Identical Prototype	
Power Supply Rating	3.3 Vdc (Host equipment)	
Modulation Type	WCDMA	QPSK
	LTE	QPSK, 16QAM, 64QAM
Frequency Range	WCDMA	1712.4 ~ 1752.6 MHz
	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	1710.7 ~ 1754.3 MHz
	LTE Band 4 (Channel Bandwidth: 3 MHz)	1711.5 ~ 1753.5 MHz
	LTE Band 4 (Channel Bandwidth: 5 MHz)	1712.5 ~ 1752.5 MHz
	LTE Band 4 (Channel Bandwidth: 10 MHz)	1715.0 ~ 1750.0 MHz
	LTE Band 4 (Channel Bandwidth: 15 MHz)	1717.5 ~ 1747.5 MHz
	LTE Band 4 (Channel Bandwidth: 20 MHz)	1720.0 ~ 1745.0 MHz
	LTE Band 12 (Channel Bandwidth: 1.4 MHz)	699.7 ~ 715.3 MHz
	LTE Band 12 (Channel Bandwidth: 3 MHz)	700.5 ~ 714.5 MHz
	LTE Band 12 (Channel Bandwidth: 5 MHz)	701.5 ~ 713.5 MHz
	LTE Band 12 (Channel Bandwidth: 10 MHz)	704.0 ~ 711.0 MHz
	LTE Band 13 (Channel Bandwidth: 5 MHz)	779.5 ~ 784.5 MHz
	LTE Band 13 (Channel Bandwidth: 10 MHz)	782.0 MHz
	LTE Band 66 (Channel Bandwidth: 1.4 MHz)	1710.7 ~ 1779.3 MHz
	LTE Band 66 (Channel Bandwidth: 3 MHz)	1711.5 ~ 1778.5 MHz
	LTE Band 66 (Channel Bandwidth: 5 MHz)	1712.5 ~ 1777.5 MHz
	LTE Band 66 (Channel Bandwidth: 10 MHz)	1715.0 ~ 1775.0 MHz
	LTE Band 66 (Channel Bandwidth: 15 MHz)	1717.5 ~ 1772.5 MHz
	LTE Band 66 (Channel Bandwidth: 20 MHz)	1720.0 ~ 1770.0 MHz
Max. ERP Power	LTE Band 12 (Channel Bandwidth: 1.4 MHz)	126.74 mW
	LTE Band 12 (Channel Bandwidth: 3 MHz)	127.91 mW
	LTE Band 12 (Channel Bandwidth: 5 MHz)	129.09 mW
	LTE Band 12 (Channel Bandwidth: 10 MHz)	130.23 mW
	LTE Band 13 (Channel Bandwidth: 5 MHz)	129.45 mW
	LTE Band 13 (Channel Bandwidth: 10 MHz)	130.53 mW
Max. EIRP Power	WCDMA	207.35 mW
	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	314.77 mW
	LTE Band 4 (Channel Bandwidth: 3 MHz)	317.69 mW
	LTE Band 4 (Channel Bandwidth: 5 MHz)	319.89 mW
	LTE Band 4 (Channel Bandwidth: 10 MHz)	322.11 mW
	LTE Band 4 (Channel Bandwidth: 15 MHz)	324.34 mW
	LTE Band 4 (Channel Bandwidth: 20 MHz)	327.34 mW
	LTE Band 66 (Channel Bandwidth: 1.4 MHz)	251.71 mW
	LTE Band 66 (Channel Bandwidth: 3 MHz)	254.04 mW
	LTE Band 66 (Channel Bandwidth: 5 MHz)	256.39 mW

	LTE Band 66 (Channel Bandwidth: 10 MHz)	258.52 mW
	LTE Band 66 (Channel Bandwidth: 15 MHz)	260.56 mW
	LTE Band 66 (Channel Bandwidth: 20 MHz)	262.97 mW
Antenna Type	Refer to Note as below	
Accessory Device	Refer to Note as below	
Data Cable Supplied	Refer to Note as below	

Note:

1. The EUT is authorized for use in specific End-product. Please refer to below for more details.

Product	Brand	Model
Notebook	Getac	V110

Antenna Type	Brand	Model	Antenna Gain				
			WCDMA IV	B4	B12	B13	B66
Fixed Internal	Main: M.gear Aux.: Getac	Main Ant.: 422129000025	Main: 2.79	Main: 2.79	Main: 2.01	Main: 1.08	Main: 3.16
		Aux. Ant.: 421129600001	Aux.: -0.77	Aux.: -0.77	Aux.: -3.71	Aux.: 0.90	Aux.: -0.59

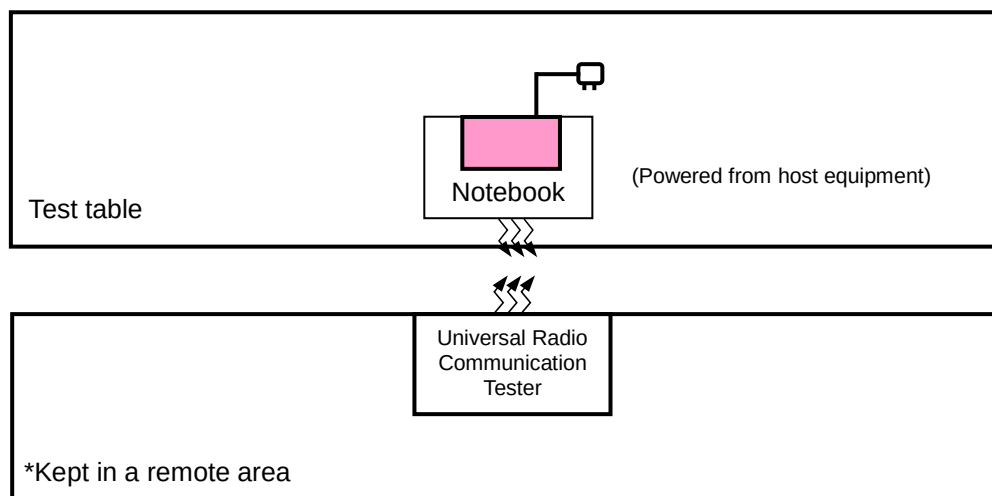
2. The End-product contains following accessory devices.

Product	Brand	Model	Description
Adapter	Chicony	A12-065N2A	I/P: 100-240 Vac, 50/60 Hz, 1.7 A O/P: 19 Vdc, 3.42 A 1.8m DC cable with 1 core attached
Li-Ion Battery	Getac	BP3S1P2100-S	11.1 Vdc, 2100 mA
BT/WLAN Module	Intel	8265NGW	-
WWAN Module	Sierra	EM7511	-
GPS	GlobalSat	MC1010	-
LCD Panel	New IPS KD	KD116N11-30NP-A9	11.6" inch
CPU	Intel	Kabylake	i7-7600U VPRO
DDR	Transcend	-	8GB *2
SSD	Lite-on	-	256GB *1
Barcode	Symbol Technologies Inc.	SE-4710	-

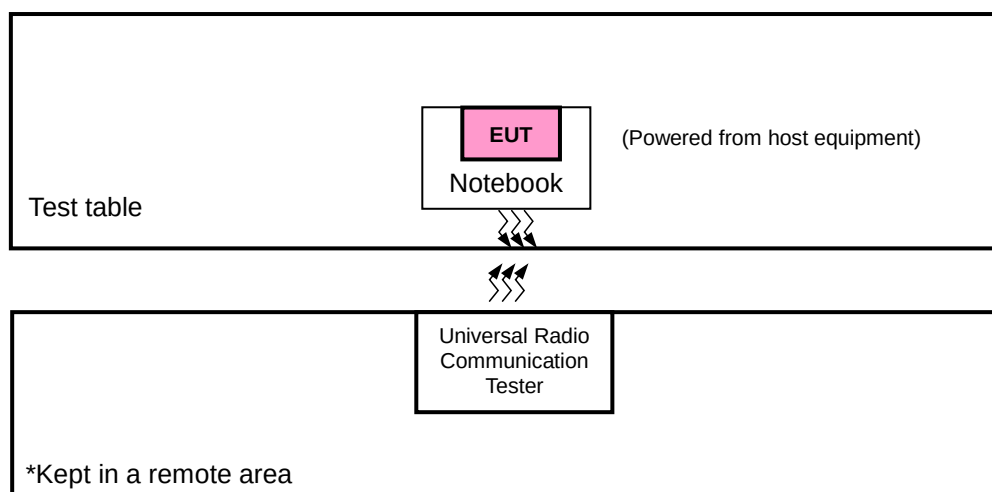
3. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Configuration of System under Test

<Radiated Emission Test>



<E.R.P. / 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.	Notebook	Getac	V110G4	N/A	N/A

No.	Signal Cable Description Of The Above Support Units
1.	N/A

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item 1 was provided by client.

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, XYZ axis, 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	ERP / EIRP	Radiated Emission
WCDMA	Z-plane	Y-axis
LTE Band 4	Z-plane	Z-axis
LTE Band 12	Z-plane	Y-axis
LTE Band 13	Z-plane	Y-axis
LTE Band 66	Z-plane	Z-axis

WCDMA

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	EIRP	1312 to 1513	1312, 1413, 1513	WCDMA
-	Radiated Emission Below 1GHz	1312 to 1513	1413	WCDMA
-	Radiated Emission Above 1GHz	1312 to 1513	1312, 1413, 1513	WCDMA

LTE Band 4

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK, 16QAM, 64QAM	1 RB / 5 RB Offset
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK, 16QAM, 64QAM	1 RB / 14 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 49 RB Offset
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK, 16QAM, 64QAM	1 RB / 74 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK, 16QAM, 64QAM	1 RB / 99 RB Offset

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Radiated Emission Below 1GHz	20050 to 20300	20175	20 MHz	QPSK	50 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK	1 RB / 2 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK	12 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK	50 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE Band 12

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	ERP	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK, 16QAM, 64QAM	1 RB / 2 RB Offset
		23025 to 23165	23025, 23095, 23165	3 MHz	QPSK, 16QAM, 64QAM	1 RB / 7 RB Offset
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 12 RB Offset
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset
-	Radiated Emission Below 1GHz	23060 to 23130	23095	10 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE Band 13

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	ERP	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset
-	Radiated Emission Below 1GHz	23230	23230	10 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	10 MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE Band 66

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK, 16QAM, 64QAM	1 RB / 5 RB Offset
		131987 to 132657	131987, 132322, 132657	3 MHz	QPSK, 16QAM, 64QAM	1 RB / 14 RB Offset
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset
		132022 to 132622	132022, 132322, 132622	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 49 RB Offset
		132047 to 132597	132047, 132322, 132597	15 MHz	QPSK, 16QAM, 64QAM	1 RB / 74 RB Offset
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK, 16QAM, 64QAM	1 RB / 99 RB Offset
	Radiated Emission Below 1GHz	132072 to 132572	132322	20 MHz	QPSK	50 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK	1 RB / 2 RB Offset
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK	12 RB / 0 RB Offset
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK	50 RB / 0 RB Offset

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	25 deg. C, 65 % RH	120 Vac, 60 Hz	Harry Hsueh, Karl Lee
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Harry Hsueh, 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 27

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

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

Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

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

Portable stations (hand-held devices) operating in the 746-757 MHz, 776-788 MHz, and 805-806 MHz band are limited to 3 watts ERP

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 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 from E.I.R.P power by subtracting the gain of dipole, $E.R.P \text{ power} = E.I.R.P \text{ power} - 2.15 \text{ dB}$.

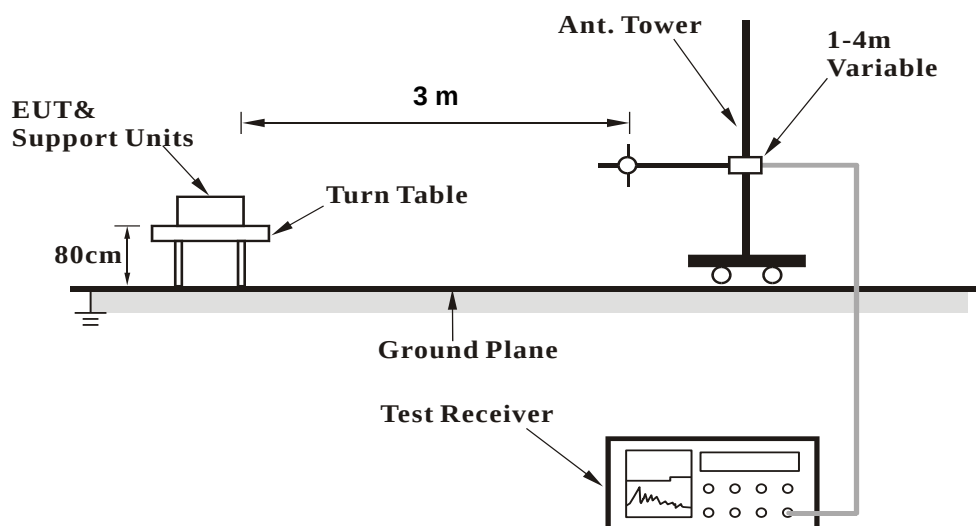
Conducted Power Measurement:

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

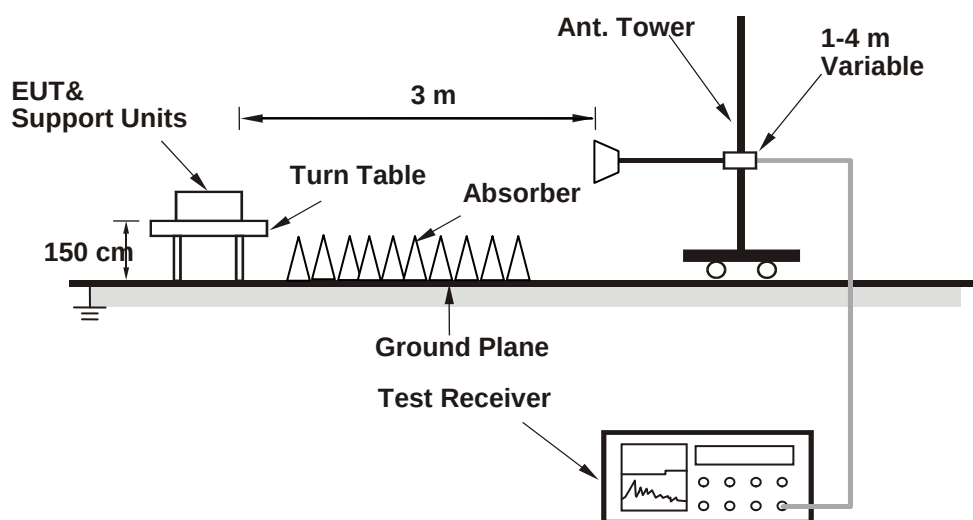
4.1.3 Test Setup

EIRP / ERP Measurement:

<Radiated Emission below or equal 1 GHz>

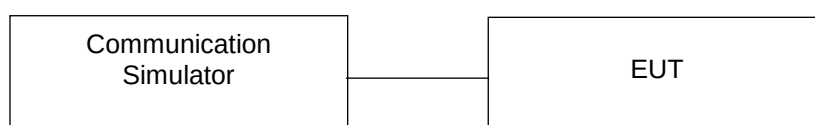


<Radiated Emission above 1 GHz>



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

Conducted Power Measurement:



4.1.4 Test Results

Conducted Output Power (dBm)

Band	WCDMA IV		
Channel	1312	1413	1513
Frequency (MHz)	1712.4	1732.6	1752.6
RMC 12.2K	20.24	20.38	20.11
HSDPA Subtest-1	19.21	19.35	19.08
HSDPA Subtest-2	19.17	19.31	19.04
HSDPA Subtest-3	18.73	18.87	18.60
HSDPA Subtest-4	18.74	18.88	18.61
DC-HSDPA Subtest-1	19.14	19.28	19.01
DC-HSDPA Subtest-2	19.11	19.25	18.98
DC-HSDPA Subtest-3	19.26	19.24	19.04
DC-HSDPA Subtest-4	19.31	19.18	19.11
HSUPA Subtest-1	19.19	19.33	19.06
HSUPA Subtest-2	17.17	17.31	17.04
HSUPA Subtest-3	18.28	18.42	18.15
HSUPA Subtest-4	17.24	17.38	17.11
HSUPA Subtest-5	19.21	19.35	19.08
HSPA+ Subtest-1	20.88	20.99	20.70

LTE Band 4															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20050	20175	20300				Channel		20025	20175	20325	
		Frequency (MHz)		1720.0	1732.5	1745.0				Frequency (MHz)		1717.5	1732.5	1747.5	
20M	QPSK	1	0	22.15	22.26	22.41	0	15M	QPSK	1	0	22.14	22.26	22.41	0
		1	50	21.95	22.06	22.21	0			1	37	21.85	22.02	22.18	0
		1	99	21.81	21.92	22.07	0			1	74	21.79	21.88	22.05	0
		50	0	22.14	22.25	22.40	1			36	0	22.09	22.16	22.38	1
		50	25	22.07	22.18	22.33	1			36	19	22.04	22.15	22.31	1
		50	50	21.90	22.01	22.16	1			36	39	21.81	22.01	22.13	1
		100	0	22.10	22.21	22.36	1			75	0	22.09	22.17	22.28	1
		1	0	22.15	22.19	22.34	1		16QAM	1	0	22.02	22.18	22.30	1
	16QAM	1	50	21.88	21.97	22.13	1			1	37	21.81	21.97	22.17	1
		1	99	21.76	21.82	22.02	1			1	74	21.70	21.82	22.06	1
		50	0	22.10	22.15	22.35	2			36	0	22.07	22.09	22.31	2
		50	25	22.07	22.08	22.23	2			36	19	22.01	22.07	22.19	2
		50	50	21.81	21.91	22.07	2			36	39	21.78	21.91	22.06	2
		100	0	22.08	22.18	22.35	2			75	0	21.94	22.01	22.25	2
		1	0	22.14	22.21	22.34	2		64QAM	1	0	22.00	22.16	22.31	2
	64QAM	1	50	21.85	21.99	22.20	2			1	37	21.79	22.02	22.12	2
		1	99	21.71	21.92	21.97	2			1	74	21.73	21.85	21.99	2
		50	0	22.14	22.15	22.35	3			36	0	22.03	22.11	22.29	3
		50	25	22.04	22.14	22.24	3			36	19	21.96	22.18	22.19	3
		50	50	21.85	21.94	22.09	3			36	39	21.72	21.99	21.98	3
		100	0	22.02	22.18	22.30	3			75	0	22.02	22.15	22.22	3
10M	QPSK	1	0	22.08	22.18	22.38	0	5M	QPSK	1	0	22.07	22.25	22.32	0
		1	24	21.93	22.05	22.13	0			1	12	21.88	21.97	22.11	0
		1	49	21.78	21.85	22.06	0			1	24	21.74	21.87	22.01	0
		25	0	22.05	22.15	22.37	1			12	0	22.07	22.19	22.30	1
		25	12	21.99	22.13	22.33	1			12	6	22.05	22.16	22.33	1
		25	25	21.88	21.91	22.11	1			12	13	21.88	21.95	22.10	1
		50	0	22.03	22.19	22.36	1			25	0	22.02	22.11	22.27	1
		1	0	22.04	22.14	22.36	1		16QAM	1	0	22.03	22.17	22.27	1
	16QAM	1	24	21.86	21.90	22.10	1			1	12	21.83	21.88	22.13	1
		1	49	21.74	21.86	22.05	1			1	24	21.71	21.75	21.96	1
		25	0	22.06	22.12	22.29	2			12	0	22.04	22.15	22.33	2
		25	12	21.92	22.13	22.23	2			12	6	22.01	21.99	22.25	2
		25	25	21.81	21.95	22.10	2			12	13	21.82	21.93	22.04	2
		50	0	21.92	22.14	22.22	2			25	0	21.93	22.15	22.28	2
		1	0	21.99	22.10	22.35	2		64QAM	1	0	22.00	22.23	22.33	2
	64QAM	1	24	21.84	22.04	22.19	2			1	12	21.89	21.91	22.06	2
		1	49	21.69	21.77	21.98	2			1	24	21.75	21.82	22.02	2
		25	0	22.09	22.19	22.29	3			12	0	22.05	22.13	22.31	3
		25	12	21.93	22.05	22.29	3			12	6	22.01	21.99	22.20	3
		25	25	21.81	21.93	22.08	3			12	13	21.84	21.93	22.05	3
		50	0	21.96	22.10	22.24	3			25	0	22.07	22.15	22.29	3
3M	QPSK	1	0	22.09	22.17	22.38	0	1.4M	QPSK	1	0	22.07	22.25	22.40	0
		1	7	21.91	22.06	22.14	0			1	2	21.94	21.97	22.14	0
		1	14	21.77	21.89	22.05	0			1	5	21.74	21.86	22.06	0
		8	0	22.09	22.24	22.35	1			3	0	22.10	22.19	22.40	0
		8	3	21.97	22.14	22.23	1			3	1	22.07	22.14	22.26	0
		8	7	21.83	21.94	22.09	1			3	3	21.83	21.94	22.09	0
		15	0	22.10	22.16	22.36	1			6	0	22.03	22.11	22.32	1
		1	0	22.05	22.13	22.25	1		16QAM	1	0	22.10	22.22	22.36	1
	16QAM	1	7	21.80	22.01	22.11	1			1	2	21.85	21.97	22.14	1
		1	14	21.70	21.73	21.97	1			1	5	21.74	21.87	21.92	1
		8	0	22.07	22.08	22.27	2			3	0	22.00	22.15	22.37	1
		8	3	22.02	22.02	22.33	2			3	1	21.97	22.08	22.24	1
		8	7	21.78	21.96	22.06	2			3	3	21.79	21.98	21.98	1
		15	0	22.03	22.11	22.31	2			6	0	22.04	22.05	22.27	2
		1	0	22.08	22.13	22.32	2		64QAM	1	0	22.07	22.21	22.32	2
	64QAM	1	7	21.86	21.91	22.17	2			1	2	21.83	22.01	22.09	2
		1	14	21.68	21.80	21.87	2			1	5	21.70	21.75	21.93	2
		8	0	22.06	22.12	22.32	3			3	0	22.05	22.19	22.35	2
		8	3	21.93	22.12	22.24	3			3	1	21.96	22.00	22.22	2
		8	7	21.71	21.93	21.97	3			3	3	21.81	21.88	22.11	2
		15	0	21.99	22.07	22.30	3			6	0	22.02	22.05	22.22	3

LTE Band 12															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		23060	23095	23130				Channel		23035	23095	23155	
		Frequency (MHz)		704.0	707.5	711.0				Frequency (MHz)		701.5	707.5	713.5	
10M	QPSK	1	0	23.56	23.55	23.36	0	5M	QPSK	1	0	23.53	23.46	23.29	0
		1	24	23.50	23.49	23.30	0			1	12	23.46	23.41	23.24	0
		1	49	23.51	23.50	23.31	0			1	24	23.44	23.48	23.30	0
		25	0	22.54	22.53	22.34	1			12	0	22.48	22.47	22.32	1
		25	12	22.65	22.64	22.45	1			12	6	22.61	22.61	22.41	1
		25	25	22.60	22.59	22.40	1			12	13	22.58	22.51	22.37	1
		50	0	22.62	22.61	22.42	1			25	0	22.58	22.58	22.38	1
		1	0	22.54	22.45	22.31	1		16QAM	1	0	22.47	22.51	22.23	1
	16QAM	1	24	22.46	22.49	22.23	1			1	12	22.48	22.44	22.19	1
		1	49	22.50	22.46	22.28	1			1	24	22.35	22.40	22.23	1
		25	0	21.47	21.45	21.26	2			12	0	21.37	21.50	21.24	2
		25	12	21.60	21.59	21.36	2			12	6	21.59	21.54	21.35	2
		25	25	21.50	21.52	21.38	2			12	13	21.50	21.46	21.28	2
		50	0	21.54	21.53	21.39	2			25	0	21.46	21.52	21.31	2
		1	0	21.49	21.50	21.32	2		64QAM	1	0	21.48	21.49	21.30	2
	64QAM	1	24	21.45	21.41	21.22	2			1	12	21.43	21.45	21.25	2
		1	49	21.45	21.48	21.29	2			1	24	21.41	21.34	21.28	2
		25	0	20.45	20.48	20.34	3			12	0	20.38	20.44	20.17	3
		25	12	20.59	20.57	20.42	3			12	6	20.57	20.46	20.39	3
		25	25	20.57	20.58	20.36	3			12	13	20.56	20.43	20.35	3
		50	0	20.55	20.56	20.32	3			25	0	20.61	20.47	20.28	3
		1	0	20.55	20.56	20.32	3			25	0	20.61	20.47	20.28	3
3M	QPSK	1	0	23.39	23.45	23.28	0	1.4M	QPSK	1	0	23.50	23.47	23.20	0
		1	7	23.32	23.31	23.21	0			1	2	23.43	23.32	23.21	0
		1	14	23.36	23.35	23.20	0			1	5	23.36	23.39	23.25	0
		8	0	22.51	22.35	22.28	1			3	0	23.33	23.49	23.15	0
		8	3	22.57	22.61	22.31	1			3	1	23.44	23.46	23.26	0
		8	7	22.48	22.40	22.38	1			3	3	23.46	23.46	23.35	0
		15	0	22.42	22.48	22.25	1			6	0	22.56	22.38	22.40	1
		1	0	22.49	22.36	22.10	1		16QAM	1	0	22.47	22.42	22.07	1
	16QAM	1	7	22.37	22.36	21.96	1			1	2	22.41	22.23	22.21	1
		1	14	22.26	22.22	22.25	1			1	5	22.43	22.30	22.09	1
		8	0	21.42	21.39	21.27	2			3	0	22.42	22.35	22.07	1
		8	3	21.41	21.40	21.24	2			3	1	22.45	22.51	22.17	1
		8	7	21.32	21.52	21.31	2			3	3	22.47	22.27	22.29	1
		15	0	21.33	21.46	21.23	2			6	0	21.47	21.56	21.35	2
		1	0	21.33	21.43	21.10	2		64QAM	1	0	21.25	21.31	21.19	2
	64QAM	1	7	21.37	21.26	21.17	2			1	2	21.25	21.29	21.16	2
		1	14	21.40	21.24	21.08	2			1	5	21.29	21.27	21.04	2
		8	0	20.48	20.34	20.17	3			3	0	21.28	21.26	21.14	2
		8	3	20.42	20.43	20.33	3			3	1	21.48	21.51	21.20	2
		8	7	20.54	20.47	20.12	3			3	3	21.40	21.42	21.37	2
		15	0	20.37	20.39	20.30	3			6	0	20.54	20.52	20.19	3
		15	0	20.37	20.39	20.30	3			6	0	20.54	20.52	20.19	3

LTE Band 13															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel			23230					Channel		23205	23230	23225	
		Frequency (MHz)			782.0					Frequency (MHz)		779.5	782.0	784.5	
10M	QPSK	1	0		22.13		0	5M	QPSK	1	0	22.04	22.11	22.08	0
		1	24		22.05		0			1	12	21.95	22.02	21.99	0
		1	49		21.95		0			1	24	21.83	21.90	21.87	0
		25	0		22.12		1			12	0	21.99	22.06	22.03	1
		25	12		22.11		1			12	6	21.97	22.04	22.01	1
		25	25		22.08		1			12	13	22.01	22.08	22.05	1
		50	0		22.11		1			25	0	22.00	22.07	22.04	1
		1	0		21.96		1		16QAM	1	0	21.84	21.91	21.88	1
	16QAM	1	24		22.05		1			1	12	21.87	21.94	21.91	1
		1	49		21.87		1			1	24	21.82	21.89	21.86	1
		25	0		22.05		2			12	0	21.92	21.99	21.96	2
		25	12		22.04		2			12	6	21.92	21.99	21.96	2
		25	25		22.03		2			12	13	21.88	21.95	21.92	2
		50	0		22.06		2			25	0	21.98	22.05	22.02	2
		1	0		22.03		2		64QAM	1	0	21.90	21.97	21.94	2
	64QAM	1	24		22.03		2			1	12	21.94	22.01	21.98	2
		1	49		21.93		2			1	24	21.80	21.87	21.84	2
		25	0		22.12		3			12	0	21.96	22.03	22.00	3
		25	12		22.10		3			12	6	21.87	21.94	21.91	3
		25	25		22.06		3			12	13	21.84	21.91	21.88	3
		50	0		22.01		3			25	0	21.99	22.06	22.03	3
		50	0		22.01		3			25	0	21.99	22.06	22.03	3

