

FCC TEST REPORT

(PART 24)

Applicant:	Lenovo (Shanghai) Electronics Technology Co., Ltd.
Address:	Section 304-305, Building No. 4, # 222, Meiyue Road, China (Shanghai) Pilot Free Trade Zone

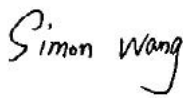
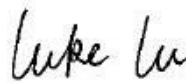
Manufacturer or Supplier:	Lenovo PC HK Limited
Address:	23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong, China
Product:	Portable Tablet Computer
Brand Name:	Lenovo
Model Name:	TB311XU
FCC ID	O57TB311XU
Date of tests	Aug. 15, 2024~Sep. 24, 2024

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

☒ **FCC PART 24, Subpart E**
☒ **FCC PART 2**
☒ **ANSI/TIA/EIA-603-D**

☒ **ANSI/TIA/EIA-603-E**
☒ **ANSI C63.26-2015**

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

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
	
Date: Sep. 24, 2024	Date: Sep. 24, 2024

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-NQN2407300216RF04	Original release	Sep. 24, 2024



1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 24 & Part 2			
STANDARD SECTION	TEST TYPE	RESULT	Test lab*
§2.1046	Coducted Output Power	Compliance	A
§24.232(c)	Equivalent Isotropic Radiated Power	Compliance	A
§2.1055 §24.235	Frequency Stability	Compliance	A
§2.1049	Occupied Bandwidth	Compliance	A
§24.232(d)	Peak to average ratio*	Compliance	A
§24.238(a)(b)	Band Edge Measurements	Compliance	A
§2.1051 §24.238(a)(b)	Conducted Spurious Emissions	Compliance	A
§2.1053 §24.238(a)(b)	Radiated Spurious Emissions	Compliance	A

* Refer to KDB 971168 D01 Power Meas License Digital Systems v03r01.

*Test Lab Information Reference

Lab A:

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

Lab Address:

Tower N, Innovation Center, 88 Zuyi 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
Frequency Stability	$\pm 76.97\text{Hz}$
Radiated emissions (9KHz~30MHz)	$\pm 2.68\text{dB}$
Radiated emissions & Radiated Power (30MHz~1GHz)	$\pm 4.98\text{dB}$
Radiated emissions & Radiated Power (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	$\pm 43.58\text{KHz}$
Conducted Output power	$\pm 2.06\text{dB}$
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 $k=2$.



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	SCU18F1	100815	Aug.29,24	Aug.28,26
Pre-Amplifier	R&S	SCU08F1	101028	Sep.16,22	Sep.15,24
Pre-Amplifier	R&S	SCU08F1	101028	Sep.15,24	Sep.14,26
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-EMC-01Chamber	Nov.25,22	Nov.24,25
3m Semi-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-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	ETS-LINDGREN	3117	227836	Aug.21,24	Aug.20,26
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Jul.15,24	Jul.14,26
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,22	Aug.21,24
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.21,24	Aug.20,26
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.22,24	Feb.21,26
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.19,24	Jun.18,26
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
DC Source	HYELEC	HY3010B	551016	Aug.30,24	Aug.29,26
Hygrothermograph	DELI	20210528	SZ014	Sep.06,22	Sep.05,24
Hygrothermograph	DELI	20210528	SZ014	Sep.05,24	Sep.04,26
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.30,24	May.29,26



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- NOTE:**
1. The calibration interval of the above test instruments is 12/24/36 months and the calibrations are traceable to CEPREI/CHINA, GREGT/CHINA and NIM/CHINA.
 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*	Portable Tablet Computer	
BRAND NAME*	Lenovo	
MODEL NAME*	TB311XU	
NOMINAL VOLTAGE*	5Vdc (Adapter or host equipment) 3.9Vdc (Li-Polymer, battery)	
MODULATION TYPE*	GSM/GPRS: GMSK EDGE: 8PSK WCDMA: BPSK, QPSK LTE Band 2/25: QPSK, 16QAM, 64QAM	
FREQUENCY RANGE	GPRS, EDGE	1850.2MHz ~ 1909.8MHz
	WCDMA	1852.4MHz ~ 1907.6MHz
	LTE Band 2 Channel Bandwidth: 1.4MHz	1850.7MHz ~ 1909.3MHz
	LTE Band 2 Channel Bandwidth: 3MHz	1851.5MHz ~ 1908.5MHz
	LTE Band 2 Channel Bandwidth: 5MHz	1852.5MHz ~ 1907.5MHz
	LTE Band 2 Channel Bandwidth: 10MHz	1855.0MHz ~ 1905.0MHz
	LTE Band 2 Channel Bandwidth: 15MHz	1857.5MHz ~ 1902.5MHz
	LTE Band 2 Channel Bandwidth: 20MHz	1860.0MHz ~ 1900.0MHz
	LTE Band 25 Channel Bandwidth: 1.4MHz	1850.7MHz ~ 1914.3MHz
	LTE Band 25 Channel Bandwidth: 3MHz	1851.5MHz ~ 1913.5MHz
	LTE Band 25 Channel Bandwidth: 5MHz	1852.5MHz ~ 1912.5MHz
	LTE Band 25 Channel Bandwidth: 10MHz	1855.0MHz ~ 1910.0MHz
	LTE Band 25 Channel Bandwidth: 15MHz	1857.5MHz ~ 1907.5MHz
	LTE Band 25 Channel Bandwidth: 20MHz	1860.0MHz ~ 1905.0MHz
MAX. EIRP POWER	GSM/GPRS	977.24mW
	EDGE	433.51mW
	WCDMA	277.97mW
	LTE Band 2 Channel Bandwidth: 1.4MHz	227.51mW
	LTE Band 2 Channel Bandwidth: 3MHz	228.56mW



	LTE Band 2 Channel Bandwidth: 5MHz	228.56mW
	LTE Band 2 Channel Bandwidth: 10MHz	226.99mW
	LTE Band 2 Channel Bandwidth: 15MHz	226.99mW
	LTE Band 2 Channel Bandwidth: 20MHz	231.74mW
	LTE Band 25 Channel Bandwidth: 1.4MHz	195.88mW
	LTE Band 25 Channel Bandwidth: 3MHz	189.67mW
	LTE Band 25 Channel Bandwidth: 5MHz	188.36mW
	LTE Band 25 Channel Bandwidth: 10MHz	189.67mW
	LTE Band 25 Channel Bandwidth: 15MHz	189.67mW
	LTE Band 25 Channel Bandwidth: 20MHz	193.64mW
EMISSION DESIGNATOR	GPRS	247KGXW
	EDGE	247KG7W
	WCDMA	4M16F9W
	LTE Band 25 Channel Bandwidth: 1.4MHz	QPSK: 1M83G7D
		16QAM: 1M09W7D
		64QAM: 1M09W7D
	LTE Band 25 Channel Bandwidth: 3MHz	QPSK: 2M68G7D
		16QAM: 2M68W7D
		64QAM: 2M68W7D
	LTE Band 25 Channel Bandwidth: 5MHz	QPSK: 4M49G7D
		16QAM: 4M49W7D
		64QAM: 4M49W7D
	LTE Band 25 Channel Bandwidth: 10MHz	QPSK: 8M97G7D
		16QAM: 8M96W7D
		64QAM: 8M97W7D
	LTE Band 25 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M5W7D
		64QAM: 13M5W7D
	LTE Band 25 Channel Bandwidth: 20MHz	QPSK: 17M9G7D
		16QAM: 17M9W7D



	64QAM: 17M9W7D
ANTENNA TYPE*	ANT1: PIFA Antenna with 0.3dBi gain for GSM1900/WCDMA II/LTE B2/ LTE B25 ANT2: PIFA Antenna with -0.57dBi gain for GSM1900/WCDMA II/LTE B2/ LTE B25
HW VERSION*	TB311XU
SW VERSION*	TB311XU_RF01_20240921
I/O PORTS*	Refer to user's manual
CABLE SUPPLIED*	USB cable1: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable2: non-shielded cable, with w/o ferrite core, 1.0 meter
EXTREME TEMPERATURE*	-10-55 °C
EXTREME VOLTAGE*	3.5V – 4.5V

NOTE:

- *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.
- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and four receivers.

MODULATION MODE	TX FUNCTION
GSM/GPRS/EDGE	1TX/1RX
WCDMA	1TX/1RX
LTE	1TX/1RX

- For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

5. List of Accessory:

ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
Battery 1	N/A	Zhejiang Sunwoda Electronic Co., Ltd.	L24D1P32	Nominal Energy: 19.55Wh , Typical Energy: 19.95Wh
Battery 2	N/A	Ningde Amperex Technology Limited	L24D1P32	Nominal Energy: 19.55Wh , Typical Energy: 19.95Wh
AC Adapter 1	Salcomp	Salcomp (Shenzhen) Co., Ltd	MC-201L (US)	AC Input: 100-240V~, 50/60Hz, 0.7A DC Output: 5.0Vdc 3.0A 15W 10Vdc 2.0A 20W 12Vdc 1.67A 20W

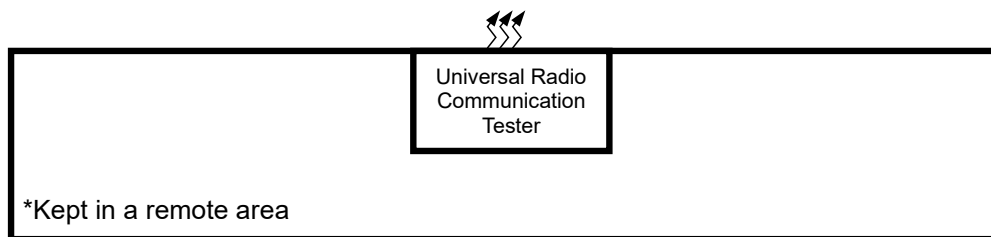
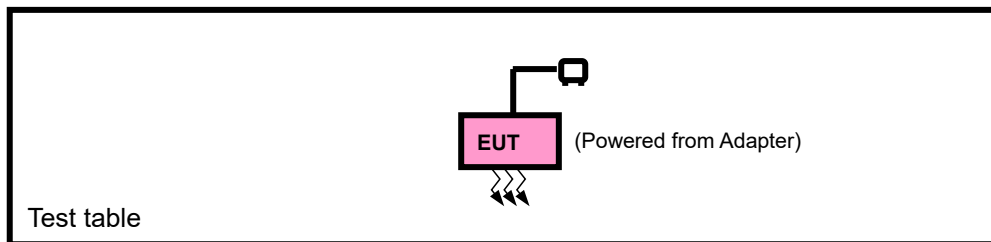
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AC Adapter 2	Aohai	Jiangxi Jian Aohai Technology Co., Ltd.	MC-201L (US)	AC Input: 100-240V~, 50/60Hz, 0.7A DC Output: 5.0Vdc 3.0A 15W 10Vdc 2.0A 20W 12Vdc 1.67A 20W
USB Cable 1 (support unit)	Saibao	Saibao (Jiangxi) Industrial Co., LTD	SLQ-A263A	Signal Line, 1.0meter
USB Cable 2	Jieye	Jiangxi Jieye Electronics Co., LTD	JY-C03-422	Signal Line, 1.0meter
Earphone(optional)	Lenovo	N/A	E310	N/A
Pen(optional)	Lenovo	N/A	passive pen	N/A



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2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION TEST



**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	Earphone	N/A	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	USB Cable: Unshielded, Detachable, 1.0m;

2.4 TEST ITEM AND TEST CONFIGURATION

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

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + Adapter with GSM or WCDMA or LTE link
B	EUT + DC Supply with GSM or WCDMA or LTE link

