



Test Report No.: PSU-QSU2404090210RF05



Certificate #6613.01

VARIANT FCC TEST REPORT

(PART 90)

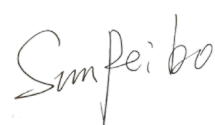
Applicant:	NORDIC SEMICONDUCTOR ASA
Address:	Otto Nielsens Vel 12, 7052 Trondheim, Norway

Manufacturer or Supplier	NORDIC SEMICONDUCTOR ASA
Address	Otto Nielsens Vel 12, 7052 Trondheim, Norway y
Product	Cellular IoT module
Brand Name	nRF91
Model Name	nRF9151
FCC ID	2ANPO00NRF9151
Date of tests	Apr. 12, 2024 ~ Jun. 14, 2024

The tests have been carried out according to the requirements of the following standard:

☒ FCC Part 90, Subpart R, S ☒ ANSI/TIA/EIA-603- D
☒ FCC Part 2 ☒ ANSI/TIA/EIA-603-E ☒ ANSI C63.26-2015

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Hanwen Xu Engineer / Mobile Department	Approved by Peibo Sun Manager / Mobile Department
 Date: Jun. 14, 2024	 Date: Jun. 14, 2024

This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended 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. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; 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.



TABLE OF CONTENTS

RELEASE CONTROL RECORD	4
1 SUMMARY OF TEST RESULTS	5
1.1 MEASUREMENT UNCERTAINTY	7
1.2 TEST SITE AND INSTRUMENTS	8
2 GENERAL INFORMATION.....	10
2.1 GENERAL DESCRIPTION OF EUT	10
2.2 CONFIGURATION OF SYSTEM UNDER TEST	12
2.3 DESCRIPTION OF SUPPORT UNITS	13
2.4 DESCRIPTION OF TEST MODES.....	13
2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS	15
3 TEST TYPES AND RESULTS	16
3.1 OUTPUT POWER MEASUREMENT	16
3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT	16
3.1.2 TEST PROCEDURES	16
3.1.3 TEST SETUP	17
3.1.4 TEST RESULTS	17
3.2 FREQUENCY STABILITY MEASUREMENT	24
3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT	24
3.2.2 TEST PROCEDURE	24
3.2.3 TEST SETUP	24
3.2.4 TEST RESULTS	25
3.3 OCCUPIED BANDWIDTH MEASUREMENT	26
3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT	26
3.3.2 TEST SETUP	26
3.3.3 TEST PROCEDURES	26
3.3.4 TEST RESULTS	27
3.4 EMISSION MASK MEASUREMENT.....	28
3.4.1 LIMITS OF EMISSION MASK MEASUREMENT	28
3.4.2 TEST SETUP	28
3.4.3 TEST PROCEDURES	29
3.4.4 TEST RESULTS	30
3.5 CONDUCTED SPURIOUS EMISSIONS.....	31
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT	31
3.5.2 TEST PROCEDURE	31
3.5.3 TEST SETUP	31
3.5.4 TEST RESULTS	32
3.6 RADIATED EMISSION MEASUREMENT	33
3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT	33
3.6.2 TEST PROCEDURES	33
3.6.3 DEVIATION FROM TEST STANDARD	33
3.6.4 TEST SETUP	34
3.6.5 TEST RESULTS	36
3.7 PEAK TO AVERAGE RATIO	58
3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT	58
3.7.2 TEST SETUP	58
3.7.3 TEST PROCEDURES	58
3.7.4 TEST RESULTS	59
4 INFORMATION ON THE TESTING LABORATORIES	60



Test Report No.: PSU-QSU2404090210RF05

5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB 61

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
77535RRF.004	Original release	Mar. 21, 24
PSU-QSU2404090210RF05	Based on the original report (Report No.: 77535RRF.004, Model Name: nRF9151, FCC ID: 2ANPO00nRF9151). The firm wares are all the same, just different SW name and change Power class from PC3 to PC5. The new sample verify RSE worse case and conducted power. So this report only replaces the conducted power and RSE data. other test data refer to the original report.	Jun. 14, 2024

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 90 & Part 2			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	TEST LAB*
§2.1046 §90.635(b)	Conducted Output Power	PASS	A
§2.1055 §90.213	Frequency Stability	See Note	-
§2.1049 §90.209	Occupied Bandwidth	See Note	-
§2.1051 §90.691(a)	Emission Masks	See Note	-
§2.1051 §90.691(a)	Conducted Spurious Emissions	See Note	-
§2.1053 §90.691	Radiated Spurious Emissions	PASS	A

Note: Refer to the original source report (Report No.: 77535RRF.004, Model Name: nRF9151, FCC ID: 2ANPO00nRF9151).



Test Report No.: W7L-240204W001RF05

***Test Lab Information Reference**

Lab A:

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

Lab Address:

Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province

Accredited Test Lab Cert 6613.01

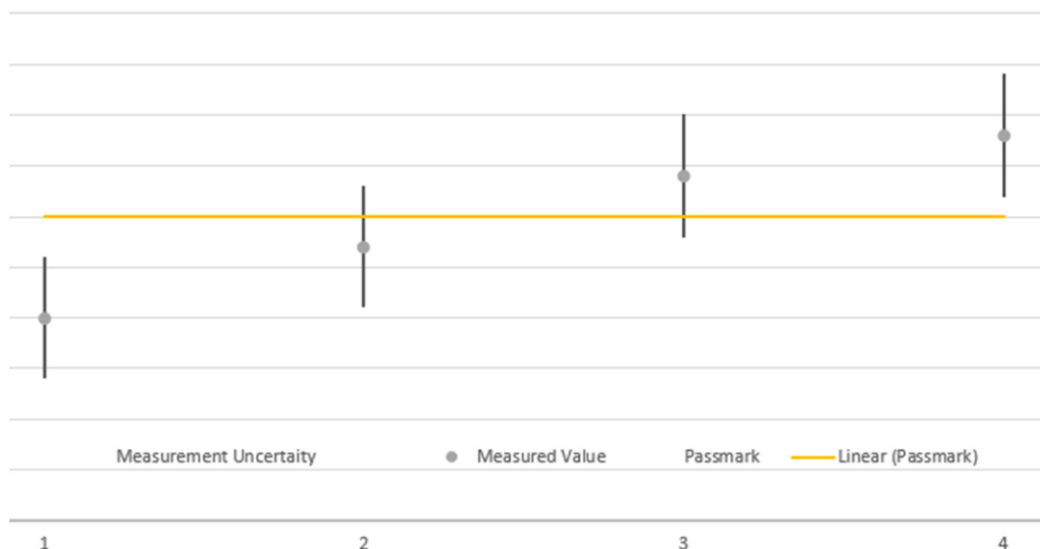
The FCC Site Registration No. is 434559; The Designation No. is CN1325.

1.1 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	UNCERTAINTY
Maximum Peak Output Power	$\pm 2.06\text{dB}$
Frequency Stability	$\pm 76.97\text{Hz}$
Radiated emissions (9KHz~30MHz)	$\pm 2.68\text{dB}$
Radiated emissions (30MHz~1GHz)	$\pm 4.98\text{dB}$
Radiated emissions (1GHz ~6GHz)	$\pm 4.70\text{dB}$
Radiated emissions (6GHz ~18GHz)	$\pm 4.60\text{dB}$
Radiated emissions (18GHz ~40GHz)	$\pm 4.12\text{dB}$
Conducted emissions	$\pm 4.01\text{dB}$
Occupied Channel Bandwidth	$\pm 43.58\text{KHz}$
Band Edge Measurements	$\pm 4.70\text{dB}$
Peak to average ratio	$\pm 0.76\text{dB}$

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.



The verdicts in this test report are given according the above diagram:

Case	Measured Value	Uncertainty Range	Verdict
1	below pass mark	below pass mark	Passed
2	below pass mark	within pass mark	Passed
3	above pass mark	within pass mark	Failed
4	above pass mark	above pass mark	Failed

That means, the laboratory applies, as decision rule (see ISO/IEC 17025:2017), the so-called shared risk principle.

1.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,22	Aug.29,24
Pre-Amplifier	R&S	SCU08F1	101028	Sep.16,22	Sep.15,24
Vector Signal Generator	R&S	SMBV100B	102176	Mar.29,24	Mar.28,26
Signal Generator	R&S	SMB100A	182185	Mar.29,24	Mar.28,26
3m Fully-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EM C-01Chamber	Nov.25,22	Nov.24,25
3m Semi-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EM C-02Chamber	Nov.25,22	Nov.24,25
EMI TEST Receiver	R&S	ESR26	101734	Mar.28,24	Mar.27,26
EMI TEST Receiver	R&S	ESW44	101973	Mar.28,24	Mar.27,26
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Dec.26,23	Dec.25,25
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,22	Aug.21,24
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Feb.22,24	Feb.21,26
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,22	Aug.21,24
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.22,24	Feb.21,26
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.27,22	Jun.26,24
Test Software	EMC32	EMC32	N/A	N/A	N/A
6DB attenuator	Tonscend Technology Co., Ltd	N/A	23062787	N/A	N/A
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	Oct.01,22	Sep.30,24
DC Source	HYELEC	HY3010B	551016	Aug.31,22	Aug.30,24
Hygrothermograph	DELI	20210528	SZ014	Sep.06,22	Sep.05,24
PC	LENOVO	E14	HRSW0024	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-7.00M	N/A	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-4.00M	N/A	N/A	N/A
CABLE	R&S	W13.02	N/A	Apr.27,24	Apr.26,25
CABLE	R&S	W12.14	N/A	Apr.27,24	Apr.26,25
CABLE	R&S	J12J103539-00-1	SEP-03-20-069	Apr.27,24	Apr.26,25
CABLE	R&S	J12J103539-00-1	SEP-03-20-070	Apr.27,24	Apr.26,25
Temperature Chamber	votsch	VT4002	58566078100050	May.31,22	May.30,24
Temperature Chamber	votsch	VT4002	58566078100050	May.30,24	May.29,26

NOTE: 1. The calibration interval of the above test instruments is 12/24/36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.



Test Report No.: W7L-240204W001RF05

2. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.
3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 434559; The Designation No. is CN1325.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT*	Cellular IoT module	
BRAND NAME*	nRF91	
MODEL NAME*	nRF9151	
NOMINAL VOLTAGE*	EUT 3.7Vdc	
MODULATION TECHNOLOGY	CAT-M1/ NB-IOT :LTE	BPSK, QPSK, 16QAM
FREQUENCY RANGE CAT-M1	LTE Band 26 (Channel Bandwidth: 1.4MHz)	814.7MHz ~ 823.3MHz
	LTE Band 26 (Channel Bandwidth: 3MHz)	815.5MHz ~ 822.5MHz
	LTE Band 26 (Channel Bandwidth: 5MHz)	816.5MHz ~ 821.5MHz
	LTE Band 26 (Channel Bandwidth: 10MHz)	819MHz
FREQUENCY RANGE NB-IOT	LTE Band 26 (Sub-carrier Spacing: 3.75/15KHz)	814.2MHz ~ 823.8MHz
EMISSION DESIGNATOR CAT-M1	LTE Band 26 (Channel Bandwidth: 1.4MHz)	QPSK: 1M10G7D
		16QAM: 0M95W7D
EMISSION DESIGNATOR NB-IOT	LTE Band 26 (Sub-carrier Spacing: 3.75KHz)	BPSK: 60K4G7D
		QPSK: 64K3W7D
	LTE Band 26 (Sub-carrier Spacing: 15KHz)	BPSK: 125K6G7D
		QPSK: 189K2W7D
MAX. EIRP POWER CAT-M1	LTE Band 26 (Channel Bandwidth: 1.4MHz)	174.58mW
	LTE Band 26 (Channel Bandwidth: 3MHz)	174.98mW
	LTE Band 26 (Channel Bandwidth: 5MHz)	175.79mW
	LTE Band 26 (Channel Bandwidth: 10MHz)	176.2mW
MAX. EIRP POWER NB-IOT	LTE Band 26 (Sub-carrier Spacing: 3.75KHz)	179.89mW
	LTE Band 26 (Sub-carrier Spacing: 15KHz)	181.55mW
ANTENNA TYPE*	RF4 Embedded LTE Antenna	
ANTENNA GAIN*	2.7 dBi for LTE Band 26	
HW VERSION*	nRF9151 LACA AA	
SW VERSION*	mfw_nRF91x1_2.0.1	



**BUREAU
VERITAS**

Test Report No.: W7L-240204W001RF05

I/O PORTS*	Refer to user's manual
CABLE SUPPLIED*	N/A
EXTREME TEMPERATURE*	-40-85 °C
EXTREME VOLTAGE*	3.0V - 5.5V

NOTE:

1. *Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, Test Lab is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.
2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
3. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