LTE Band 66															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		132072	132322	132572				Channel		132047	132322	132597	
		Frequency (MHz)		1720.0	1745.0	1770.0				Frequency (MHz)		1717.5	1745.0	1772.5	
20M	QPSK	1	0	21.12	21.30	21.15	0	15M	QPSK	1	0	21.09	21.28	21.09	0
		1	50	20.84	21.02	20.87	0			1	37	20.77	20.99	20.80	0
		1	99	20.77	20.95	20.80	0			1	74	20.71	20.94	20.75	0
		50	0	21.07	21.25	21.10	1			36	0	20.99	21.17	21.05	1
		50	25	20.95	21.13	20.98	1			36	19	20.93	21.07	20.95	1
		50	50	20.80	20.98	20.83	1			36	39	20.74	20.95	20.77	1
		100	0	20.98	21.16	21.01	1			75	0	20.92	21.15	20.92	1
		1	0	21.04	21.25	21.11	1		16QAM	1	0	20.93	21.23	21.08	1
	16QAM	1	50	20.75	21.00	20.85	1			1	37	20.66	20.90	20.73	1
		1	99	20.73	20.91	20.70	1			1	74	20.69	20.82	20.71	1
		50	0	21.01	21.17	21.06	2			36	0	20.97	21.19	21.04	2
		50	25	20.90	21.10	20.94	2			36	19	20.82	21.01	20.90	2
		50	50	20.78	20.89	20.79	2			36	39	20.70	20.84	20.78	2
		100	0	20.90	21.10	20.94	2			75	0	20.91	21.06	20.97	2
		1	0	21.10	21.25	21.12	2		64QAM	1	0	20.93	21.10	21.05	2
	64QAM	1	50	20.80	21.01	20.80	2			1	37	20.73	20.88	20.70	2
		1	99	20.69	20.86	20.76	2			1	74	20.61	20.85	20.69	2
		50	0	21.06	21.19	21.06	3			36	0	20.93	21.18	20.97	3
		50	25	20.85	21.10	20.98	3			36	19	20.89	21.08	20.90	3
		50	50	20.76	20.98	20.83	3			36	39	20.70	20.89	20.69	3
		100	0	20.91	21.10	20.93	3			75	0	20.93	20.98	20.91	3
10M	QPSK	1	0	21.06	21.22	21.10	0	5M	QPSK	1	0	21.11	21.22	21.13	0
		1	24	20.84	20.94	20.84	0			1	12	20.75	20.99	20.82	0
		1	49	20.67	20.93	20.77	0			1	24	20.77	20.95	20.78	0
		25	0	21.03	21.17	21.02	1			12	0	21.05	21.19	21.09	1
		25	12	20.94	21.09	20.91	1			12	6	20.86	21.13	20.98	1
		25	25	20.80	20.88	20.83	1			12	13	20.77	20.98	20.80	1
		50	0	20.98	21.10	21.01	1			25	0	20.94	21.14	20.91	1
		1	0	20.99	21.15	21.06	1		16QAM	1	0	20.99	21.14	21.11	1
	16QAM	1	24	20.74	20.92	20.74	1			1	12	20.74	21.01	20.79	1
		1	49	20.58	20.84	20.72	1			1	24	20.67	20.90	20.70	1
		25	0	20.99	21.13	21.04	2			12	0	20.95	21.17	20.94	2
		25	12	20.90	21.12	20.88	2			12	6	20.81	20.95	20.85	2
		25	25	20.70	20.88	20.81	2			12	13	20.77	20.84	20.73	2
		50	0	20.87	21.08	20.95	2			25	0	20.94	21.07	20.95	2
		1	0	20.97	21.27	21.00	2		64QAM	1	0	20.97	21.22	21.08	2
	64QAM	1	24	20.73	20.95	20.68	2			1	12	20.68	20.90	20.77	2
		1	49	20.76	20.82	20.77	2			1	24	20.69	20.87	20.61	2
		25	0	20.93	21.15	20.99	3			12	0	21.03	21.08	21.00	3
		25	12	20.85	21.05	20.92	3			12	6	20.89	21.11	20.92	3
		25	25	20.71	20.93	20.80	3			12	13	20.71	20.84	20.72	3
		50	0	20.87	21.09	21.01	3			25	0	20.87	21.01	20.89	3
3M	QPSK	1	0	21.09	21.22	21.08	0	1.4M	QPSK	1	0	21.08	21.29	21.08	0
		1	7	20.78	20.97	20.83	0			1	2	20.77	21.01	20.81	0
		1	14	20.77	20.91	20.75	0			1	5	20.76	20.92	20.78	0
		8	0	21.00	21.21	21.02	1			3	0	21.04	21.21	21.03	0
		8	3	20.95	21.12	20.97	1			3	1	20.91	21.03	20.89	0
		8	7	20.70	20.94	20.77	1			3	3	20.79	20.90	20.73	0
		15	0	20.91	21.09	21.00	1			6	0	20.98	21.06	20.93	1
		1	0	21.04	21.21	21.09	1		16QAM	1	0	21.00	21.17	21.07	1
	16QAM	1	7	20.77	20.99	20.77	1			1	2	20.71	20.95	20.83	1
		1	14	20.65	20.89	20.64	1			1	5	20.57	20.85	20.66	1
		8	0	20.91	21.09	21.03	2			3	0	20.95	21.14	20.96	1
		8	3	20.77	21.09	20.91	2			3	1	20.85	20.96	20.85	1
		8	7	20.65	20.84	20.73	2			3	3	20.63	20.86	20.76	1
		15	0	20.88	21.02	20.88	2			6	0	20.93	21.09	20.95	2
		1	0	21.07	21.21	21.04	2		64QAM	1	0	21.00	21.24	21.05	2
	64QAM	1	7	20.71	21.00	20.78	2			1	2	20.66	20.96	20.75	2
		1	14	20.64	20.85	20.68	2			1	5	20.62	20.85	20.70	2
		8	0	20.96	21.16	21.01	3			3	0	20.92	21.20	20.94	2
		8	3	20.78	20.98	20.87	3			3	1	20.86	21.02	20.94	2
		8	7	20.74	20.94	20.73	3			3	3	20.68	20.96	20.70	2
		15	0	20.88	21.06	20.96	3			6	0	20.93	21.04	20.95	3

ERP Power (dBm)

LTE Band 12							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23017	699.7	-9.54	32.719	21.03	126.74	H
	23095	707.5	-9.57	32.736	21.02	126.36	
	23173	715.3	-9.49	32.591	20.95	124.48	
	23017	699.7	-13.49	32.69	17.05	50.70	V
	23095	707.5	-13.64	32.81	17.02	50.35	
	23173	715.3	-13.67	32.74	16.92	49.20	
Channel Bandwidth: 1.4 MHz / 16QAM							
Z	23017	699.7	-10.54	32.719	20.03	100.67	H
	23095	707.5	-10.58	32.736	20.01	100.14	
	23173	715.3	-10.50	32.591	19.94	98.65	
	23017	699.7	-14.50	32.69	16.04	40.18	V
	23095	707.5	-14.64	32.81	16.02	39.99	
	23173	715.3	-14.68	32.74	15.91	38.99	
Channel Bandwidth: 1.4 MHz / 64QAM							
Z	23017	699.7	-11.55	32.719	19.02	79.78	H
	23095	707.5	-11.59	32.736	19.00	79.36	
	23173	715.3	-11.50	32.591	18.94	78.36	
	23017	699.7	-15.51	32.69	15.03	31.84	V
	23095	707.5	-15.64	32.81	15.02	31.77	
	23173	715.3	-15.69	32.74	14.90	30.90	

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

LTE Band 12							
Channel Bandwidth: 3 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23025	700.5	-9.50	32.719	21.07	127.91	H
	23095	707.5	-9.53	32.736	21.06	127.53	
	23165	714.5	-9.46	32.591	20.98	125.34	
	23025	700.5	-13.45	32.69	17.09	51.17	V
	23095	707.5	-13.61	32.81	17.05	50.70	
	23165	714.5	-13.63	32.74	16.96	49.66	
Channel Bandwidth: 3 MHz / 16QAM							
Z	23025	700.5	-10.51	32.719	20.06	101.37	H
	23095	707.5	-10.53	32.736	20.06	101.30	
	23165	714.5	-10.46	32.591	19.98	99.56	
	23025	700.5	-14.46	32.69	16.08	40.55	V
	23095	707.5	-14.62	32.81	16.04	40.18	
	23165	714.5	-14.64	32.74	15.95	39.36	
Channel Bandwidth: 3 MHz / 64QAM							
Z	23025	700.5	-11.52	32.719	19.05	80.33	H
	23095	707.5	-11.53	32.736	19.06	80.46	
	23165	714.5	-11.46	32.591	18.98	79.09	
	23025	700.5	-15.47	32.69	15.07	32.14	V
	23095	707.5	-15.62	32.81	15.04	31.92	
	23165	714.5	-15.65	32.74	14.94	31.19	

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

LTE Band 12							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23035	701.5	-9.46	32.719	21.11	129.09	H
	23095	707.5	-9.49	32.736	21.10	128.71	
	23155	713.5	-9.42	32.591	21.02	126.50	
	23035	701.5	-13.41	32.69	17.13	51.64	V
	23095	707.5	-13.57	32.81	17.09	51.17	
	23155	713.5	-13.59	32.74	17.00	50.12	
Channel Bandwidth: 5 MHz / 16QAM							
Z	23035	701.5	-10.47	32.719	20.10	102.31	H
	23095	707.5	-10.50	32.736	20.09	102.00	
	23155	713.5	-10.42	32.591	20.02	100.48	
	23035	701.5	-14.42	32.69	16.12	40.93	V
	23095	707.5	-14.57	32.81	16.09	40.64	
	23155	713.5	-14.60	32.74	15.99	39.72	
Channel Bandwidth: 5 MHz / 64QAM							
Z	23035	701.5	-11.48	32.719	19.09	81.08	H
	23095	707.5	-11.51	32.736	19.08	80.84	
	23155	713.5	-11.42	32.591	19.02	79.82	
	23035	701.5	-15.42	32.69	15.12	32.51	V
	23095	707.5	-15.58	32.81	15.08	32.21	
	23155	713.5	-15.61	32.74	14.98	31.48	

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

LTE Band 12							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23060	704.0	-9.43	32.727	21.15	130.23	H
	23095	707.5	-9.45	32.739	21.14	129.99	
	23130	711.0	-9.52	32.728	21.06	127.59	
	23060	704.0	-13.44	32.75	17.16	52.00	V
	23095	707.5	-13.54	32.81	17.12	51.52	
	23130	711.0	-13.65	32.84	17.04	50.58	
Channel Bandwidth: 10 MHz / 16QAM							
Z	23060	704.0	-10.44	32.727	20.14	103.20	H
	23095	707.5	-10.46	32.739	20.13	103.01	
	23130	711.0	-10.52	32.728	20.06	101.34	
	23060	704.0	-14.45	32.75	16.15	41.21	V
	23095	707.5	-14.55	32.81	16.11	40.83	
	23130	711.0	-14.66	32.84	16.03	40.09	
Channel Bandwidth: 10 MHz / 64QAM							
Z	23060	704.0	-11.45	32.727	19.13	81.79	H
	23095	707.5	-11.47	32.739	19.12	81.64	
	23130	711.0	-11.53	32.728	19.05	80.32	
	23060	704.0	-15.46	32.75	15.14	32.66	V
	23095	707.5	-15.55	32.81	15.11	32.43	
	23130	711.0	-15.67	32.84	15.02	31.77	

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

LTE Band 13							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23205	779.5	-9.59	32.771	21.03	126.79	H
	23230	782.0	-9.47	32.741	21.12	129.45	
	23255	784.5	-9.65	32.854	21.06	127.56	
	23205	779.5	-13.38	32.5	16.97	49.77	V
	23230	782.0	-13.28	32.52	17.09	51.17	
	23255	784.5	-13.45	32.62	17.02	50.35	
Channel Bandwidth: 5 MHz / 16QAM							
Z	23205	779.5	-10.60	32.771	20.02	100.48	H
	23230	782.0	-10.48	32.741	20.11	102.59	
	23255	784.5	-10.66	32.854	20.04	101.02	
	23205	779.5	-14.38	32.5	15.97	39.54	V
	23230	782.0	-14.29	32.52	16.08	40.55	
	23255	784.5	-14.46	32.62	16.01	39.90	
Channel Bandwidth: 5 MHz / 64QAM							
Z	23205	779.5	-11.61	32.771	19.01	79.63	H
	23230	782.0	-11.49	32.741	19.10	81.30	
	23255	784.5	-11.67	32.854	19.03	80.06	
	23205	779.5	-15.39	32.5	14.96	31.33	V
	23230	782.0	-15.30	32.52	15.07	32.14	
	23255	784.5	-15.47	32.62	15.00	31.62	

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

LTE Band 13							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23230	782.0	-9.43	32.737	21.16	130.53	H
	23230	782.0	-13.24	32.52	17.13	51.64	V
Channel Bandwidth: 10 MHz / 16QAM							
Z	23230	782.0	-10.44	32.737	20.15	103.44	H
	23230	782.0	-14.25	32.52	16.12	40.93	V
Channel Bandwidth: 10 MHz / 64QAM							
Z	23230	782.0	-11.45	32.737	19.14	81.98	H
	23230	782.0	-15.25	32.52	15.12	32.51	V

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15

EIRP Power (dBm)

WCDMA							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	1312	1712.4	-19.38	42.49	23.11	204.41	H
	1413	1732.6	-19.16	42.33	23.17	207.35	
	1513	1752.6	-19.03	42.10	23.07	202.77	
	1312	1712.4	-24.90	42.99	18.09	64.42	V
	1413	1732.6	-24.60	42.74	18.14	65.16	
	1513	1752.6	-24.16	42.21	18.05	63.83	

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

LTE Band 4							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	19957	1710.7	-17.63	42.49	24.86	305.84	H
	20175	1732.5	-17.42	42.33	24.91	309.53	
	20393	1754.3	-17.12	42.10	24.98	314.77	
	19957	1710.7	-23.15	42.99	19.84	96.38	V
	20175	1732.5	-22.85	42.74	19.89	97.50	
	20393	1754.3	-22.26	42.21	19.95	98.86	
Channel Bandwidth: 1.4 MHz / 16QAM							
Z	19957	1710.7	-18.64	42.49	23.85	242.38	H
	20175	1732.5	-18.42	42.33	23.91	245.87	
	20393	1754.3	-18.12	42.10	23.98	250.03	
	19957	1710.7	-24.16	42.99	18.83	76.38	V
	20175	1732.5	-23.85	42.74	18.89	77.45	
	20393	1754.3	-23.27	42.21	18.94	78.34	
Channel Bandwidth: 1.4 MHz / 64QAM							
Z	19957	1710.7	-19.65	42.49	22.84	192.09	H
	20175	1732.5	-19.42	42.33	22.91	195.30	
	20393	1754.3	-19.13	42.10	22.97	198.15	
	19957	1710.7	-25.17	42.99	17.82	60.53	V
	20175	1732.5	-24.86	42.74	17.88	61.33	
	20393	1754.3	-24.27	42.21	17.94	62.23	

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

LTE Band 4							
Channel Bandwidth: 3 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	19965	1711.5	-17.60	42.49	24.89	307.96	H
	20175	1732.5	-17.39	42.33	24.94	311.67	
	20385	1753.5	-17.08	42.10	25.02	317.69	
	19965	1711.5	-23.11	42.99	19.88	97.27	V
	20175	1732.5	-22.81	42.74	19.93	98.40	
	20385	1753.5	-22.22	42.21	19.99	99.77	
Channel Bandwidth: 3 MHz / 16QAM							
Z	19965	1711.5	-18.61	42.49	23.88	244.06	H
	20175	1732.5	-18.39	42.33	23.94	247.57	
	20385	1753.5	-18.09	42.10	24.01	251.77	
	19965	1711.5	-24.12	42.99	18.87	77.09	V
	20175	1732.5	-23.81	42.74	18.93	78.16	
	20385	1753.5	-23.22	42.21	18.99	79.25	
Channel Bandwidth: 3 MHz / 64QAM							
Z	19965	1711.5	-19.62	42.49	22.87	193.42	H
	20175	1732.5	-19.40	42.33	22.93	196.20	
	20385	1753.5	-19.09	42.10	23.01	199.99	
	19965	1711.5	-25.12	42.99	17.87	61.24	V
	20175	1732.5	-24.82	42.74	17.92	61.94	
	20385	1753.5	-24.23	42.21	17.98	62.81	

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

LTE Band 4							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	19975	1712.5	-17.56	42.49	24.93	310.81	H
	20175	1732.5	-17.36	42.33	24.97	313.83	
	20375	1752.5	-17.05	42.10	25.05	319.89	
	19975	1712.5	-23.07	42.99	19.92	98.17	V
	20175	1732.5	-22.78	42.74	19.96	99.08	
	20375	1752.5	-22.19	42.21	20.02	100.46	
Channel Bandwidth: 5 MHz / 16QAM							
Z	19975	1712.5	-18.56	42.49	23.93	246.89	H
	20175	1732.5	-18.37	42.33	23.96	248.71	
	20375	1752.5	-18.05	42.10	24.05	254.10	
	19975	1712.5	-24.07	42.99	18.92	77.98	V
	20175	1732.5	-23.79	42.74	18.95	78.52	
	20375	1752.5	-23.20	42.21	19.01	79.62	
Channel Bandwidth: 5 MHz / 64QAM							
Z	19975	1712.5	-19.57	42.49	22.92	195.66	H
	20175	1732.5	-19.37	42.33	22.96	197.56	
	20375	1752.5	-19.06	42.10	23.04	201.37	
	19975	1712.5	-25.08	42.99	17.91	61.80	V
	20175	1732.5	-24.79	42.74	17.95	62.37	
	20375	1752.5	-24.21	42.21	18.00	63.10	

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

LTE Band 4							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	20000	1715.0	-17.52	42.49	24.97	313.69	H
	20175	1732.5	-17.32	42.33	25.01	316.74	
	20350	1750.0	-17.02	42.10	25.08	322.11	
	20000	1715.0	-23.04	42.99	19.95	98.86	V
	20175	1732.5	-22.74	42.74	20.00	100.00	
	20350	1750.0	-22.16	42.21	20.05	101.16	
Channel Bandwidth: 10 MHz / 16QAM							
Z	20000	1715.0	-18.53	42.49	23.96	248.60	H
	20175	1732.5	-18.33	42.33	24.00	251.02	
	20350	1750.0	-18.02	42.10	24.08	255.86	
	20000	1715.0	-24.04	42.99	18.95	78.52	V
	20175	1732.5	-23.75	42.74	18.99	79.25	
	20350	1750.0	-23.16	42.21	19.05	80.35	
Channel Bandwidth: 10 MHz / 64QAM							
Z	20000	1715.0	-19.53	42.49	22.96	197.47	H
	20175	1732.5	-19.34	42.33	22.99	198.93	
	20350	1750.0	-19.03	42.10	23.07	202.77	
	20000	1715.0	-25.05	42.99	17.94	62.23	V
	20175	1732.5	-24.76	42.74	17.98	62.81	
	20350	1750.0	-24.16	42.21	18.05	63.83	

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

LTE Band 4							
Channel Bandwidth: 15 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	20025	1717.5	-17.48	42.49	25.01	316.59	H
	20175	1732.5	-17.28	42.33	25.05	319.67	
	20325	1747.5	-16.99	42.10	25.11	324.34	
	20025	1717.5	-23.00	42.99	19.99	99.77	V
	20175	1732.5	-22.70	42.74	20.04	100.93	
	20325	1747.5	-22.12	42.21	20.09	102.09	
Channel Bandwidth: 15 MHz / 16QAM							
Z	20025	1717.5	-18.49	42.49	24.00	250.90	H
	20175	1732.5	-18.29	42.33	24.04	253.34	
	20325	1747.5	-17.99	42.10	24.11	257.63	
	20025	1717.5	-24.01	42.99	18.98	79.07	V
	20175	1732.5	-23.70	42.74	19.04	80.17	
	20325	1747.5	-23.12	42.21	19.09	81.10	
Channel Bandwidth: 15 MHz / 64QAM							
Z	20025	1717.5	-19.50	42.49	22.99	198.84	H
	20175	1732.5	-19.29	42.33	23.04	201.23	
	20325	1747.5	-18.99	42.10	23.11	204.64	
	20025	1717.5	-25.02	42.99	17.97	62.66	V
	20175	1732.5	-24.71	42.74	18.03	63.53	
	20325	1747.5	-24.13	42.21	18.08	64.27	

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

LTE Band 4							
Channel Bandwidth: 20 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	20050	1720.0	-17.44	42.49	25.05	319.52	H
	20175	1732.5	-17.24	42.33	25.09	322.63	
	20300	1745.0	-16.95	42.10	25.15	327.34	
	20050	1720.0	-22.96	42.99	20.03	100.69	V
	20175	1732.5	-22.66	42.74	20.08	101.86	
	20300	1745.0	-22.08	42.21	20.13	103.04	
Channel Bandwidth: 20 MHz / 16QAM							
Z	20050	1720.0	-18.45	42.49	24.04	253.22	H
	20175	1732.5	-18.24	42.33	24.09	256.27	
	20300	1745.0	-17.96	42.10	24.14	259.42	
	20050	1720.0	-23.97	42.99	19.02	79.80	V
	20175	1732.5	-23.67	42.74	19.07	80.72	
	20300	1745.0	-23.09	42.21	19.12	81.66	
Channel Bandwidth: 20 MHz / 64QAM							
Z	20050	1720.0	-19.46	42.49	23.03	200.68	H
	20175	1732.5	-19.25	42.33	23.08	203.10	
	20300	1745.0	-18.96	42.10	23.14	206.06	
	20050	1720.0	-24.97	42.99	18.02	63.39	V
	20175	1732.5	-24.68	42.74	18.06	63.97	
	20300	1745.0	-24.10	42.21	18.11	64.71	

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

LTE Band 66							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	131979	1710.7	-12.61	36.45	23.84	242.10	H
	132322	1745.0	-12.79	36.80	24.01	251.71	
	132665	1779.3	-13.00	36.94	23.94	247.91	
	131979	1710.7	-18.41	37.28	18.87	77.04	V
	132322	1745.0	-18.63	37.63	19.00	79.43	
	132665	1779.3	-18.72	37.64	18.92	77.98	
Channel Bandwidth: 1.4 MHz / 16QAM							
Z	131979	1710.7	-13.62	36.45	22.83	191.87	H
	132322	1745.0	-13.80	36.80	23.00	199.48	
	132665	1779.3	-14.00	36.94	22.94	196.92	
	131979	1710.7	-19.42	37.28	17.86	61.05	V
	132322	1745.0	-19.64	37.63	17.99	62.95	
	132665	1779.3	-19.73	37.64	17.91	61.80	
Channel Bandwidth: 1.4 MHz / 64QAM							
Z	131979	1710.7	-14.62	36.45	21.83	152.41	H
	132322	1745.0	-14.80	36.80	22.00	158.45	
	132665	1779.3	-15.00	36.94	21.94	156.42	
	131979	1710.7	-20.43	37.28	16.85	48.38	V
	132322	1745.0	-20.65	37.63	16.98	49.89	
	132665	1779.3	-20.74	37.64	16.90	48.98	

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

LTE Band 66							
Channel Bandwidth: 3 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	131987	1711.5	-12.58	36.45	23.87	243.78	H
	132322	1745.0	-12.75	36.80	24.05	254.04	
	132657	1778.5	-12.96	36.94	23.98	250.21	
	131987	1711.5	-18.37	37.28	18.91	77.75	V
	132322	1745.0	-18.60	37.63	19.03	79.98	
	132657	1778.5	-18.68	37.64	18.96	78.70	
Channel Bandwidth: 3 MHz / 16QAM							
Z	131987	1711.5	-13.59	36.45	22.86	193.20	H
	132322	1745.0	-13.76	36.80	23.04	201.33	
	132657	1778.5	-13.96	36.94	22.98	198.75	
	131987	1711.5	-19.38	37.28	17.90	61.62	V
	132322	1745.0	-19.61	37.63	18.02	63.39	
	132657	1778.5	-19.69	37.64	17.95	62.37	
Channel Bandwidth: 3 MHz / 64QAM							
Z	131987	1711.5	-14.60	36.45	21.85	153.11	H
	132322	1745.0	-14.76	36.80	22.04	159.92	
	132657	1778.5	-14.96	36.94	21.98	157.87	
	131987	1711.5	-20.38	37.28	16.90	48.94	V
	132322	1745.0	-20.62	37.63	17.01	50.23	
	132657	1778.5	-20.70	37.64	16.94	49.43	

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

LTE Band 66							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	131997	1712.5	-12.54	36.45	23.91	246.04	H
	132322	1745.0	-12.71	36.80	24.09	256.39	
	132647	1777.5	-12.93	36.94	24.01	251.94	
	131997	1712.5	-18.34	37.28	18.94	78.29	V
	132322	1745.0	-18.56	37.63	19.07	80.72	
	132647	1777.5	-18.64	37.64	19.00	79.43	
Channel Bandwidth: 5 MHz / 16QAM							
Z	131997	1712.5	-13.55	36.45	22.90	194.98	H
	132322	1745.0	-13.72	36.80	23.08	203.19	
	132647	1777.5	-13.94	36.94	23.00	199.66	
	131997	1712.5	-19.35	37.28	17.93	62.04	V
	132322	1745.0	-19.57	37.63	18.06	63.97	
	132647	1777.5	-19.65	37.64	17.99	62.95	
Channel Bandwidth: 5 MHz / 64QAM							
Z	131997	1712.5	-14.56	36.45	21.89	154.53	H
	132322	1745.0	-14.73	36.80	22.07	161.03	
	132647	1777.5	-14.95	36.94	21.99	158.23	
	131997	1712.5	-20.36	37.28	16.92	49.17	V
	132322	1745.0	-20.57	37.63	17.06	50.82	
	132647	1777.5	-20.65	37.64	16.99	50.00	

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

LTE Band 66							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	132022	1715.0	-12.69	36.64	23.95	248.31	H
	132322	1745.0	-12.67	36.80	24.13	258.52	
	132622	1775.0	-12.75	36.80	24.05	254.10	
	132022	1715.0	-18.46	37.44	18.98	79.05	V
	132322	1745.0	-18.52	37.63	19.11	81.45	
	132622	1775.0	-18.61	37.64	19.03	79.89	
Channel Bandwidth: 10 MHz / 16QAM							
Z	132022	1715.0	-13.70	36.64	22.94	196.79	H
	132322	1745.0	-13.68	36.80	23.12	204.88	
	132622	1775.0	-13.76	36.80	23.04	201.37	
	132022	1715.0	-19.47	37.44	17.97	62.65	V
	132322	1745.0	-19.53	37.63	18.10	64.55	
	132622	1775.0	-19.62	37.64	18.02	63.31	
Channel Bandwidth: 10 MHz / 64QAM							
Z	132022	1715.0	-14.71	36.64	21.93	155.96	H
	132322	1745.0	-14.69	36.80	22.11	162.37	
	132622	1775.0	-14.77	36.80	22.03	159.59	
	132022	1715.0	-20.48	37.44	16.96	49.65	V
	132322	1745.0	-20.54	37.63	17.09	51.16	
	132622	1775.0	-20.63	37.64	17.01	50.18	

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

LTE Band 66							
Channel Bandwidth: 15 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	132047	1717.5	-12.46	36.45	23.99	250.61	H
	132322	1745.0	-12.64	36.80	24.16	260.56	
	132597	1772.5	-12.85	36.94	24.09	256.63	
	132047	1717.5	-18.26	37.28	19.02	79.74	V
	132322	1745.0	-18.48	37.63	19.15	82.22	
	132597	1772.5	-18.58	37.64	19.06	80.54	
Channel Bandwidth: 15 MHz / 16QAM							
Z	132047	1717.5	-13.47	36.45	22.98	198.61	H
	132322	1745.0	-13.64	36.80	23.16	206.97	
	132597	1772.5	-13.86	36.94	23.08	203.38	
	132047	1717.5	-19.27	37.28	18.01	63.20	V
	132322	1745.0	-19.49	37.63	18.14	65.16	
	132597	1772.5	-19.59	37.64	18.05	63.83	
Channel Bandwidth: 15 MHz / 64QAM							
Z	132047	1717.5	-14.48	36.45	21.97	157.40	H
	132322	1745.0	-14.65	36.80	22.15	164.02	
	132597	1772.5	-14.86	36.94	22.08	161.55	
	132047	1717.5	-20.27	37.28	17.01	50.20	V
	132322	1745.0	-20.50	37.63	17.13	51.64	
	132597	1772.5	-20.60	37.64	17.04	50.58	

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

LTE Band 66							
Channel Bandwidth: 20 MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	132072	1720.0	-12.42	36.45	24.03	252.93	H
	132322	1745.0	-12.60	36.80	24.20	262.97	
	132572	1770.0	-12.82	36.94	24.12	258.40	
	132072	1720.0	-18.24	37.28	19.04	80.11	V
	132322	1745.0	-18.45	37.63	19.18	82.79	
	132572	1770.0	-18.54	37.64	19.10	81.28	
Channel Bandwidth: 20 MHz / 16QAM							
Z	132072	1720.0	-13.43	36.45	23.02	200.45	H
	132322	1745.0	-13.61	36.80	23.19	208.40	
	132572	1770.0	-13.83	36.94	23.11	204.79	
	132072	1720.0	-19.25	37.28	18.03	63.49	V
	132322	1745.0	-19.46	37.63	18.17	65.61	
	132572	1770.0	-19.55	37.64	18.09	64.42	
Channel Bandwidth: 20 MHz / 64QAM							
Z	132072	1720.0	-14.44	36.45	22.01	158.85	H
	132322	1745.0	-14.62	36.80	22.18	165.16	
	132572	1770.0	-14.84	36.94	22.10	162.29	
	132072	1720.0	-20.26	37.28	17.02	50.32	V
	132322	1745.0	-20.47	37.63	17.16	52.00	
	132572	1770.0	-20.56	37.64	17.08	51.05	

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

4.2 Radiated Emission Measurement

4.2.1 Limits of Radiated Emission Measurement

- a. The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dB. The limit of emission is equal to -13 dBm.
- b. For operations in the 775-788 MHz, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz. The limit of emissions is equal to -40 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, $E.R.P \text{ power} = E.I.R.P \text{ power} - 2.15 \text{ dB}$.