GSM MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	EIRP	512 to 810	512, 661, 810	GSM,EDGE
B	FREQUENCY STABILITY	512 to 810	512, 661, 810	GSM,EDGE
A	OCCUPIED BANDWIDTH	512 to 810	512, 661, 810	GSM,EDGE
A	PEAK TO AVERAGE RATIO	512 to 810	512, 661, 810	GSM,EDGE
A	BAND EDGE	512 to 810	512, 810	GSM,EDGE
A	CONDUCTED EMISSION	512 to 810	512, 661, 810	GSM,EDGE
A	RADIATED EMISSION	512 to 810	512, 661, 810	GSM,EDGE



EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	EIRP	9262 to 9538	9262, 9400, 9538	WCDMA
B	FREQUENCY STABILITY	9262 to 9538	9262, 9400, 9538	WCDMA
A	OCCUPIED BANDWIDTH	9262 to 9538	9262, 9400, 9538	WCDMA
A	PEAK TO AVERAGE RATIO	9262 to 9538	9262, 9400, 9538	WCDMA
A	BAND EDGE	9262 to 9538	9262, 9538	WCDMA
A	CONDCUETED EMISSION	9262 to 9538	9262, 9400, 9538	WCDMA
A	RADIATED EMISSION	9262 to 9538	9262, 9400, 9538	WCDMA

LTE BAND 2 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset

Note: 1.This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

2. LTE Band 2 are covered by LTE Band 25, Because it is a subset of LTE Band 25 with the same output power and supported bandwidths, So the conducted test data and RSE test data please refer to LTE Band 25

LTE BAND 25 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	26047 to 26683	26047, 26365, 26683	1.4MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset



		26055 to 26675	26055, 26365, 26675	3MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26065 to 26665	26065, 26365, 26665	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26090 to 26640	26090, 26365 26640	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26115 to 26615	26115, 26365, 26615	15MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26140 to 26590	26140, 26365, 26590	20MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	26140 to 26590	26140, 26365, 26590	20MHz	QPSK,16QAM, 64QAM	100 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	26047 to 26683	26047, 26365, 26683	1.4MHz	QPSK,16QAM, 64QAM	6 RB / 0 RB Offset
		26055 to 26675	26055, 26365, 26675	3MHz	QPSK,16QAM, 64QAM	15 RB / 0 RB Offset
		26065 to 26665	26065, 26365, 26665	5MHz	QPSK,16QAM, 64QAM	25 RB / 0 RB Offset
		26090 to 26640	26090, 26365 26640	10MHz	QPSK,16QAM, 64QAM	50 RB / 0 RB Offset
		26115 to 26615	26115, 26365, 26615	15MHz	QPSK,16QAM, 64QAM	75 RB / 0 RB Offset
		26140 to 26590	26140, 26365, 26590	20MHz	QPSK,16QAM, 64QAM	100 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	26140 to 26590	26140, 26365, 26590	20MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 100 RB / 0 RB Offset
A	BAND EDGE	26047 to 26683	26047	1.4MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 6 RB / 0 RB Offset
			26683	1.4MHz	QPSK,16QAM, 64QAM	1 RB / 5 RB Offset 6 RB / 0 RB Offset
		26055 to 26675	26055	3MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 15 RB / 0 RB Offset
			26675	3MHz	QPSK,16QAM, 64QAM	1 RB / 14 RB Offset 15 RB / 0 RB Offset
		26065 to 26665	26065	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 25 RB / 0 RB Offset
			26665	5MHz	QPSK,16QAM, 64QAM	1 RB / 24 RB Offset 25 RB / 0 RB Offset
		26090 to 26640	26090	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 50 RB / 0 RB Offset
			26640	10MHz	QPSK,16QAM, 64QAM	1 RB / 49 RB Offset 50 RB / 0 RB Offset
		26115 to 26615	26115	15MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 75 RB / 0 RB Offset
			26615	15MHz	QPSK,16QAM, 64QAM	1 RB / 74 RB Offset 75 RB / 0 RB Offset
		26140 to 26590	26140	20MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 100 RB / 0 RB Offset
			26590	20MHz	QPSK,16QAM, 64QAM	1 RB / 99 RB Offset 100 RB / 0 RB Offset



A	CONDCUETED EMISSION	26047 to 26683	26047, 26365, 26683	1.4MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26055 to 26675	26055, 26365, 26675	3MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26065 to 26665	26065, 26365, 26665	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26090 to 26640	26090, 26365, 26640	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26115 to 26615	26115, 26365, 26615	15MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		26140 to 26590	26140, 26365, 26590	20MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	26047 to 26683	26365	1.4MHz	QPSK	1 RB / 0 RB Offset
		26055 to 26675	26365	3MHz	QPSK	1 RB / 0 RB Offset
		26065 to 26665	26365	5MHz	QPSK	1 RB / 0 RB Offset
		26090 to 26640	26090,26365,26640	10MHz	QPSK	1 RB / 0 RB Offset
		26115 to 26615	26365	15MHz	QPSK	1 RB / 0 RB Offset
		26140 to 26590	26365	20MHz	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 CONDITION:**

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP	23deg. C, 70%RH	DC 3.9V By Battery	Jace Hu
FREQUENCY STABILITY	23deg. C, 70%RH	DC 5V By DC Source	James Fu
OCCUPIED BANDWIDTH	23deg. C, 70%RH	DC 3.9V By Battery	James Fu
BAND EDGE	23deg. C, 70%RH	DC 3.9V By Battery	James Fu
CONDUCTED EMISSION	23deg. C, 70%RH	DC 3.9V By Battery	James Fu
RADIATED EMISSION	23deg. C, 70%RH	AC 120V/60MHz	James Fu
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	DC 3.9V By Battery	Jace Hu

2.5 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.

2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC 47 CFR Part 2

FCC 47 CFR Part 24

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-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

Mobile and portable stations are limited to 2 watts EIRP.

3.1.2 TEST PROCEDURES

EIRP 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:

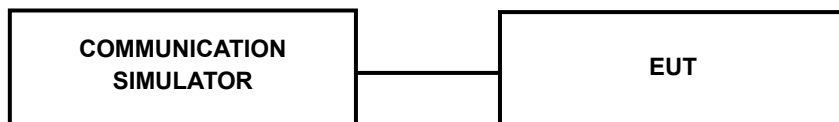
The EUT was set up for the maximum power with WCDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.



3.1.3 TEST SETUP

EIRP / ERP Measurement:

CONDUCTED POWER MEASUREMENT:



3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm) :

Band	GSM1900		
Channel	512	661	810
Frequency	1850.2	1880	1909.8
GSM	29.39	29.49	29.58
GPRS 1Tx Slot	29.38	29.47	29.60
GPRS 2Tx Slot	28.72	28.82	28.97
GPRS 3Tx Slot	26.66	26.89	27.05
GPRS 4Tx Slot	25.61	25.76	25.89
EDGE 1Tx Slot	26.01	25.96	26.07
EDGE 2Tx Slot	25.05	24.86	25.06
EDGE 3Tx Slot	22.84	22.74	22.87
EDGE 4Tx Slot	21.63	21.58	21.61

Band	WCDMA II		
TX Channel	9262	9400	9538
Rx Channel	9662	9800	9938
Frequency	1852.4	1880	1907.6
RMC 12.2K	23.98	23.86	24.14
HSDPA Subtest-1	23.40	23.28	23.56
HSDPA Subtest-2	23.39	23.27	23.55
HSDPA Subtest-3	22.88	22.76	23.04
HSDPA Subtest-4	22.87	22.75	23.03
DC-HSDPA Subtest-1	23.32	23.22	23.48
DC-HSDPA Subtest-2	23.31	23.21	23.47
DC-HSDPA Subtest-3	22.89	22.70	22.98
DC-HSDPA Subtest-4	22.88	22.69	22.97
HSUPA Subtest-1	23.36	23.24	23.52
HSUPA Subtest-2	22.35	22.23	22.51
HSUPA Subtest-3	22.83	22.72	23.00
HSUPA Subtest-4	22.32	22.21	22.49
HSUPA Subtest-5	23.31	23.20	23.48
HSPA+ Subtest-1	22.87	22.77	23.05



Band/BW	Modulation	RB Size	RB Offset	Low CH 18607	Mid CH 18900	High CH 19193
				Frequency 1850.7 MHz	Frequency 1880 MHz	Frequency 1909.3 MHz
2/ 1.4	QPSK	1	0	22.86	22.91	22.97
		1	2	23.14	23.27	23.23
		1	5	22.75	22.82	23.11
		3	0	23.14	22.99	23.14
		3	1	23.16	23.21	23.09
		3	3	23.02	22.97	23.02
		6	0	22.04	22.16	21.99
	16QAM	1	0	22.27	22.22	22.25
		1	2	22.50	22.36	22.30
		1	5	22.09	22.13	22.17
		3	0	22.13	22.02	22.06
		3	1	22.05	22.14	22.10
		3	3	21.98	21.97	22.04
		6	0	20.94	21.03	20.99
	64QAM	1	0	21.06	21.07	20.05
		1	2	21.29	21.33	21.32
		1	5	21.08	21.21	20.15
		3	0	21.07	21.03	21.05
		3	1	21.04	21.10	21.10
		3	3	21.08	21.03	21.02
		6	0	20.09	20.01	20.08



Band/BW	Modulation	RB Size	RB Offset	Low CH 18615	Mid CH 18900	High CH 19185
				Frequency 1851.5 MHz	Frequency 1880 MHz	Frequency 1908.5 MHz
2/ 3	QPSK	1	0	22.75	22.82	22.96
		1	7	23.14	23.29	23.25
		1	14	22.83	22.93	23.10
		8	0	22.06	22.05	22.19
		8	3	22.15	22.25	22.15
		8	7	22.08	21.94	22.02
		15	0	21.98	22.15	22.05
	16QAM	1	0	22.30	22.26	22.19
		1	7	22.52	22.26	22.30
		1	14	22.08	22.07	22.13
		8	0	21.07	21.13	21.03
		8	3	21.16	21.10	21.16
		8	7	21.07	21.06	21.10
		15	0	20.93	21.01	21.07
	64QAM	1	0	21.05	21.11	20.04
		1	7	21.28	21.29	21.41
		1	14	21.18	21.20	20.24
		8	0	19.99	20.01	20.09
		8	3	20.09	20.05	20.11
		8	7	20.07	20.02	20.00
		15	0	20.01	19.95	19.98



Band/BW	Modulation	RB Size	RB Offset	Low CH 18625	Mid CH 18900	High CH 19175
				Frequency 1852.5 MHz	Frequency 1880 MHz	Frequency 1907.5 MHz
2/ 5	QPSK	1	0	22.87	22.85	22.90
		1	12	23.15	23.29	23.27
		1	24	22.83	22.94	23.10
		12	0	22.07	22.08	22.16
		12	6	22.21	22.23	22.13
		12	13	22.06	21.96	22.03
		25	0	21.96	22.06	21.99
	16QAM	1	0	22.25	22.13	22.14
		1	12	22.41	22.31	22.28
		1	24	22.09	22.08	22.06
		12	0	21.08	21.08	21.16
		12	6	21.10	21.10	21.17
		12	13	20.98	21.08	21.02
		25	0	20.90	20.99	21.05
	64QAM	1	0	21.04	21.11	20.04
		1	12	21.23	21.32	21.38
		1	24	21.11	21.20	20.25
		12	0	20.10	20.06	20.04
		12	6	20.12	20.16	20.10
		12	13	20.05	20.00	20.06
		25	0	20.00	20.04	20.08