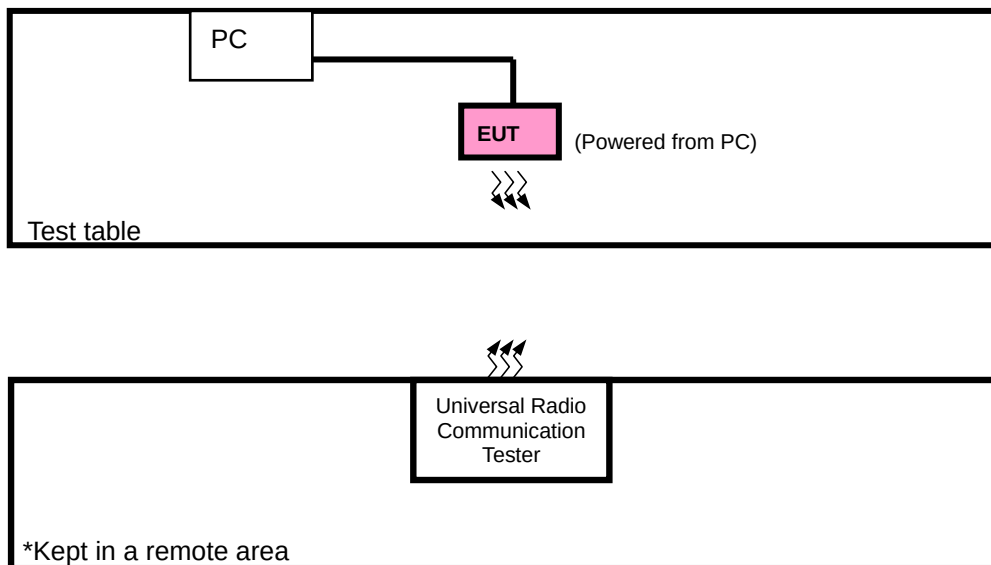
MODULATION MODE	TX FUNCTION
LTE	1TX/1RX

4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
5. Antenna gain and EUT conducted cable loss are provided by the customer, and the laboratory will record the results based on these items that involve these two parameters.

2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION TEST

FOR RADIATION EMISSION



2.3 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	Laptop	Lenovo	ThinkPad E14	HRSW00024	N/A
2	USB Cable	RF Murata cable for Cellular IoT	MXHS83QE3000	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

2.4 DESCRIPTION OF TEST MODES

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 in ERP/EIRP and radiated emission was found when positioned on X-plane for LTE. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + USB Cable with LTE link

CAT-M1 LTE BAND 26 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	26697 to 26783	26697, 26740, 26783	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		26705 to 26775	26705, 26740, 26775	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		26715 to 26765	26715, 26740, 26765	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		26740	26740	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	26697 to 26783	26740	1.4MHz	QPSK	1 RB / 0 RB Offset
		26705 to 26775	26705, 26740, 26775	3MHz	QPSK	1 RB / 0 RB Offset
		26715 to 26765	26740	5MHz	QPSK	1 RB / 0 RB Offset
		26740	26740	10MHz	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.

NB-IOT LTE BAND 26 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	MODE
A	ERP	26692 to 26788	26697, 26740, 26783	BPSK,QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	26692 to 26788	26740	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.



Test Report No.: W7L-240204W001RF05

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP	24deg. C, 60%RH	DC 3.7V By PC	Hanwen Xu
RADIATED EMISSION	23deg. C, 70%RH	DC 3.7V By PC	Hanwen Xu

2.5 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 90

ANSI/TIA/EIA-603-D

ANSI/TIA/EIA-603-E

ANSI C63.26-2015

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

3 TEST TYPES AND RESULTS

3.1 OUTPUT POWER MEASUREMENT

3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Per FCC Part 90.635(a)(b)

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

3.1.2 TEST PROCEDURES

EIRP / ERP MEASUREMENT:

Per KDB 971168 D01 Power Meas License Digital Systems v03r01 or subclause 5.2.5.5 of ANSI C63.26-2015, the relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

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

Where:

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

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

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

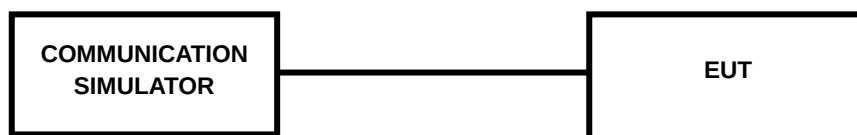
L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB

CONDUCTED POWER MEASUREMENT:

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

3.1.3 TEST SETUP

CONDUCTED POWER MEASUREMENT:



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

3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

CAT-M

LTE Band 26

Band/BW	Modulation	RB Size	RB Offset	Low CHG 26697	Mid CH 26740	High CH 26783
				Frequency 814.7 MHz	Frequency 819 MHz	Frequency 823.3 MHz
26/ 1.4	QPSK	1	0	19.49	19.48	19.46
		1	5	19.52	19.36	19.54
		3	0	19.55	19.54	19.53
		3	3	19.46	19.52	19.44
		6	0	19.39	19.43	19.48
	16QAM	1	0	19.60	19.61	19.58
		1	5	19.70	19.71	19.67
		3	0	19.59	19.54	19.55
		3	3	19.69	19.59	19.54
		6	0	19.53	19.72	19.55

Band/BW	Modulation	RB Size	RB Offset	Low CHG 26705	Mid CH 26740	High CH 26775
				Frequency 815.5 MHz	Frequency 819 MHz	Frequency 822.5 MHz
26/ 3	QPSK	1	0	19.46	19.46	19.38
		1	5	19.43	19.48	19.46
		3	0	19.60	19.54	19.53
		3	3	19.48	19.53	19.45
		6	0	19.49	19.51	19.57
	16QAM	1	0	19.68	19.65	19.65
		1	5	19.73	19.71	19.66
		3	0	19.58	19.60	19.52
		3	3	19.63	19.58	19.43
		6	0	19.58	19.61	19.67

Band/BW	Modulation	RB Size	RB Offset	Low CHG 26715	Mid CH 26740	High CH 26765
				Frequency 816.5 MHz	Frequency 819 MHz	Frequency 821.5 MHz
26/ 5	QPSK	1	0	19.43	19.49	19.38
		1	5	19.53	19.40	19.46
		3	0	19.60	19.53	19.58
		3	3	19.45	19.56	19.46
		6	0	19.47	19.54	19.46
	16QAM	1	0	19.74	19.66	19.62
		1	5	19.75	19.68	19.70
		3	0	19.56	19.47	19.51
		3	3	19.72	19.59	19.42
		6	0	19.59	19.63	19.57

Band/BW	Modulation	RB Size	RB Offset	/	Mid CH 26740	/
				/	Frequency 819 MHz	/
26/ 10	QPSK	1	0	/	19.54	/
		1	5	/	19.44	/
		3	0	/	19.46	/
		3	3	/	19.47	/
		6	0	/	19.52	/
	16QAM	1	0	/	19.65	/
		1	5	/	19.76	/
		3	0	/	19.47	/
		3	3	/	19.60	/
		6	0	/	19.63	/

NB-IOT

LTE Band 26_Part90S						
Sub-carrier Spacing (KHz)	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		26692	26740	26788
		Frequency (MHz)		814.2	819	823.8
3.75	BPSK	1	0	19.84	19.74	19.72
		1	47	19.78	19.66	19.65
	QPSK	1	0	19.85	19.79	19.70
		1	47	19.77	19.66	19.74
12	BPSK	1	0	19.89	19.67	19.75
		1	11	19.66	19.53	19.61
	QPSK	1	0	19.67	19.54	19.64
		1	11	19.65	19.52	19.61
		12	0	17.62	17.58	17.54

ERP

CAT-M

LTE BAND 26

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26697	814.7	19.55	2.7	22.25	167.88	100
26740	819	19.54	2.7	22.24	167.49	100
26783	823.3	19.54	2.7	22.24	167.49	100

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26697	814.7	19.7	2.7	22.4	173.78	100
26740	819	19.72	2.7	22.42	174.58	100
26783	823.3	19.67	2.7	22.37	172.58	100

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26705	815.5	19.6	2.7	22.3	169.82	100
26740	819	19.54	2.7	22.24	167.49	100
26775	822.5	19.57	2.7	22.27	168.66	100

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26705	815.5	19.73	2.7	22.43	174.98	100
26740	819	19.71	2.7	22.41	174.18	100
26775	822.5	19.67	2.7	22.37	172.58	100

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26715	816.5	19.6	2.7	22.3	169.82	100
26740	819	19.56	2.7	22.26	168.27	100
26765	821.5	19.58	2.7	22.28	169.04	100

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26715	816.5	19.75	2.7	22.45	175.79	100
26740	819	19.68	2.7	22.38	172.98	100
26765	821.5	19.7	2.7	22.4	173.78	100

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
26740	819	19.54	2.7	22.24	167.49	100
-	-	-	-	-	-	-

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
26740	819	19.76	2.7	22.46	176.2	100
-	-	-	-	-	-	-

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

NB-IOT

LTE B26 3.75KHz

CHANNEL BANDWIDTH: BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26692	814.2	19.84	2.7	22.54	179.47	100
26740	819	19.74	2.7	22.44	175.39	100
26788	823.8	19.72	2.7	22.42	174.58	100

CHANNEL BANDWIDTH: QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26692	814.2	19.85	2.7	22.55	179.89	100
26740	819	19.79	2.7	22.49	177.42	100
26788	823.8	19.74	2.7	22.44	175.39	100

LTE B26 15KHz

CHANNEL BANDWIDTH: BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26692	814.2	19.89	2.7	22.59	181.55	100
26740	819	19.67	2.7	22.37	172.58	100
26788	823.8	19.75	2.7	22.45	175.79	100

CHANNEL BANDWIDTH: QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26692	814.2	19.67	2.7	22.37	172.58	100
26740	819	19.54	2.7	22.24	167.49	100
26788	823.8	19.64	2.7	22.34	171.4	100

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

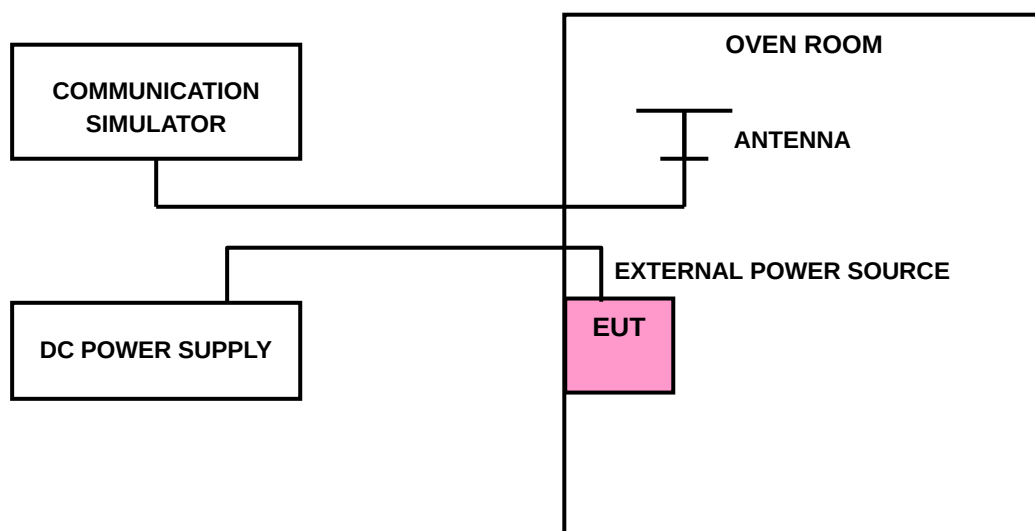
The frequency stability of mobile, portable and control transmitters operating in the wideband segment must be 1.25 parts per million or better when AFC is locked to a base station, and 5 parts per million or better when AFC is not locked

3.2.2 TEST PROCEDURE

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

NOTE: The frequency error was recorded frequency error from the communication simulator.

3.2.3 TEST SETUP





Test Report No.: W7L-240204W001RF05

3.2.4 TEST RESULTS

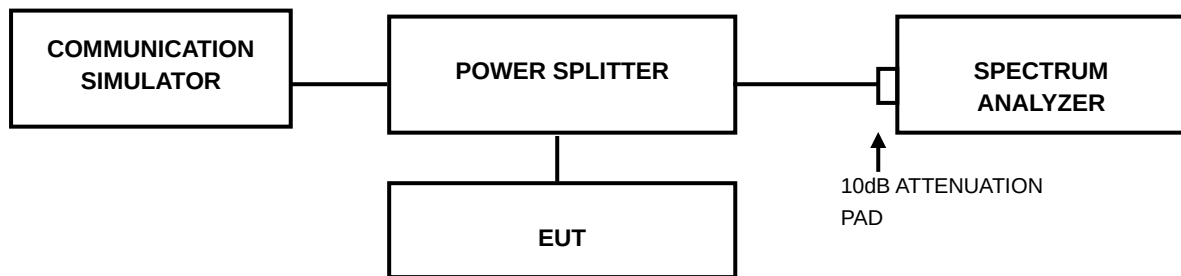
Refer to the original source report (Report No.: 77535RRF.004, Model Name: nRF9151, FCC ID: 2ANPO00nRF9151).