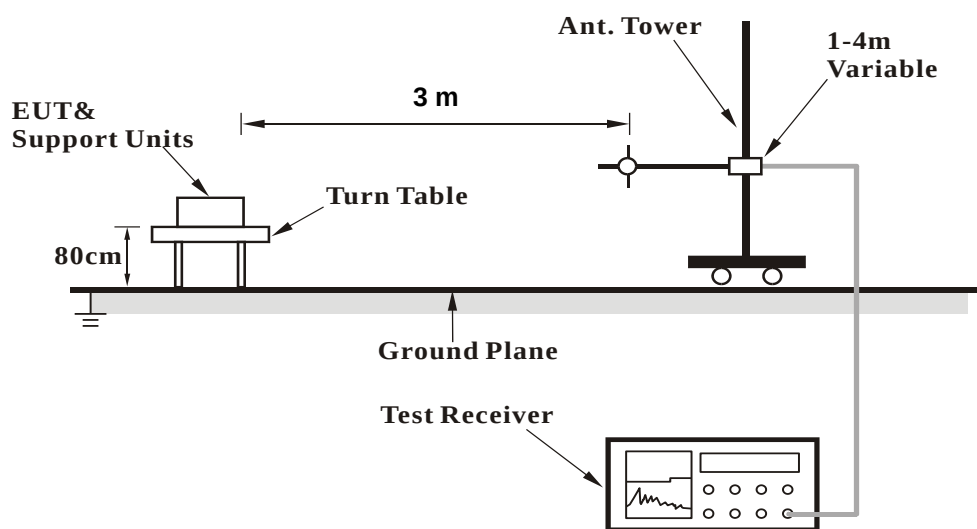
Note: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

4.2.3 Deviation from Test Standard

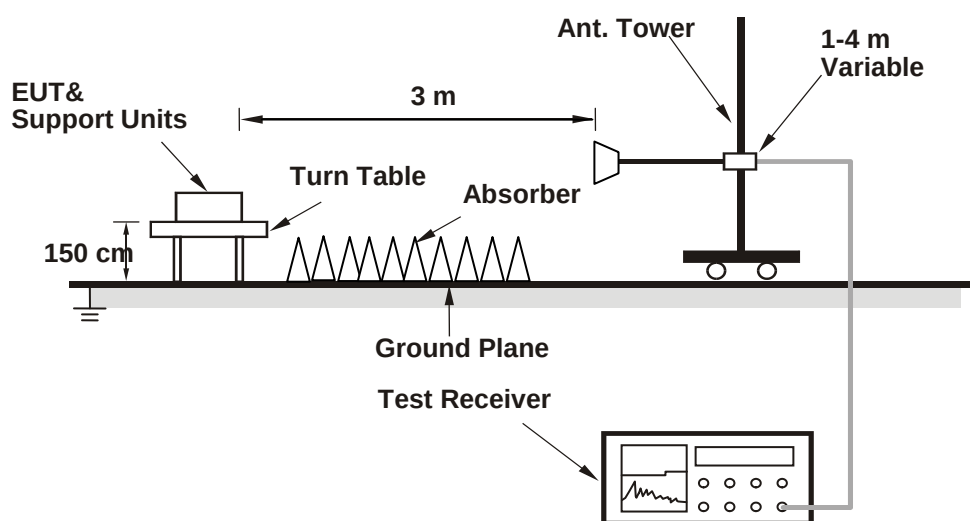
No deviation.

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

WCDMA:

Low Channel

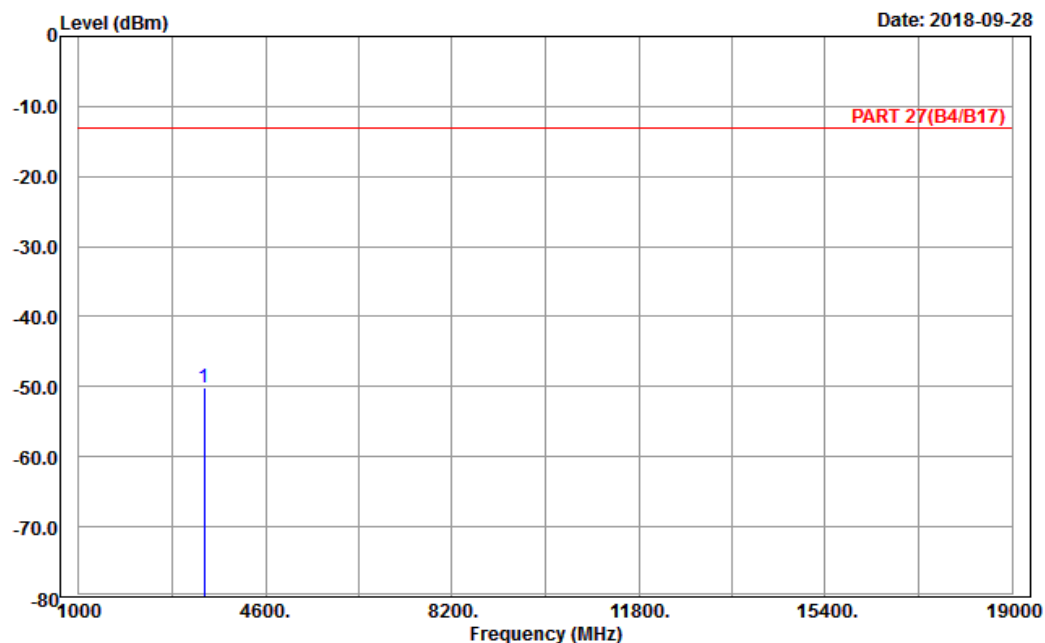


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2018-09-28



Site : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark : Band IV_Link_CH1312
Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3424.80	-50.23	-64.60	-13.00	-37.23	14.37	Peak

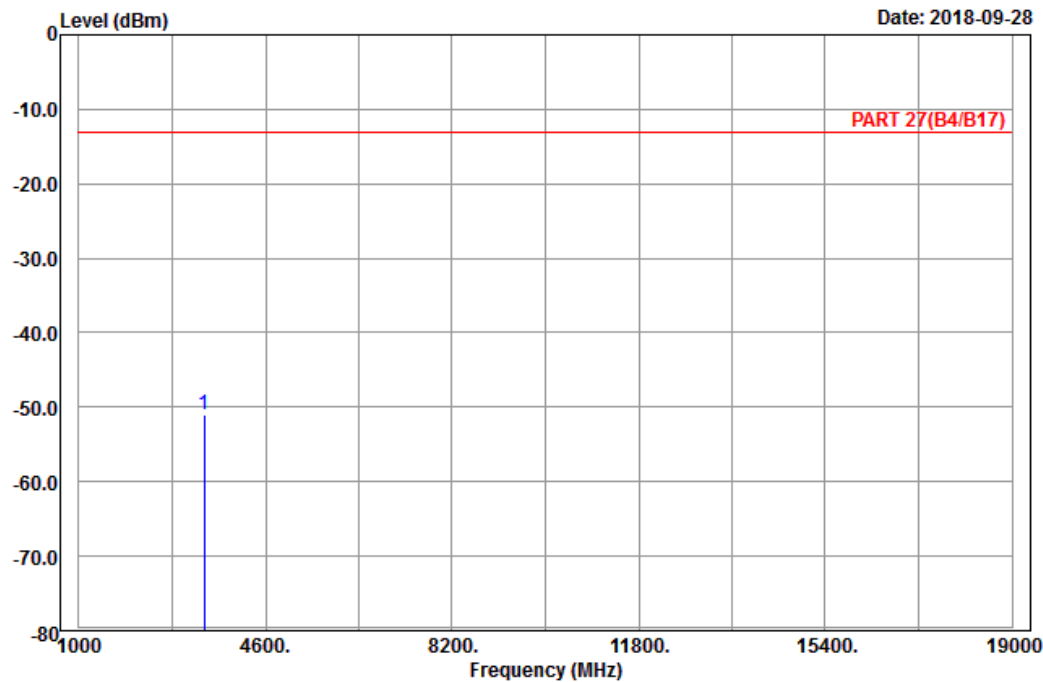


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2018-09-28



Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : Band IV_Link_CH1312
Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3424.80	-50.91	-65.28	-13.00	-37.91	14.37	Peak

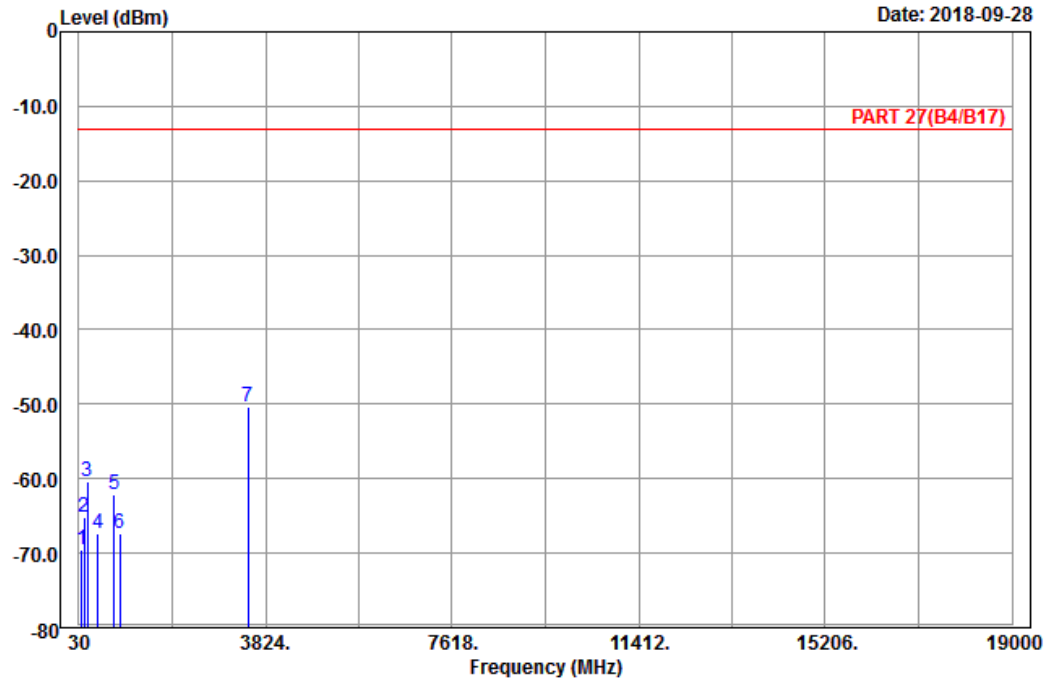
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 13



Site : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark : Band IV_Link_CH1413
Tested by: Karl Lee

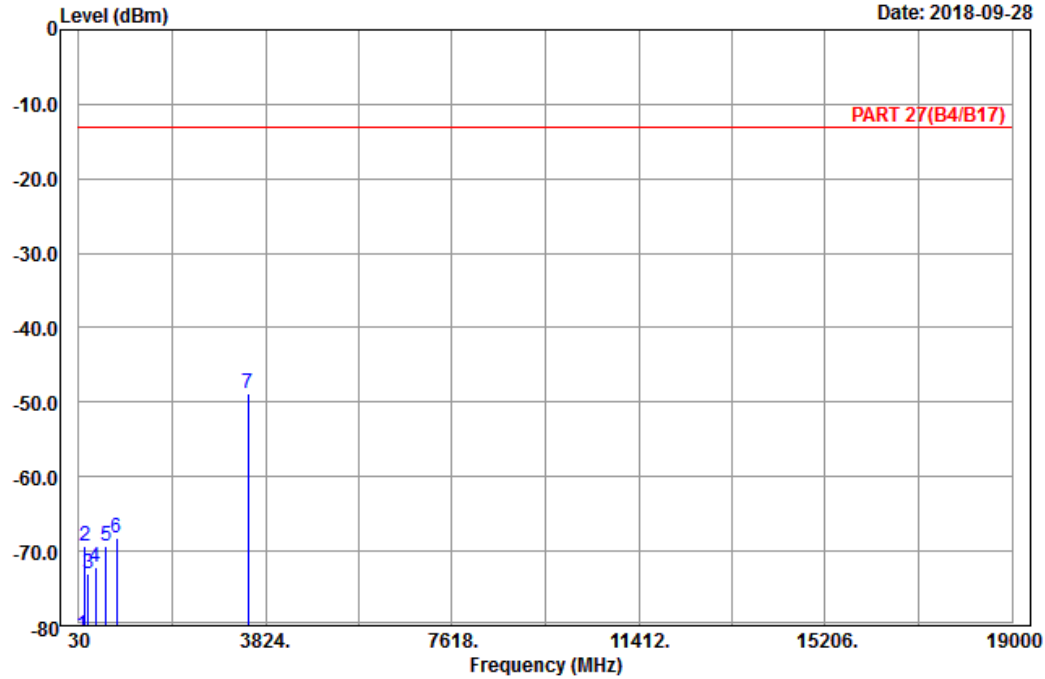
			Read	Limit	Over		
	Freq	Level	Level	Line	Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	82.11	-69.48	-57.93	-25.00	-44.48	-11.55	Peak
2	130.17	-65.24	-57.59	-25.00	-40.24	-7.65	Peak
3 pp	210.36	-60.33	-54.29	-25.00	-35.33	-6.04	Peak
4	416.90	-67.45	-64.33	-25.00	-42.45	-3.12	Peak
5	747.30	-62.10	-60.84	-25.00	-37.10	-1.26	Peak
6	870.50	-67.39	-69.42	-25.00	-42.39	2.03	Peak
7	3465.20	-50.25	-64.59	-13.00	-37.25	14.34	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 14



Site : 966 chamber 1
 Condition: PART 27(B4/B17) Vertical
 Remark : Band IV_Link_CH1413
 Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	83.46	-81.26	-69.82	-25.00	-56.26	-11.44	Peak
2	158.52	-69.37	-61.65	-25.00	-44.37	-7.72	Peak
3	218.46	-73.10	-67.16	-25.00	-48.10	-5.94	Peak
4	373.50	-72.07	-67.93	-25.00	-47.07	-4.14	Peak
5	582.80	-69.32	-69.02	-25.00	-44.32	-0.30	Peak
6	790.70	-68.22	-69.59	-25.00	-43.22	1.37	Peak
7 pp	3465.20	-48.81	-63.15	-13.00	-35.81	14.34	Peak

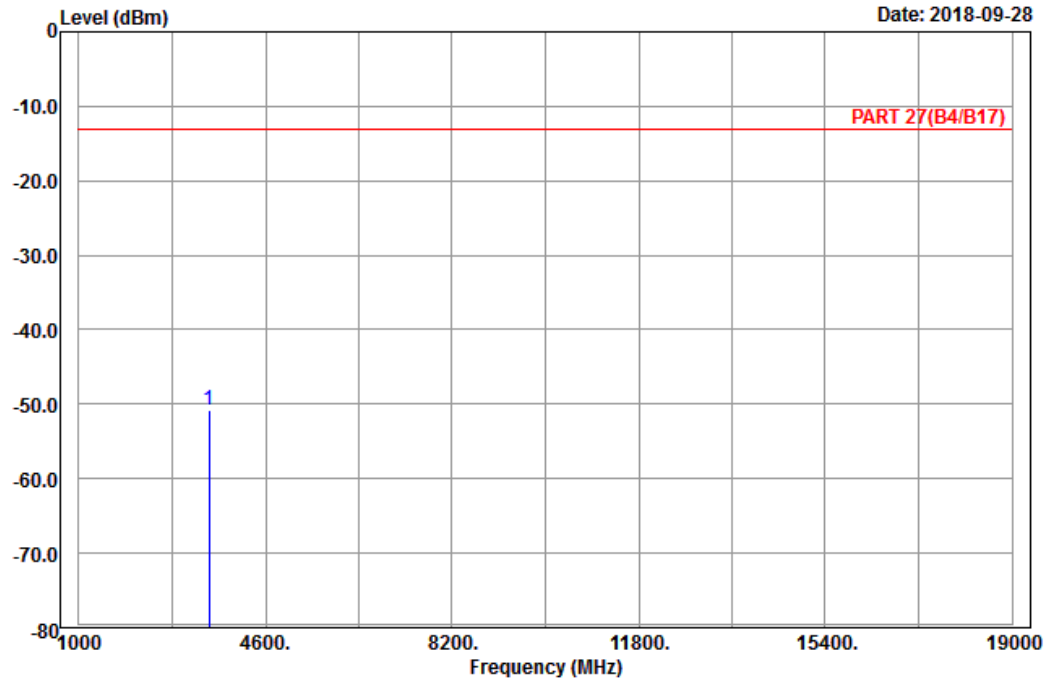
High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9



Site : 966 chamber 1
 Condition: PART 27(B4/B17) Horizontal
 Remark : Band IV_Link_CH1513
 Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3505.20	-50.87	-65.15	-13.00	-37.87	14.28	Peak

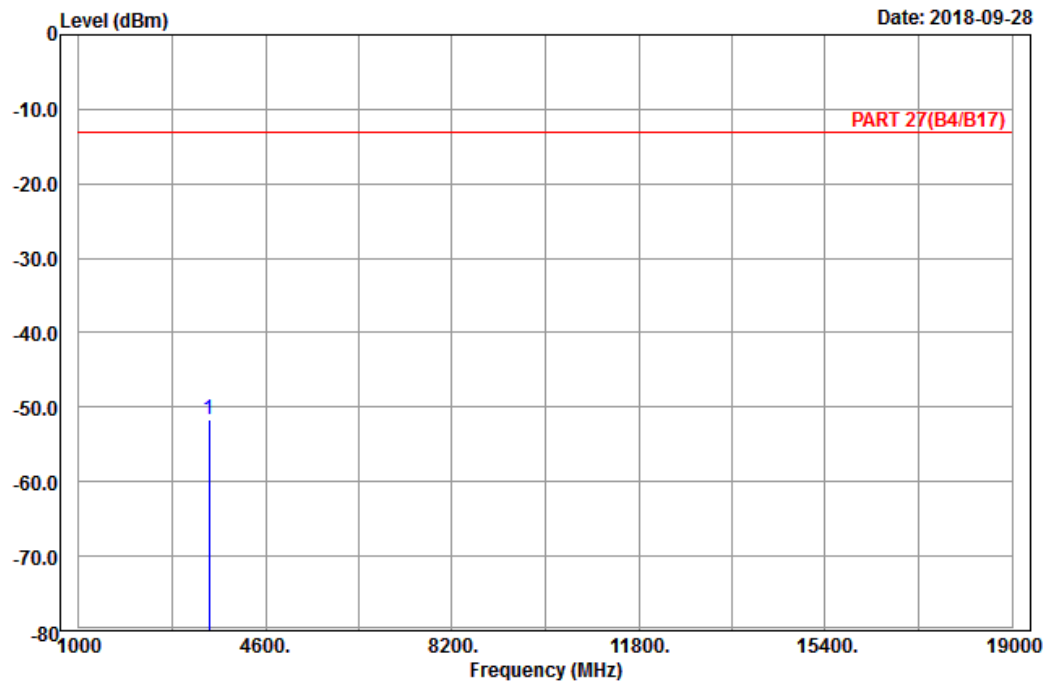


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2018-09-28



Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : Band IV_Link_CH1513
Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3505.20	-51.64	-65.92	-13.00	-38.64	14.28	Peak

LTE Band 4
Channel Bandwidth: 1.4 MHz / QPSK
Low Channel

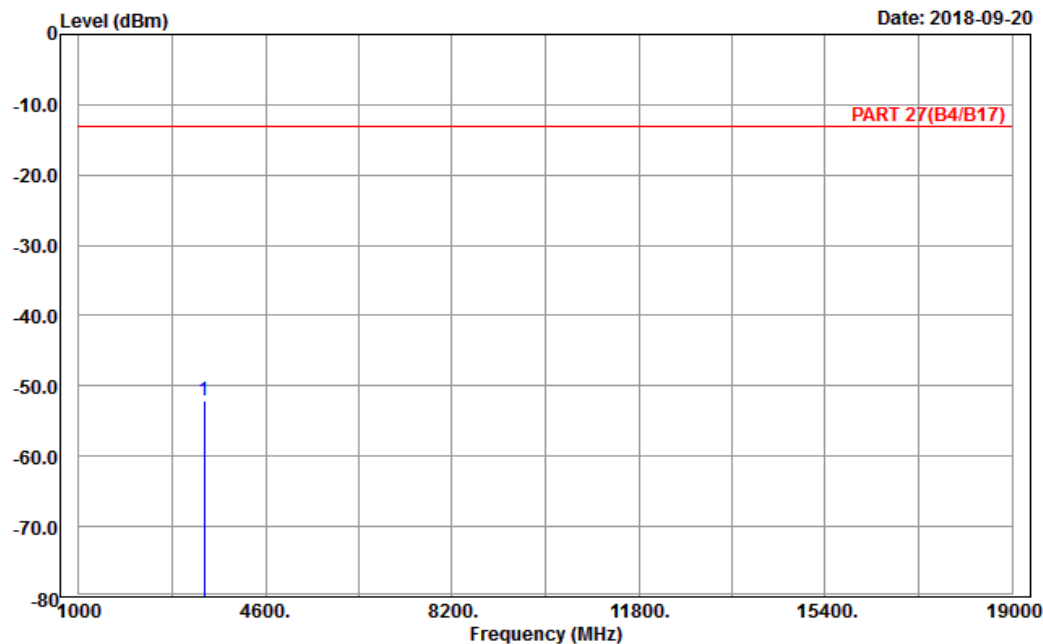


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark : LTE_Band 4_Link_CH19957
Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3421.40	-52.00	-66.37	-13.00	-39.00	14.37	Peak

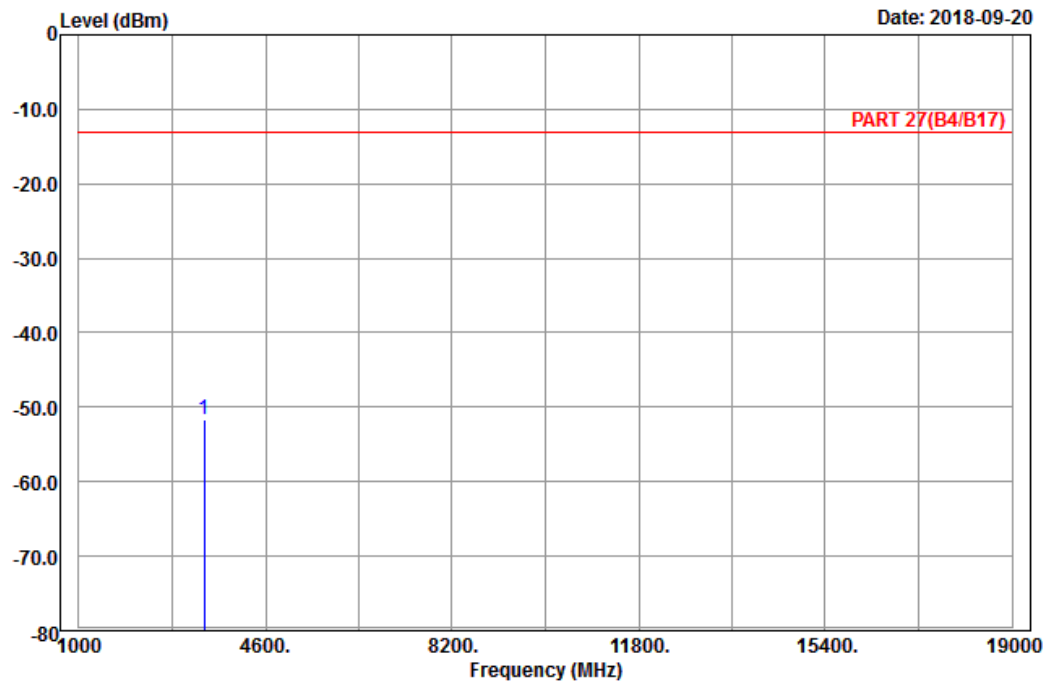


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH19957
Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3421.40	-51.77	-66.14	-13.00	-38.77	14.37	Peak

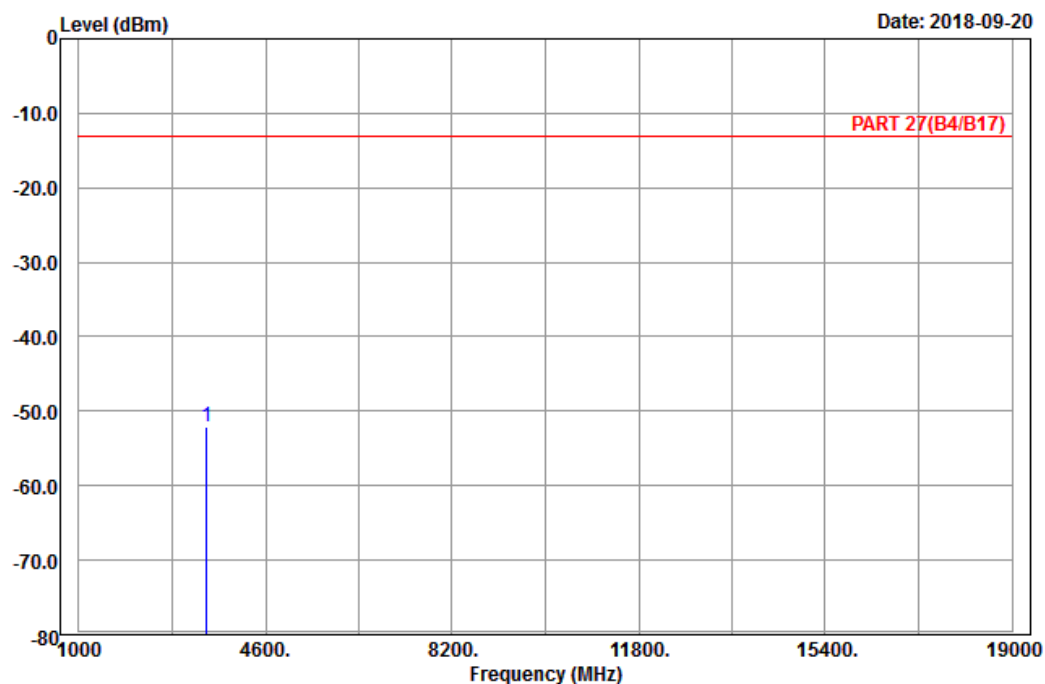
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9



Site : 966 chamber 1
 Condition: PART 27(B4/B17) Horizontal
 Remark : LTE_Band 4_Link_CH20175
 Tested by: Karl Lee

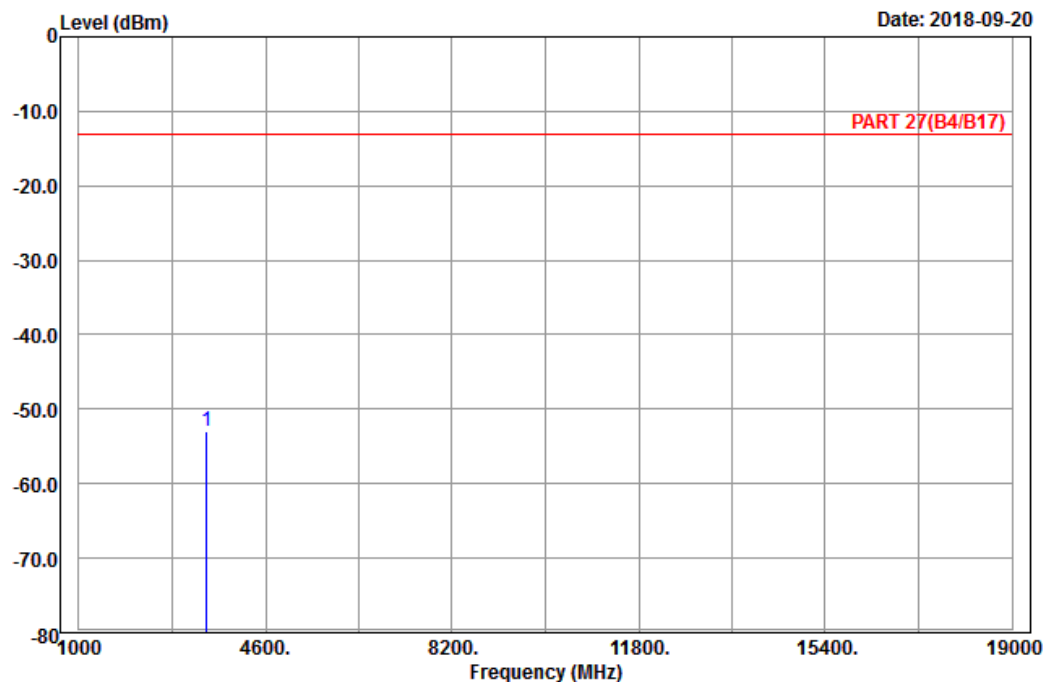
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3465.00	-52.05	-66.39	-13.00	-39.05	14.34	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10



Site : 966 chamber 1
 Condition: PART 27(B4/B17) Vertical
 Remark : LTE_Band 4_Link_CH20175
 Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3465.00	-53.00	-67.34	-13.00	-40.00	14.34	Peak

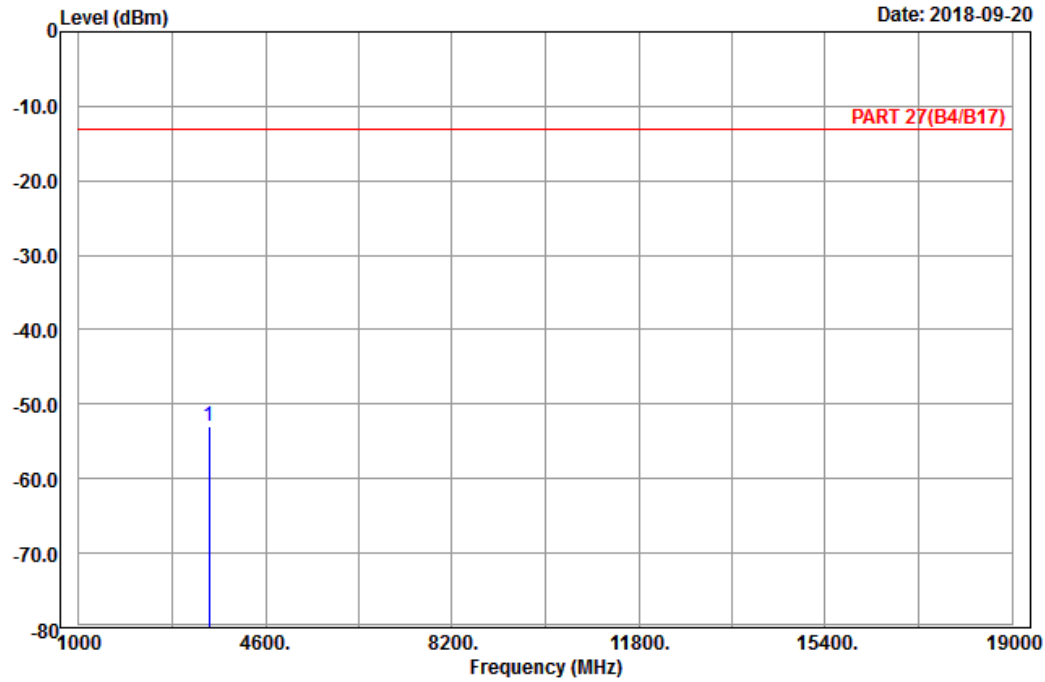
High Channel



Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 9



Site : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark : LTE_Band 4_Link_CH20393
Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3508.60	-52.99	-67.27	-13.00	-39.99	14.28	Peak