Band/BW	Modulation	RB Size	RB Offset	Low CH 18650	Mid CH 18900	High CH 19150
				Frequency 1855 MHz	Frequency 1880 MHz	Frequency 1905 MHz
2/ 10	QPSK	1	0	22.79	22.88	22.96
		1	24	23.15	23.26	23.15
		1	49	22.72	22.86	23.05
		25	0	22.07	22.09	22.20
		25	12	22.19	22.18	22.14
		25	25	22.12	21.95	22.04
		50	0	22.09	22.07	22.07
	16QAM	1	0	22.28	22.21	22.12
		1	24	22.46	22.30	22.24
		1	49	22.17	22.17	22.12
		25	0	21.10	21.04	21.05
		25	12	21.02	21.07	21.08
		25	25	21.03	20.97	20.97
		50	0	20.98	21.02	21.00
	64QAM	1	0	21.10	21.02	20.14
		1	24	21.27	21.38	21.41
		1	49	21.12	21.21	20.23
		25	0	19.99	20.11	20.04
		25	12	20.09	20.10	20.13
		25	25	20.03	20.07	20.00
		50	0	20.02	20.05	19.95



Band/BW	Modulation	RB Size	RB Offset	Low CH 18675	Mid CH 18900	High CH 19125
				Frequency 1857.5 MHz	Frequency 1880 MHz	Frequency 1902.5 MHz
2/ 15	QPSK	1	0	22.85	22.91	22.86
		1	37	23.19	23.24	23.26
		1	74	22.79	22.94	23.09
		36	0	22.13	21.98	22.11
		36	19	22.17	22.21	22.08
		36	39	22.10	21.89	22.03
		75	0	22.01	22.11	22.01
	16QAM	1	0	22.27	22.16	22.13
		1	37	22.41	22.36	22.21
		1	74	22.22	22.19	22.08
		36	0	21.15	21.10	21.12
		36	19	21.05	21.09	21.08
		36	39	21.01	21.08	21.03
		75	0	20.95	20.95	21.04
	64QAM	1	0	21.09	21.14	20.02
		1	37	21.28	21.34	21.33
		1	74	21.09	21.14	20.22
		36	0	20.08	20.08	20.06
		36	19	20.14	20.05	20.12
		36	39	20.06	20.06	20.07
		75	0	20.03	19.95	19.94



Band/BW	Modulation	RB Size	RB Offset	Low CH 18700	Mid CH 18900	High CH 19100
				Frequency 1860 MHz	Frequency 1880 MHz	Frequency 1900 MHz
2/ 20	QPSK	1	0	22.90	22.97	22.99
		1	50	23.24	23.35	23.28
		1	99	22.85	22.95	23.12
		50	0	22.16	22.10	22.22
		50	25	22.25	22.26	22.23
		50	50	22.14	22.02	22.09
		100	0	22.11	22.17	22.13
	16QAM	1	0	22.36	22.27	22.26
		1	50	22.53	22.41	22.36
		1	99	22.23	22.21	22.20
		50	0	21.16	21.14	21.17
		50	25	21.17	21.18	21.20
		50	50	21.08	21.09	21.11
		100	0	21.05	21.09	21.08
	64QAM	1	0	21.13	21.15	20.17
		1	50	21.38	21.42	21.47
		1	99	21.21	21.25	20.27
		50	0	20.12	20.14	20.15
		50	25	20.18	20.20	20.22
		50	50	20.09	20.09	20.11
		100	0	20.11	20.10	20.09



Band/BW	Modulation	RB Size	RB Offset	Low CH 26047	Mid CH 26365	High CH 26683
				Frequency 1850.7 MHz	Frequency 1882.5 MHz	Frequency 1914.3 MHz
25/ 1.4	QPSK	1	0	22.92	22.88	22.97
		1	2	23.01	23.09	23.12
		1	5	22.84	22.90	22.94
		3	0	23.17	23.16	23.22
		3	1	23.12	23.09	23.05
		3	3	23.01	22.97	22.98
		6	0	22.10	21.99	21.93
	16QAM	1	0	22.04	22.23	22.25
		1	2	22.16	22.21	22.28
		1	5	22.27	22.09	22.17
		3	0	22.22	21.98	21.92
		3	1	22.08	22.09	22.09
		3	3	21.94	22.02	21.99
		6	0	21.02	20.91	21.05
	64QAM	1	0	21.13	21.07	21.21
		1	2	21.40	21.36	21.28
		1	5	21.25	21.06	21.16
		3	0	21.16	21.06	21.14
		3	1	21.16	21.06	21.18
		3	3	21.03	21.01	20.93
		6	0	20.14	20.05	20.11



Band/BW	Modulation	RB Size	RB Offset	Low CH 26055	Mid CH 26365	High CH 26675
				Frequency 1851.5 MHz	Frequency 1882.5 MHz	Frequency 1913.5 MHz
25/ 3	QPSK	1	0	22.81	22.92	22.88
		1	7	23.06	23.08	23.07
		1	14	22.89	22.86	23.03
		8	0	22.07	22.12	22.12
		8	3	22.09	22.05	22.05
		8	7	22.04	21.94	21.89
		15	0	22.03	22.05	21.94
	16QAM	1	0	21.98	22.23	22.19
		1	7	22.18	22.20	22.32
		1	14	22.15	22.19	22.25
		8	0	21.20	21.03	21.04
		8	3	21.10	21.12	21.17
		8	7	20.92	20.94	21.04
		15	0	21.07	20.91	20.92
	64QAM	1	0	21.08	21.04	21.12
		1	7	21.34	21.28	21.29
		1	14	21.21	21.20	21.17
		8	0	20.18	20.13	20.25
		8	3	20.05	20.11	20.22
		8	7	19.98	20.04	19.97
		15	0	20.08	20.02	20.01



Band/BW	Modulation	RB Size	RB Offset	Low CH 26065	Mid CH 26365	High CH 26665
				Frequency 1852.5 MHz	Frequency 1882.5 MHz	Frequency 1912.5 MHz
25/ 5	QPSK	1	0	22.90	22.97	22.99
		1	12	22.97	23.03	23.05
		1	24	22.79	23.00	22.94
		12	0	22.19	22.15	22.22
		12	6	22.01	22.16	22.15
		12	13	21.95	21.97	21.98
		25	0	22.09	22.03	22.05
	16QAM	1	0	22.03	22.12	22.30
		1	12	22.07	22.13	22.23
		1	24	22.18	22.10	22.13
		12	0	21.12	21.00	20.99
		12	6	21.13	21.11	21.08
		12	13	20.99	20.99	21.02
		25	0	21.07	20.88	20.96
	64QAM	1	0	21.08	21.03	21.22
		1	12	21.33	21.26	21.27
		1	24	21.14	21.17	21.15
		12	0	20.19	20.12	20.18
		12	6	20.04	20.13	20.19
		12	13	20.05	20.05	20.02
		25	0	20.19	20.02	20.04



Band/BW	Modulation	RB Size	RB Offset	Low CH 26090	Mid CH 26365	High CH 26640
				Frequency 1855 MHz	Frequency 1882.5 MHz	Frequency 1910 MHz
25/ 10	QPSK	1	0	22.81	22.95	22.99
		1	24	23.01	23.03	23.08
		1	49	22.86	22.87	22.96
		25	0	22.18	22.15	22.12
		25	12	22.09	22.12	22.19
		25	25	22.02	21.92	21.92
		50	0	21.99	22.01	21.97
	16QAM	1	0	22.04	22.12	22.22
		1	24	22.17	22.14	22.35
		1	49	22.19	22.23	22.21
		25	0	21.20	21.06	21.00
		25	12	21.00	21.01	21.08
		25	25	20.93	20.98	21.00
		50	0	21.08	20.91	21.03
	64QAM	1	0	21.04	21.08	21.20
		1	24	21.31	21.27	21.28
		1	49	21.19	21.18	21.17
		25	0	20.21	20.02	20.19
		25	12	20.06	20.17	20.25
		25	25	19.98	20.05	20.02
		50	0	20.13	20.09	19.98



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Band/BW	Modulation	RB Size	RB Offset	Low CH 26115	Mid CH 26365	High CH 26615
				Frequency 1857.5 MHz	Frequency 1882.5 MHz	Frequency 1907.5 MHz
25/ 15	QPSK	1	0	22.92	22.90	22.88
		1	37	23.04	23.05	23.03
		1	74	22.91	22.99	23.08
		36	0	22.13	22.25	22.19
		36	19	22.15	22.10	22.05
		36	39	21.95	22.01	21.93
		75	0	22.08	22.02	21.96
	16QAM	1	0	22.08	22.15	22.24
		1	37	22.11	22.12	22.28
		1	74	22.26	22.11	22.18
		36	0	21.11	21.05	20.90
		36	19	21.08	21.14	21.14
		36	39	21.05	21.01	20.99
		75	0	21.10	20.92	20.96
	64QAM	1	0	21.12	21.07	21.11
		1	37	21.31	21.28	21.34
		1	74	21.18	21.15	21.16
		36	0	20.26	20.06	20.16
		36	19	20.03	20.20	20.24
		36	39	19.99	19.95	19.91
		75	0	20.13	20.02	20.01



Band/BW	Modulation	RB Size	RB Offset	Low CH 26140	Mid CH 26365	High CH 26590
				Frequency 1860 MHz	Frequency 1882.5 MHz	Frequency 1905 MHz
25/ 20	QPSK	1	0	22.93	23.02	23.01
		1	50	23.11	23.17	23.16
		1	99	22.92	23.01	23.09
		50	0	22.21	22.26	22.23
		50	25	22.16	22.18	22.20
		50	50	22.08	22.02	22.01
		100	0	22.11	22.14	22.07
	16QAM	1	0	22.12	22.27	22.34
		1	50	22.22	22.23	22.36
		1	99	22.28	22.24	22.26
		50	0	21.23	21.08	21.05
		50	25	21.15	21.16	21.18
		50	50	21.06	21.06	21.05
		100	0	21.13	21.03	21.06
	64QAM	1	0	21.17	21.11	21.24
		1	50	21.43	21.38	21.37
		1	99	21.28	21.21	21.23
		50	0	20.27	20.16	20.26
		50	25	20.17	20.21	20.27
		50	50	20.13	20.09	20.03
		100	0	20.20	20.11	20.13



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EIRP POWER (dBm)

GSM 1900

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
512	1850.2	29.39	0.3	29.69	931.11	2
661	1880	29.49	0.3	29.79	952.8	2
810	1909.8	29.6	0.3	29.9	977.24	2

EDGE 1900

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
512	1850.2	26.01	0.3	26.31	427.56	2
661	1880	25.96	0.3	26.26	422.67	2
810	1909.8	26.07	0.3	26.37	433.51	2

WCDMA

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
9262	1852.4	23.98	0.3	24.28	267.92	2
9400	1880	23.86	0.3	24.16	260.62	2
9538	1907.6	24.14	0.3	24.44	277.97	2



CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18607	1850.7	23.16	0.3	23.46	221.82	2
18900	1880.0	23.27	0.3	23.57	227.51	2
19193	1909.3	23.23	0.3	23.53	225.42	2

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18607	1850.7	22.5	0.3	22.8	190.55	2
18900	1880.0	22.36	0.3	22.66	184.5	2
19193	1909.3	22.3	0.3	22.6	181.97	2

CHANNEL BANDWIDTH: 1.4MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18607	1850.7	21.29	0.3	21.59	144.21	2
18900	1880	21.33	0.3	21.63	145.55	2
19193	1909.3	21.32	0.3	21.62	145.21	2