3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

3.3.2 TEST SETUP



3.3.3 TEST PROCEDURES

- The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.



Test Report No.: W7L-240204W001RF05

3.3.4 TEST RESULTS

Refer to the original source report (Report No.: 77535RRF.004, Model Name: nRF9151, FCC ID: 2ANPO00nRF9151).

3.4 EMISSION MASK MEASUREMENT

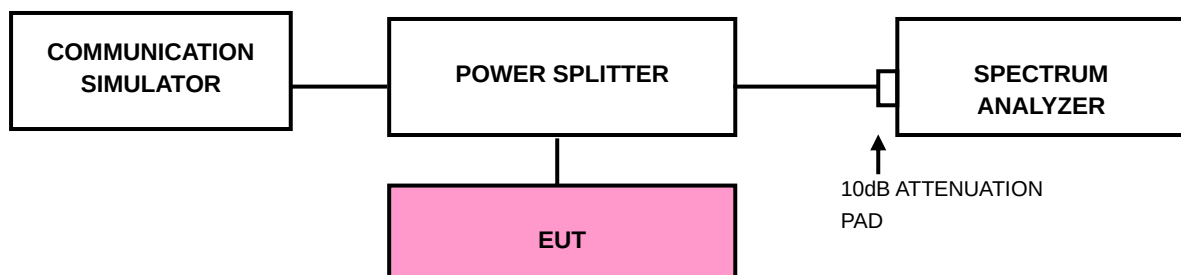
3.4.1 LIMITS OF EMISSION MASK MEASUREMENT

LTE Band26:

According to FCC part 90.691 shall be tested the emission mask. For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

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

3.4.2 TEST SETUP



3.4.3 TEST PROCEDURES

- a) Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.
- b) Tune the analyzer to the nominal center frequency of the emission bandwidth (EBW).
- c) Set the resolution bandwidth (RBW) $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge.
- d) Beyond the 1MHz band from the band edge, RBW=1MHz was used.
- e) Set the video bandwidth (VBW) to $\geq 3 \times$ RBW.
- f) Select the average power (RMS) display detector.
- g) Set the number of measurement points to ≥ 1001 .
- h) Use auto-coupled sweep time.
- i) Perform the measurement over an interval of time when the transmission is continuous and at its maximum power level.
- j) The RF fundamental frequency should be excluded against the limit line in the operating frequency band and use RBW is 10KHz or 100KHz.
- k) Record the max trace plot into the test report.



Test Report No.: W7L-240204W001RF05

3.4.4 TEST RESULTS

Refer to the original source report (Report No.: 77535RRF.004, Model Name: nRF9151, FCC ID: 2ANPO00nRF9151).

3.5 CONDUCTED SPURIOUS EMISSIONS

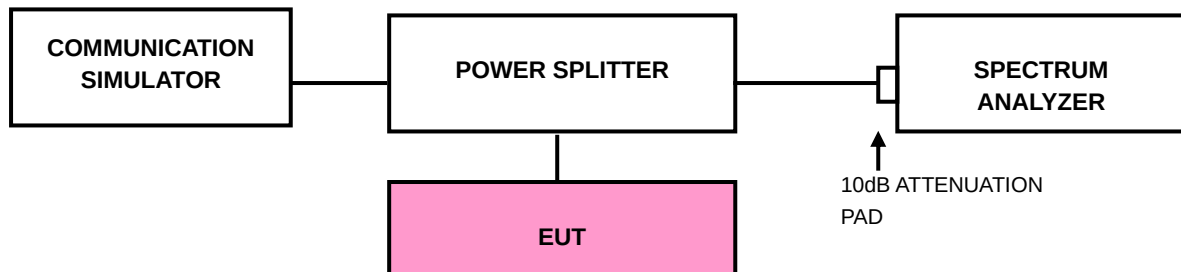
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

(1)The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB. The limit of emission equal to -13dBm

3.5.2 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. All measurements were done at middle operational frequency range.
- b. Measuring frequency range is from 9kHz up to a frequency including its 10th harmonic. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

3.5.3 TEST SETUP





Test Report No.: W7L-240204W001RF05

3.5.4 TEST RESULTS

NOTE : The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

Refer to the original source report (Report No.: 77535RRF.004, Model Name: nRF9151, FCC ID: 2ANPO00nRF9151).

3.6 RADIATED EMISSION MEASUREMENT

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

(1)The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB. The limit of emission equal to -13dBm

3.6.2 TEST PROCEDURES

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m 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 1m to 4m 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. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}.$

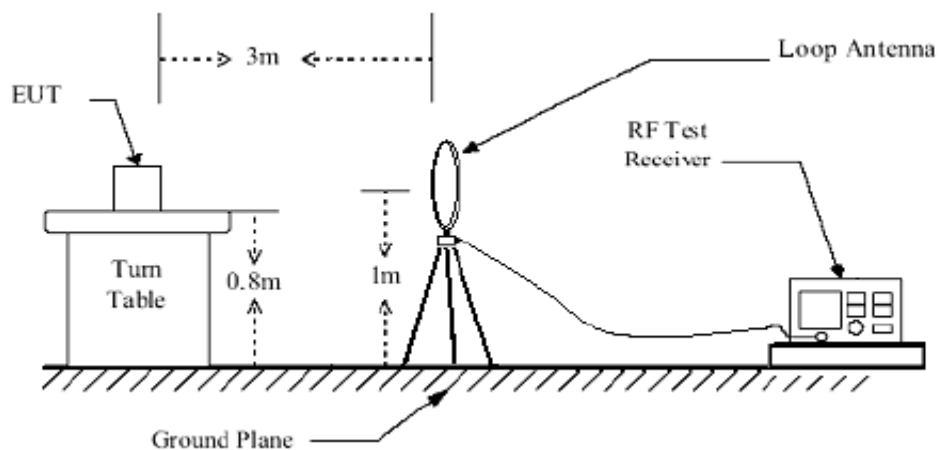
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

3.6.3 DEVIATION FROM TEST STANDARD

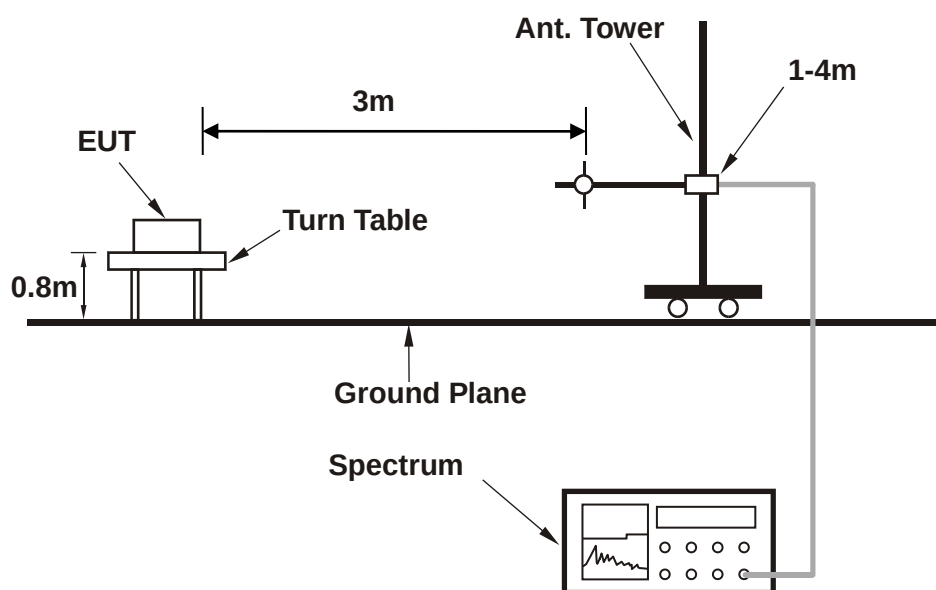
No deviation

3.6.4 TEST SETUP

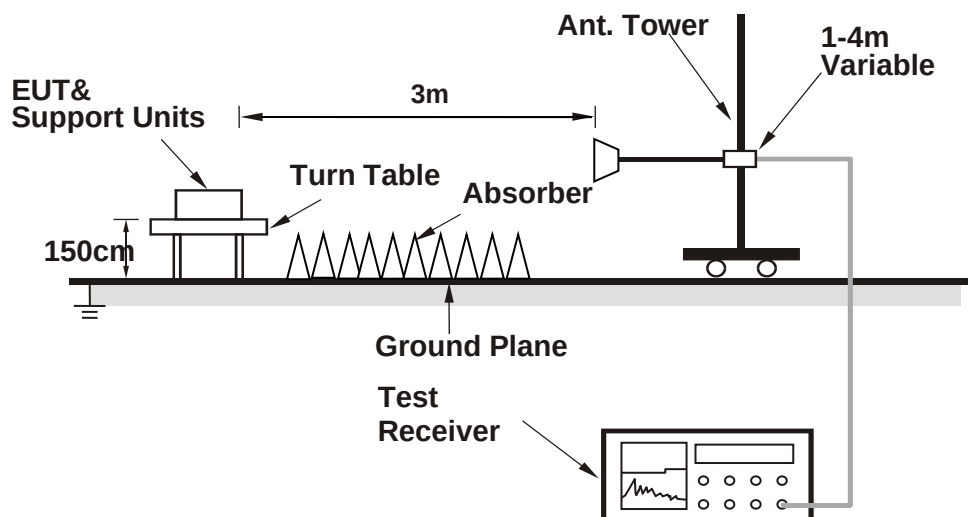
<Below 30MHz>



< Frequency Range 30MHz~1GHz >



< Frequency Range above 1GHz >



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

3.6.5 TEST RESULTS

NOTE : The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

BELOW 1GHz WORST-CASE DATA

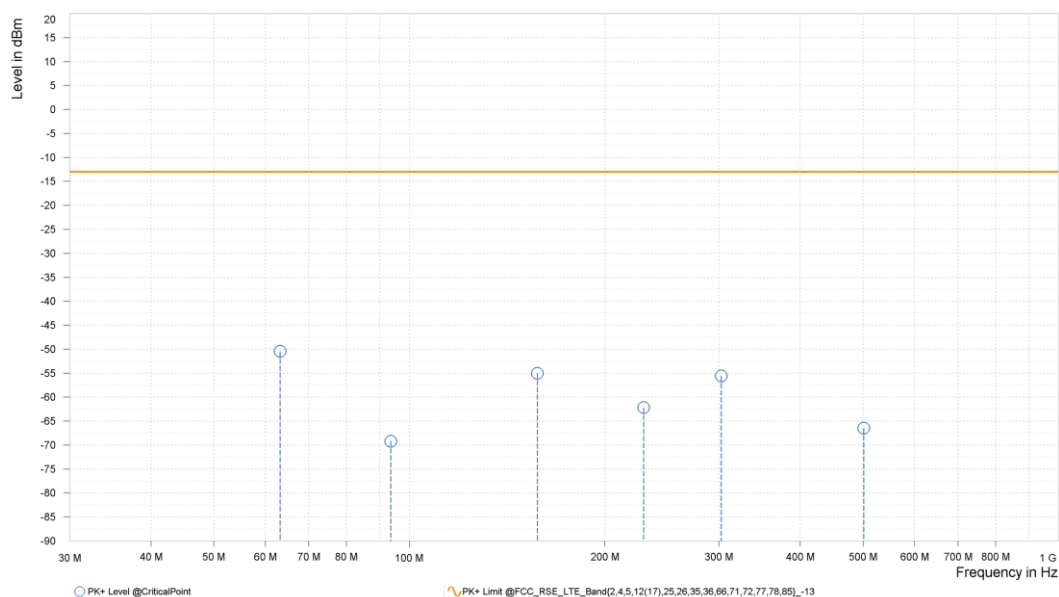
30 MHz – 1GHz data:

CAT-M1 LTE Band 26:

CHANNEL BANDWIDTH:3MHz / QPSK

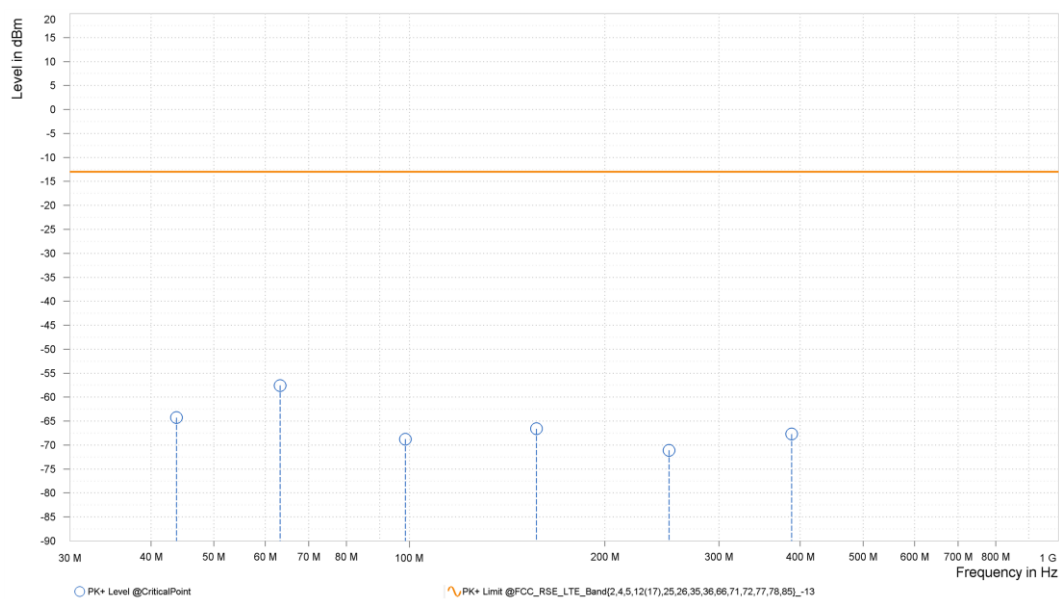
MODE	TX channel 26705	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	63.250	-50.46	-13.00	37.46	1.87	H	354.2	2.00
1	93.650	-69.20	-13.00	56.20	-1.21	H	359	2.00
1	157.400	-55.02	-13.00	42.02	-4.87	H	359	2.00
1	229.550	-62.18	-13.00	49.18	2.15	H	5.8	1.00
1	302.250	-55.58	-13.00	42.58	5.45	H	5.8	1.00
2	501.333	-66.47	-13.00	53.47	7.29	H	359	2.00



MODE	TX channel 26705	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	43.800	-64.27	-13.00	51.27	5.59	V	155	1.00
1	63.250	-57.59	-13.00	44.59	0.09	V	64.1	2.00
1	98.650	-68.77	-13.00	55.77	4.92	V	359	2.00
1	156.900	-66.58	-13.00	53.58	-2.14	V	186	2.00
1	251.100	-71.09	-13.00	58.09	3.64	V	359	1.00
1	388.050	-67.69	-13.00	54.69	7.12	V	5.1	1.00



ABOVE 1GHz

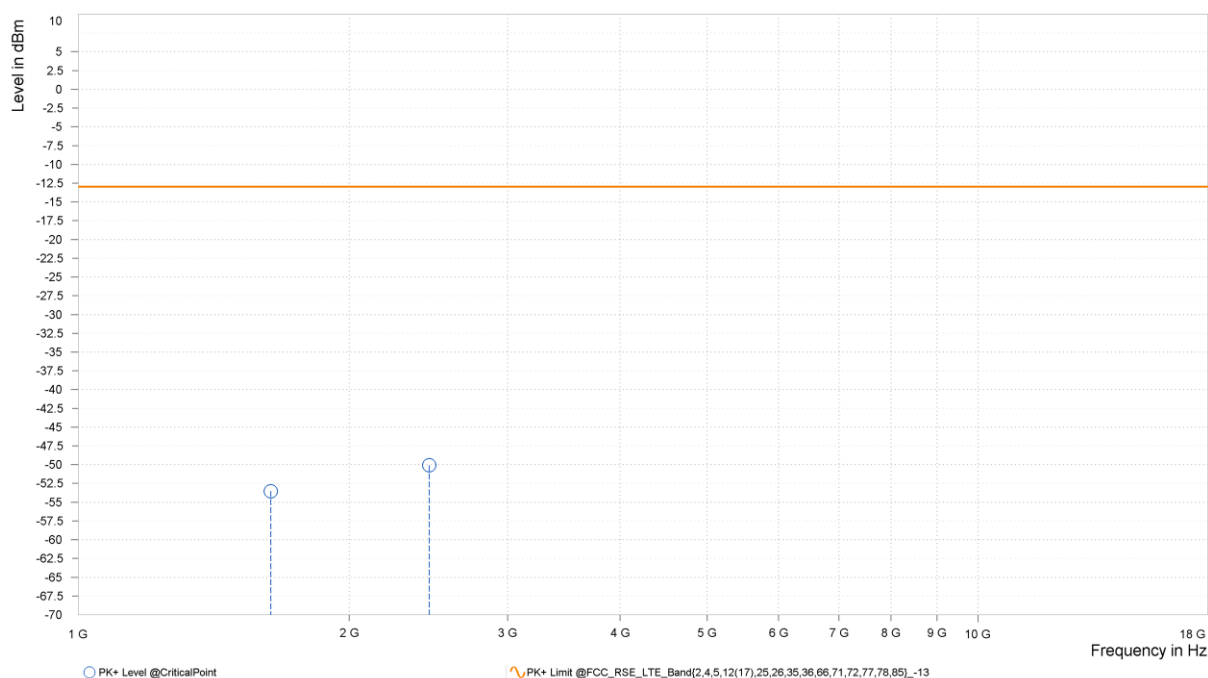
Note: For higher frequency, the emission is too low to be detected.

LTE BAND 26

CHANNEL BANDWIDTH: 1.4MHz / QPSK

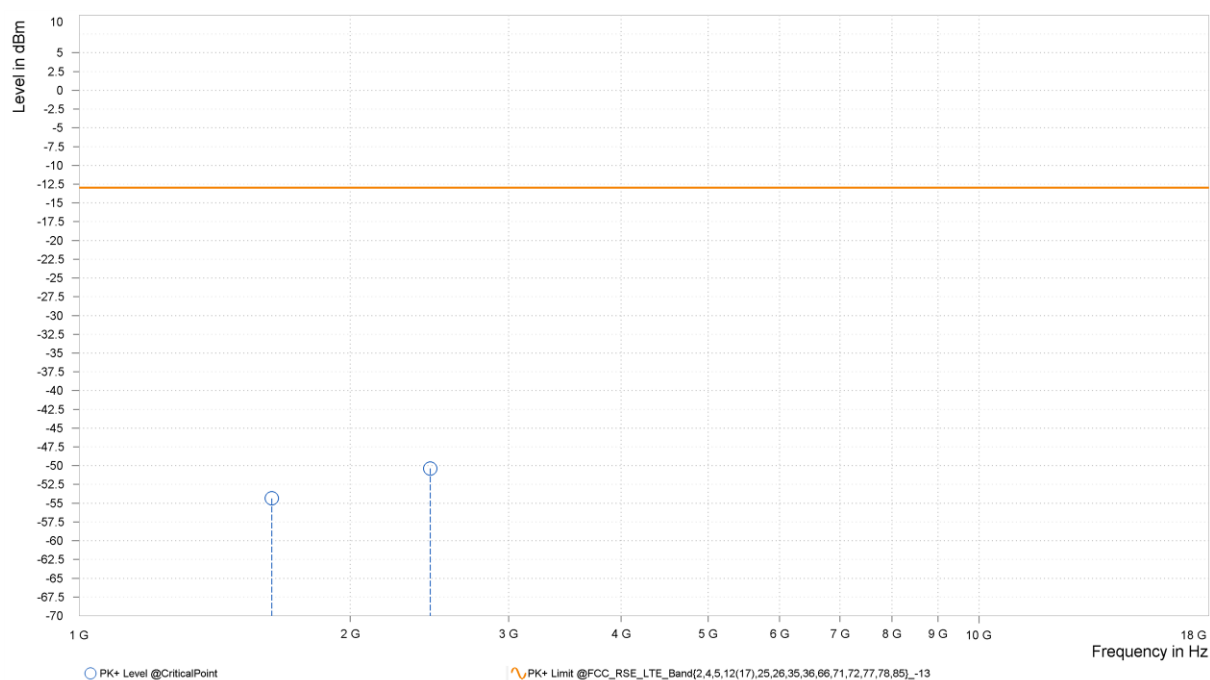
MODE	TX channel 26697	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,636.740	-53.54	-13.00	40.54	6.39	H	353.5	2.00
1	2,455.110	-50.08	-13.00	37.08	12.51	H	0.9	2.00



MODE	TX channel 26697	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,636.740	-54.35	-13.00	41.35	6.01	V	359	2.00
1	2,455.110	-50.37	-13.00	37.37	12.28	V	5.1	1.00





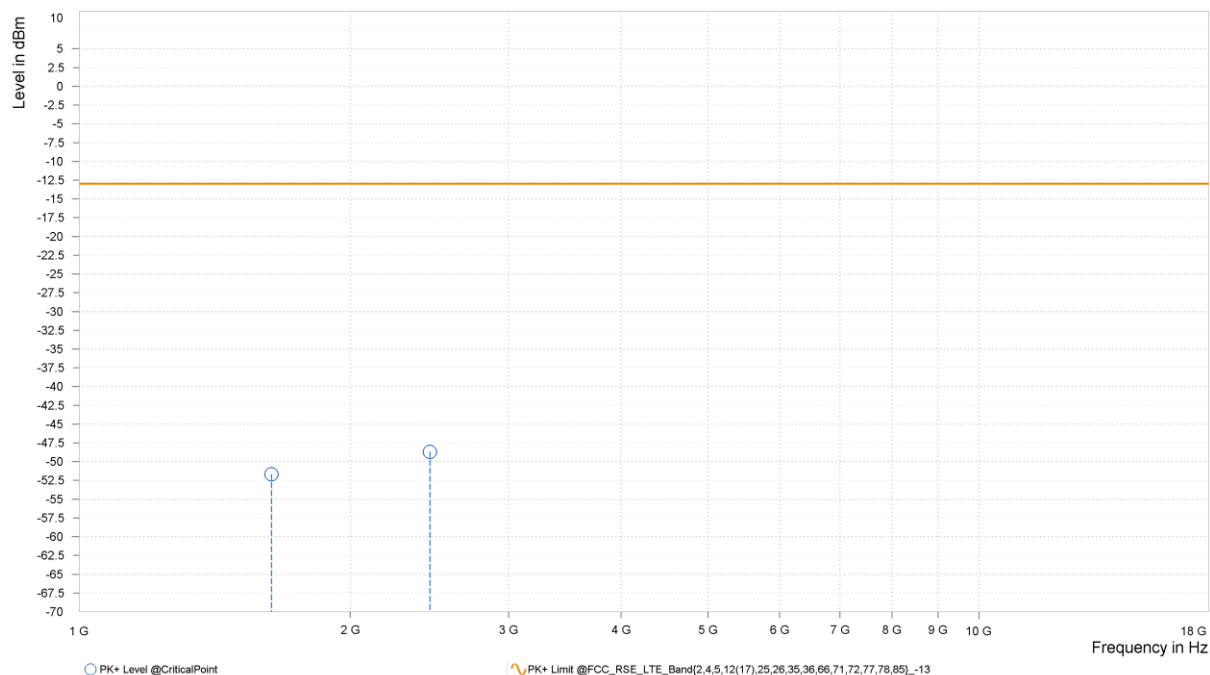
Test Report No.: W7L-240204W001RF05

CHANNEL BANDWIDTH: 3MHz / QPSK

CH26705

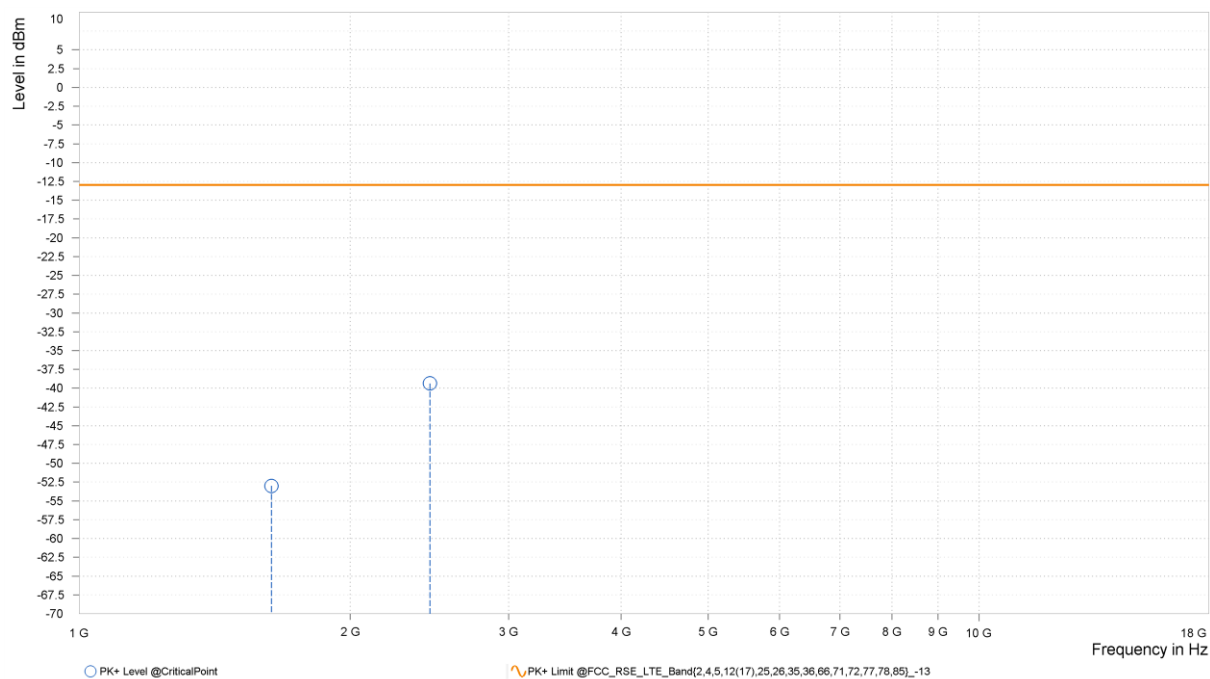
MODE	TX channel 26705	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,635.300	-51.67	-13.00	38.67	6.34	H	359	2.00
1	2,452.950	-48.69	-13.00	35.69	12.52	H	359	2.00