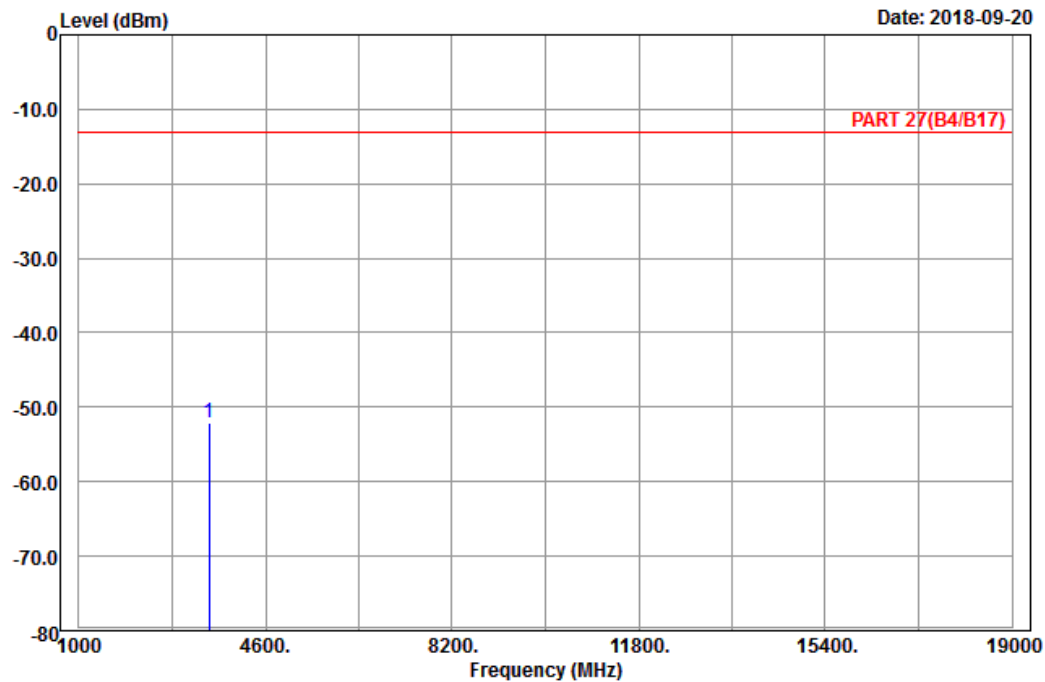


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH20393
Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3508.60	-52.14	-66.42	-13.00	-39.14	14.28	Peak

Channel Bandwidth: 5 MHz / QPSK
Low Channel

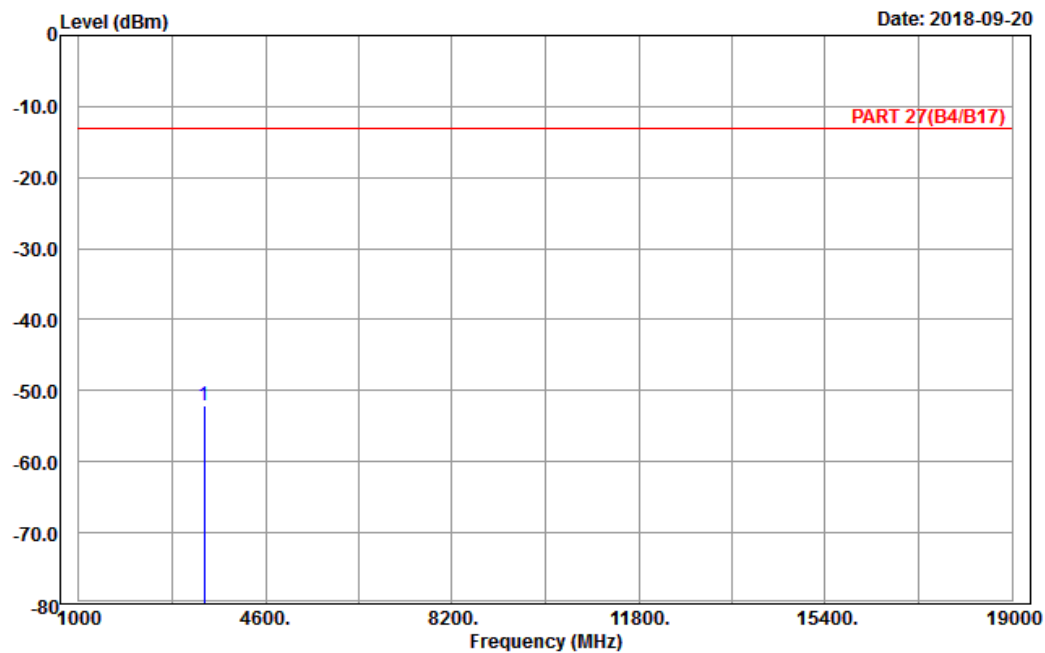


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark : LTE_Band 4_Link_CH19975
Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3425.00	-52.14	-66.51	-13.00	-39.14	14.37	Peak

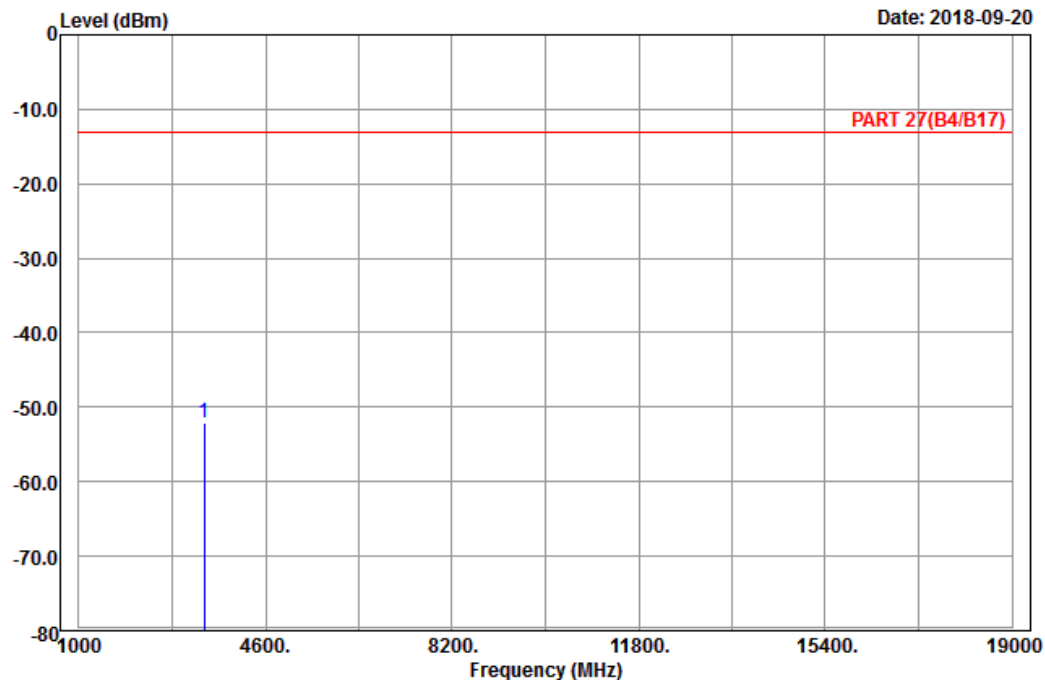


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH19975
Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3425.00	-52.05	-66.42	-13.00	-39.05	14.37	Peak

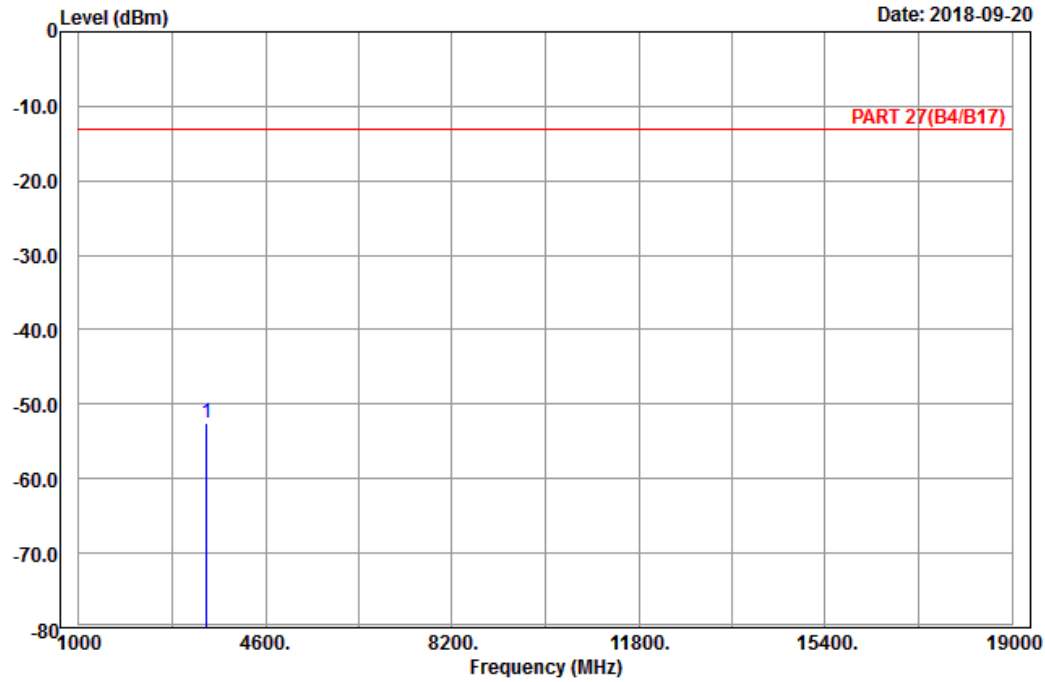
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9



Site : 966 chamber 1
 Condition: PART 27(B4/B17) Horizontal
 Remark : LTE_Band 4_Link_CH20175
 Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3465.00	-52.49	-66.83	-13.00	-39.49	14.34	Peak

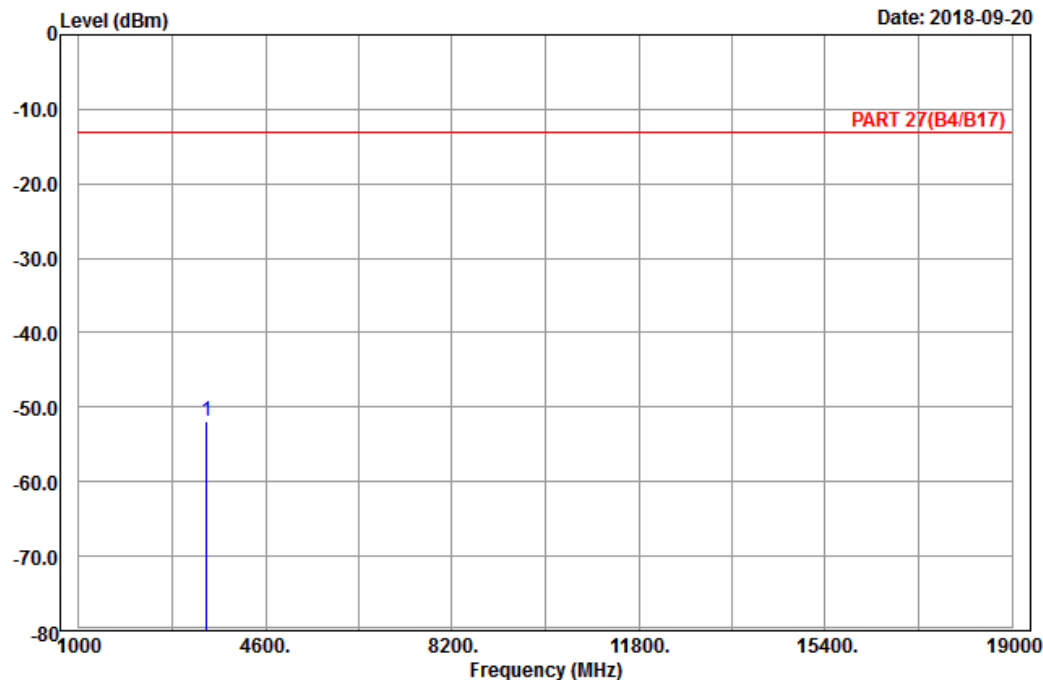


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH20175
Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3465.00	-51.86	-66.20	-13.00	-38.86	14.34	Peak

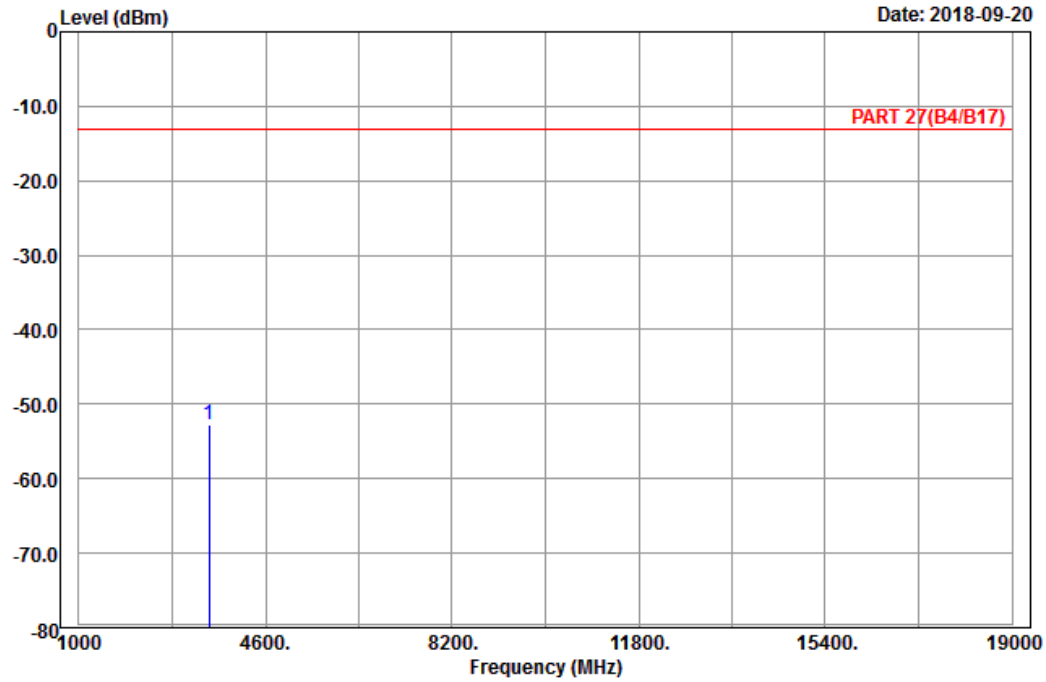
High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9



Site : 966 chamber 1
 Condition: PART 27(B4/B17) Horizontal
 Remark : LTE_Band 4_Link_CH20375
 Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3505.00	-52.66	-66.94	-13.00	-39.66	14.28	Peak

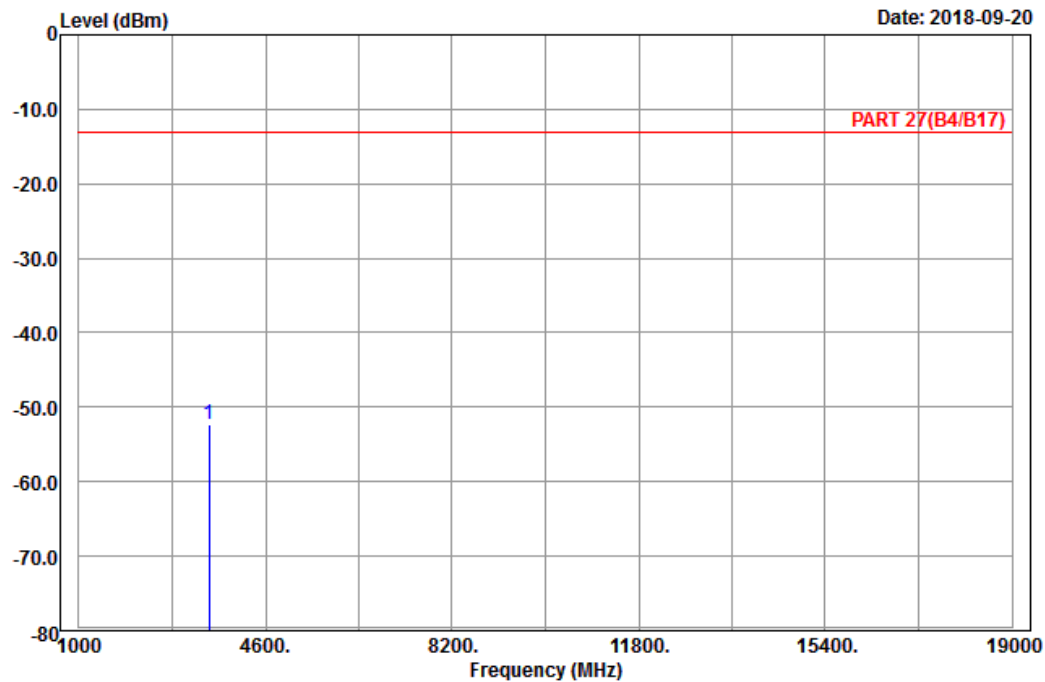


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH20375
Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3505.00	-52.36	-66.64	-13.00	-39.36	14.28	Peak

Channel Bandwidth: 20 MHz / QPSK
Low Channel

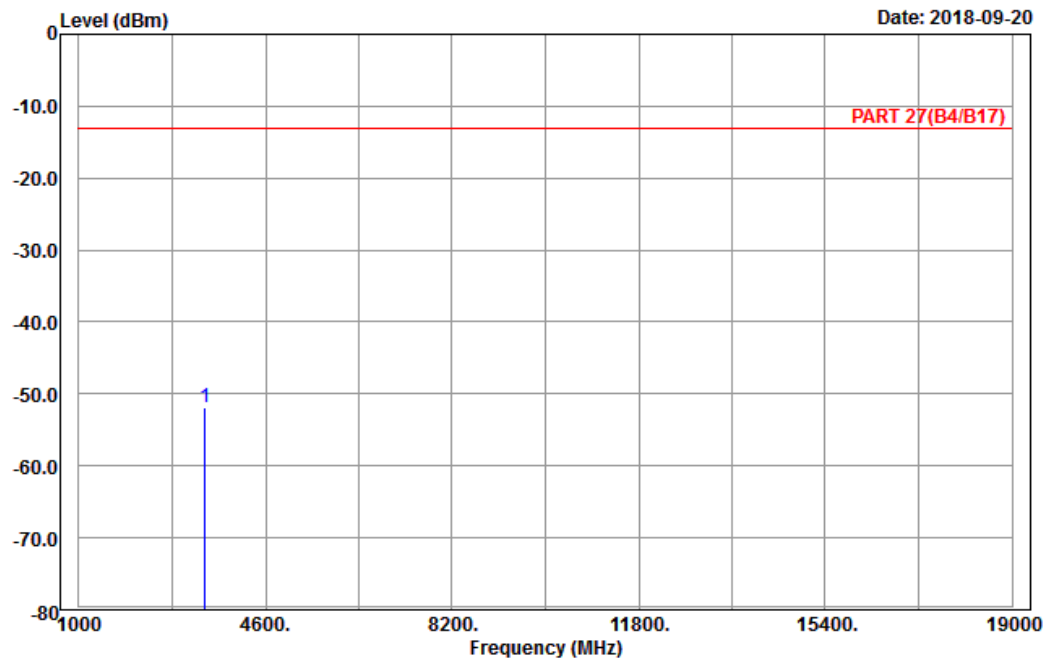


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark : LTE_Band 4_Link_CH20050
Tested by: Karl Lee

Freq	Level	Read	Limit	Over	Factor	Remark
		Level	Line	Limit		
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3440.00	-51.80	-66.15	-13.00	-38.80	14.35	Peak

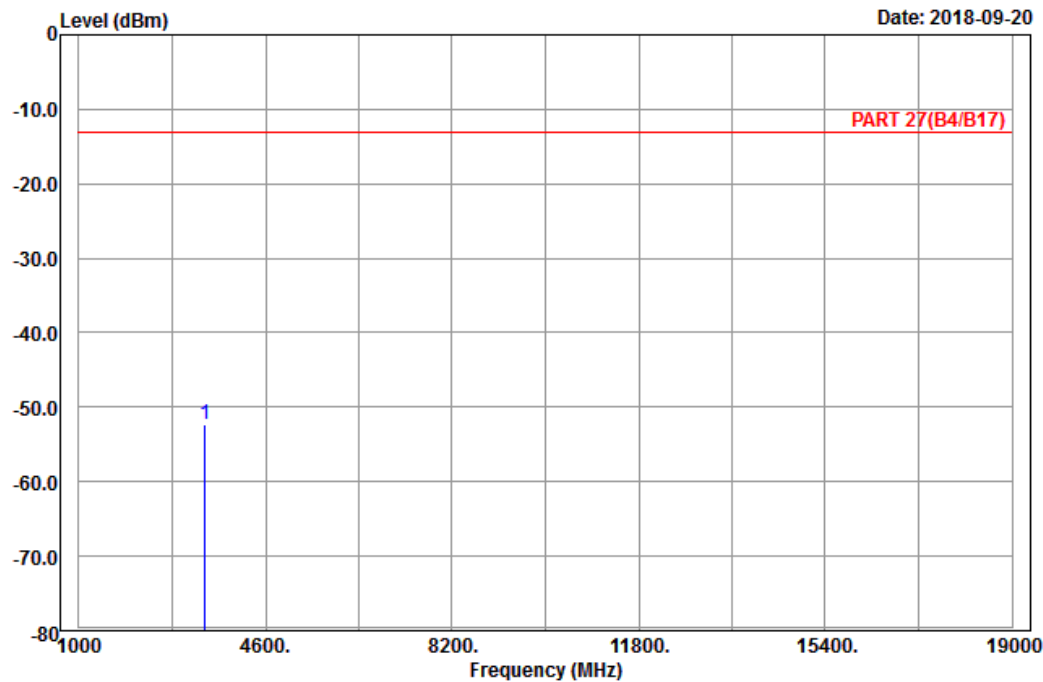


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH20050
Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3440.00	-52.36	-66.71	-13.00	-39.36	14.35	Peak

Middle Channel

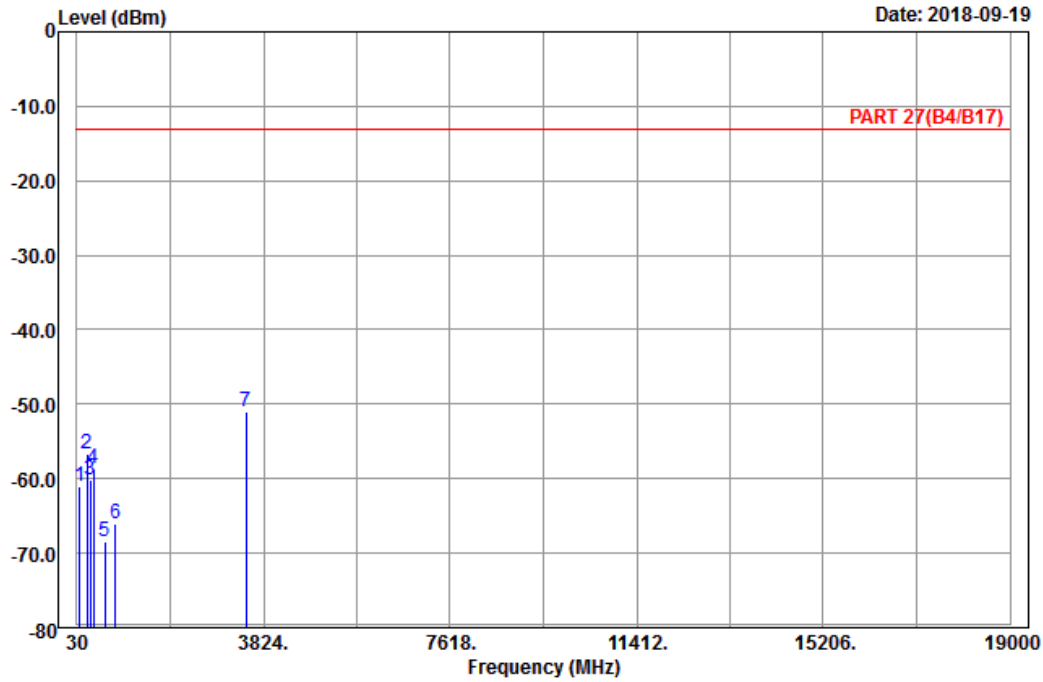


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 13

Date: 2018-09-19



Site : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark : LTE_Band 4_Link_CH20175
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	91.56	-60.95	-50.33	-13.00	-47.95	-10.62	Peak
2	237.36	-56.76	-51.08	-13.00	-43.76	-5.68	Peak
3	300.00	-60.07	-54.11	-13.00	-47.07	-5.96	Peak
4	372.10	-58.55	-54.36	-13.00	-45.55	-4.19	Peak
5	591.90	-68.39	-68.46	-13.00	-55.39	0.07	Peak
6	809.60	-66.09	-67.99	-13.00	-53.09	1.90	Peak
7 pp	3465.00	-50.99	-65.33	-13.00	-37.99	14.34	Peak

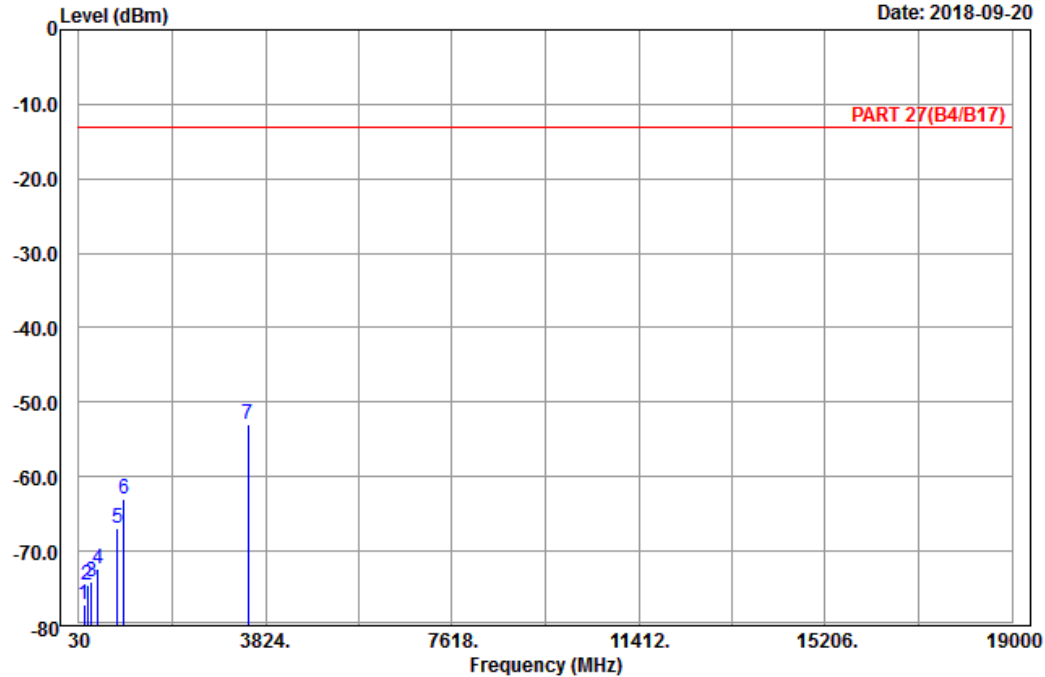


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 14

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH20175
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	130.17	-77.26	-69.61	-13.00	-64.26	-7.65	Peak
2	210.90	-74.48	-68.44	-13.00	-61.48	-6.04	Peak
3	282.45	-74.17	-68.37	-13.00	-61.17	-5.80	Peak
4	423.20	-72.45	-69.20	-13.00	-59.45	-3.25	Peak
5	806.10	-66.89	-68.83	-13.00	-53.89	1.94	Peak
6	946.80	-62.96	-67.94	-13.00	-49.96	4.98	Peak
7 pp	3465.00	-52.87	-67.21	-13.00	-39.87	14.34	Peak