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CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18615	1851.5	23.14	0.3	23.44	220.8	2
18900	1880	23.29	0.3	23.59	228.56	2
19185	1908.5	23.25	0.3	23.55	226.46	2

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18615	1851.5	22.52	0.3	22.82	191.43	2
18900	1880	22.26	0.3	22.56	180.3	2
19185	1908.5	22.3	0.3	22.6	181.97	2

CHANNEL BANDWIDTH: 3MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18615	1851.5	21.28	0.3	21.58	143.88	2
18900	1880	21.29	0.3	21.59	144.21	2
19185	1908.5	21.41	0.3	21.71	148.25	2



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CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18625	1852.5	23.15	0.3	23.45	221.31	2
18900	1880	23.29	0.3	23.59	228.56	2
19175	1907.5	23.27	0.3	23.57	227.51	2

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18625	1852.5	22.41	0.3	22.71	186.64	2
18900	1880	22.31	0.3	22.61	182.39	2
19175	1907.5	22.28	0.3	22.58	181.13	2

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18625	1852.5	21.23	0.3	21.53	142.23	2
18900	1880	21.32	0.3	21.62	145.21	2
19175	1907.5	21.38	0.3	21.68	147.23	2



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CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18650	1855	23.15	0.3	23.45	221.31	2
18900	1880	23.26	0.3	23.56	226.99	2
19150	1905	23.15	0.3	23.45	221.31	2

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18650	1855	22.46	0.3	22.76	188.8	2
18900	1880	22.3	0.3	22.6	181.97	2
19150	1905	22.24	0.3	22.54	179.47	2

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18650	1855	21.27	0.3	21.57	143.55	2
18900	1880	21.38	0.3	21.68	147.23	2
19150	1905	21.41	0.3	21.71	148.25	2



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CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18675	1857.5	23.19	0.3	23.49	223.36	2
18900	1880	23.24	0.3	23.54	225.94	2
19125	1902.5	23.26	0.3	23.56	226.99	2

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18675	1857.5	22.41	0.3	22.71	186.64	2
18900	1880	22.36	0.3	22.66	184.5	2
19125	1902.5	22.21	0.3	22.51	178.24	2

CHANNEL BANDWIDTH: 15MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18675	1857.5	21.28	0.3	21.58	143.88	2
18900	1880	21.34	0.3	21.64	145.88	2
19125	1902.5	21.33	0.3	21.63	145.55	2



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CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18700	1860	23.24	0.3	23.54	225.94	2
18900	1880	23.35	0.3	23.65	231.74	2
19100	1900	23.28	0.3	23.58	228.03	2

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18700	1860	22.53	0.3	22.83	191.87	2
18900	1880	22.41	0.3	22.71	186.64	2
19100	1900	22.36	0.3	22.66	184.5	2

CHANNEL BANDWIDTH: 20MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
18700	1860	21.38	0.3	21.68	147.23	2
18900	1880	21.42	0.3	21.72	148.59	2
19100	1900	21.47	0.3	21.77	150.31	2



CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26047	1850.7	23.17	-0.3	22.87	193.64	2
26340	1880	23.16	-0.3	22.86	193.2	2
26683	1914.3	23.22	-0.3	22.92	195.88	2

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26047	1850.7	22.27	-0.3	21.97	157.4	2
26340	1880	22.23	-0.3	21.93	155.96	2
26683	1914.3	22.28	-0.3	21.98	157.76	2

CHANNEL BANDWIDTH: 1.4MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26047	1850.7	21.4	-0.3	21.1	128.82	2
26340	1880	21.36	-0.3	21.06	127.64	2
26683	1914.3	21.28	-0.3	20.98	125.31	2



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CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26055	1851.5	23.06	-0.3	22.76	188.8	2
26340	1880	23.08	-0.3	22.78	189.67	2
26675	1913.5	23.07	-0.3	22.77	189.23	2

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26055	1851.5	22.18	-0.3	21.88	154.17	2
26340	1880	22.23	-0.3	21.93	155.96	2
26675	1913.5	22.32	-0.3	22.02	159.22	2

CHANNEL BANDWIDTH: 3MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26055	1851.5	21.34	-0.3	21.04	127.06	2
26340	1880	21.28	-0.3	20.98	125.31	2
26675	1913.5	21.29	-0.3	20.99	125.6	2



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CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26065	1852.5	22.97	-0.3	22.67	184.93	2
26340	1880	23.03	-0.3	22.73	187.5	2
26665	1912.5	23.05	-0.3	22.75	188.36	2

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26065	1852.5	22.18	-0.3	21.88	154.17	2
26340	1880	22.13	-0.3	21.83	152.41	2
26665	1912.5	22.3	-0.3	22	158.49	2

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26065	1852.5	21.33	-0.3	21.03	126.77	2
26340	1880	21.26	-0.3	20.96	124.74	2
26665	1912.5	21.27	-0.3	20.97	125.03	2



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CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26090	1855	23.01	-0.3	22.71	186.64	2
26340	1880	23.03	-0.3	22.73	187.5	2
26640	1910	23.08	-0.3	22.78	189.67	2

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26090	1855	22.19	-0.3	21.89	154.53	2
26340	1880	22.23	-0.3	21.93	155.96	2
26640	1910	22.35	-0.3	22.05	160.32	2

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26090	1855	21.31	-0.3	21.01	126.18	2
26340	1880	21.27	-0.3	20.97	125.03	2
26640	1910	21.28	-0.3	20.98	125.31	2



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CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26115	1857.5	23.04	-0.3	22.74	187.93	2
26340	1880	23.05	-0.3	22.75	188.36	2
26615	1907.5	23.08	-0.3	22.78	189.67	2

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26115	1857.5	22.26	-0.3	21.96	157.04	2
26340	1880	22.15	-0.3	21.85	153.11	2
26615	1907.5	22.28	-0.3	21.98	157.76	2

CHANNEL BANDWIDTH: 15MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26115	1857.5	21.31	-0.3	21.01	126.18	2
26340	1880	21.28	-0.3	20.98	125.31	2
26615	1907.5	21.34	-0.3	21.04	127.06	2



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CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26140	1860	23.11	-0.3	22.81	190.99	2
26340	1880	23.17	-0.3	22.87	193.64	2
26590	1905	23.16	-0.3	22.86	193.2	2

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26140	1860	22.28	-0.3	21.98	157.76	2
26340	1880	22.27	-0.3	21.97	157.4	2
26590	1905	22.36	-0.3	22.06	160.69	2

CHANNEL BANDWIDTH: 20MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
26140	1860	21.43	-0.3	21.13	129.72	2
26340	1880	21.38	-0.3	21.08	128.23	2
26590	1905	21.37	-0.3	21.07	127.94	2

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



3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

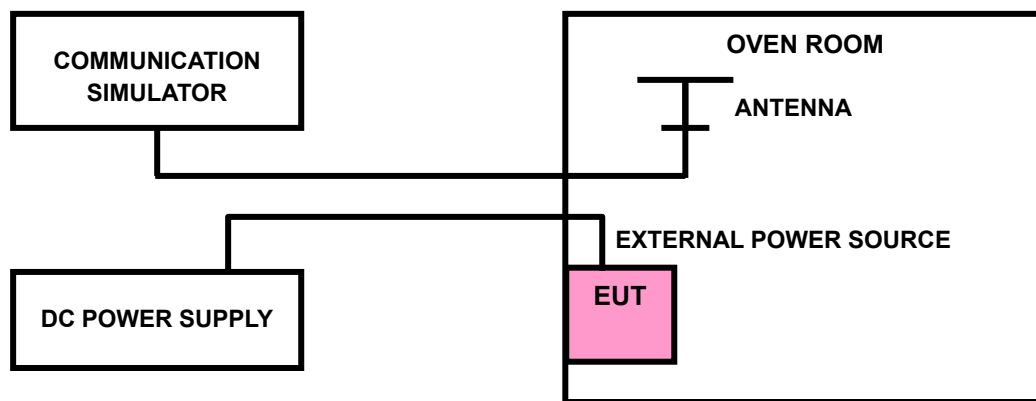
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

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



2.4 TEST RESULTS

Please Refer to Appendix Of this test report.

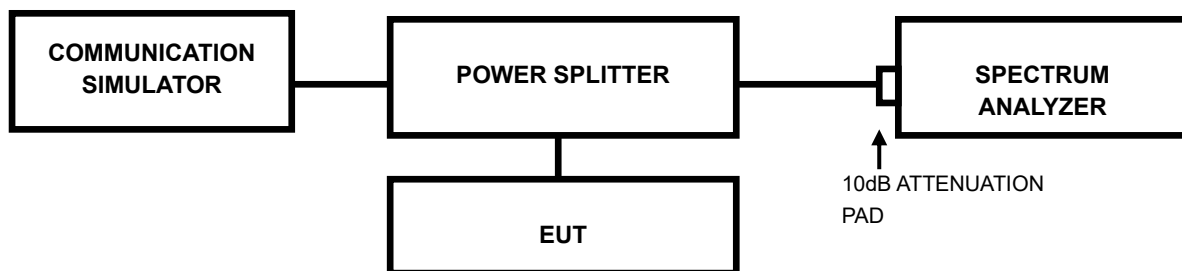


3.3 OCCUPIED BANDWIDTH MEASUREMENT

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.



3.3.4 TEST RESULTS

Please Refer to Appendix Of this test report.

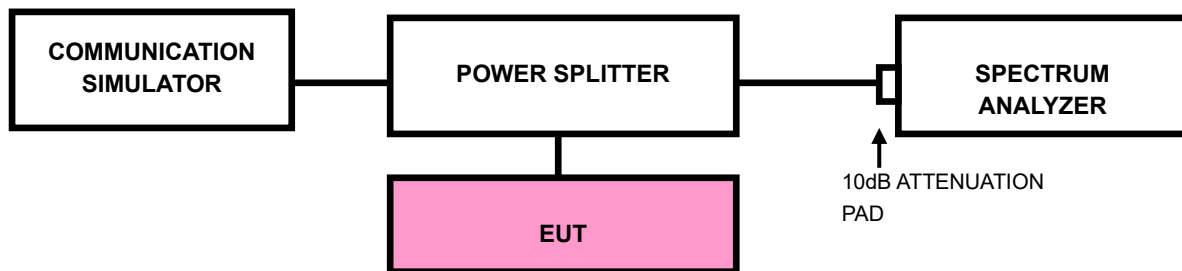


3.4 BAND EDGE MEASUREMENTC

3.4.1 LIMITS OF BAND EDGE MEASUREMENT

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

3.4.2 TEST SETUP





3.4.3 TEST PROCEDURES

- a) All measurements were done at low and high operational frequency range
- b) Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.
- c) Tune the analyzer to the nominal center frequency of the emission bandwidth

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



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3.4.4. TEST RESULTS

Please Refer to Appendix Of this test report.



3.5 CONDUCTED SPURIOUS EMISSIONS

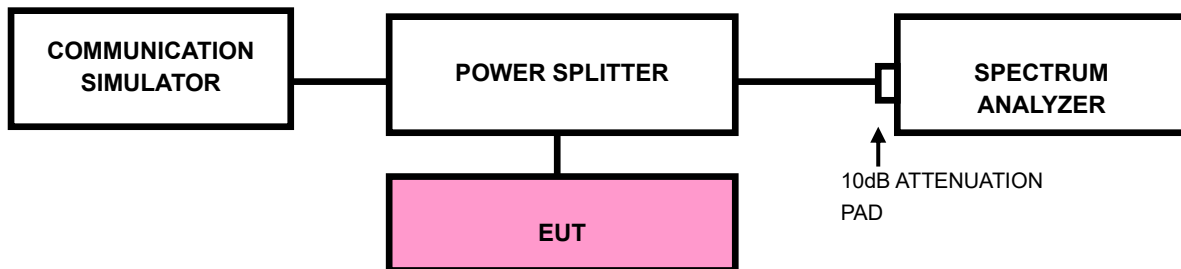
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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

3.5.2 TEST PROCEDURE

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 30MHz 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





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.