MODE	TX channel 26705	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

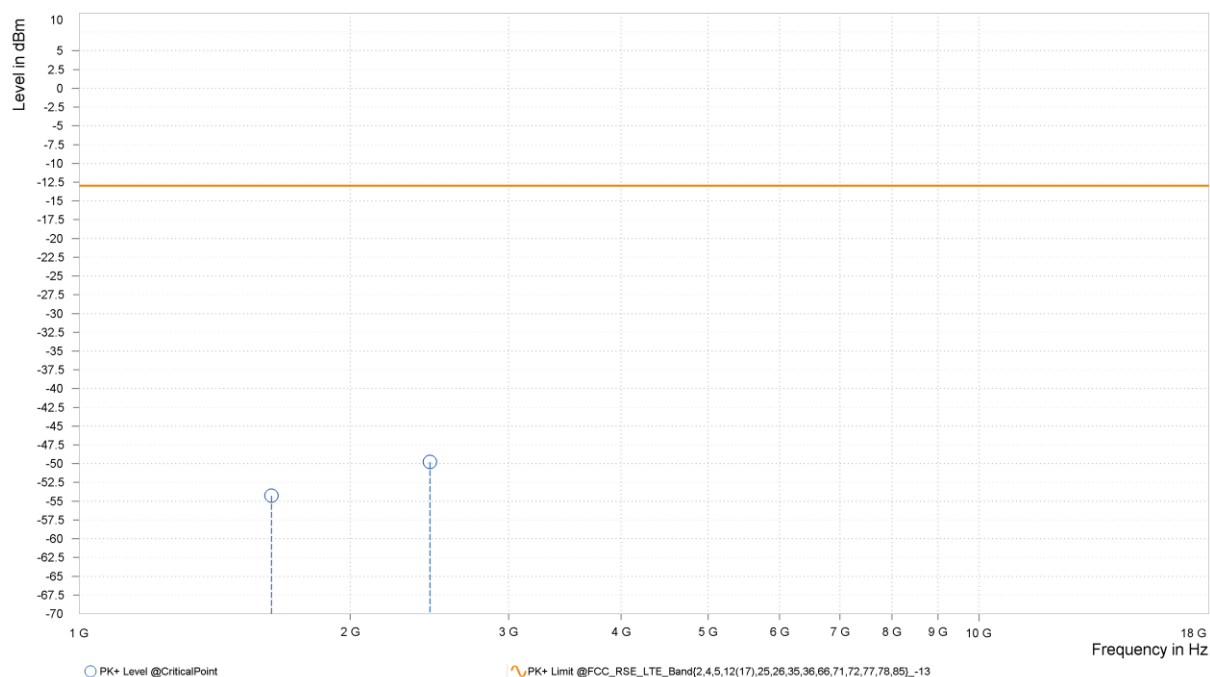
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,635.300	-52.99	-13.00	39.99	5.97	V	5.2	1.00
1	2,452.950	-39.37	-13.00	26.37	12.30	V	5.2	1.00



CH 26740

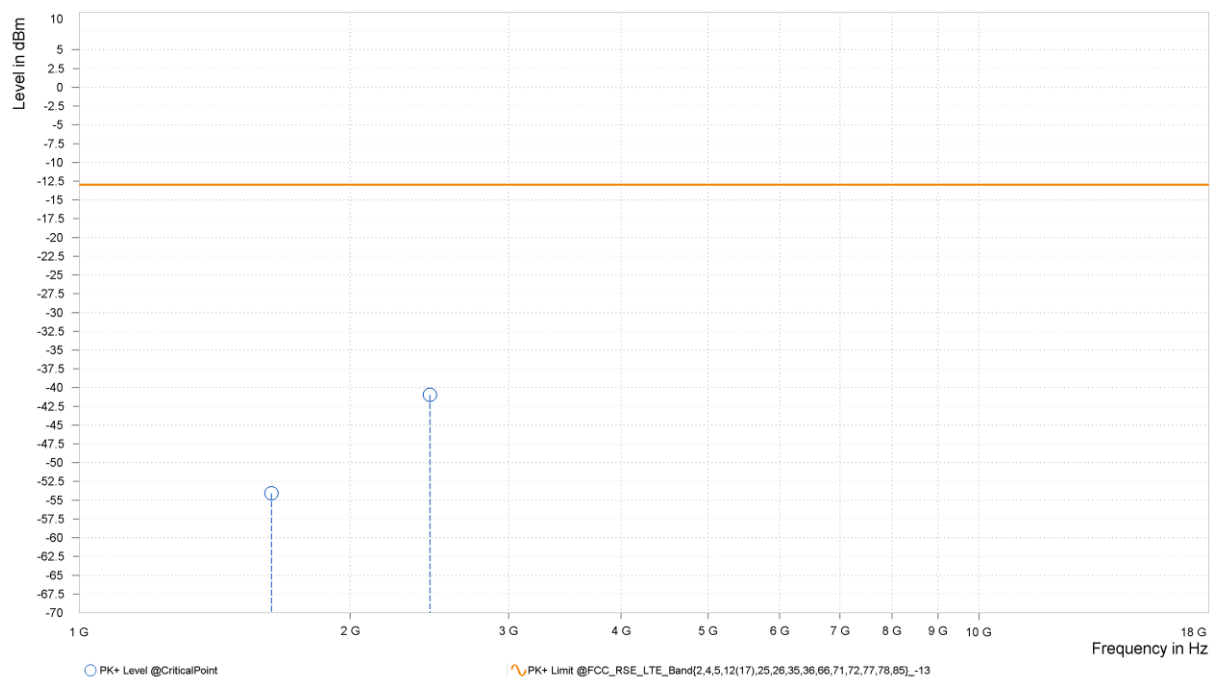
MODE	TX channel 26740	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,635.300	-54.28	-13.00	41.28	6.34	H	1	1.00
1	2,452.950	-49.77	-13.00	36.77	12.52	H	354.9	2.00



MODE	TX channel 26740	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

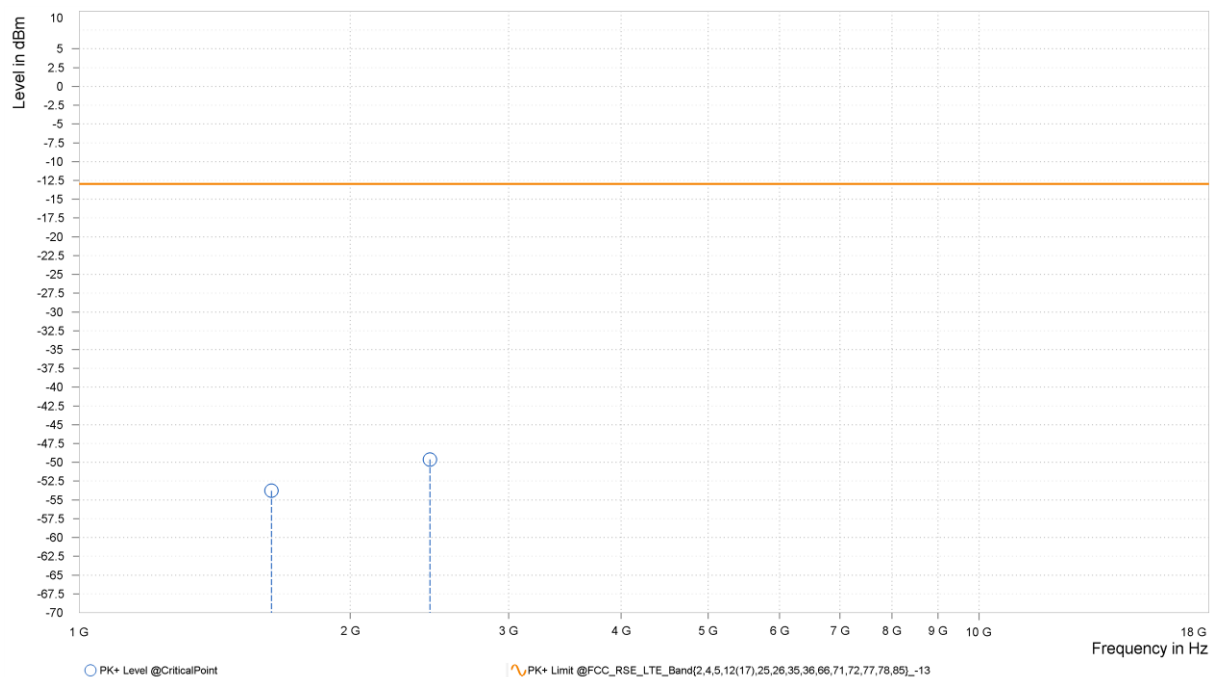
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,635.300	-54.09	-13.00	41.09	5.97	V	354.9	2.00
1	2,452.950	-40.96	-13.00	27.96	12.30	V	358.7	1.00



CH 26775

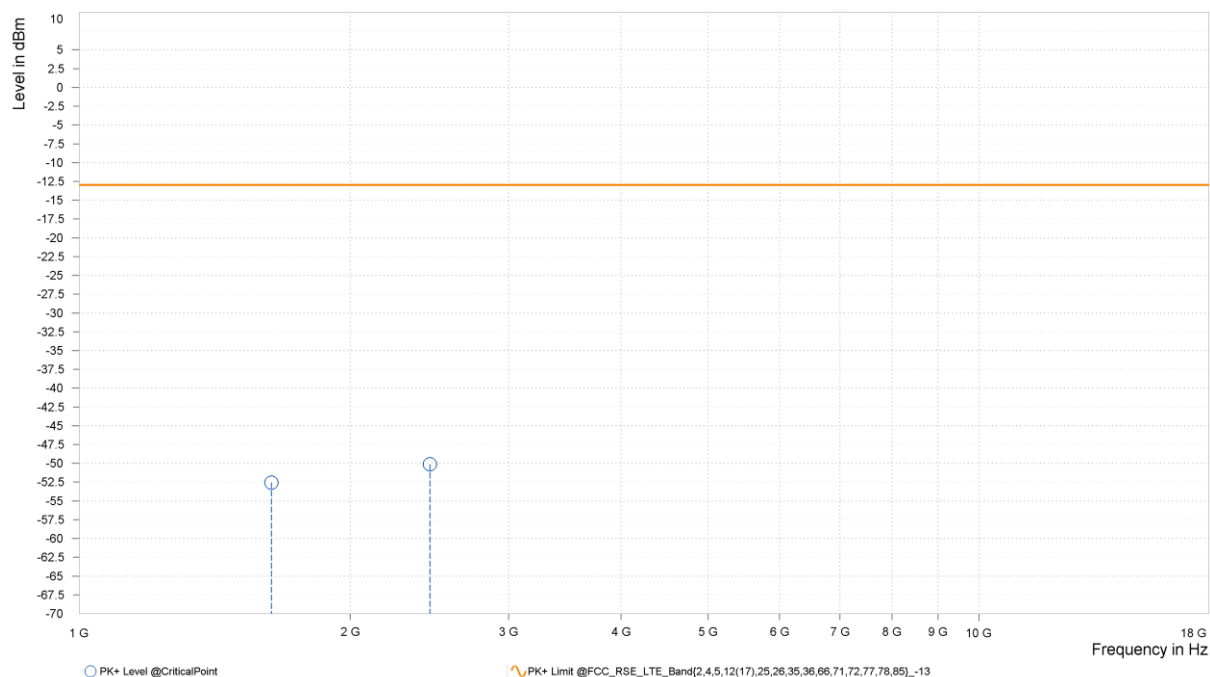
MODE	TX channel 26775	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,635.300	-53.78	-13.00	40.78	6.34	H	359.1	1.00
1	2,452.950	-49.61	-13.00	36.61	12.52	H	359.1	1.00