High Channel

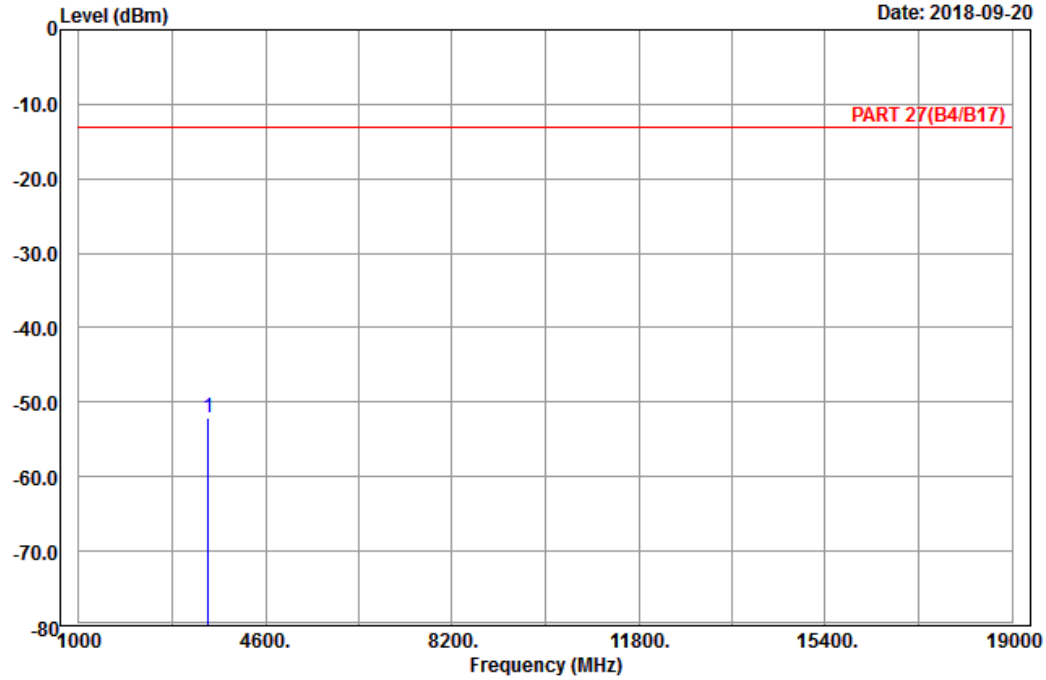


Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 9

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B4/B17) Horizontal
Remark : LTE_Band 4_Link_CH20300
Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3490.00	-52.10	-66.41	-13.00	-39.10	14.31	Peak

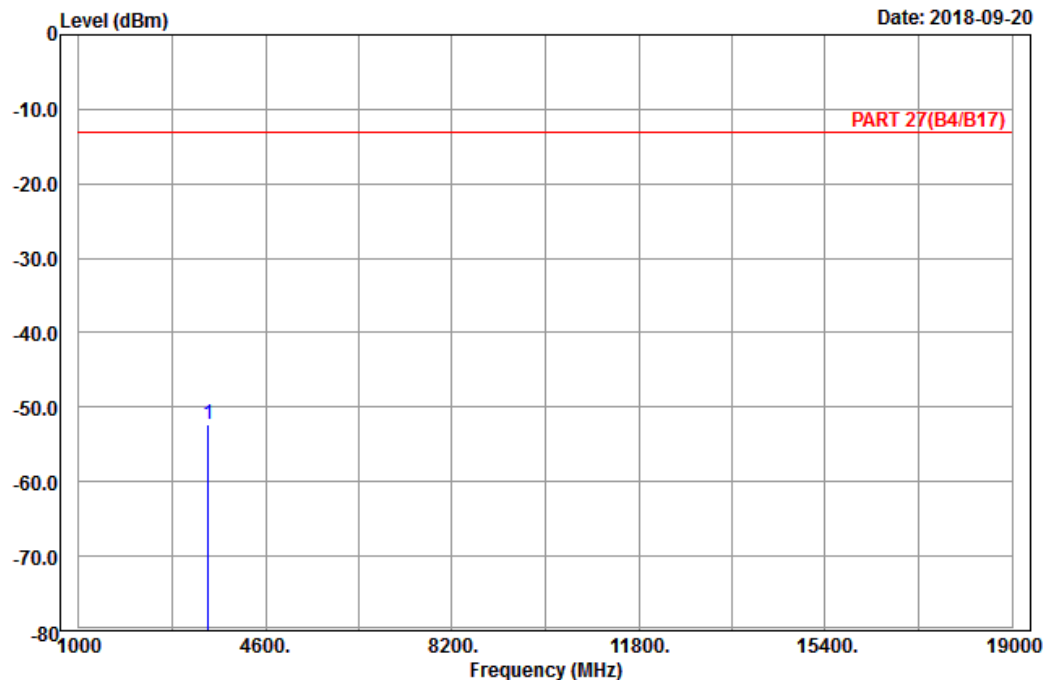


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B4/B17) Vertical
Remark : LTE_Band 4_Link_CH20300
Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3490.00	-52.34	-66.65	-13.00	-39.34	14.31	Peak

LTE Band 12
Channel Bandwidth: 1.4 MHz / QPSK
Low Channel

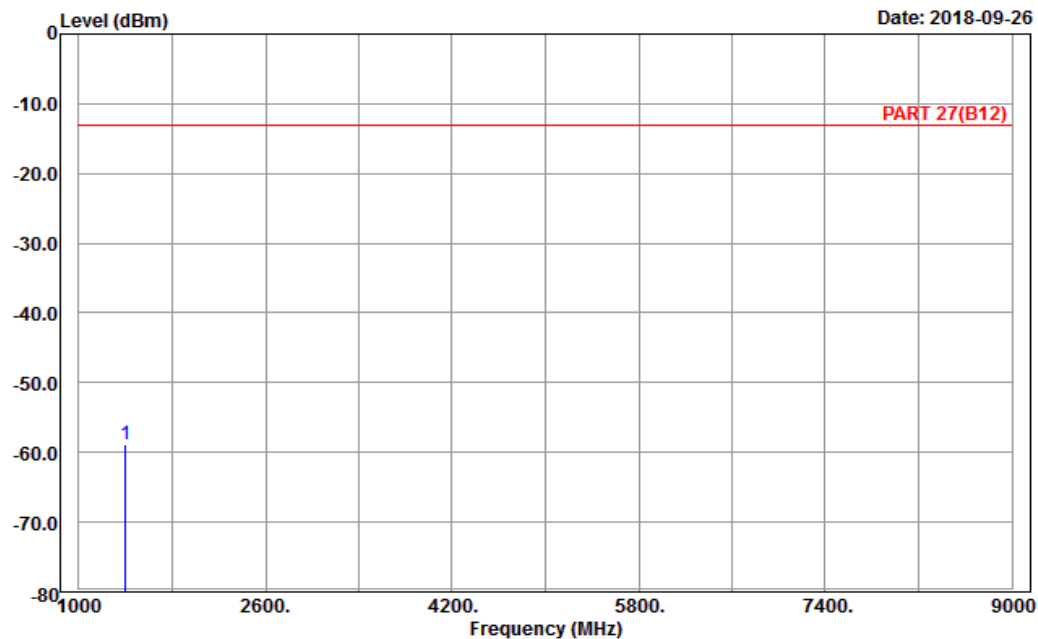


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5

Date: 2018-09-26



Site : 966 chamber 1
Condition: PART 27(B12) Horizontal
Remark : LTE_Band 12_Link_CH23017
Tested by: Karl Lee

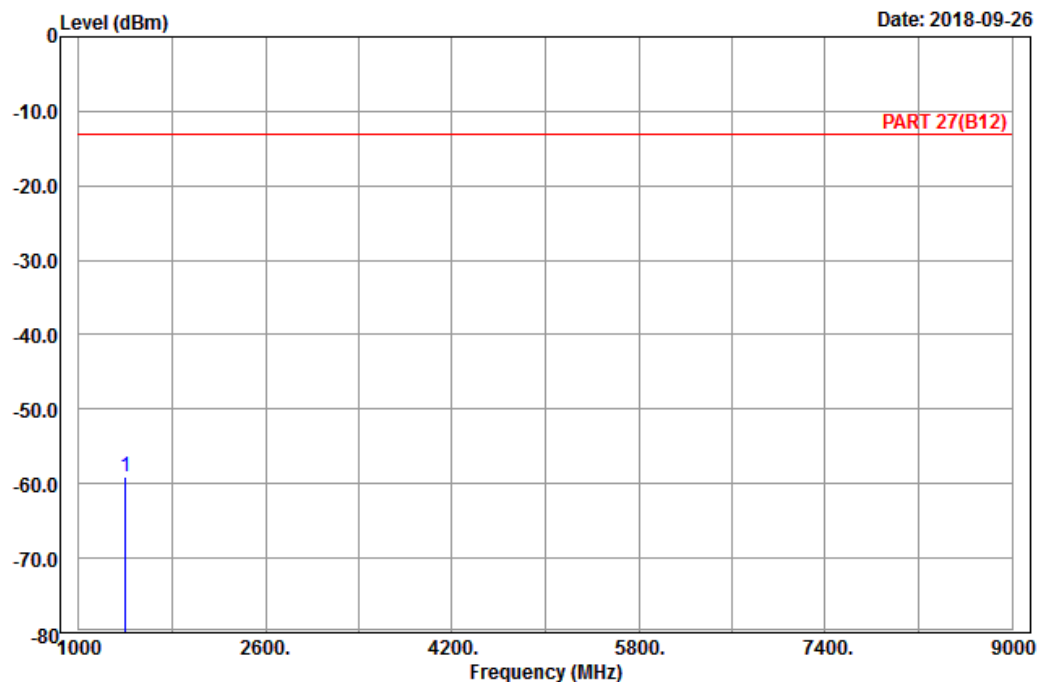
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1399.40	-58.81	-64.91	-13.00	-45.81	6.10	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6



Site : 966 chamber 1
 Condition: PART 27(B12) Vertical
 Remark : LTE_Band 12_Link_CH23017
 Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1399.40	-58.99	-65.09	-13.00	-45.99	6.10	Peak

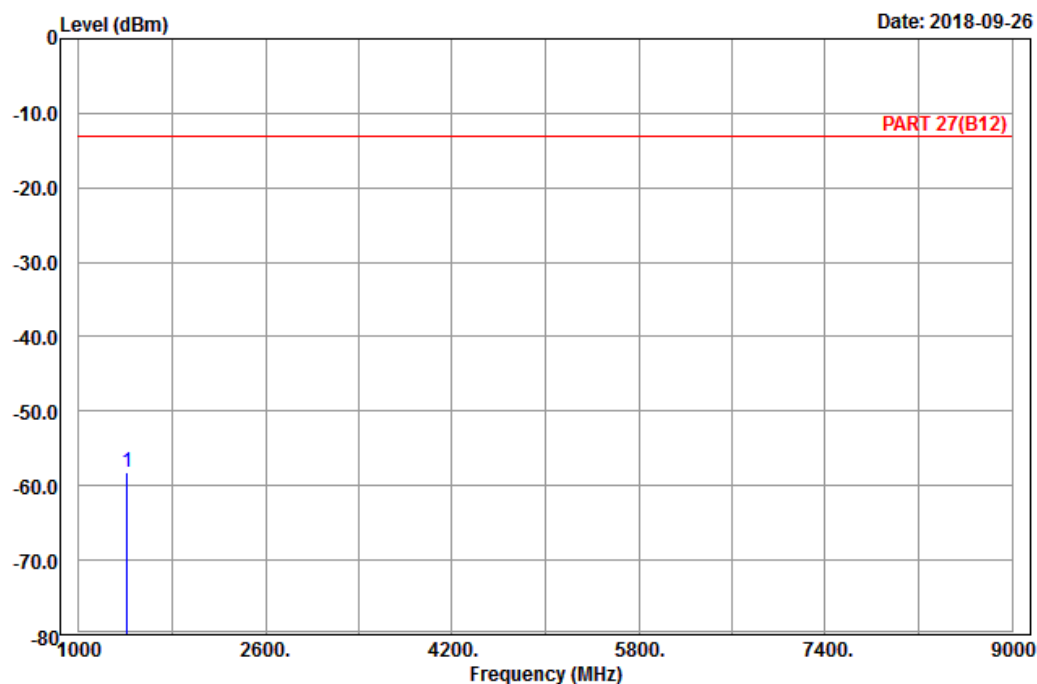
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5



Site : 966 chamber 1
Condition: PART 27(B12) Horizontal
Remark : LTE_Band 12_Link_CH23095
Tested by: Karl Lee

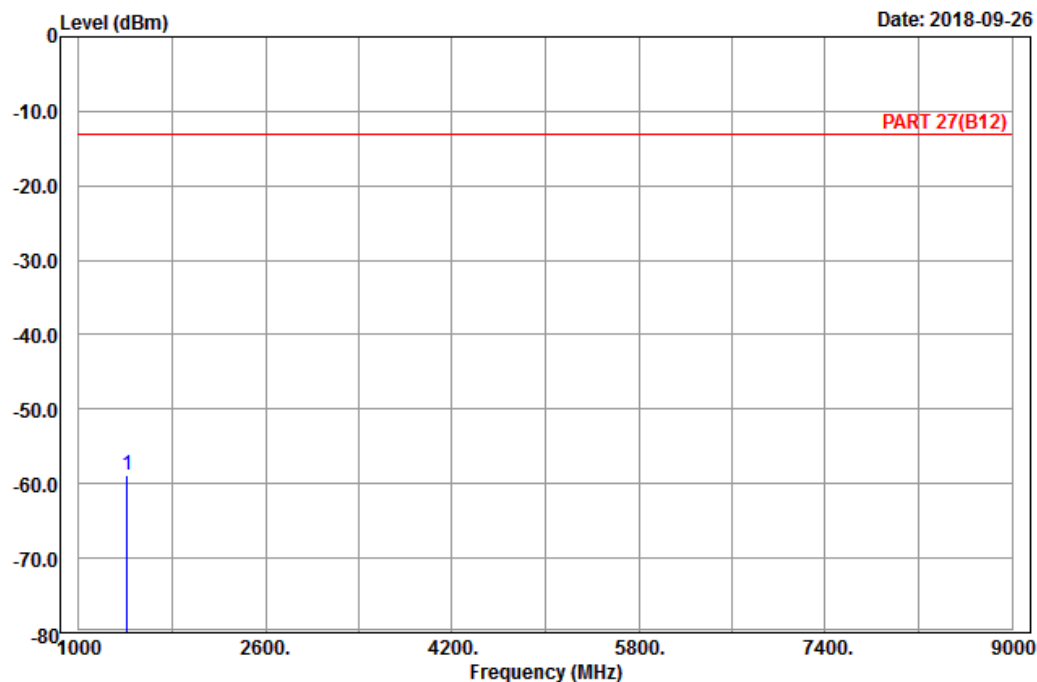
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1415.00	-58.17	-64.53	-13.00	-45.17	6.36	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6



Site : 966 chamber 1
 Condition: PART 27(B12) Vertical
 Remark : LTE_Band 12_Link_CH23095
 Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1415.00	-58.90	-65.26	-13.00	-45.90	6.36	Peak

High Channel

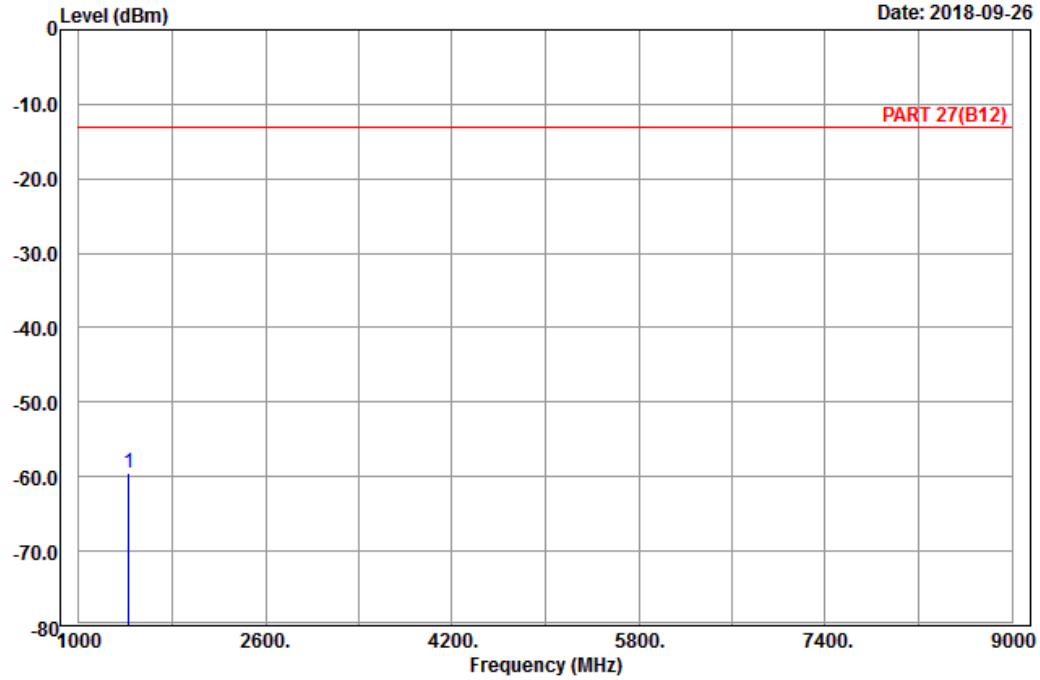


Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 5

Date: 2018-09-26



Site : 966 chamber 1
Condition: PART 27(B12) Horizontal
Remark : LTE_Band 12_Link_CH23173
Tested by: Karl Lee

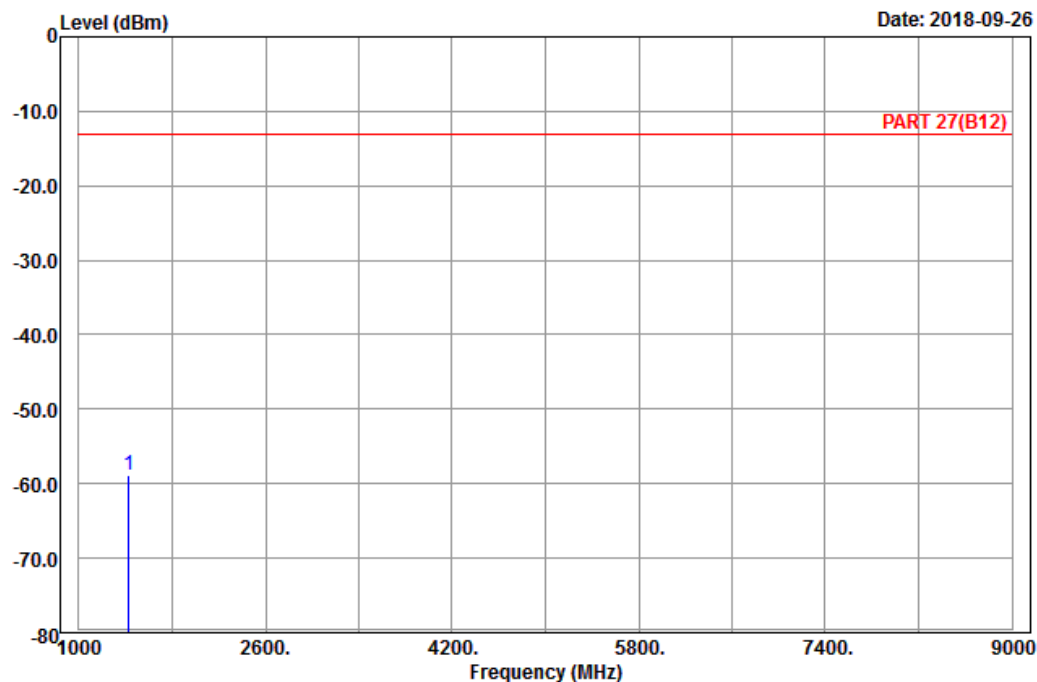
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1430.60	-59.51	-65.75	-13.00	-46.51	6.24	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6



Site : 966 chamber 1
 Condition: PART 27(B12) Vertical
 Remark : LTE_Band 12_Link_CH23173
 Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1430.60	-58.79	-65.03	-13.00	-45.79	6.24	Peak

Channel Bandwidth: 5 MHz / QPSK
Low Channel

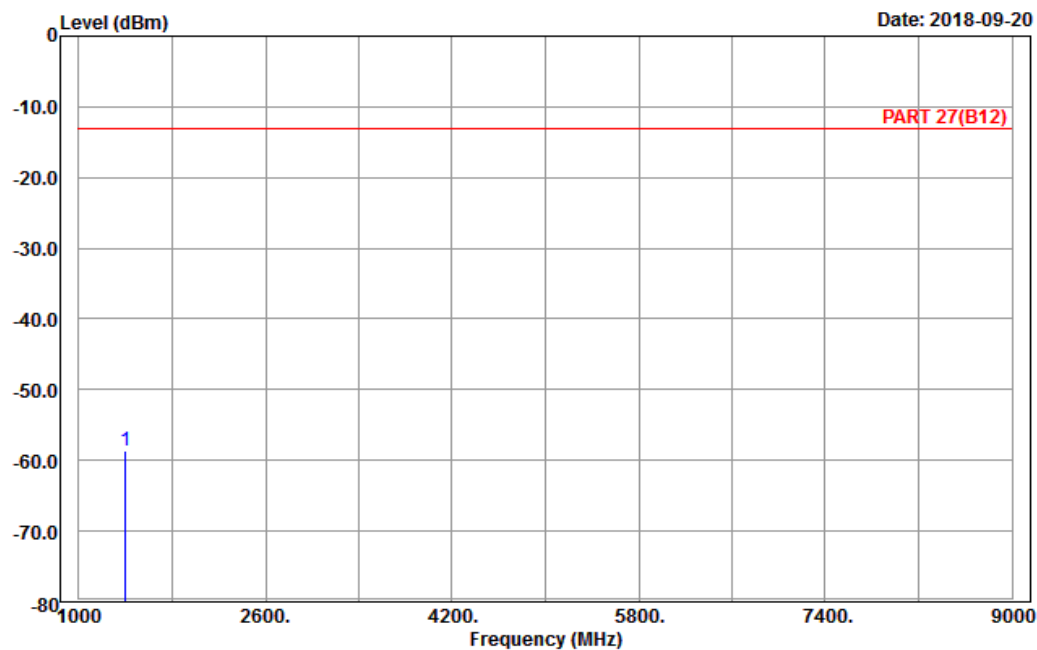


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B12) Horizontal
Remark : LTE_Band 12_Link_CH23035
Tested by: Harry Hsueh

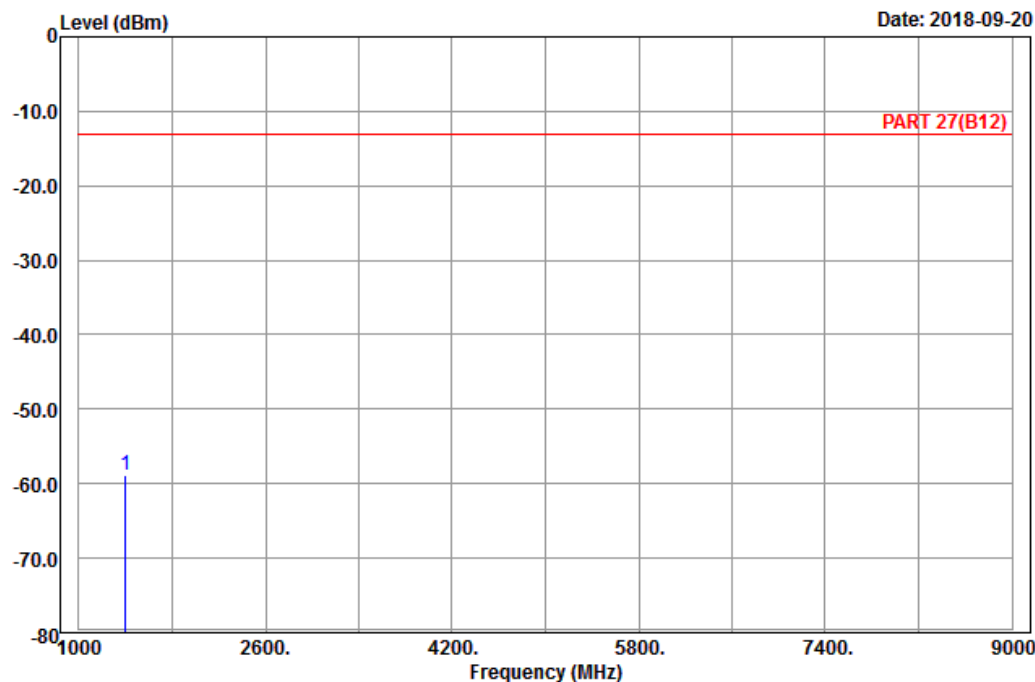
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1403.00	-58.68	-64.78	-13.00	-45.68	6.10	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6



Site : 966 chamber 1
Condition: PART 27(B12) Vertical
Remark : LTE_Band 12_Link_CH23035
Tested by: Harry Hsueh

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1403.00	-58.89	-64.99	-13.00	-45.89	6.10	Peak

Middle Channel

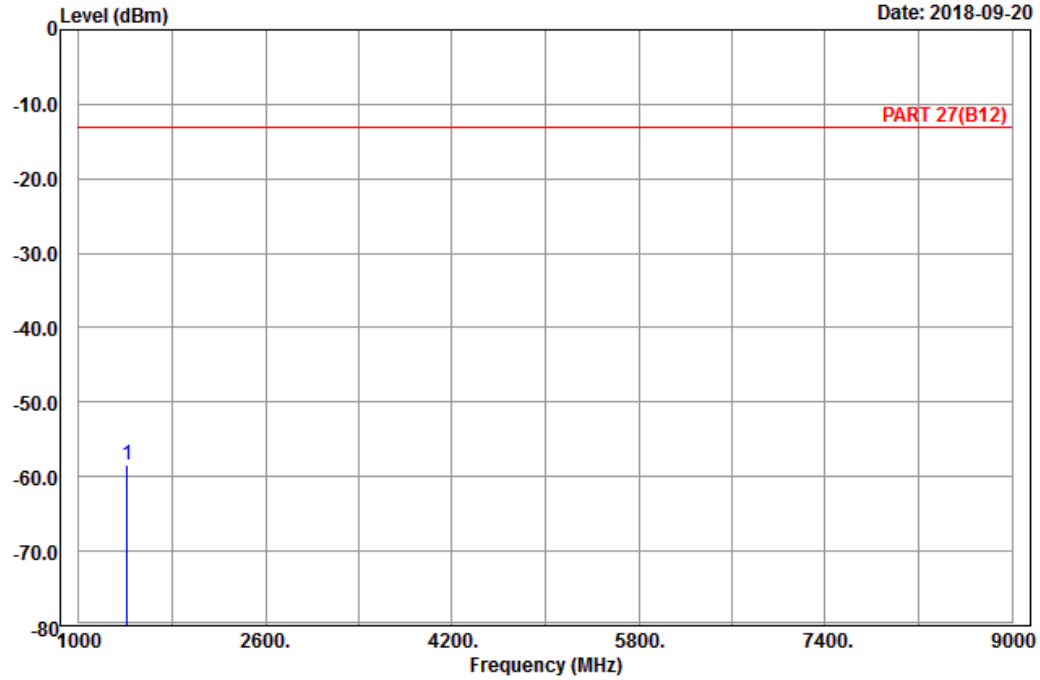


Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 5

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B12) Horizontal
Remark : LTE_Band 12_Link_CH23095
Tested by: Harry Hsueh

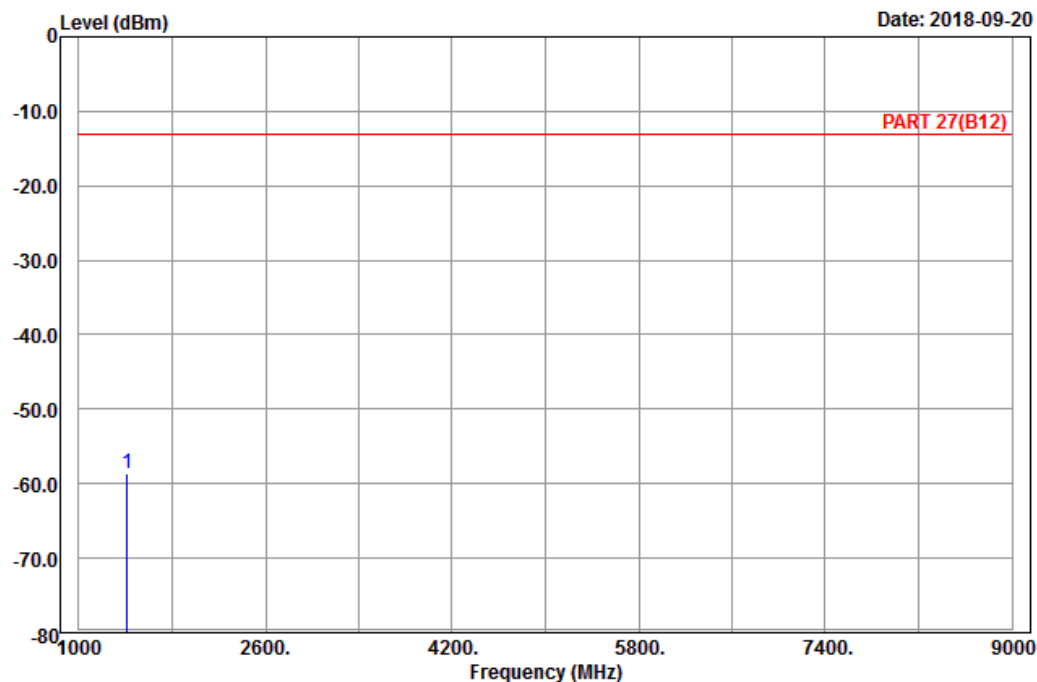
			Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark	
MHz	dBm	dBm	dBm	dB	dB		
1 pp 1415.00	-58.38	-64.74	-13.00	-45.38	6.36	Peak	



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6



Site : 966 chamber 1
 Condition: PART 27(B12) Vertical
 Remark : LTE_Band 12_Link_CH23095
 Tested by: Harry Hsueh

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1415.00	-58.67	-65.03	-13.00	-45.67	6.36	Peak