Please Refer to Appendix Of this test report.



3.6 RADIATED EMISSION MEASUREMENT

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit 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. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$

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

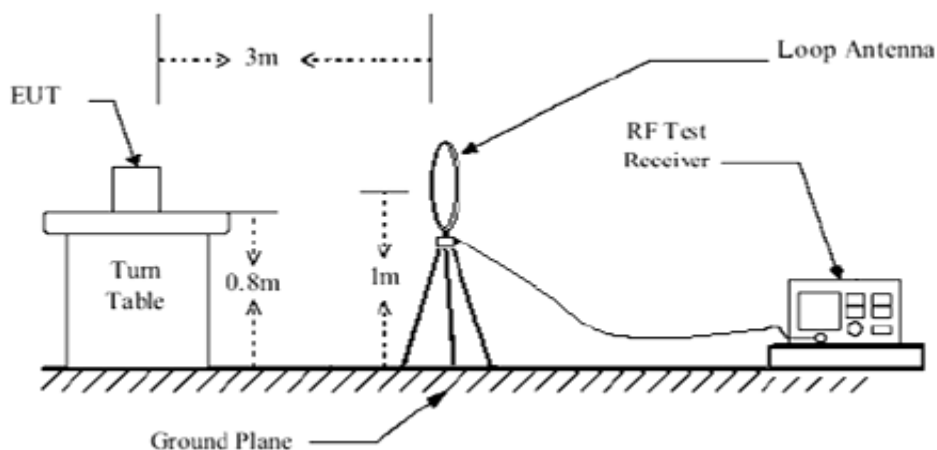
3.6.3 DEVIATION FROM TEST STANDARD

No deviation

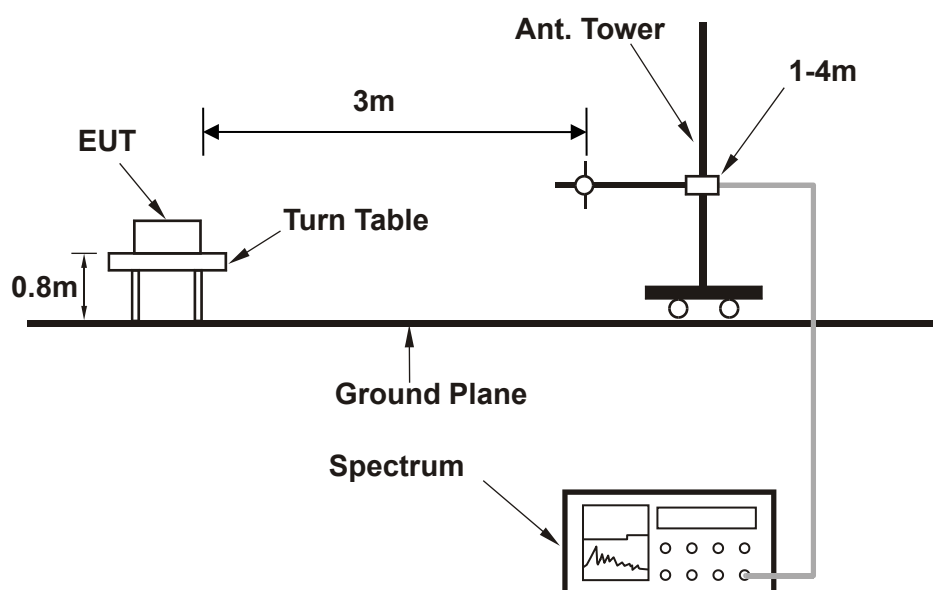


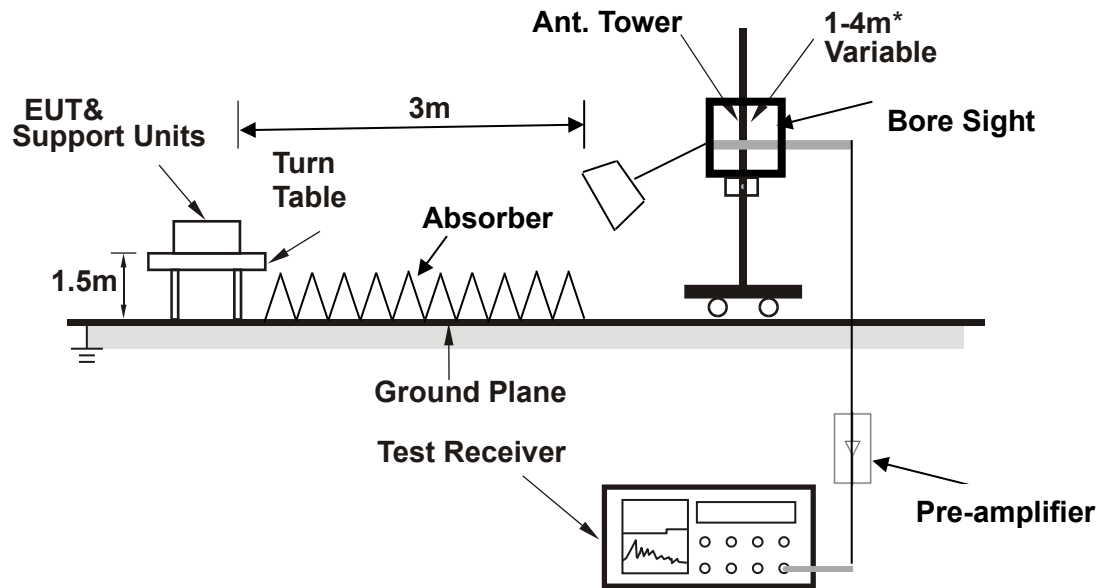
3.6.4 TEST SETUP

< Frequency Range below 30MHz >



< Frequency Range 30MHz~1GHz >





Note: Above 1G is a directional antenna

Depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

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

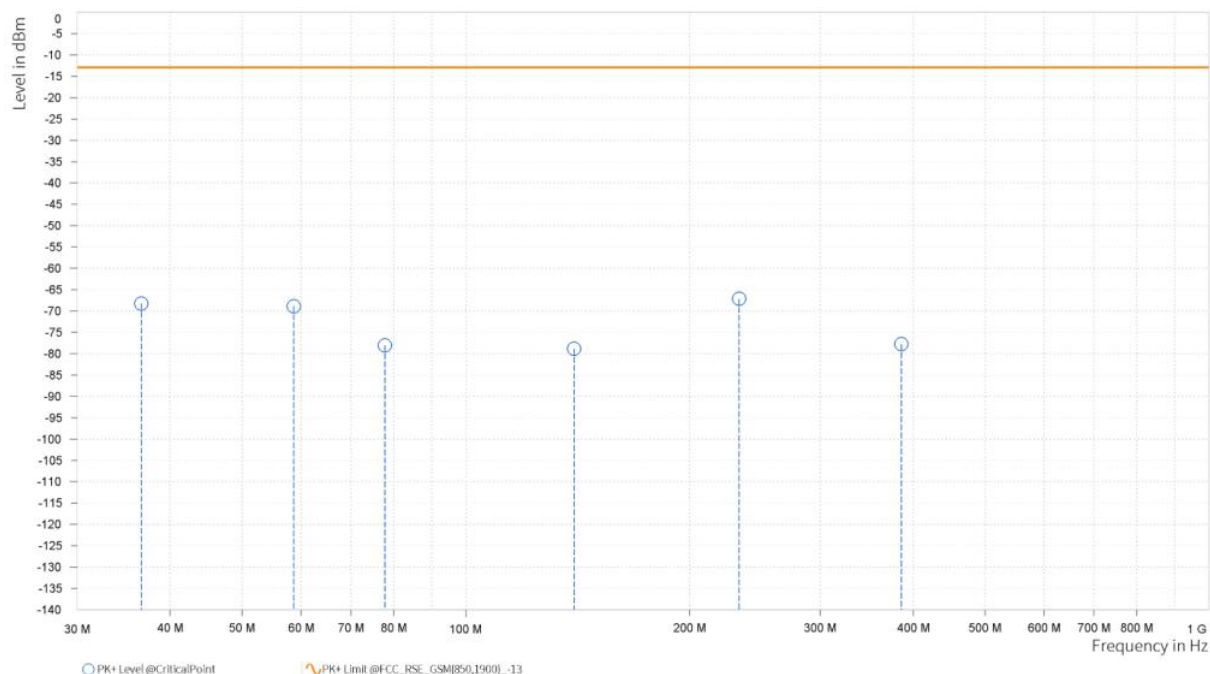
30 MHz – 1GHz data:

PCS 1900:

CHANNEL BANDWIDTH:

CHARLIE SANDWICH			
MODE	TX channel 810	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		
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	36.6	-68.27	-13.0	55.27	0.26	H	112.9	1.0
1	58.7	-68.87	-13.0	55.87	-3.09	H	122.8	2.0
1	77.8	-78.05	-13.0	65.05	-11.89	H	164.6	2.0
1	139.8	-78.87	-13.0	65.87	-13.46	H	245.9	2.0
1	233.2	-67.14	-13.0	54.14	2.54	H	359.0	2.0
1	385.55	-77.76	-13.0	64.76	1.61	H	164.6	2.0

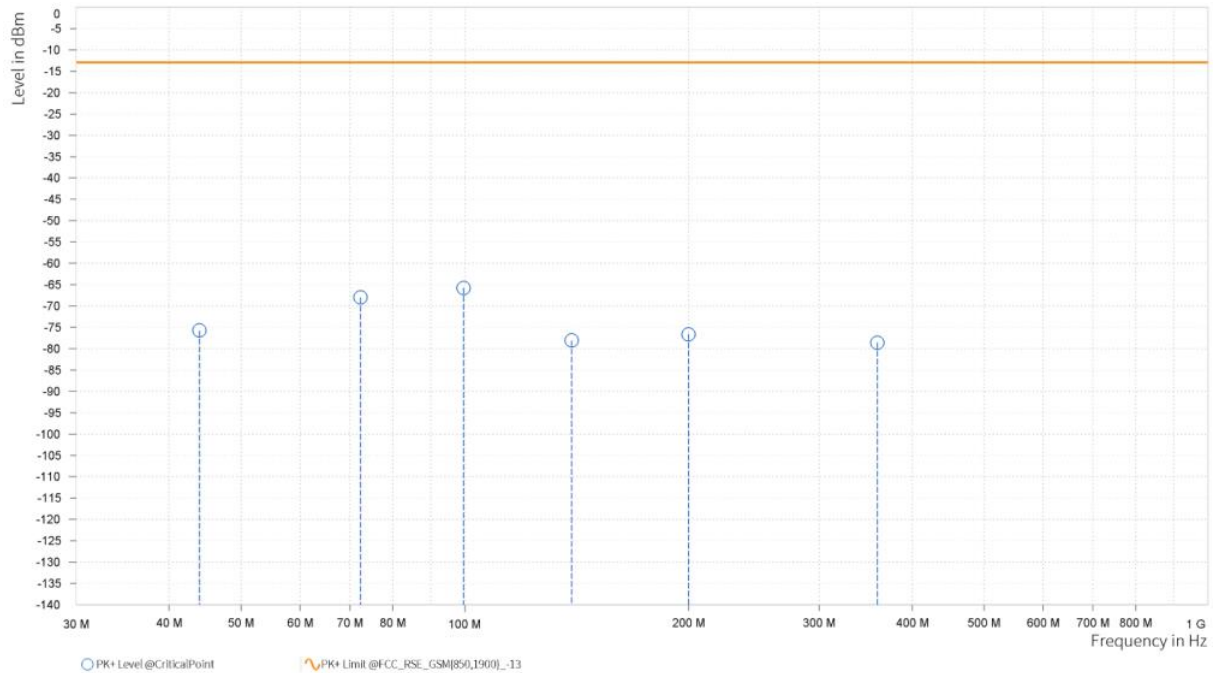




Test Report No.: PSU-NQN2407300216RF02

MODE	TX channel 810	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		
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	43.95	-75.73	-13.0	62.73	-6.47	V	345.9	1.0
1	72.4	-68.0	-13.0	55.0	-7.9	V	265.8	1.0
1	99.6	-65.77	-13.0	52.77	5.71	V	160.6	1.0
1	139.2	-78.08	-13.0	65.08	-10.05	V	265.8	1.0
1	200.0	-76.63	-13.0	63.63	-5.91	V	160.6	1.0
1	358.95	-78.6	-13.0	65.6	0.16	V	120.4	2.0





BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF02
ABOVE 1GHz DATA

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

WORST-CASE DATA

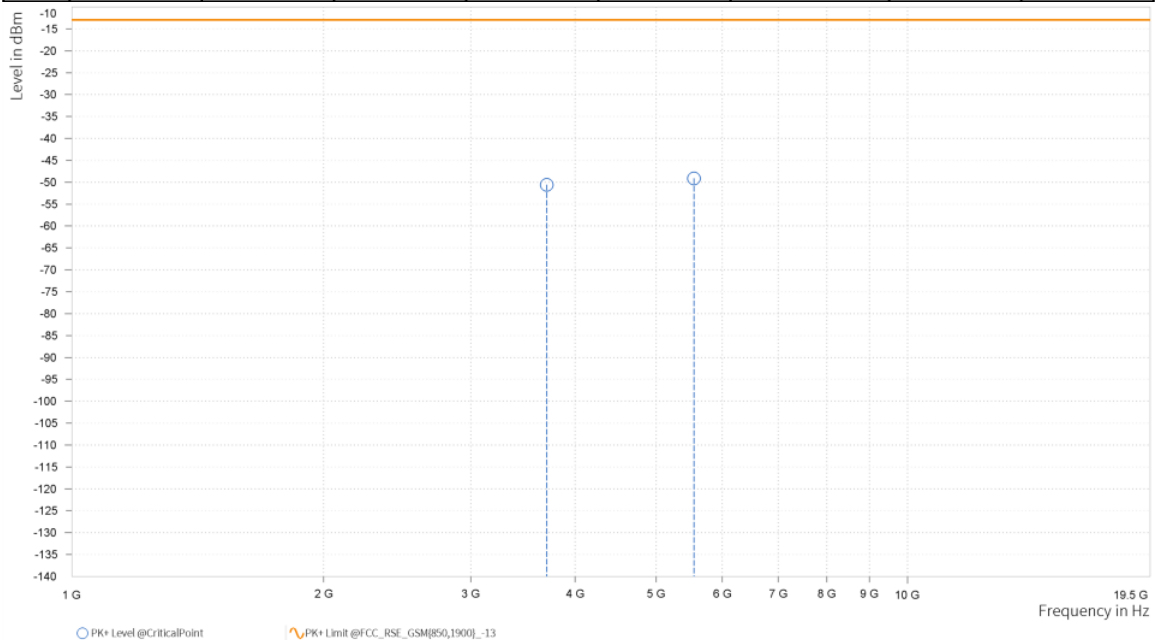
PCS 1900:

CH 512

MODE	TX channel 512	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,700.400	-50.58	-13.0	37.58	20.98	H	107.3	2.0
4	5,550.600	-49.14	-13.0	36.14	23.76	H	107.3	2.0





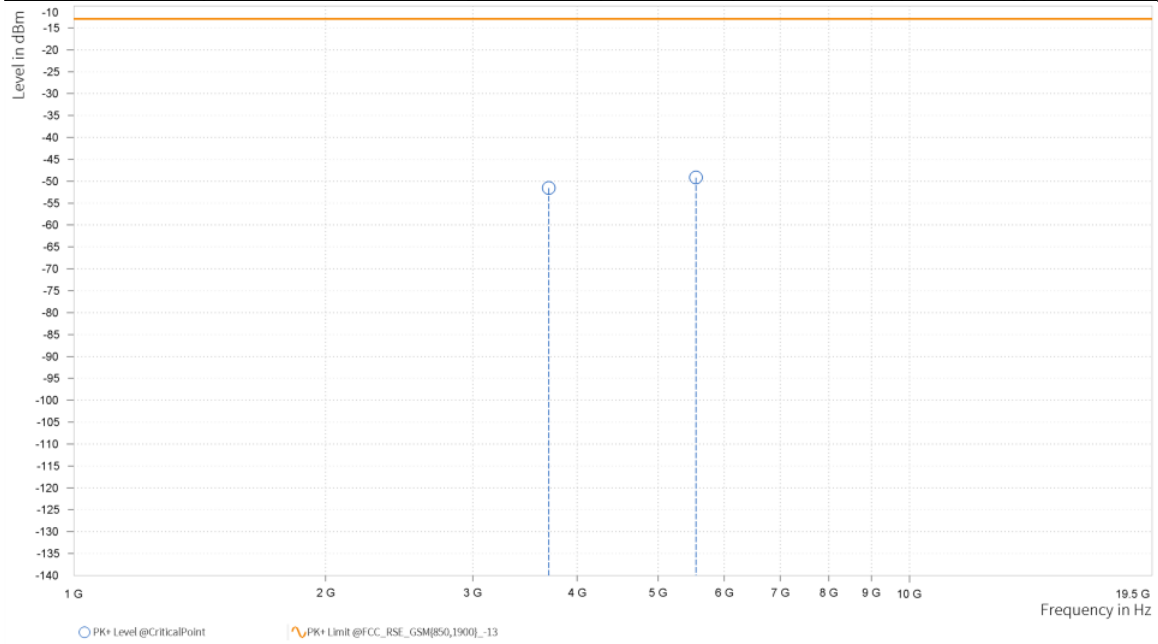
BUREAU
VERITAS

Test Report No.: PSU-NQN2407300216RF02

MODE	TX channel 512	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

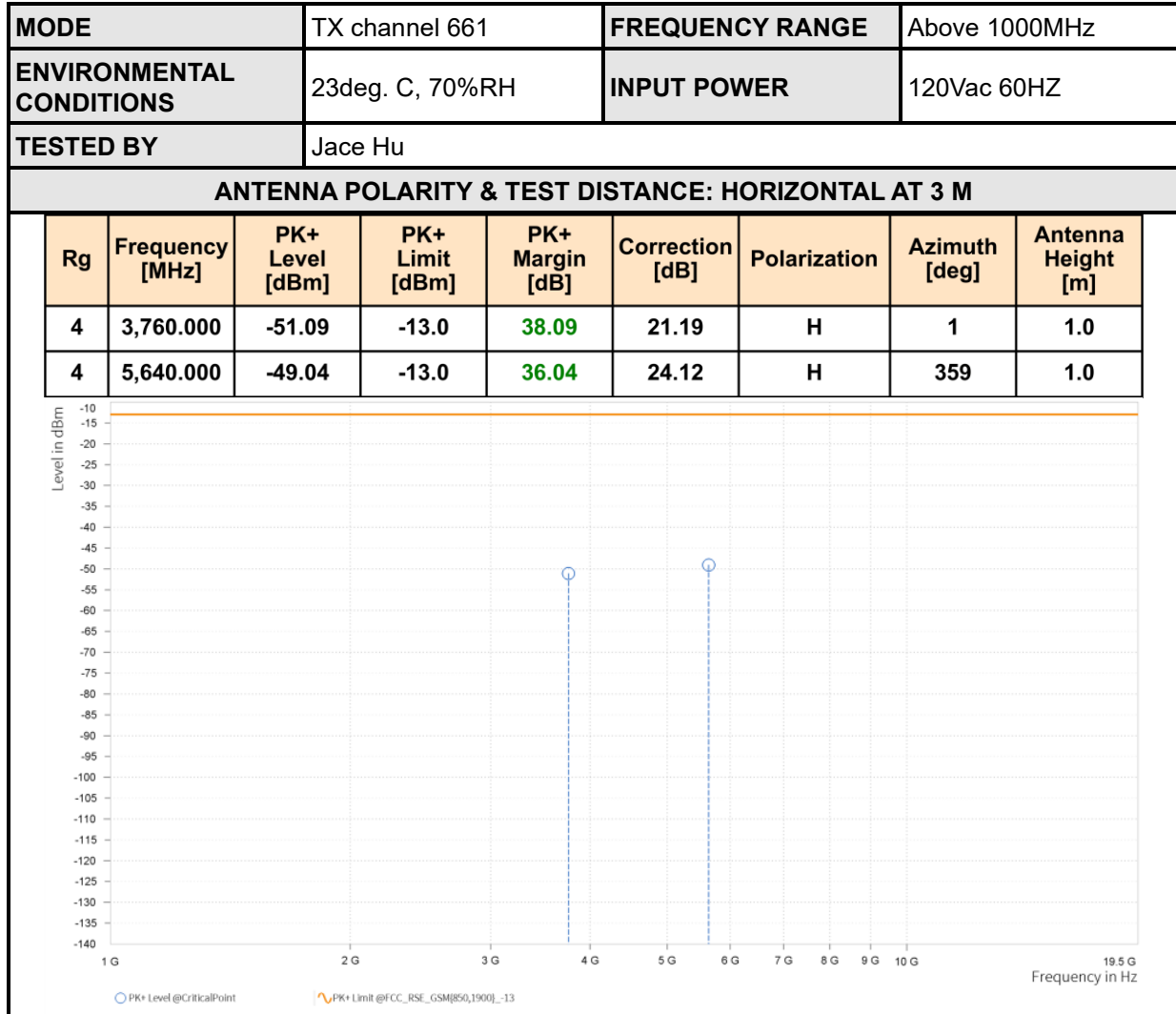
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,700.400	-51.55	-13.0	38.55	21.57	V	359	1.0
4	5,550.600	-49.15	-13.0	36.15	24.45	V	359	2.0