MODE	TX channel 26775	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

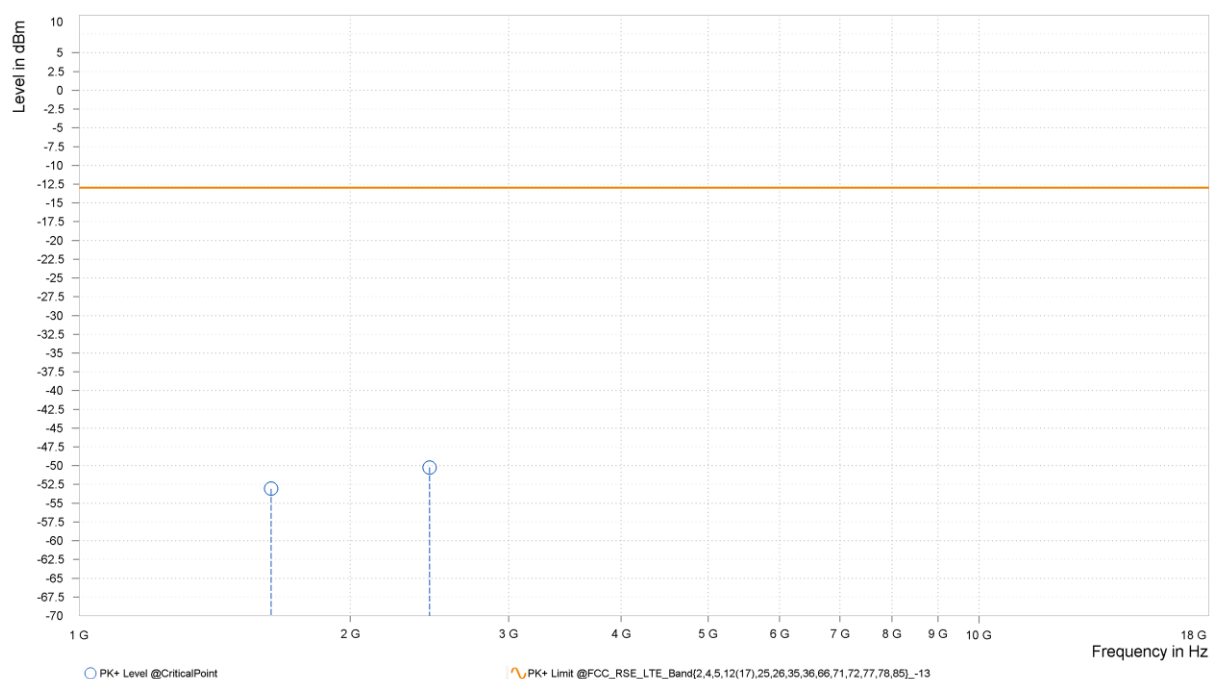
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,635.300	-52.55	-13.00	39.55	5.97	V	4.5	1.00
1	2,452.950	-50.14	-13.00	37.14	12.30	V	4.5	1.00



CHANNEL BANDWIDTH: 5MHz / QPSK

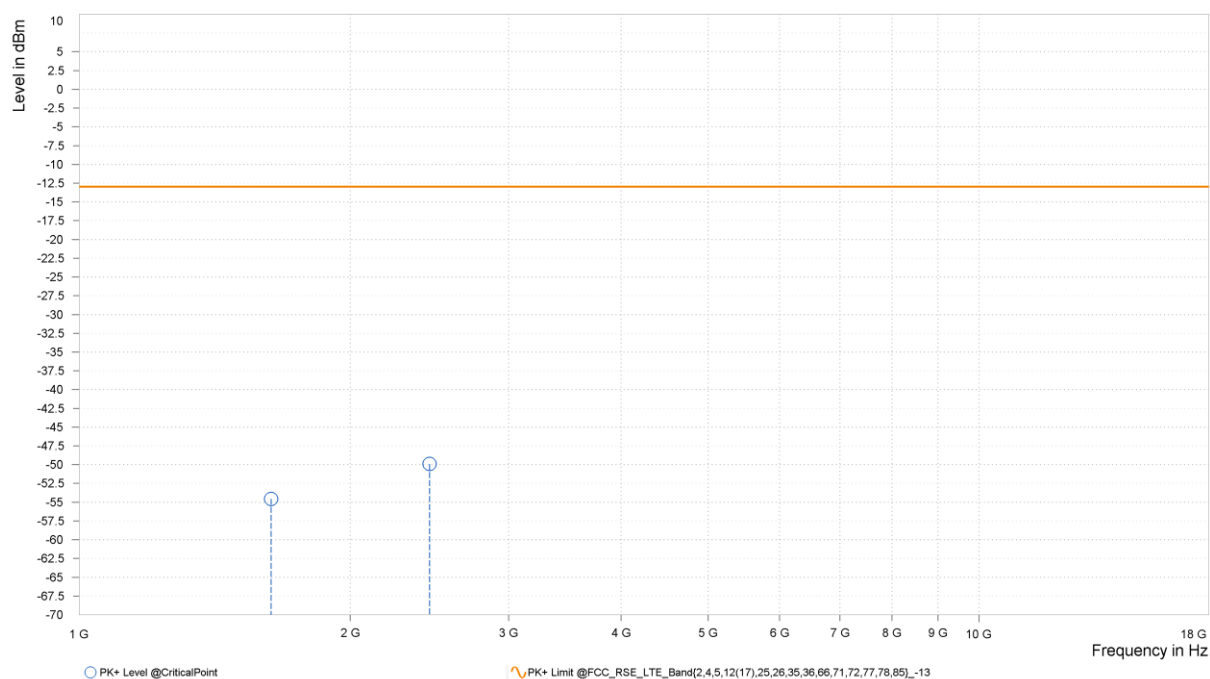
MODE	TX channel 26740	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,633.500	-53.08	-13.00	40.08	6.25	H	1.4	2.00
1	2,450.250	-50.24	-13.00	37.24	12.54	H	239.8	1.00



MODE	TX channel 26740	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

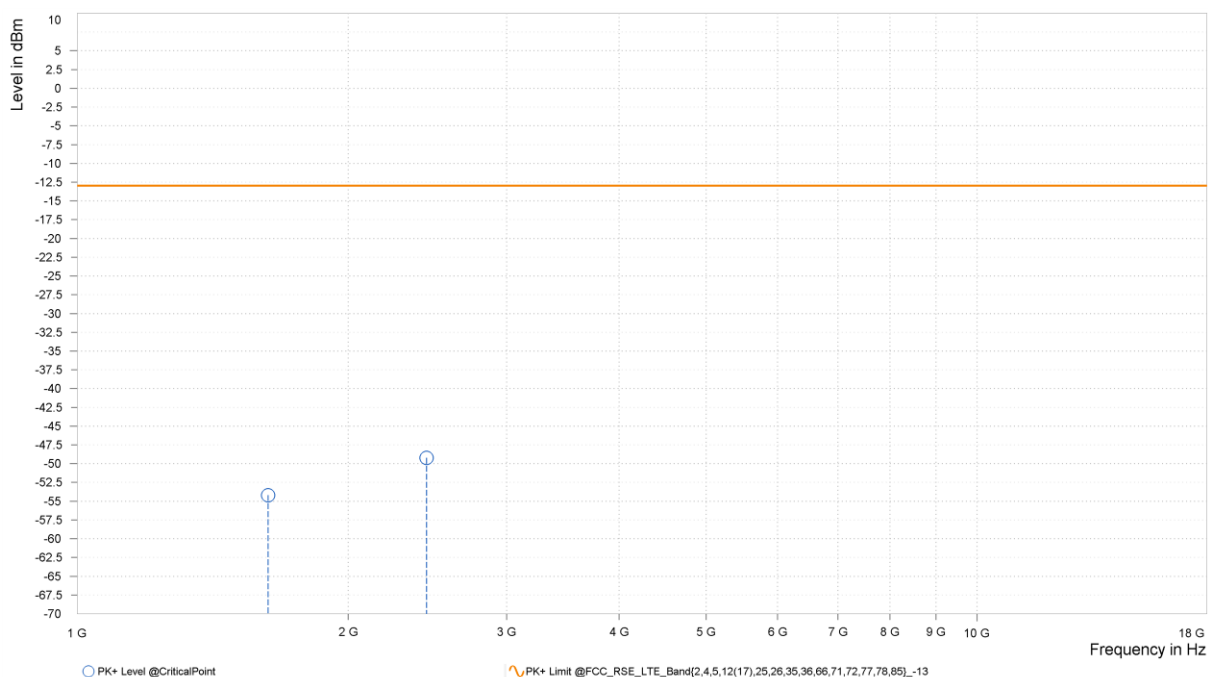
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,633.500	-54.56	-13.00	41.56	5.90	V	0.9	2.00
1	2,450.250	-49.90	-13.00	36.90	12.33	V	5.1	1.00



CHANNEL BANDWIDTH: 10MHz / QPSK

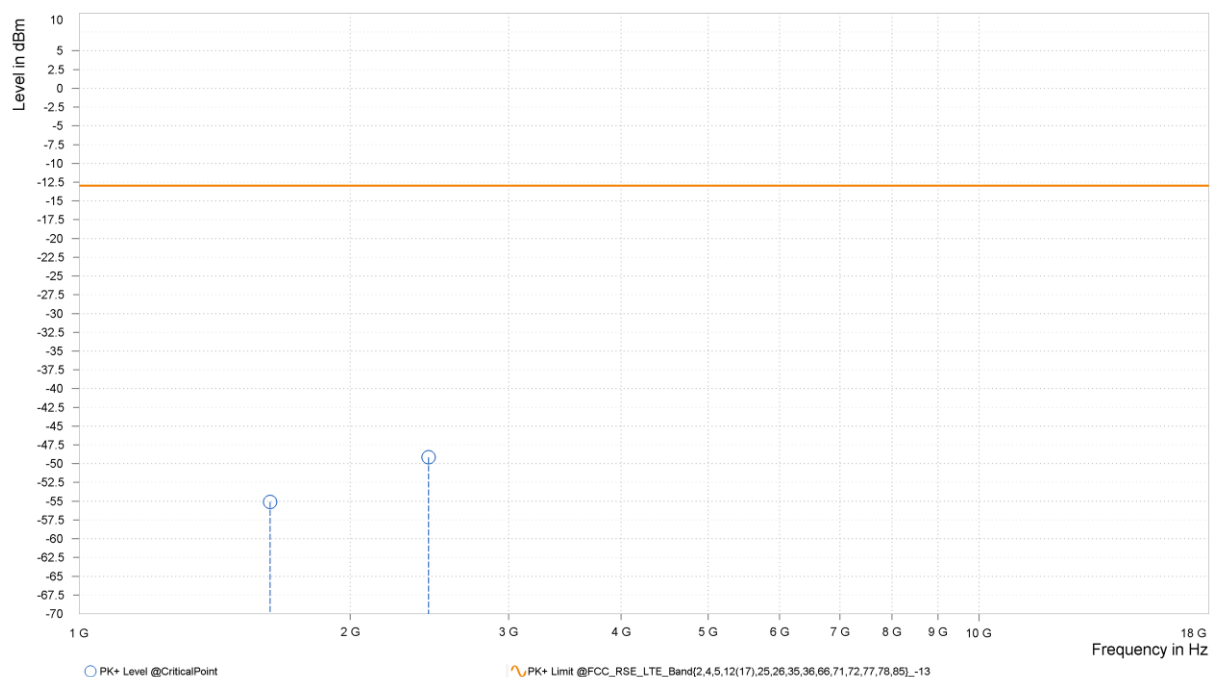
MODE	TX channel 26740	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,629.000	-54.20	-13.00	41.20	6.09	H	336.5	1.00
1	2,443.500	-49.22	-13.00	36.22	12.57	H	336.5	1.00