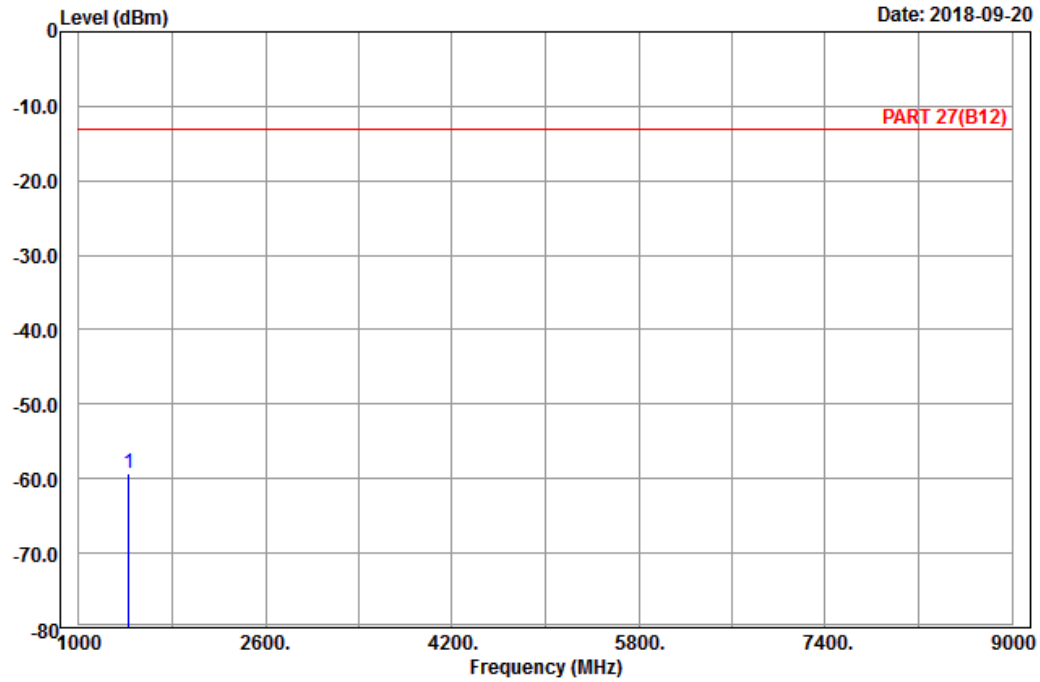
High Channel



Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 5



Site : 966 chamber 1
Condition: PART 27(B12) Horizontal
Remark : LTE_Band 12_Link_CH23155
Tested by: Harry Hsueh

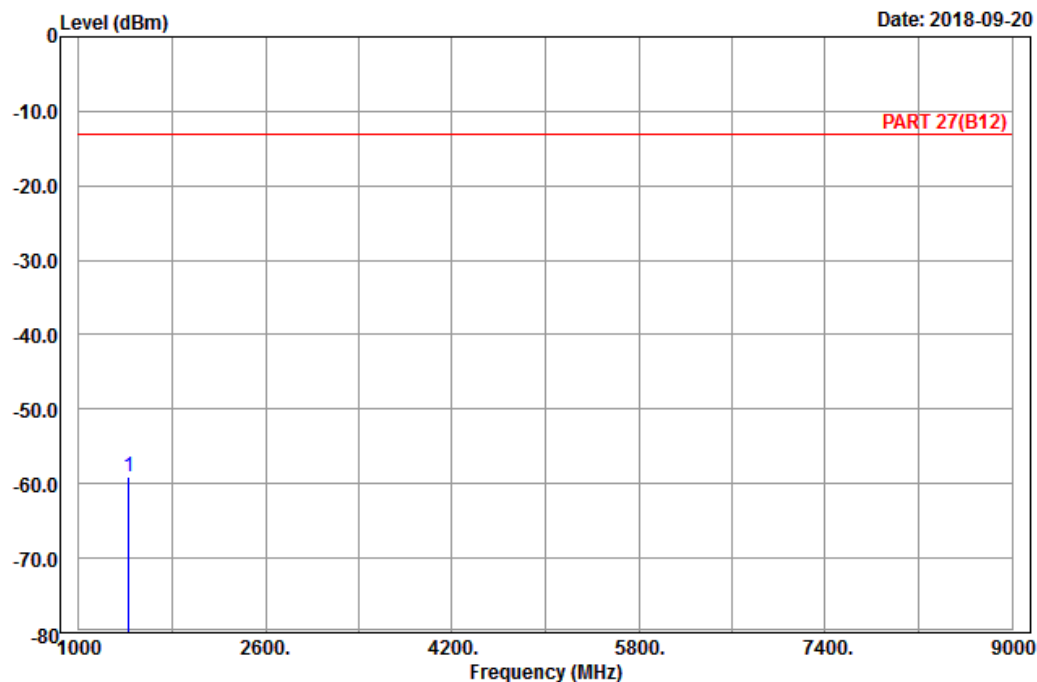
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1427.00	-59.19	-65.43	-13.00	-46.19	6.24	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6



Site : 966 chamber 1
 Condition: PART 27(B12) Vertical
 Remark : LTE_Band 12_Link_CH23155
 Tested by: Harry Hsueh

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1427.00	-58.99	-65.23	-13.00	-45.99	6.24	Peak

Channel Bandwidth: 10 MHz / QPSK
Low Channel

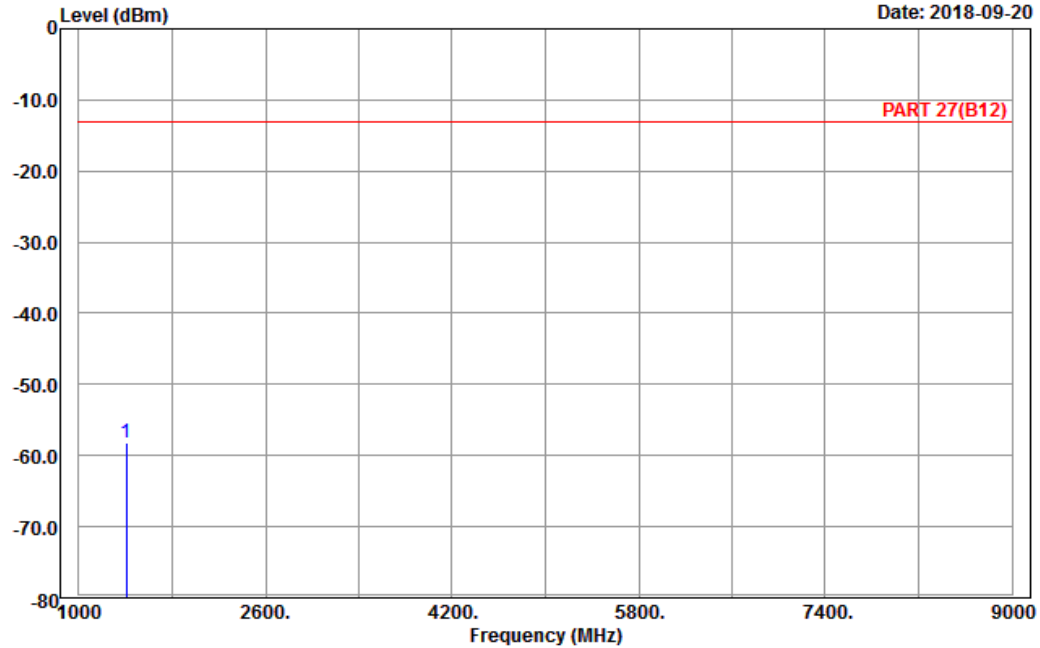


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B12) Horizontal
Remark : LTE_Band 12_Link_CH23060
Tested by: Harry Hsueh

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1408.00	-58.16	-64.52	-13.00	-45.16	6.36	Peak

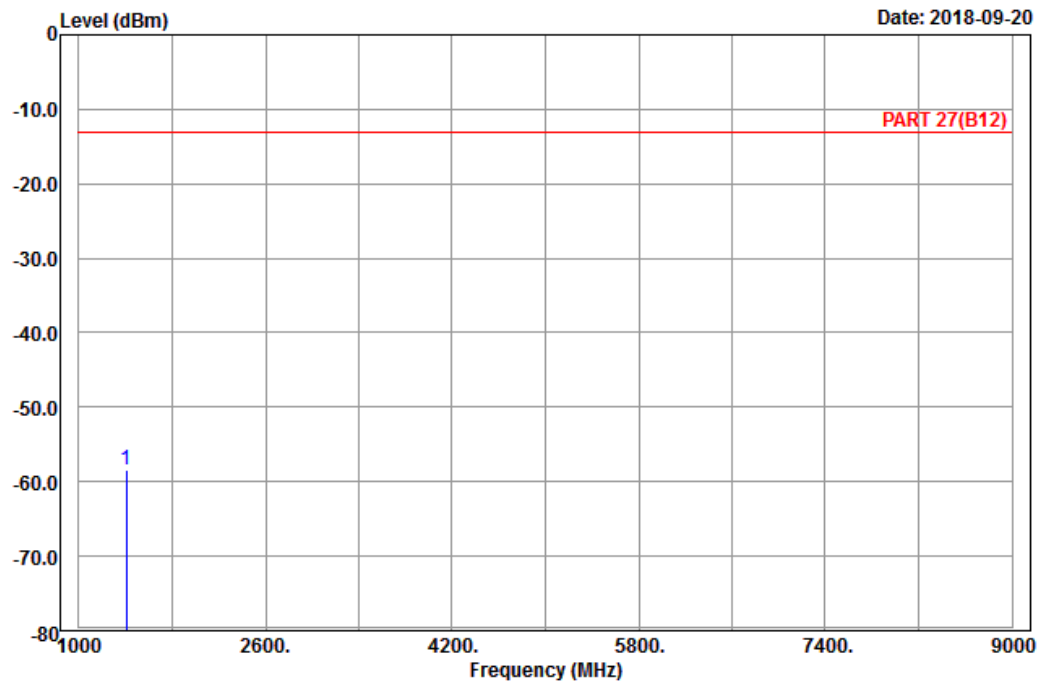


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B12) Vertical
Remark : LTE_Band 12_Link_CH23060
Tested by: Harry Hsueh

			Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark	
MHz	dBm	dBm	dBm	dB	dB		
1 pp 1408.00	-58.46	-64.82	-13.00	-45.46	6.36	Peak	

Middle Channel

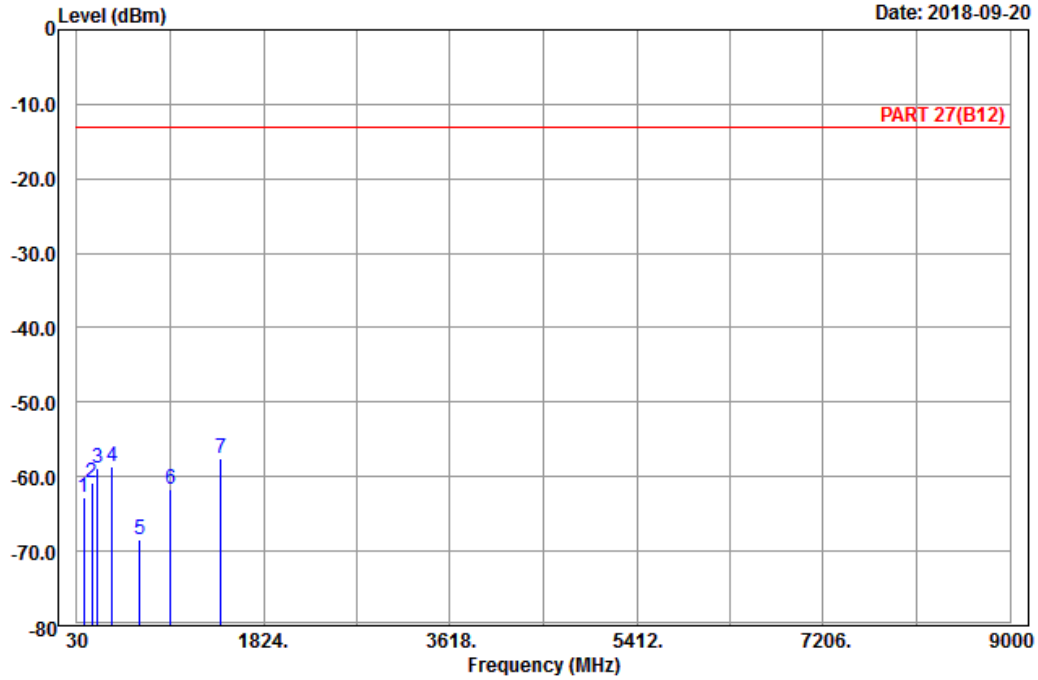


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B12) Horizontal
Remark : LTE_Band 12_Link_CH23095
Tested by: Harry Hsueh

		Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark	
MHz	dBm	dBm	dBm	dB	dB		
1	96.96	-62.76	-52.47	-13.00	-49.76	-10.29	Peak
2	174.18	-60.71	-54.52	-13.00	-47.71	-6.19	Peak
3	225.75	-58.88	-53.05	-13.00	-45.88	-5.83	Peak
4	372.80	-58.66	-54.47	-13.00	-45.66	-4.19	Peak
5	631.10	-68.40	-68.47	-13.00	-55.40	0.07	Peak
6	934.20	-61.75	-66.16	-13.00	-48.75	4.41	Peak
7 pp	1415.00	-57.56	-63.92	-13.00	-44.56	6.36	Peak

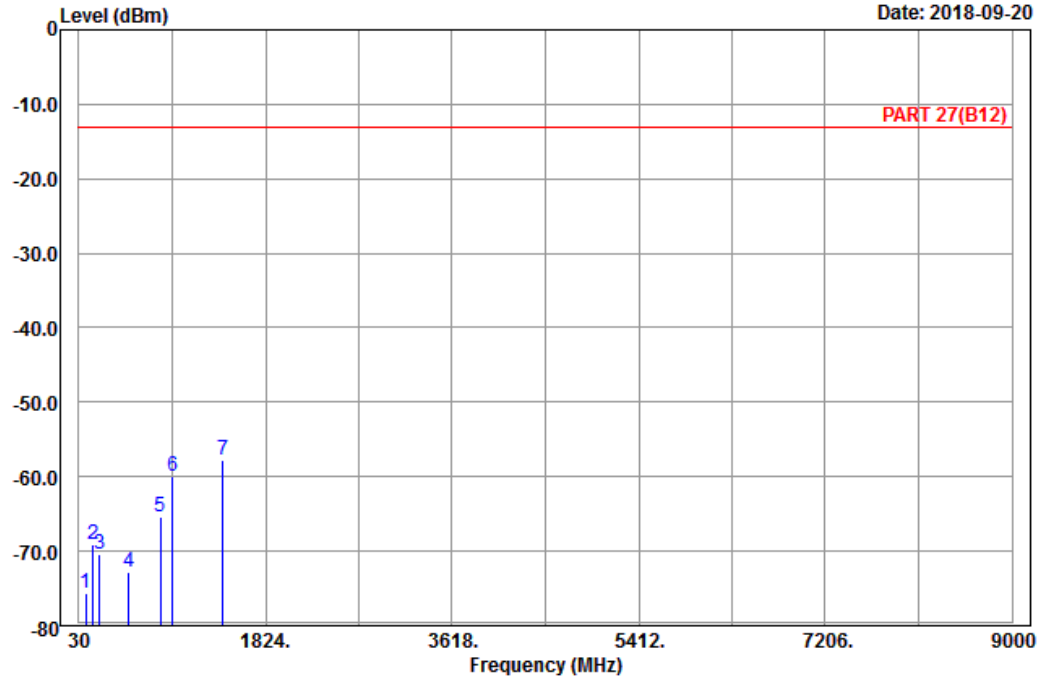


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B12) Vertical
Remark : LTE_Band 12_Link_CH23095
Tested by: Harry Hsueh

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	95.07	-75.56	-65.16	-13.00	-62.56	-10.40	Peak
2	166.89	-69.20	-62.21	-13.00	-56.20	-6.99	Peak
3	226.02	-70.34	-64.51	-13.00	-57.34	-5.83	Peak
4	513.50	-72.70	-68.34	-13.00	-59.70	-4.36	Peak
5	811.70	-65.49	-67.37	-13.00	-52.49	1.88	Peak
6	934.20	-60.01	-64.42	-13.00	-47.01	4.41	Peak
7 pp	1415.00	-57.67	-64.03	-13.00	-44.67	6.36	Peak

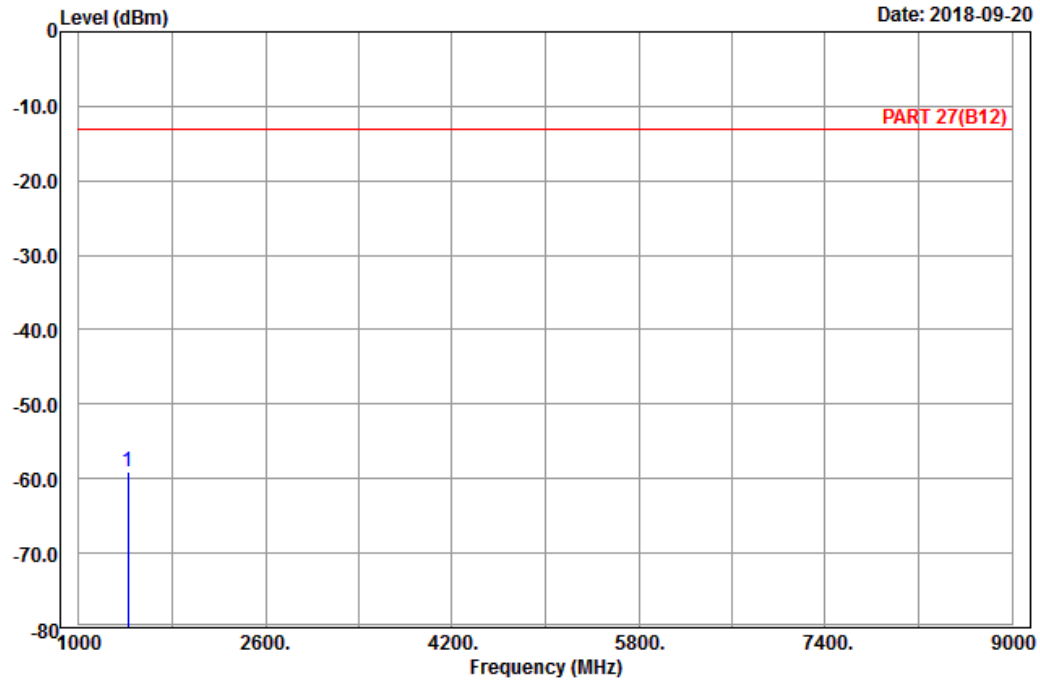
High Channel



Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 5



Site : 966 chamber 1
Condition: PART 27(B12) Horizontal
Remark : LTE_Band 12_Link_CH23130
Tested by: Harry Hsueh

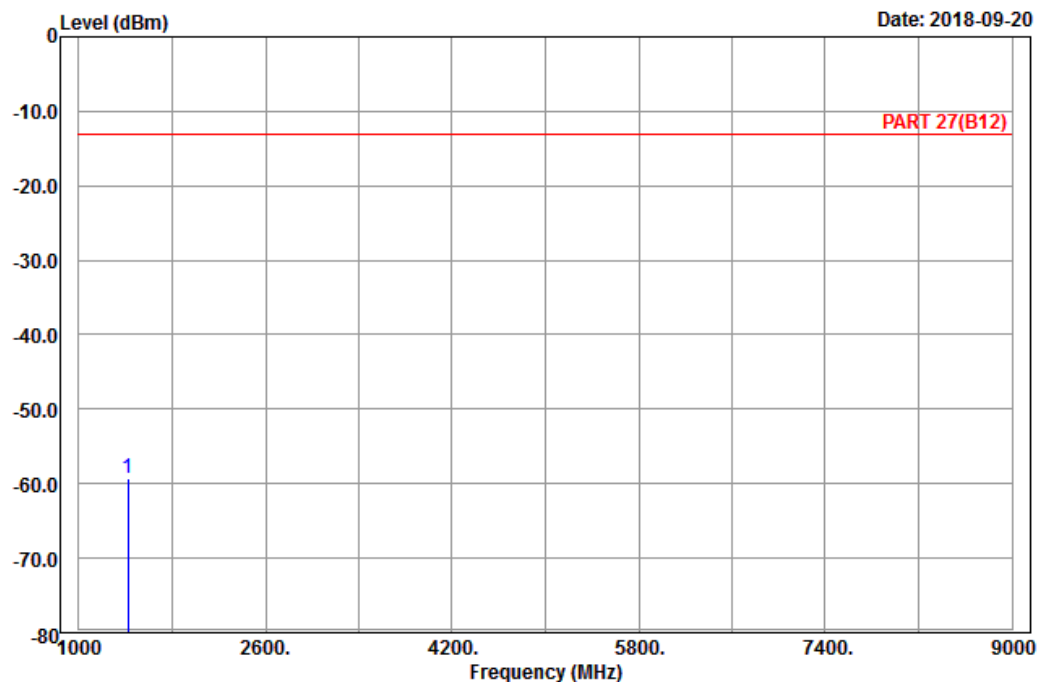
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1422.00	-59.01	-65.37	-13.00	-46.01	6.36	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6



Site : 966 chamber 1
 Condition: PART 27(B12) Vertical
 Remark : LTE_Band 12_Link_CH23130
 Tested by: Harry Hsueh

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1422.00	-59.22	-65.58	-13.00	-46.22	6.36	Peak

LTE Band 13
Channel Bandwidth: 5 MHz / QPSK
Low Channel

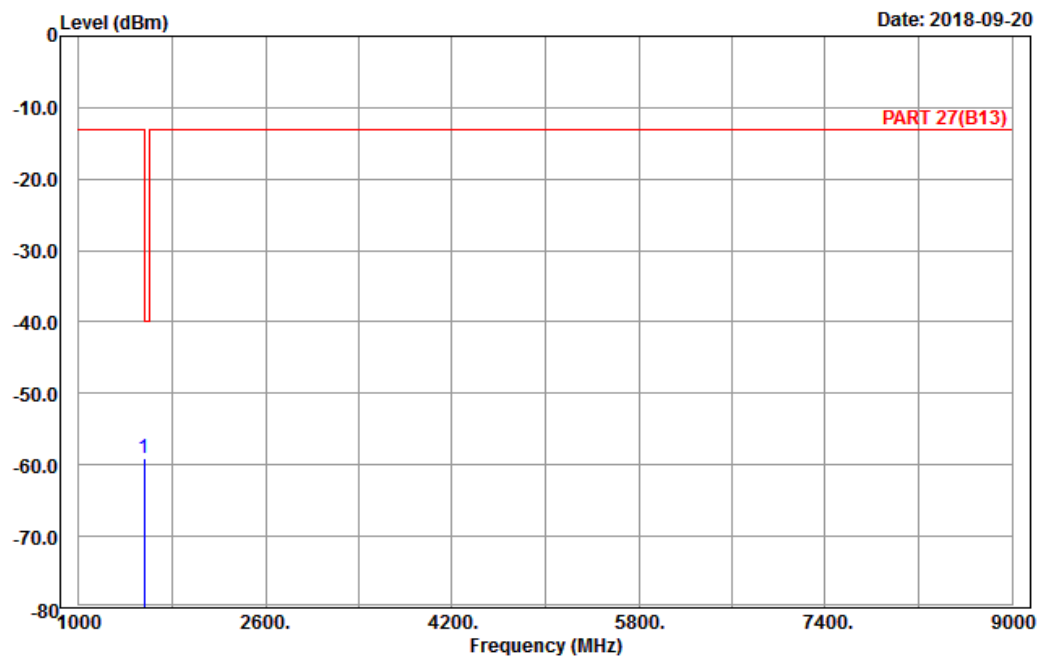


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B13) Horizontal
Remark : LTE_Band 13_Link_CH23205
Tested by: Karl Lee

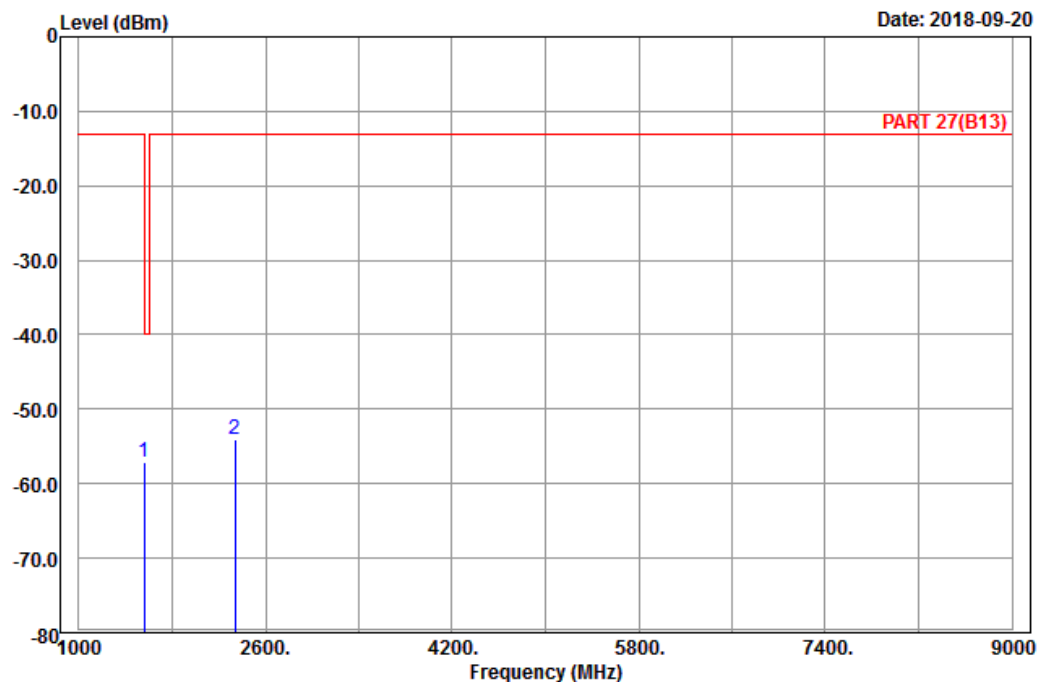
			Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark	
MHz	dBm	dBm	dBm	dB	dB		
1 pp 1559.00	-59.16	-66.02	-40.00	-19.16	6.86	Peak	



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6



Site : 966 chamber 1
 Condition: PART 27(B13) Vertical
 Remark : LTE_Band 13_Link_CH23205
 Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1559.00	-57.02	-63.88	-40.00	-17.02	6.86	Peak
2	2338.50	-54.11	-65.07	-13.00	-41.11	10.96	Peak

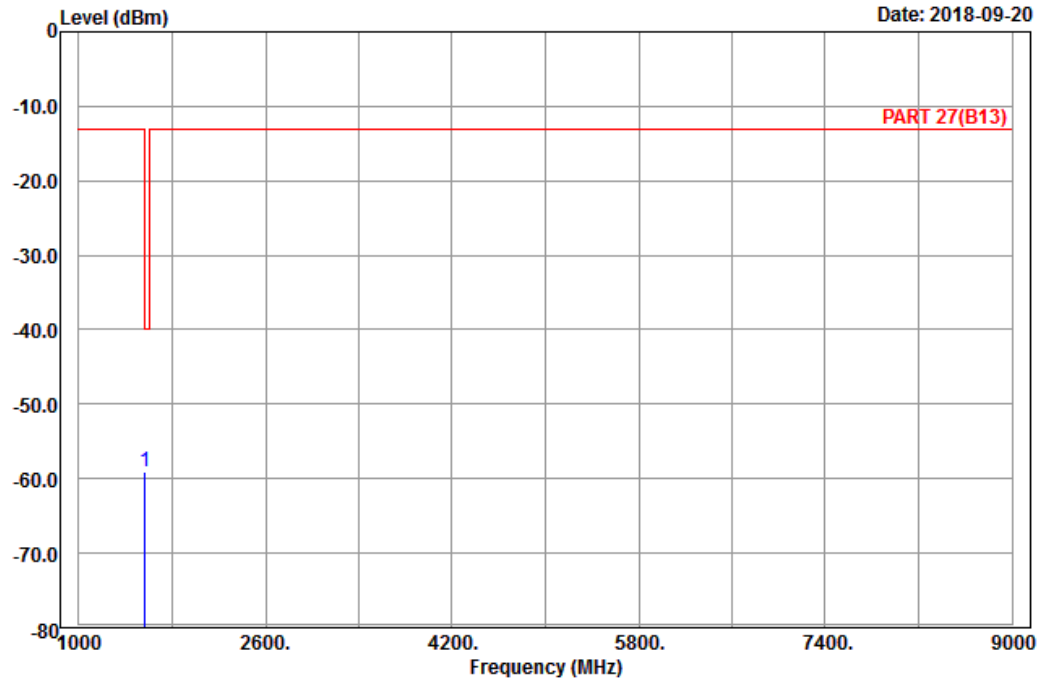
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 5



Site : 966 chamber 1
Condition: PART 27(B13) Horizontal
Remark : LTE_Band 13_Link_CH23230
Tested by: Karl Lee

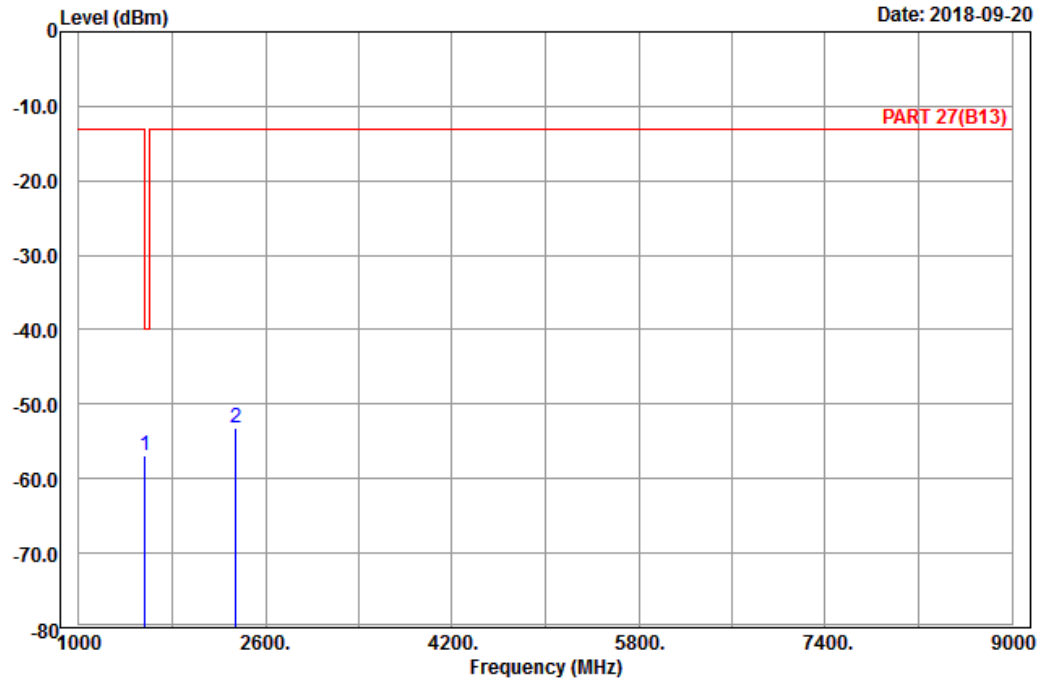
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1564.00	-59.11	-65.97	-40.00	-19.11	6.86	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6