CH 661

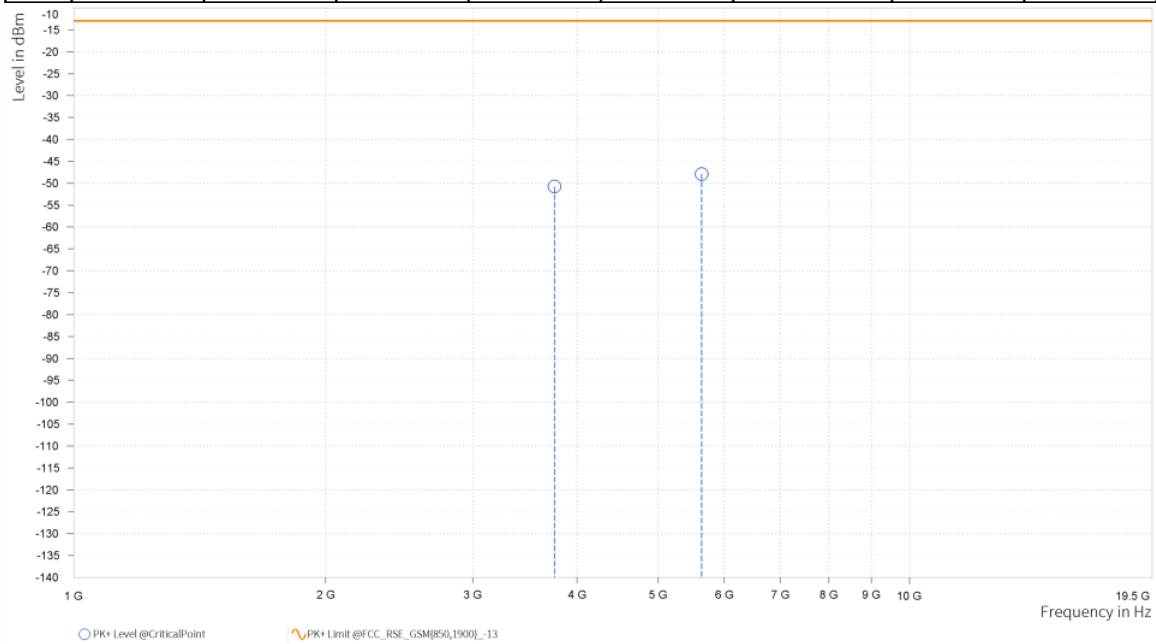




MODE	TX channel 661	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,760.000	-50.75	-13.0	37.75	21.68	V	251.5	1.0
4	5,640.000	-47.9	-13.0	34.9	24.46	V	1.0	2.0

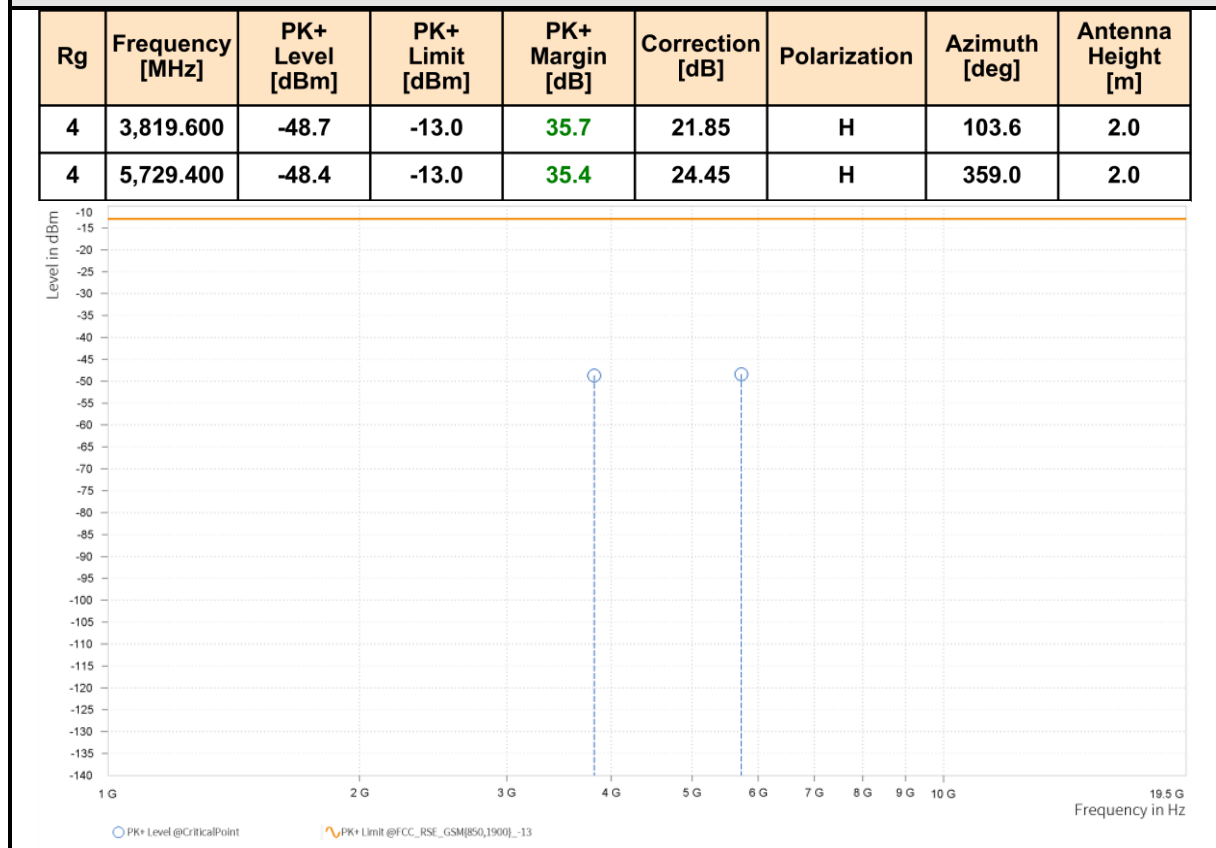




CH 810

MODE	TX channel 810	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

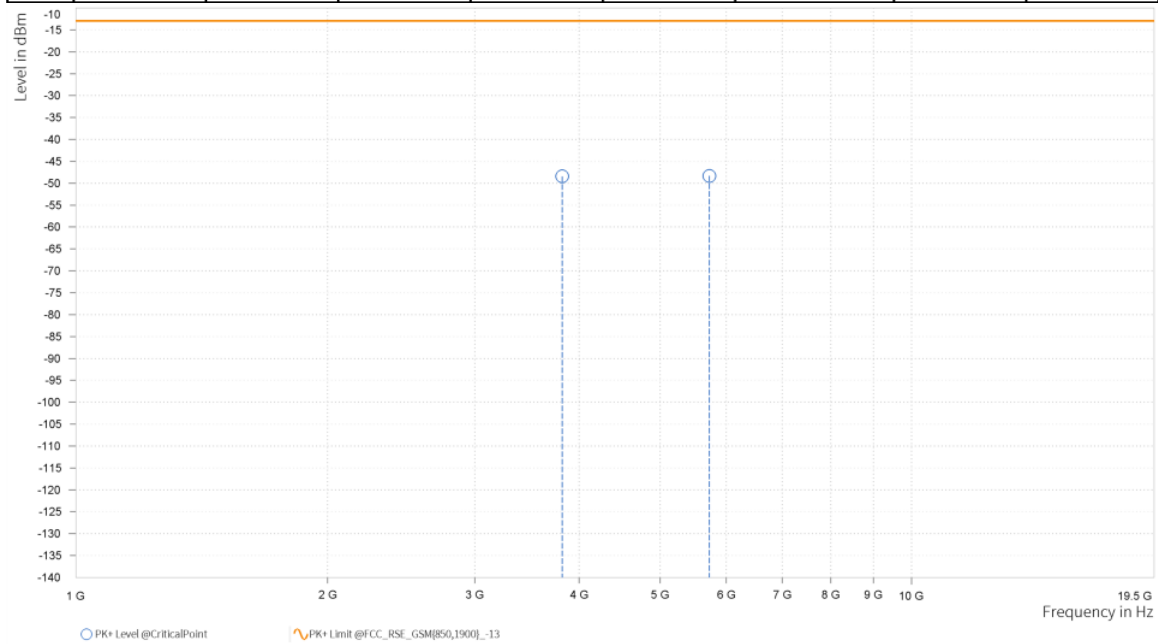




MODE	TX channel 810	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,819.600	-48.43	-13.0	35.43	22.2	V	1.0	1.0
4	5,729.400	-48.32	-13.0	35.32	24.92	V	359.1	1.0





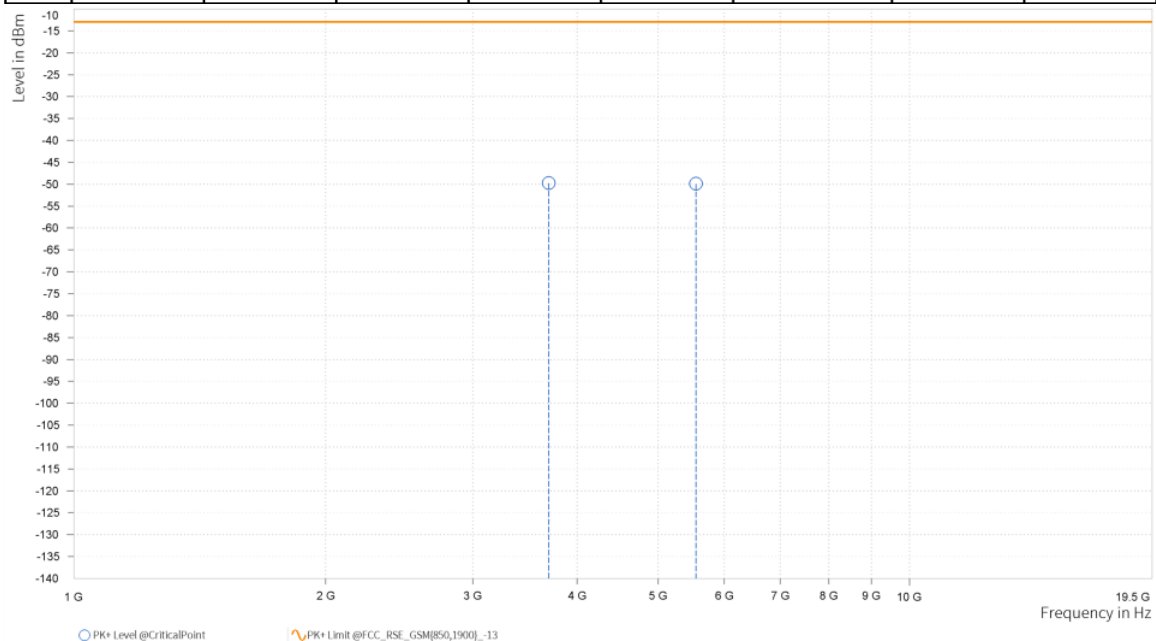
EDGE 1900:

CH 512

MODE	TX channel 512	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,700.400	-49.73	-13.0	36.73	20.98	H	1	2.0
4	5,550.600	-49.89	-13.0	36.89	23.76	H	1	1.0