MODE	TX channel 26740	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

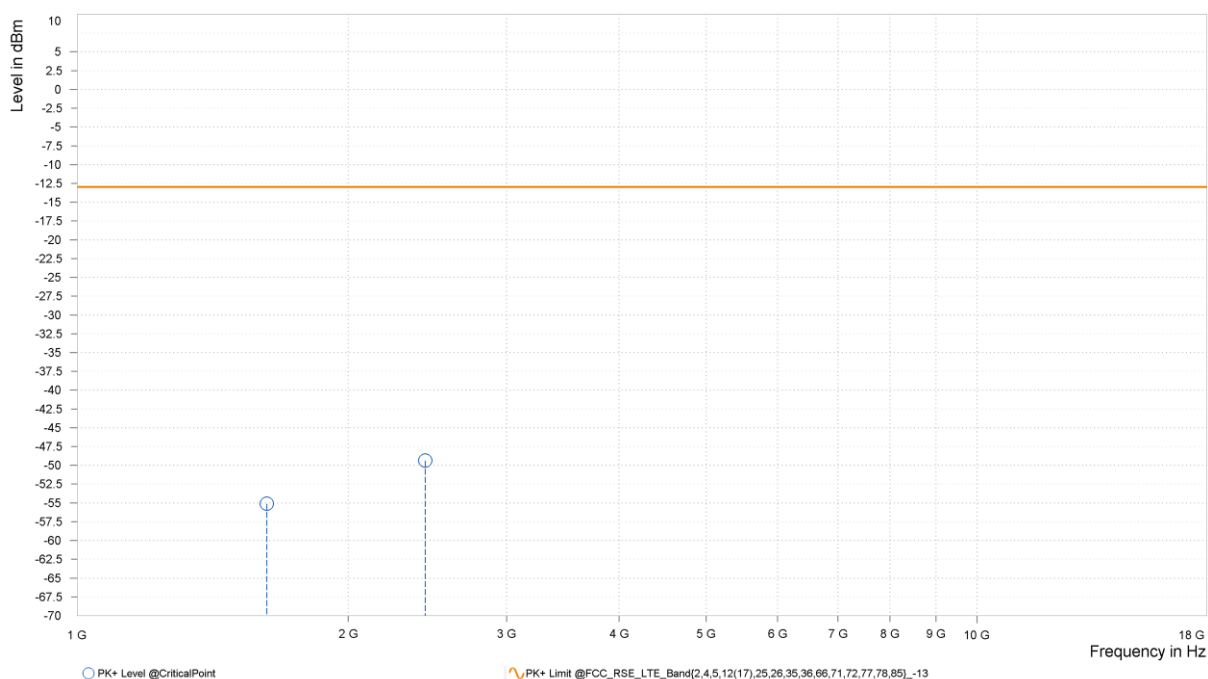
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,629.000	-55.10	-13.00	42.10	5.80	V	5.1	1.00
1	2,443.500	-49.16	-13.00	36.16	12.40	V	358.6	1.00



CHANNEL BANDWIDTH: 15MHz / QPSK

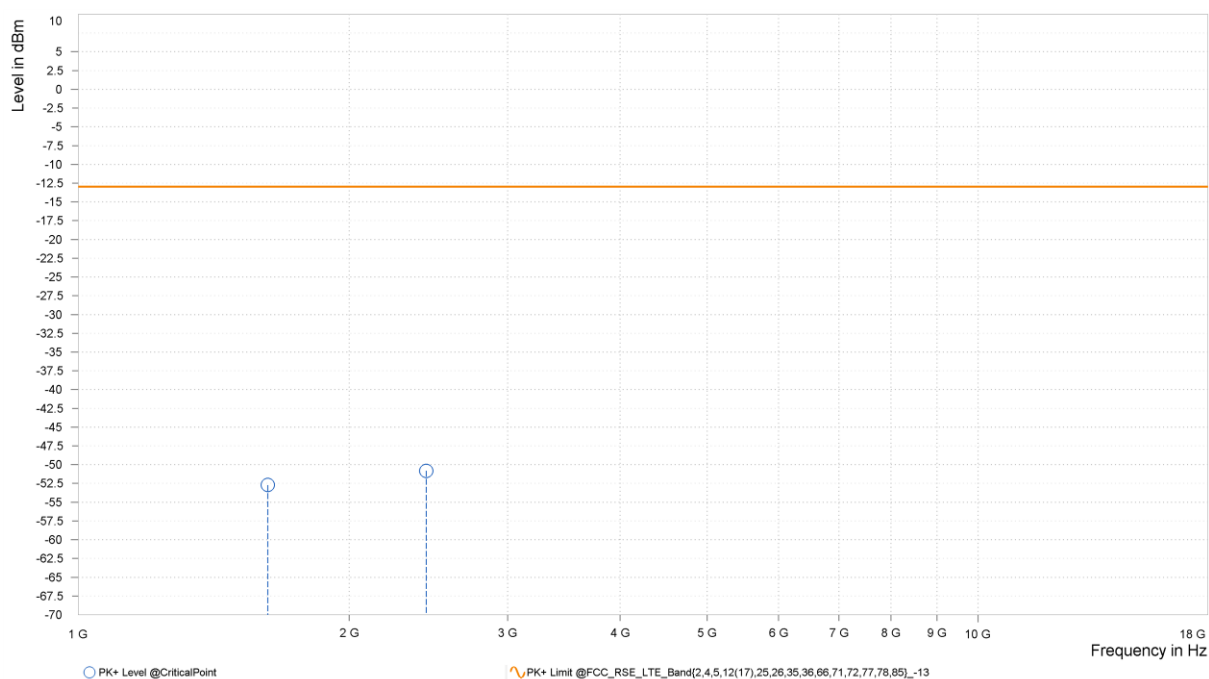
MODE	TX channel 26740	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,624.500	-55.12	-13.00	42.12	5.93	H	359	2.00
1	2,436.750	-49.39	-13.00	36.39	12.61	H	247	1.00



MODE	TX channel 26740	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,624.500	-52.71	-13.00	39.71	5.69	V	355	2.00
1	2,436.750	-50.82	-13.00	37.82	12.47	V	355	2.00



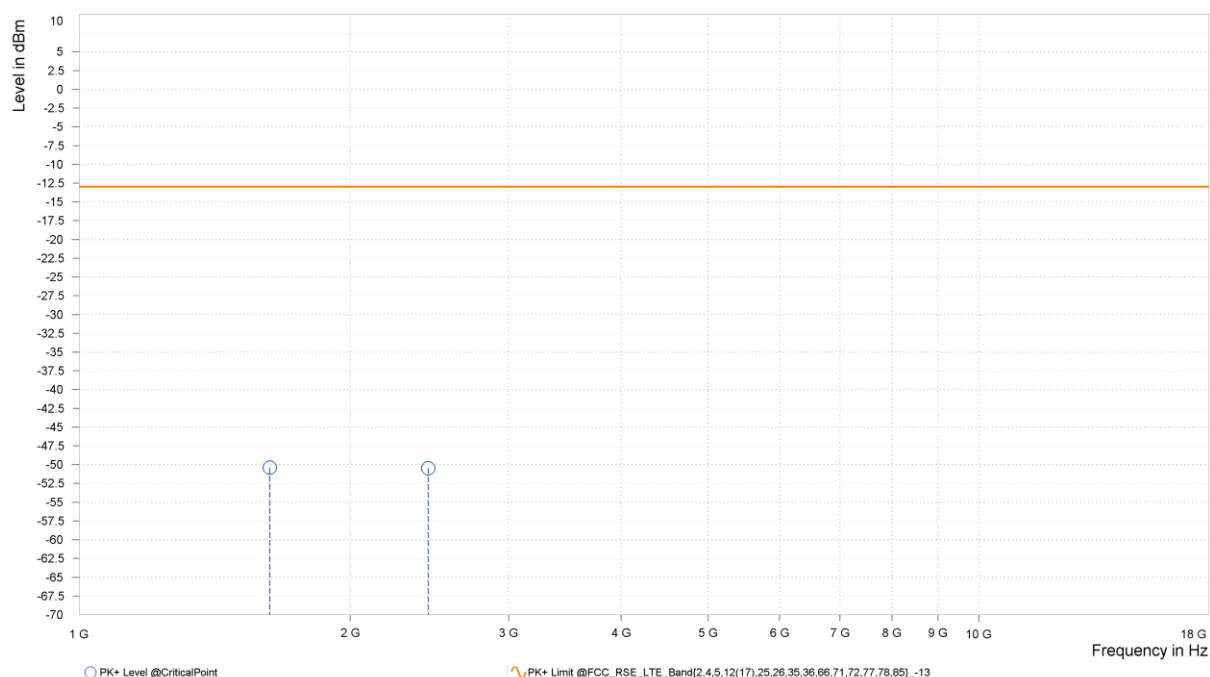
NB-IOT LTE Band 26:

CHANNEL BANDWIDTH: QPSK

CH26692

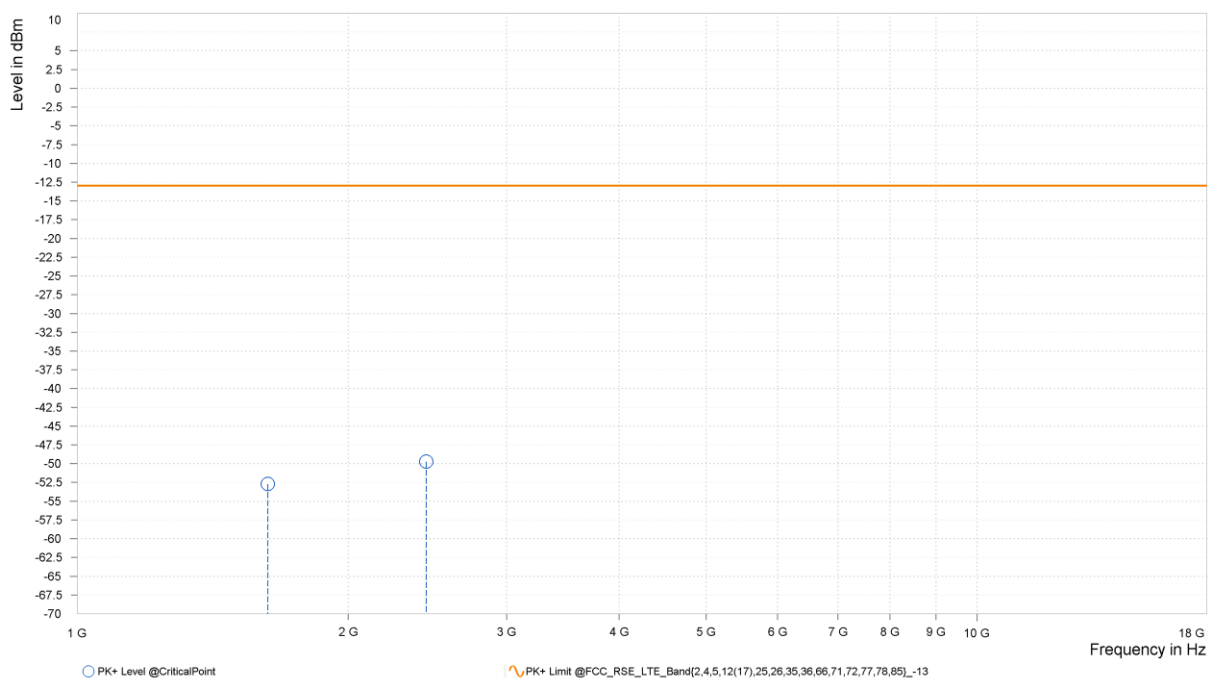
MODE	TX channel 26692	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,628.200	-50.41	-13.00	37.41	6.05	H	224.2	1.00
1	2,442.300	-50.47	-13.00	37.47	12.58	H	353.5	2.00