Site : 966 chamber 1
 Condition: PART 27(B13) Vertical
 Remark : LTE_Band 13_Link_CH23230
 Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1564.00	-56.90	-63.76	-40.00	-16.90	6.86	Peak
2	2346.00	-53.11	-64.05	-13.00	-40.11	10.94	Peak

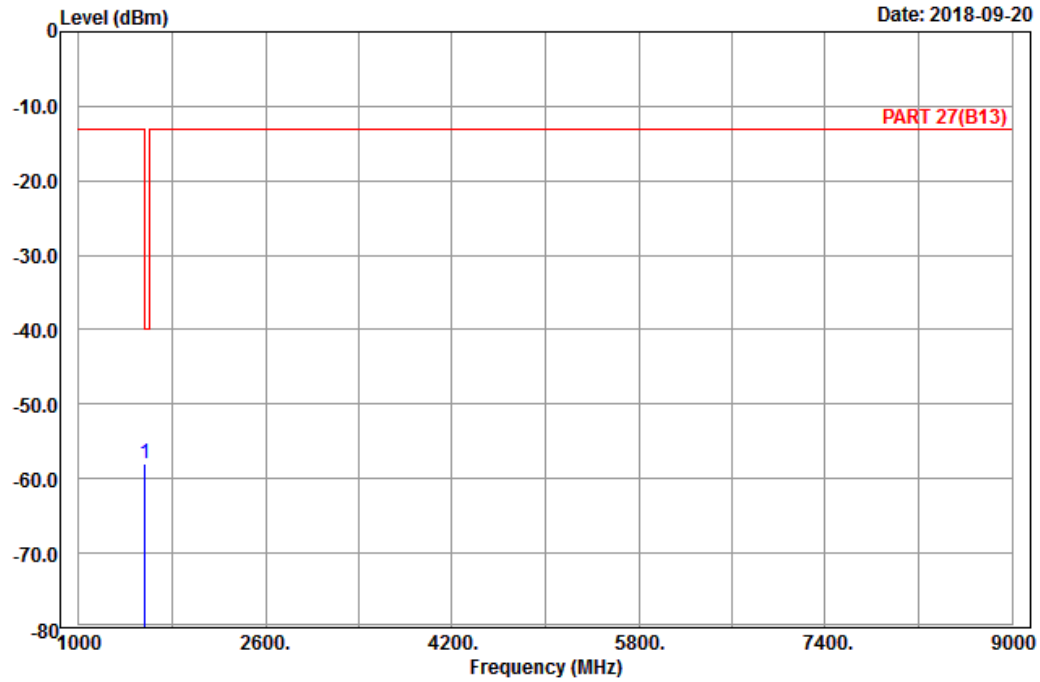
High Channel



Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 5



Site : 966 chamber 1
Condition: PART 27(B13) Horizontal
Remark : LTE_Band 13_Link_CH23255
Tested by: Karl Lee

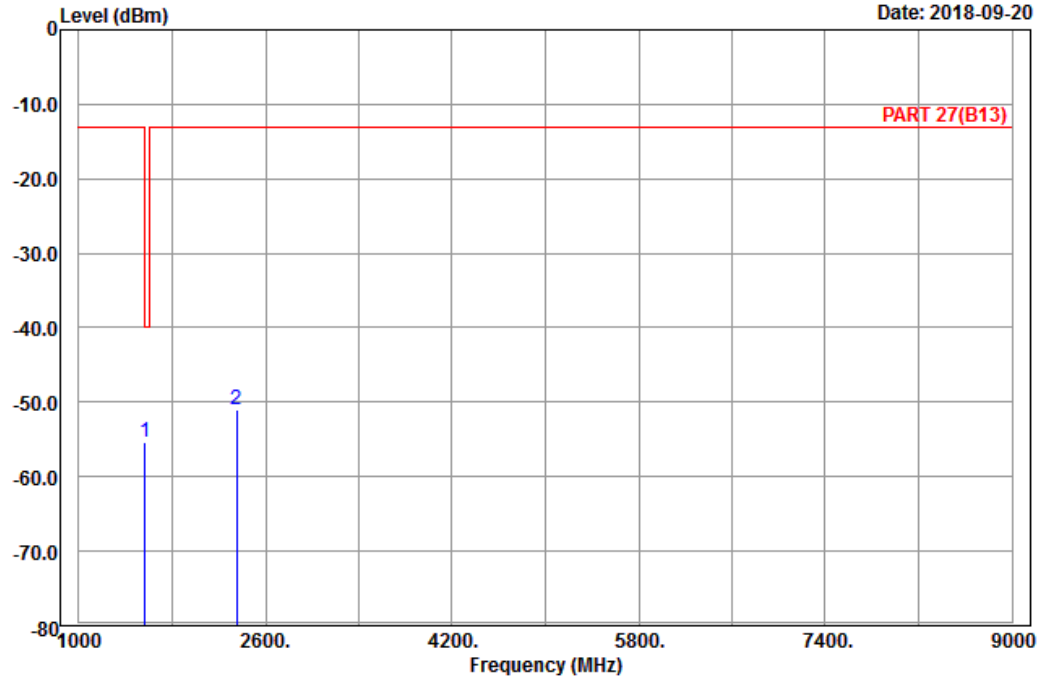
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 1569.00	-58.06	-65.10	-40.00	-18.06	7.04	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6



Site : 966 chamber 1
 Condition: PART 27(B13) Vertical
 Remark : LTE_Band 13_Link_CH23255
 Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1569.00	-55.36	-62.40	-40.00	-15.36	7.04	Peak
2	2353.50	-51.03	-61.97	-13.00	-38.03	10.94	Peak

Channel Bandwidth: 10 MHz / QPSK
Middle Channel

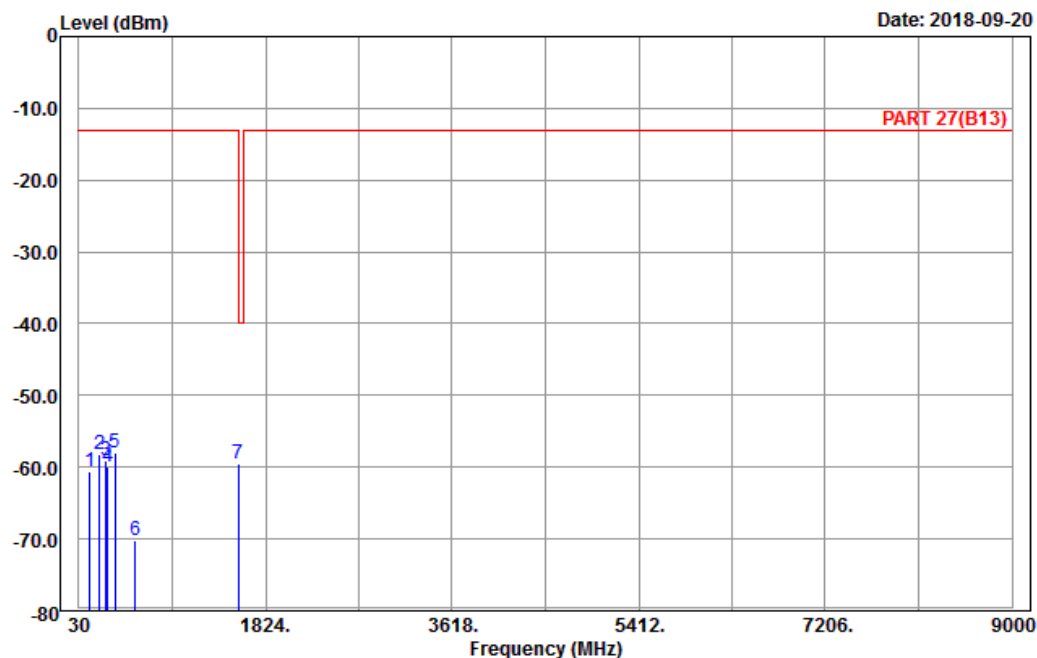


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2018-09-20



Site : 966 chamber 1
Condition: PART 27(B13) Horizontal
Remark : LTE_Band 13_Link_CH23230
Tested by: Karl Lee

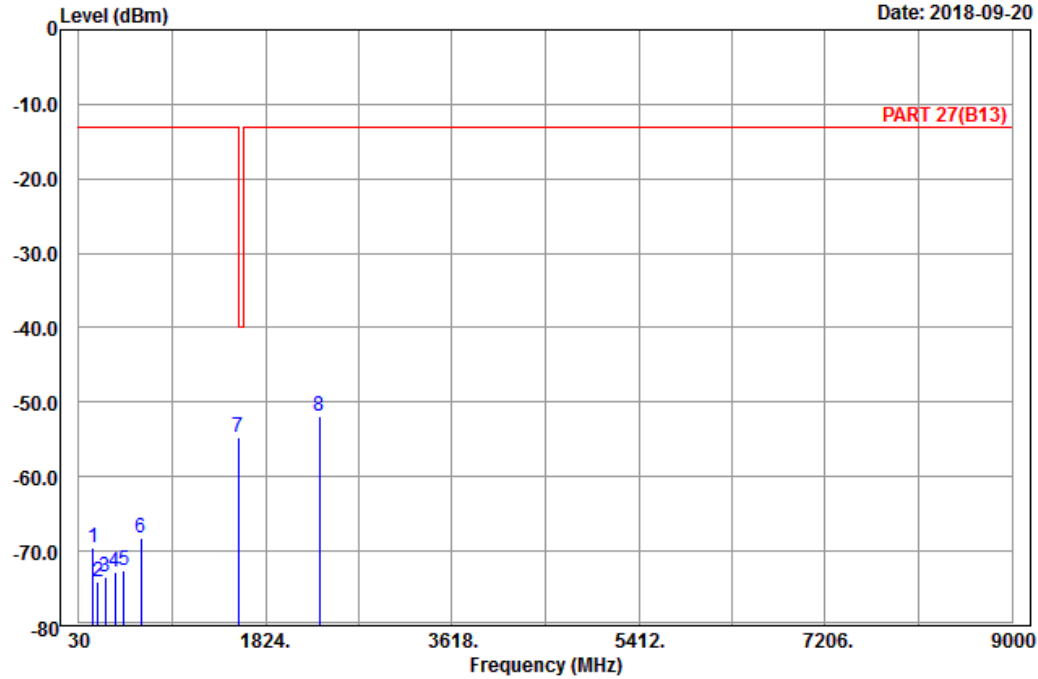
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	135.30	-60.58	-52.91	-13.00	-47.58	-7.67	Peak
2	229.26	-58.12	-52.33	-13.00	-45.12	-5.79	Peak
3	291.63	-59.08	-53.19	-13.00	-46.08	-5.89	Peak
4	304.90	-59.92	-54.02	-13.00	-46.92	-5.90	Peak
5	379.80	-58.07	-54.30	-13.00	-45.07	-3.77	Peak
6	573.70	-70.13	-69.47	-13.00	-57.13	-0.66	Peak
7 pp	1564.00	-59.57	-66.43	-40.00	-19.57	6.86	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10



Site : 966 chamber 1
Condition: PART 27(B13) Vertical
Remark : LTE_Band 13_Link_CH23230
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	168.24	-69.56	-62.76	-13.00	-56.56	-6.80	Peak
2	211.17	-74.22	-68.19	-13.00	-61.22	-6.03	Peak
3	285.15	-73.42	-67.59	-13.00	-60.42	-5.83	Peak
4	374.20	-72.82	-68.74	-13.00	-59.82	-4.08	Peak
5	460.30	-72.54	-68.39	-13.00	-59.54	-4.15	Peak
6	628.30	-68.14	-68.25	-13.00	-55.14	0.11	Peak
7 pp	1564.00	-54.79	-61.65	-40.00	-14.79	6.86	Peak
8	2346.00	-51.79	-62.73	-13.00	-38.79	10.94	Peak

LTE Band 66:
Channel Bandwidth: 1.4 MHz / QPSK
Low Channel

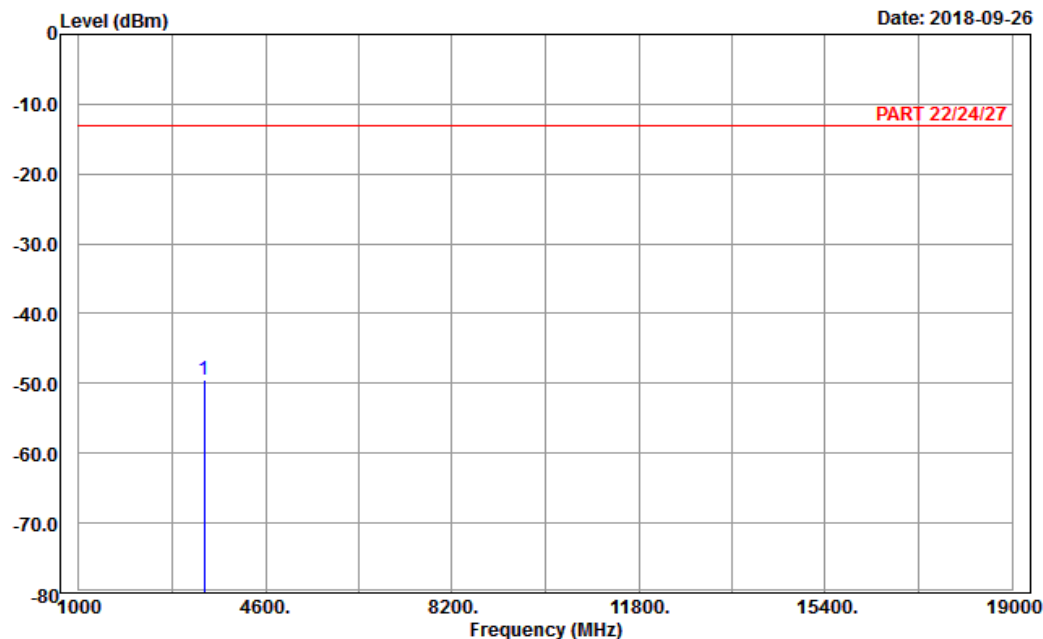


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2018-09-26



Site : 966 chamber 1
Condition: PART 22/24/27 Horizontal
Remark : LTE_Band 66_Link_CH131979
Tested by: Karl Lee

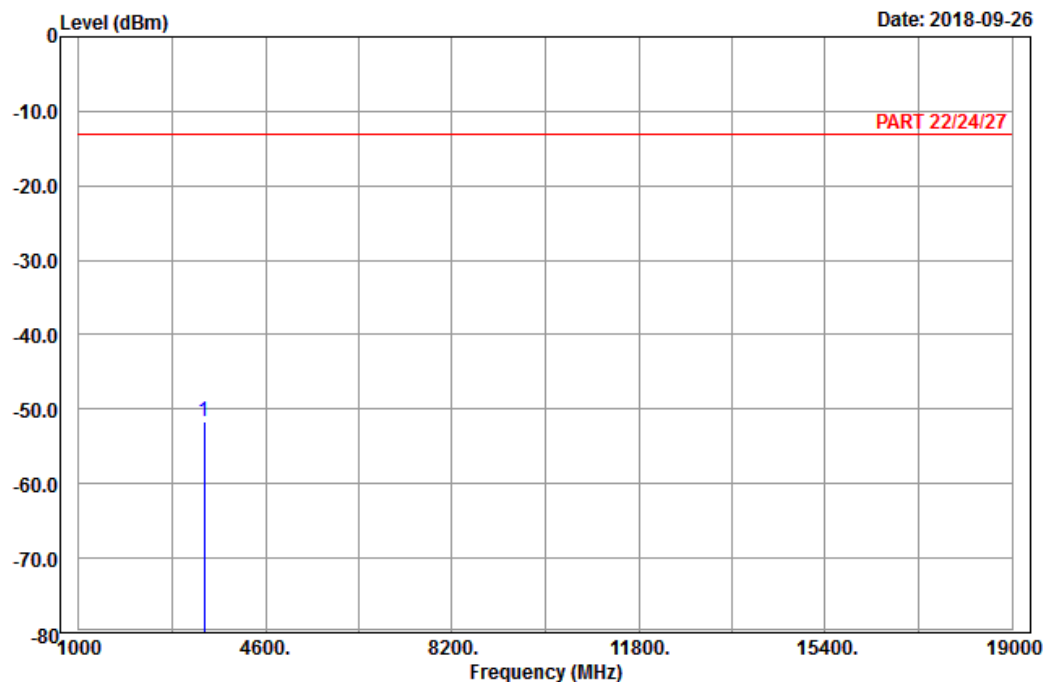
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3421.40	-49.59	-63.96	-13.00	-36.59	14.37	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10



Site : 966 chamber 1
 Condition: PART 22/24/27 Vertical
 Remark : LTE_Band 66_Link_CH131979
 Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3421.40	-51.64	-66.01	-13.00	-38.64	14.37	Peak

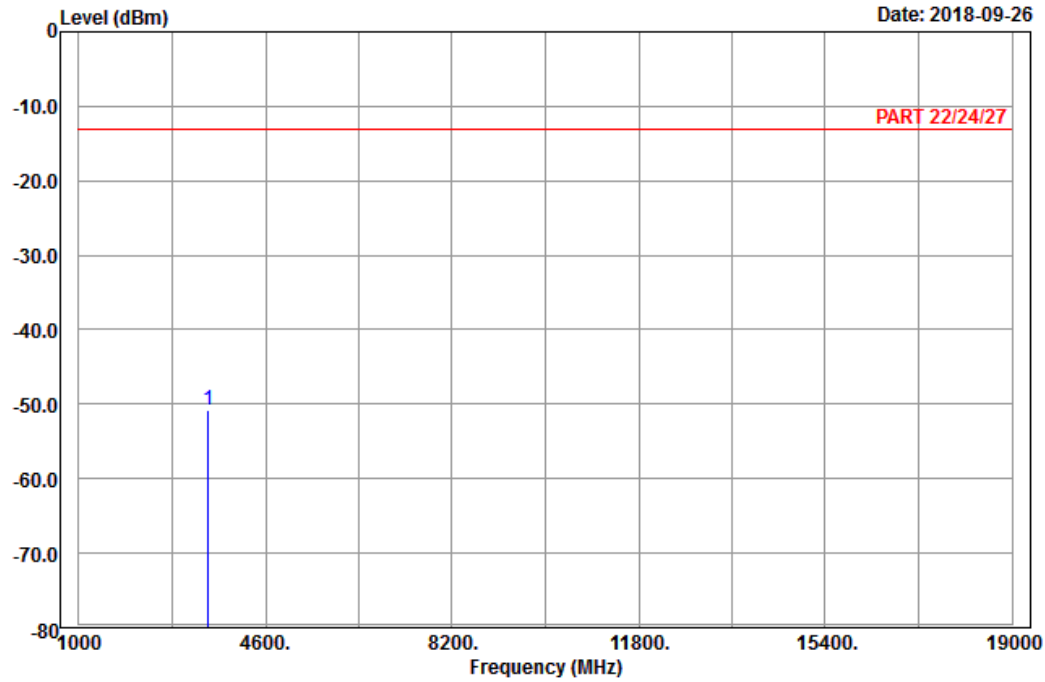
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9



Site : 966 chamber 1
Condition: PART 22/24/27 Horizontal
Remark : LTE_Band 66_Link_CH132322
Tested by: Karl Lee

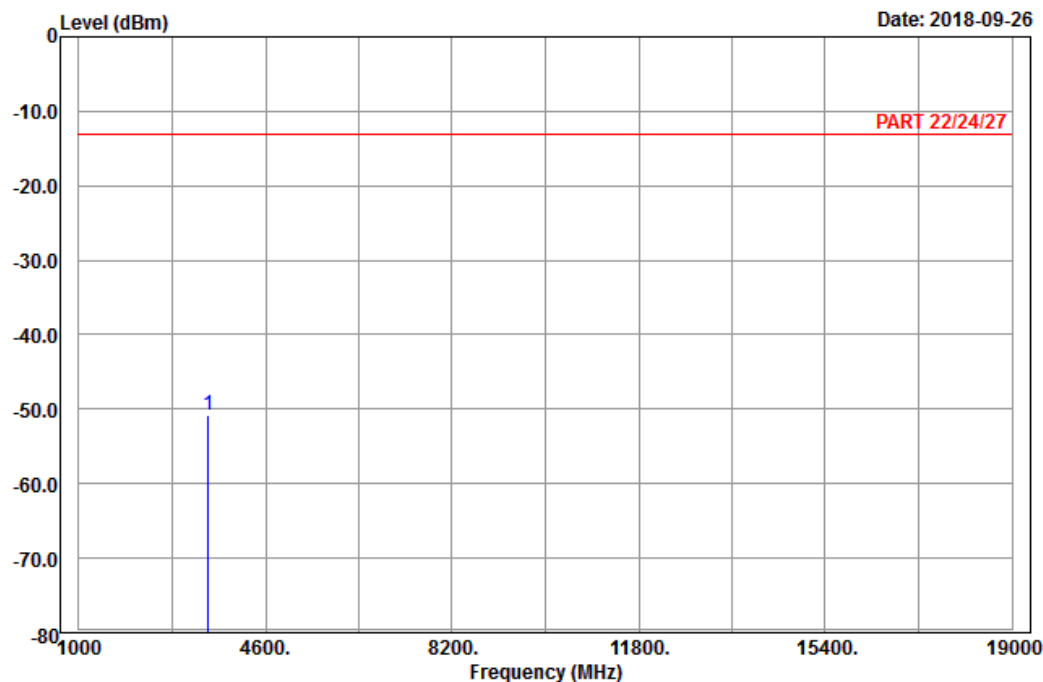
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3490.00	-50.70	-65.01	-13.00	-37.70	14.31	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10



Site : 966 chamber 1
 Condition: PART 22/24/27 Vertical
 Remark : LTE_Band 66_Link_CH132322
 Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3490.00	-50.87	-65.18	-13.00	-37.87	14.31	Peak

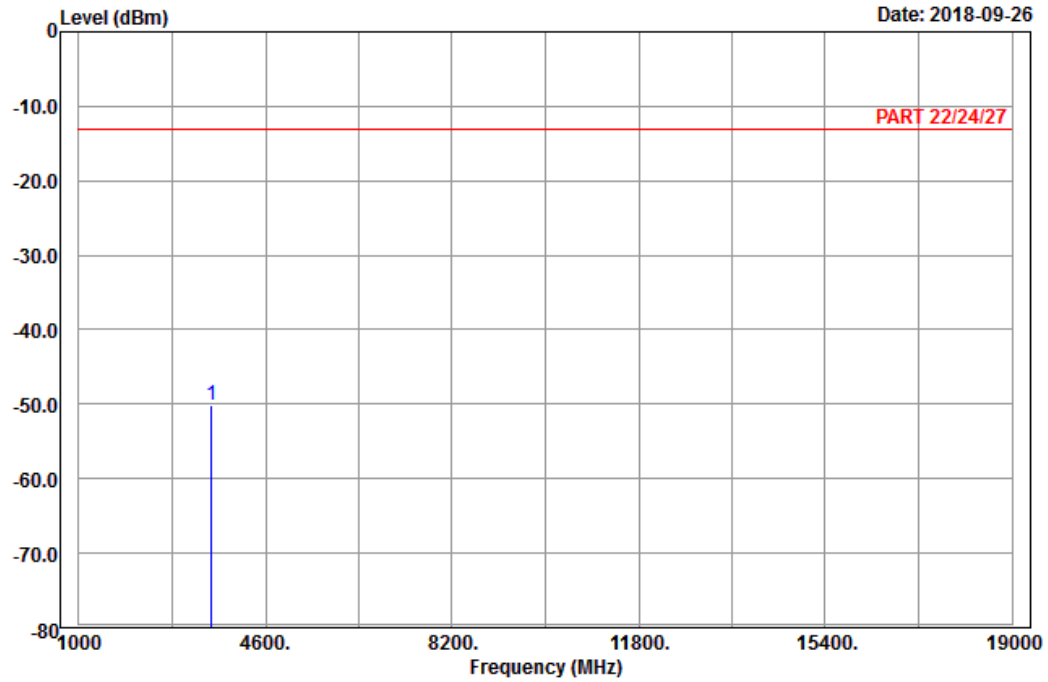
High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9



Site : 966 chamber 1
Condition: PART 22/24/27 Horizontal
Remark : LTE_Band 66_Link_CH132665
Tested by: Karl Lee

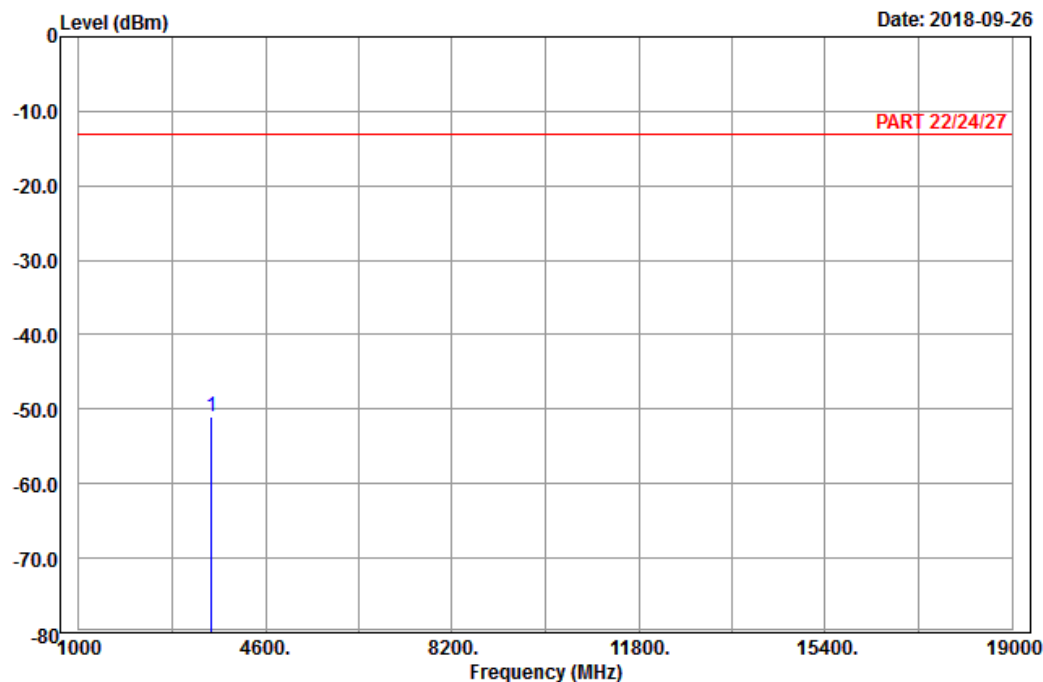
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3558.60	-50.20	-65.39	-13.00	-37.20	15.19	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10



Site : 966 chamber 1
 Condition: PART 22/24/27 Vertical
 Remark : LTE_Band 66_Link_CH132665
 Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3558.60	-51.06	-66.25	-13.00	-38.06	15.19	Peak

Channel Bandwidth: 5 MHz / QPSK
Low Channel

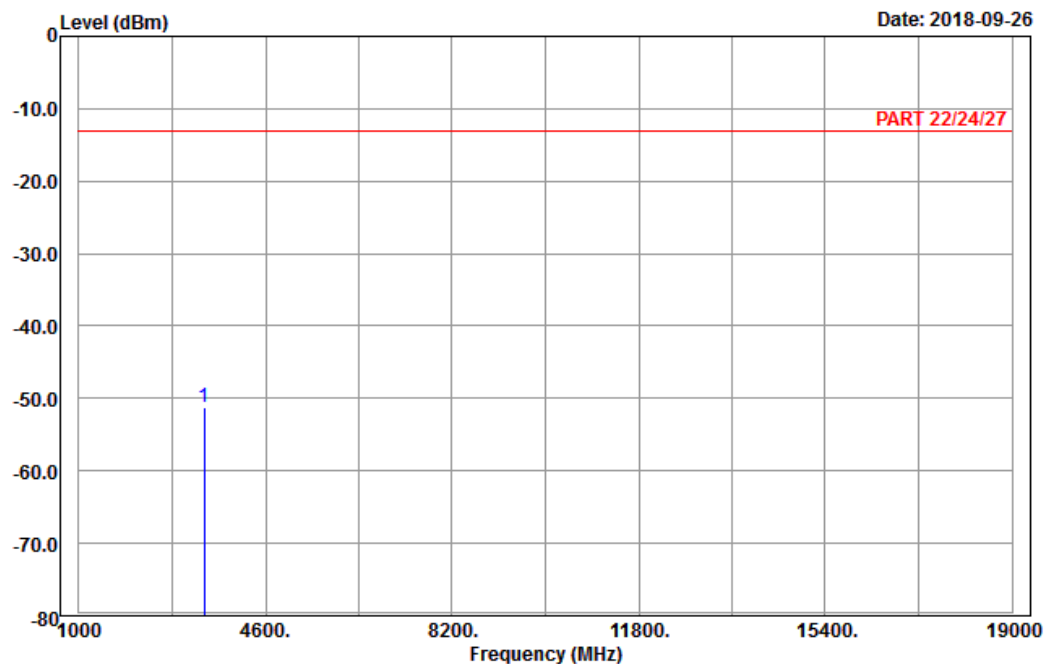


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2018-09-26



Site : 966 chamber 1
Condition: PART 22/24/27 Horizontal
Remark : LTE_Band 66_Link_CH131997
Tested by: Karl Lee

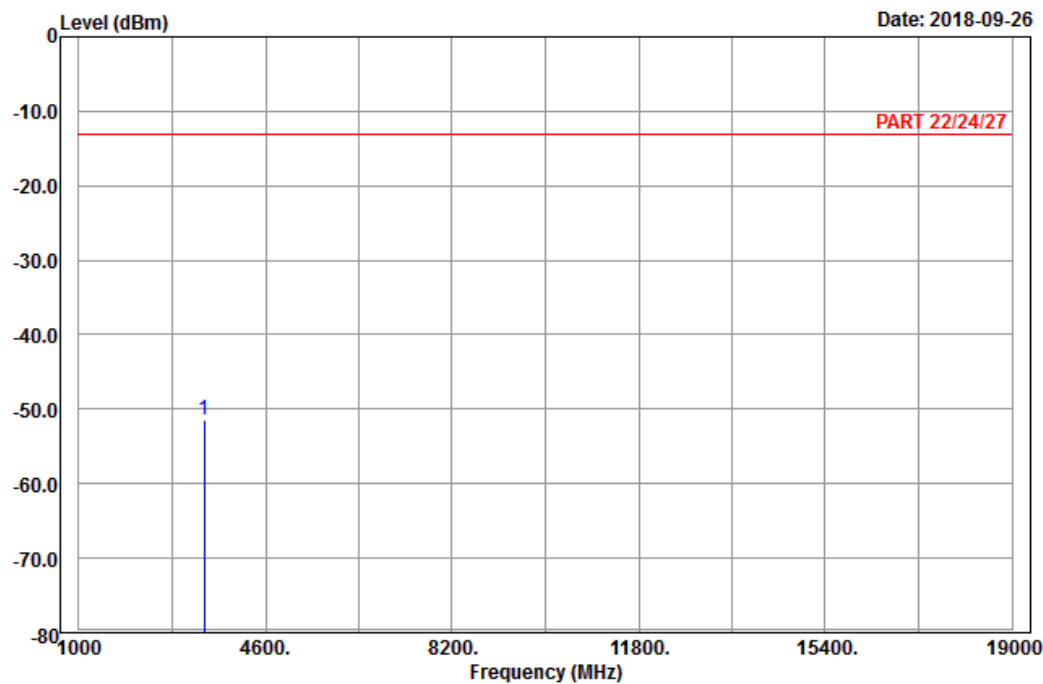
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3425.00	-51.22	-65.59	-13.00	-38.22	14.37	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10



Site : 966 chamber 1
 Condition: PART 22/24/27 Vertical
 Remark : LTE_Band 66_Link_CH131997
 Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3425.00	-51.47	-65.84	-13.00	-38.47	14.37	Peak

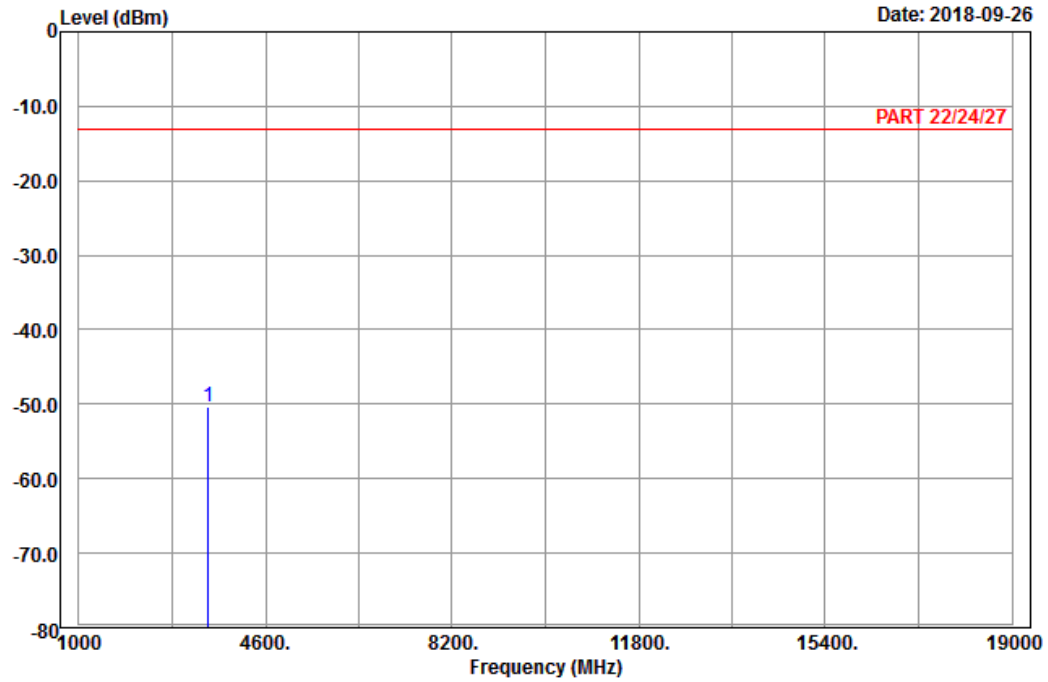
Middle Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9



Site : 966 chamber 1
 Condition: PART 22/24/27 Horizontal
 Remark : LTE_Band 66_Link_CH132322
 Tested by: Karl Lee

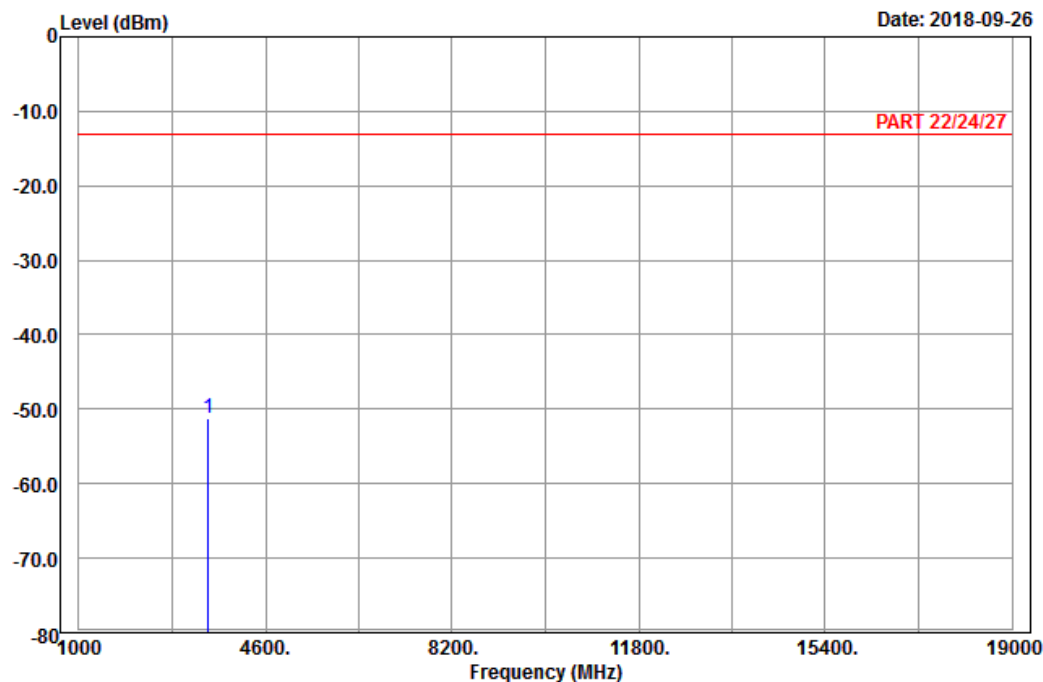
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3490.00	-50.38	-64.69	-13.00	-37.38	14.31	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10



Site : 966 chamber 1
 Condition: PART 22/24/27 Vertical
 Remark : LTE_Band 66_Link_CH132322
 Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3490.00	-51.33	-65.64	-13.00	-38.33	14.31	Peak

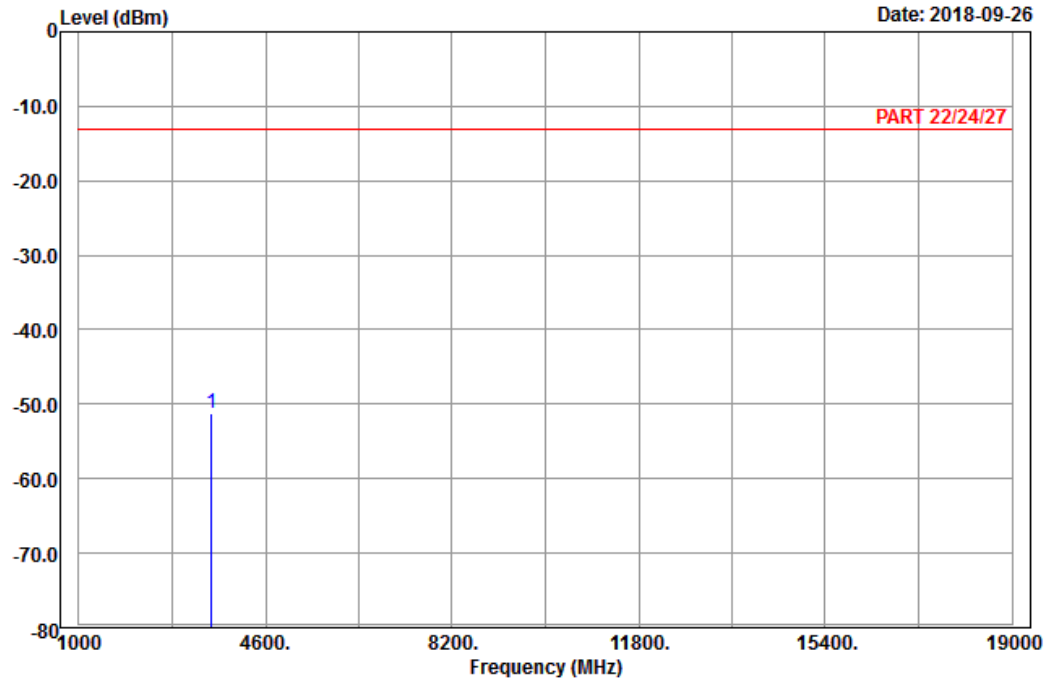
High Channel



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9



Site : 966 chamber 1
Condition: PART 22/24/27 Horizontal
Remark : LTE_Band 66_Link_CH132647
Tested by: Karl Lee

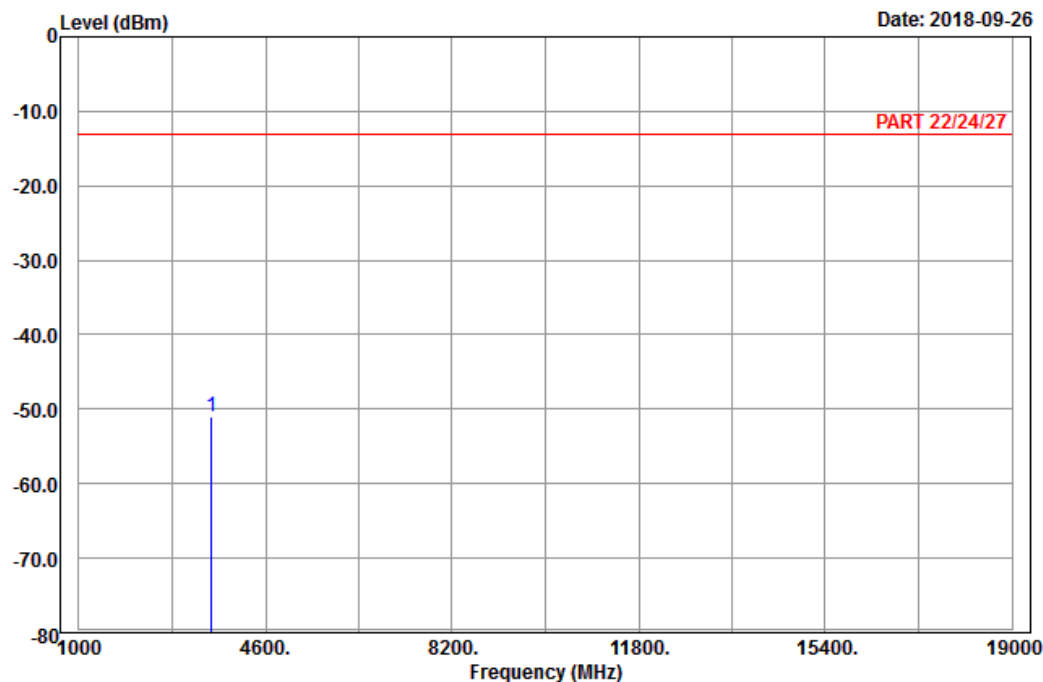
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3555.00	-51.26	-66.45	-13.00	-38.26	15.19	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10



Site : 966 chamber 1
 Condition: PART 22/24/27 Vertical
 Remark : LTE_Band 66_Link_CH132647
 Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3555.00	-50.95	-66.14	-13.00	-37.95	15.19	Peak

Channel Bandwidth: 20 MHz / QPSK

Low Channel

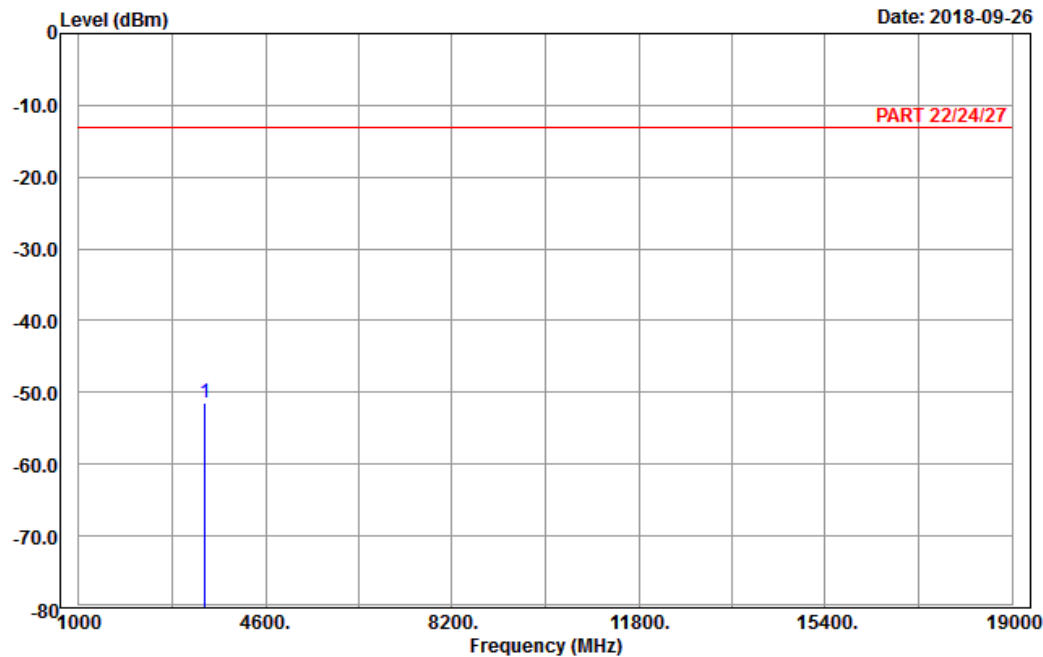


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2018-09-26



Site : 966 chamber 1

Condition: PART 22/24/27 Horizontal

Remark : LTE_Band 66_Link_CH132072

Tested by: Karl Lee

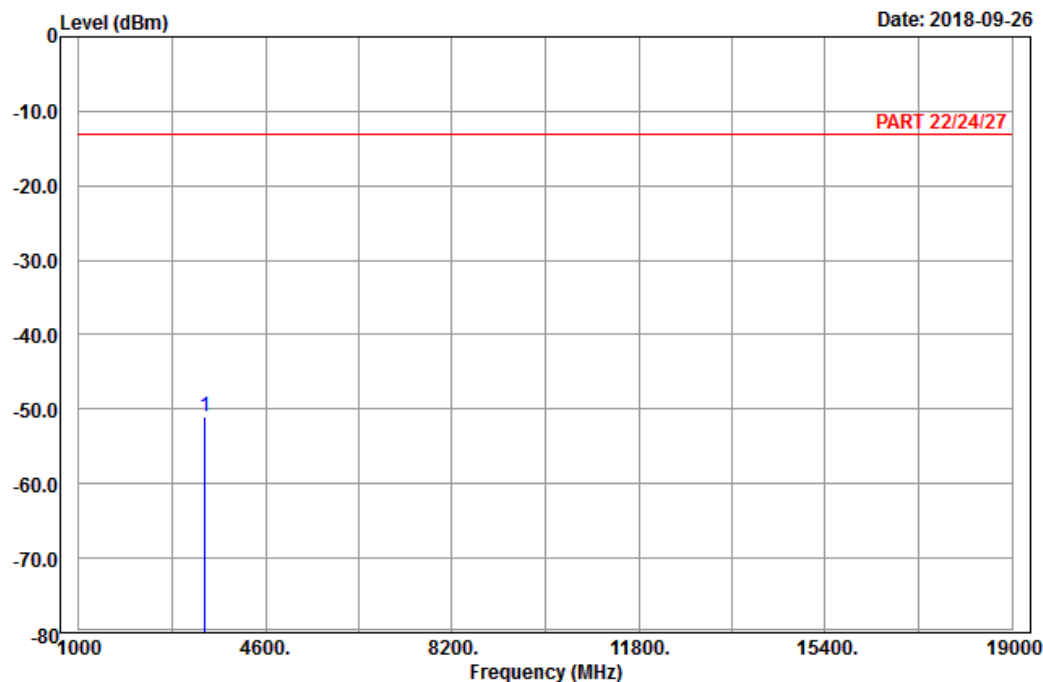
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3440.00	-51.45	-65.80	-13.00	-38.45	14.35	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10



Site : 966 chamber 1
 Condition: PART 22/24/27 Vertical
 Remark : LTE_Band 66_Link_CH132072
 Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3440.00	-51.11	-65.46	-13.00	-38.11	14.35	Peak

Middle Channel

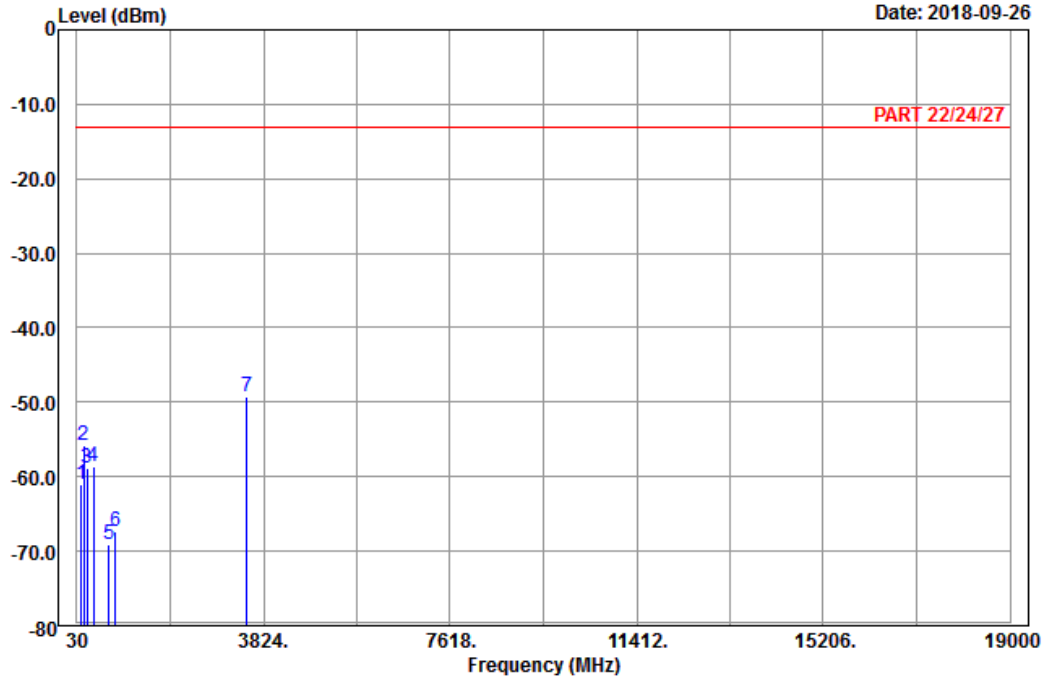


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 13

Date: 2018-09-26



Site : 966 chamber 1
Condition: PART 22/24/27 Horizontal
Remark : LTE_Band 66_Link_CH132322
Tested by: Karl Lee

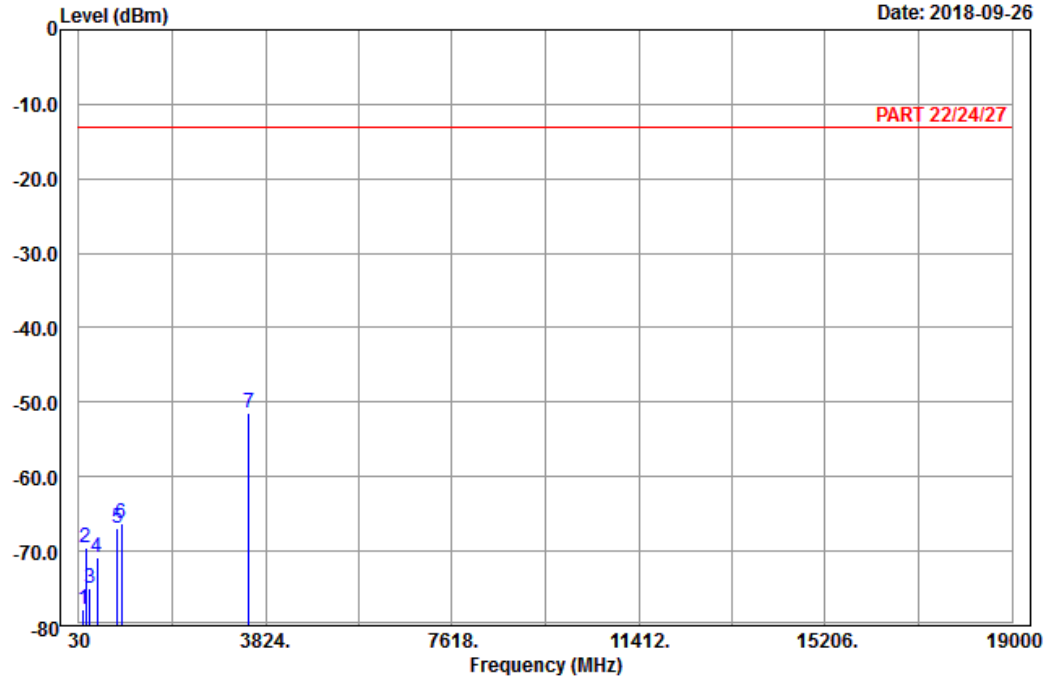
		Read	Limit	Over			
	Freq	Level	Level	Line	Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	127.47	-61.03	-53.20	-13.00	-48.03	-7.83	Peak
2	167.43	-55.90	-49.00	-13.00	-42.90	-6.90	Peak
3	228.45	-58.79	-53.00	-13.00	-45.79	-5.79	Peak
4	374.20	-58.55	-54.47	-13.00	-45.55	-4.08	Peak
5	686.40	-69.06	-68.75	-13.00	-56.06	-0.31	Peak
6	812.40	-67.46	-69.33	-13.00	-54.46	1.87	Peak
7 pp	3490.00	-49.24	-63.55	-13.00	-36.24	14.31	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 14



Site : 966 chamber 1
Condition: PART 22/24/27 Vertical
Remark : LTE_Band 66_Link_CH132322
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	128.55	-77.85	-70.14	-13.00	-64.85	-7.71	Peak
2	168.78	-69.56	-62.76	-13.00	-56.56	-6.80	Peak
3	254.64	-74.88	-69.33	-13.00	-61.88	-5.55	Peak
4	394.50	-70.83	-67.83	-13.00	-57.83	-3.00	Peak
5	813.10	-66.87	-68.74	-13.00	-53.87	1.87	Peak
6	891.50	-66.31	-68.95	-13.00	-53.31	2.64	Peak
7 pp	3490.00	-51.45	-65.76	-13.00	-38.45	14.31	Peak

High Channel

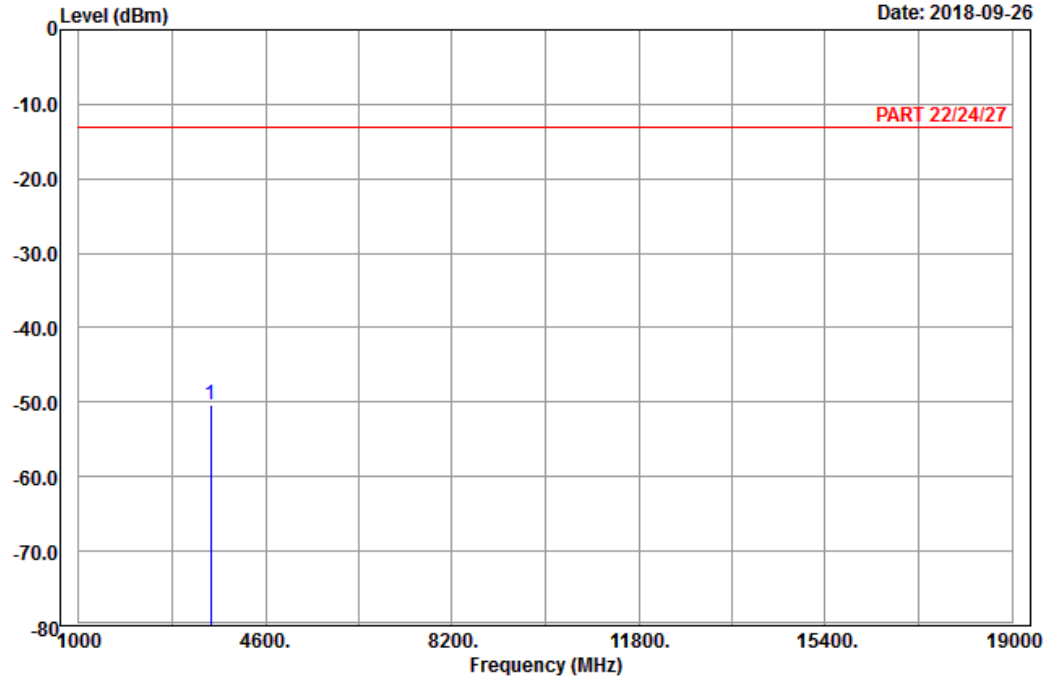


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2018-09-26



Site : 966 chamber 1
 Condition: PART 22/24/27 Horizontal
 Remark : LTE_Band 66_Link_CH132572
 Tested by: Karl Lee

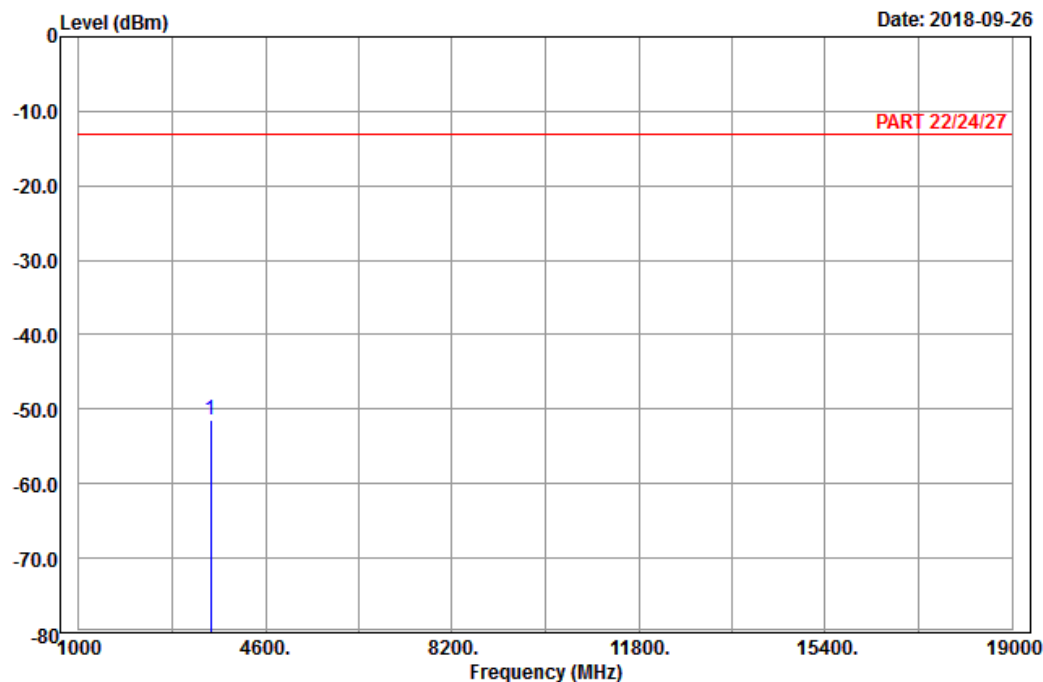
		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3540.00	-50.26	-65.15	-13.00	-37.26	14.89	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10



Site : 966 chamber 1
 Condition: PART 22/24/27 Vertical
 Remark : LTE_Band 66_Link_CH132572
 Tested by: Karl Lee

		Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm	dBm	dBm	dB	dB	
1 pp 3540.00	-51.40	-66.29	-13.00	-38.40	14.89	Peak

5 Pictures of Test Arrangements

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

Appendix – Information on 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:

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

--- END ---