MODE	TX channel 26692	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

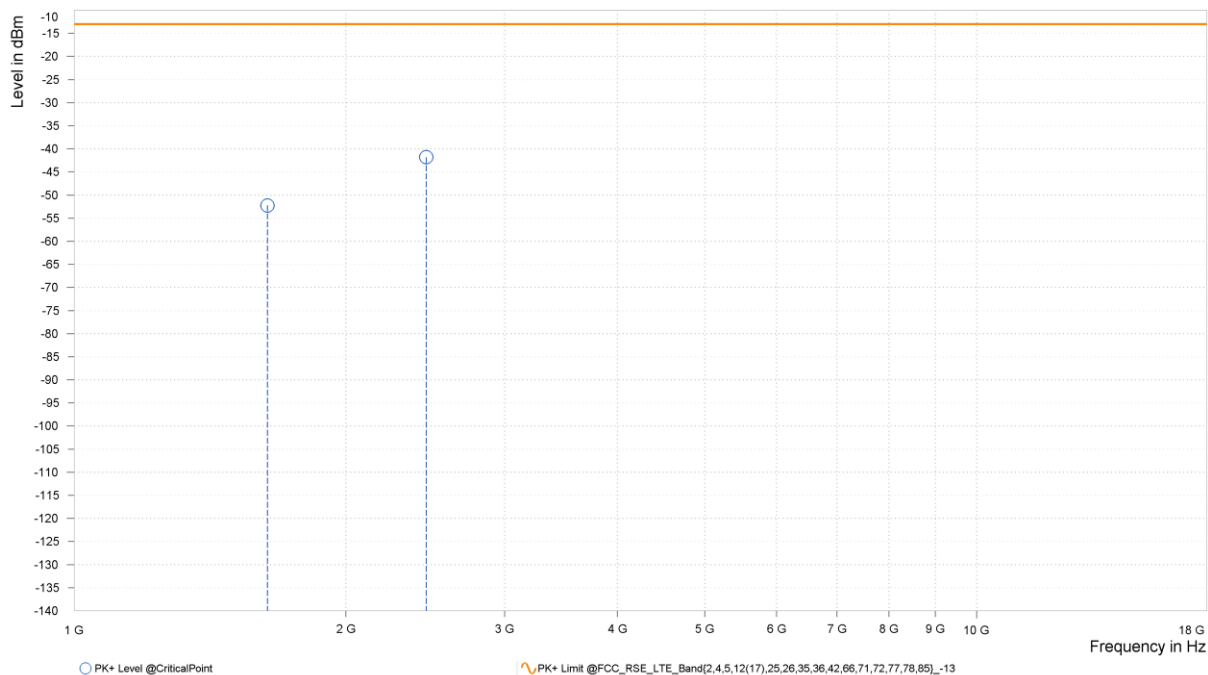
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,628.200	-52.71	-13.00	39.71	5.77	V	357	1.00
1	2,442.300	-49.73	-13.00	36.73	12.41	V	357	1.00



CH 26740

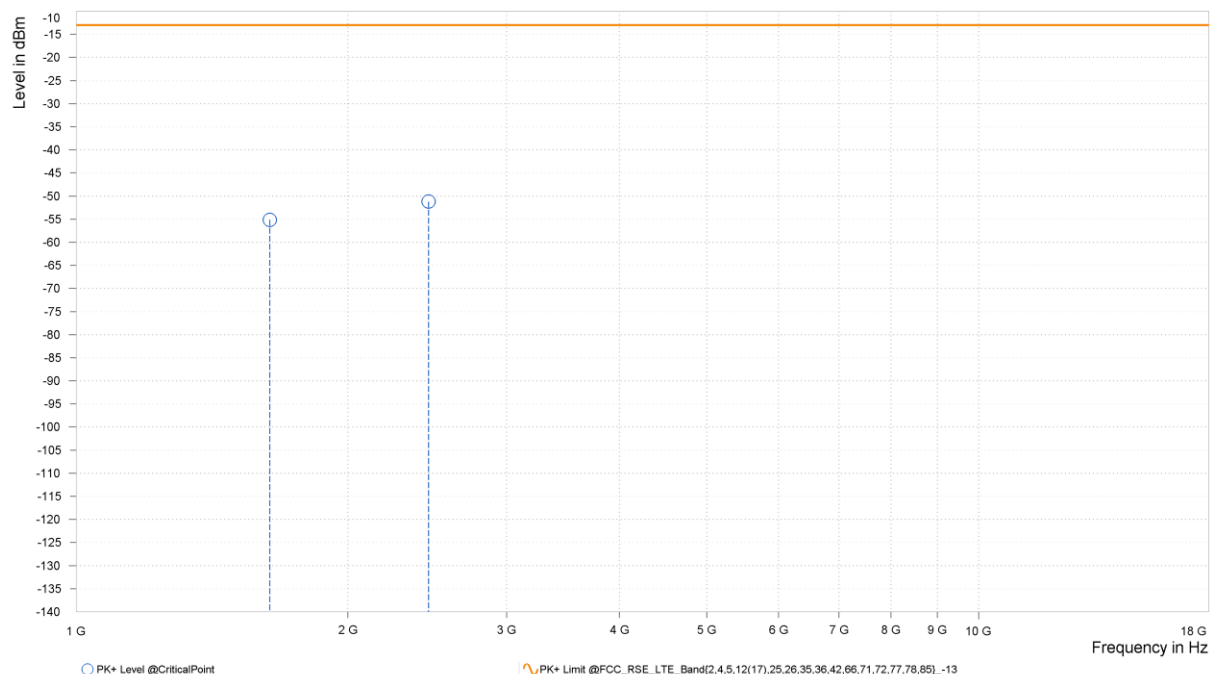
MODE	TX channel 26740	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,637.500	-52.24	-13.00	39.24	13.66	H	0.9	2.00
3	2,454.500	-41.82	-13.00	28.82	19.41	H	333.9	1.00



MODE	TX channel 26740	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

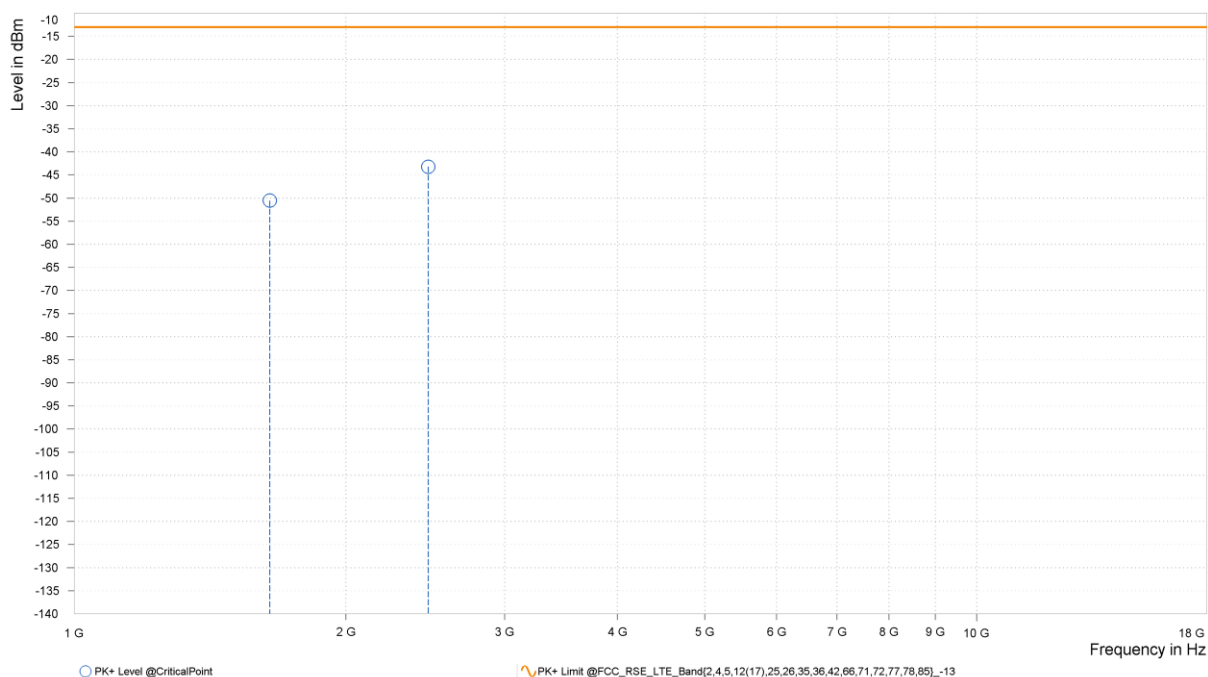
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,638.000	-55.16	-13.00	42.16	13.69	V	359	2.00
3	2,457.000	-51.20	-13.00	38.20	19.40	V	236.2	1.00



CH 26788

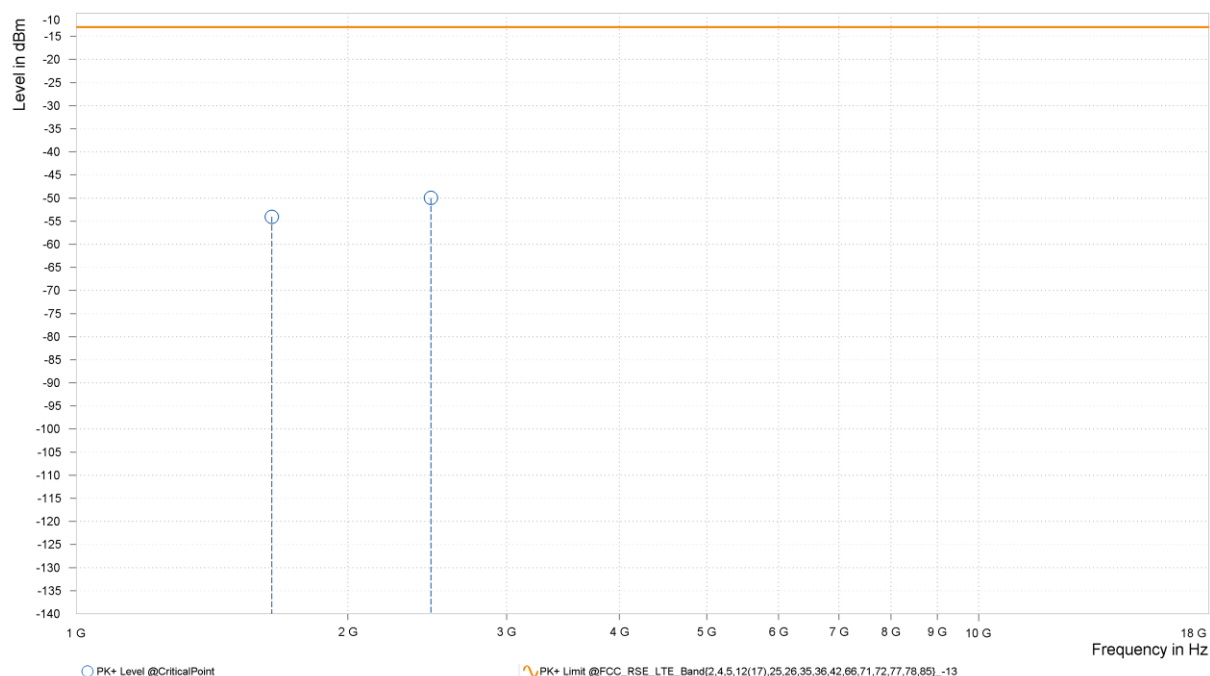
MODE	TX channel 26788	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,647.500	-50.57	-13.00	37.57	14.01	H	358.8	1.00
3	2,468.500	-43.22	-13.00	30.22	19.18	H	176.8	2.00



MODE	TX channel 26788	FREQUENCY RANGE	Below 1000MHZ
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,647.600	-54.08	-13.00	41.08	13.66	V	359.1	1.00
3	2,471.400	-50.00	-13.00	37.00	19.50	V	120.9	2.00

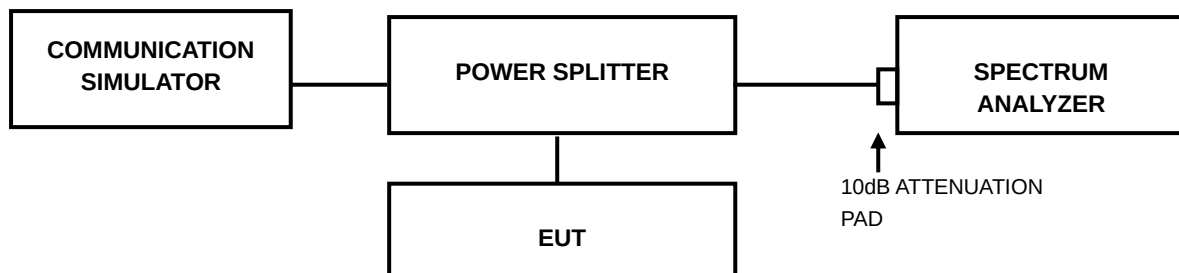


3.7 PEAK TO AVERAGE RATIO

3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

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

3.7.2 TEST SETUP



3.7.3 TEST PROCEDURES

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



Test Report No.: W7L-240204W001RF05

3.7.4 TEST RESULTS

Refer to the original source report (Report No.: 77535RRF.004, Model Name: nRF9151, FCC ID: 2ANPO00nRF9151).



Test Report No.: W7L-240204W001RF05

4 INFORMATION ON THE TESTING LABORATORIES

We, Huarui 7layers High Technology (Suzhou) Co., Ltd. ,were founded in 2020 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

Lab Address:

Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province

Accredited Test Lab Cert 6613.01

The FCC Site Registration No. is 434559; The Designation No. is CN1325.

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

Suzhou EMC/RF Lab:

Tel: +86 (0557) 368 1008



Test Report No.: W7L-240204W001RF05

5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No modifications were made to the EUT by the lab during the test.

--END--