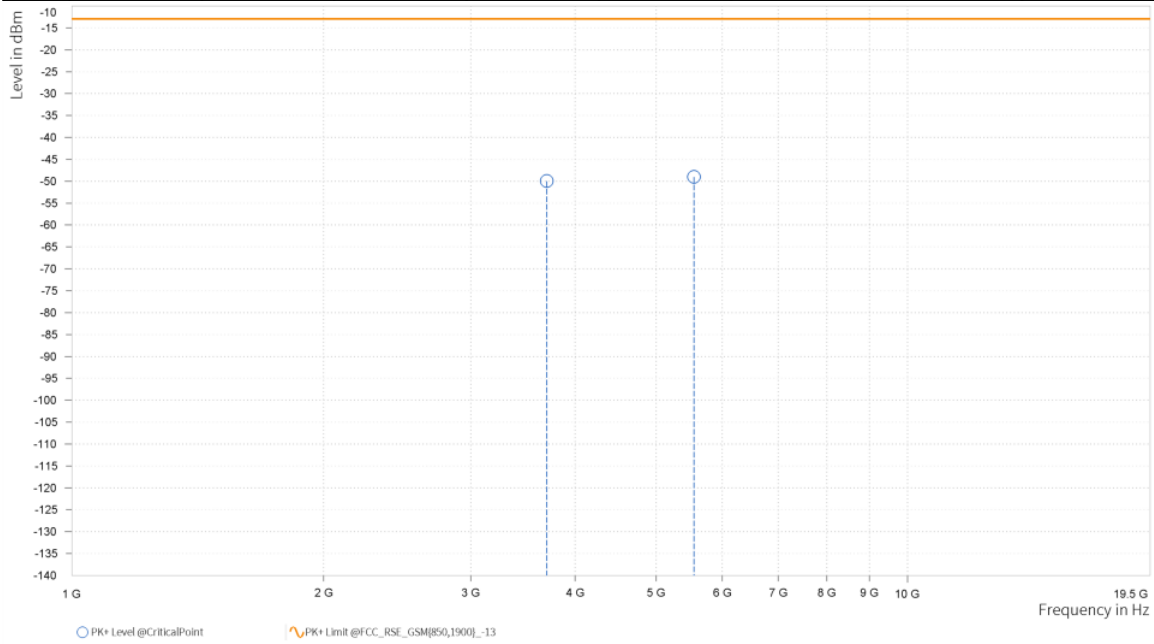




MODE	TX channel 512	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,700.400	-49.95	-13.0	36.95	21.57	V	359.1	1.0
4	5,550.600	-49.01	-13.0	36.01	24.45	V	234.7	1.0



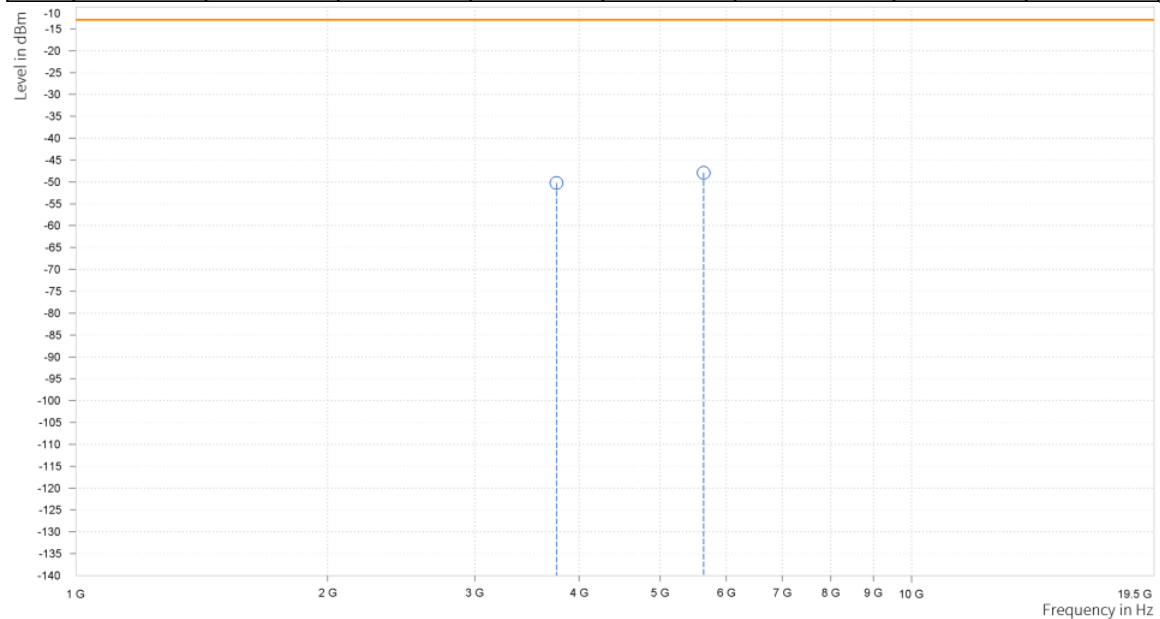


CH 661

MODE	TX channel 661	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,760.000	-50.26	-13.0	37.26	21.19	H	102.5	2.0
4	5,640.000	-47.9	-13.0	34.9	24.12	H	280.2	1.0

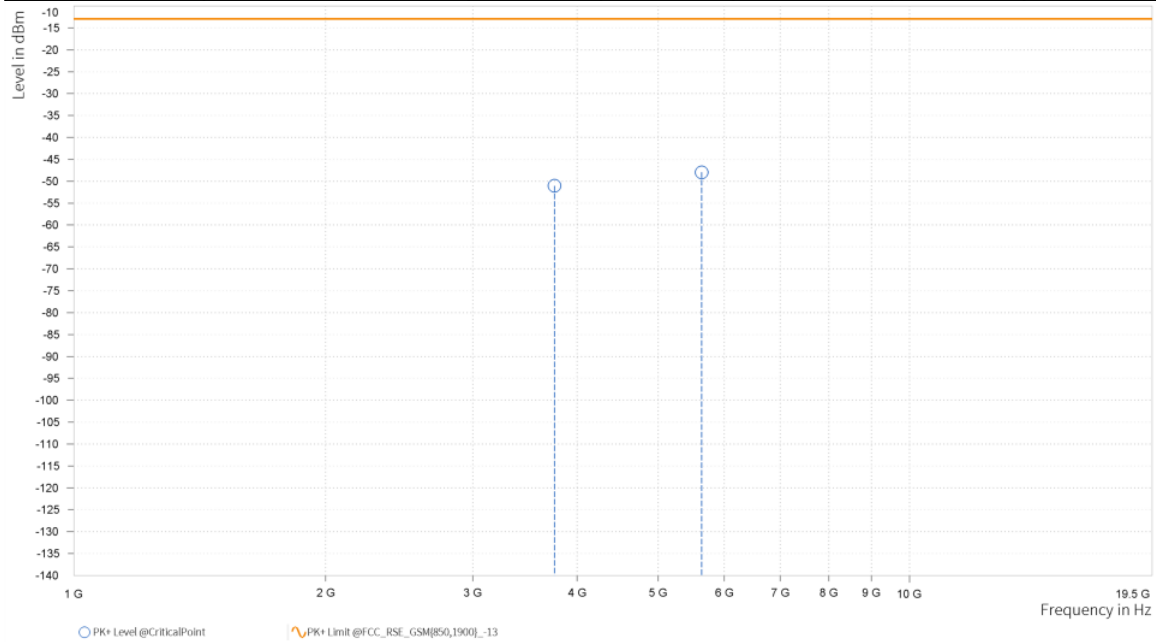




MODE	TX channel 661	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,760.000	-51.06	-13.0	38.06	21.68	V	258.7	1.0
4	5,640.000	-47.97	-13.0	34.97	24.46	V	359.0	1.0



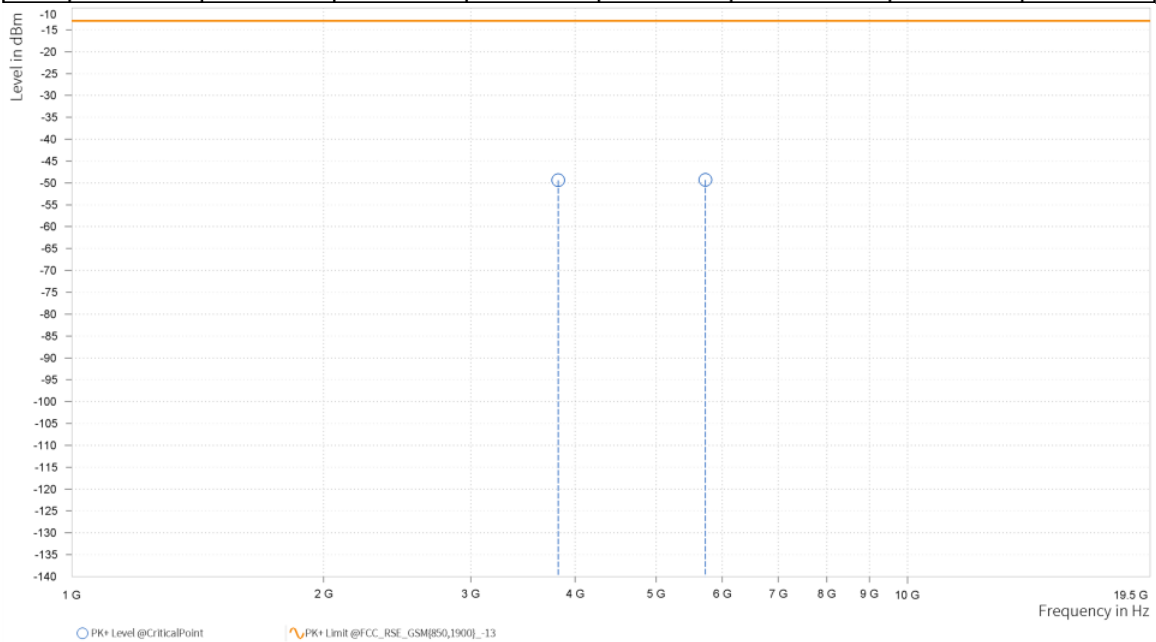


CH 810

MODE	TX channel 810	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,819.600	-49.38	-13.0	36.38	21.85	H	359.0	2.0
4	5,729.400	-49.3	-13.0	36.3	24.45	H	233.5	1.0

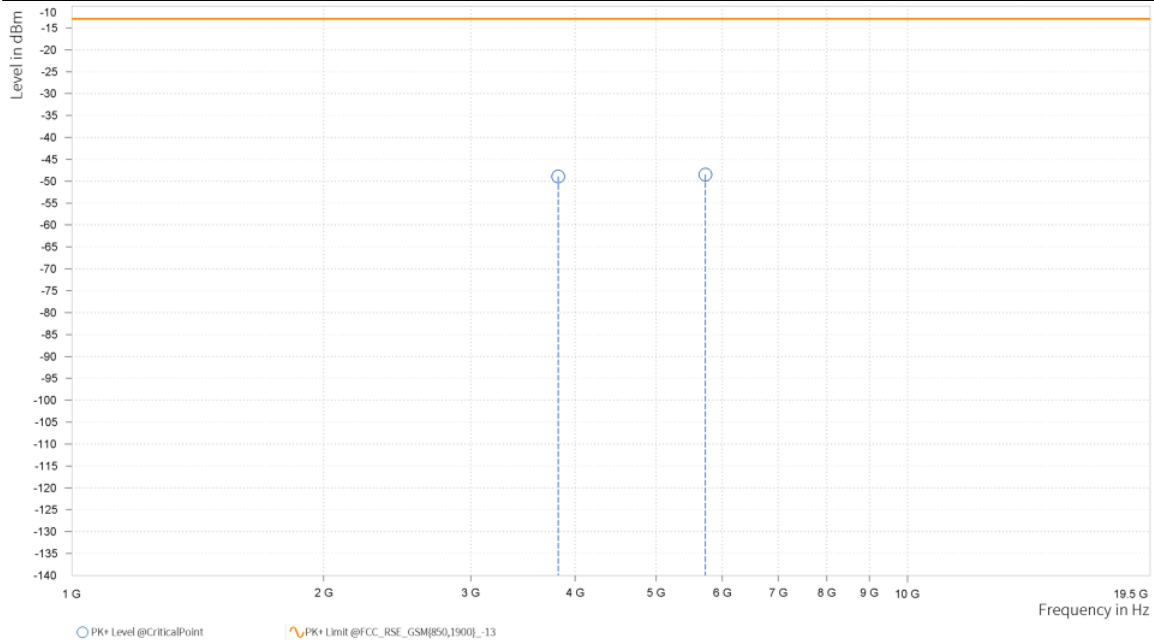




MODE	TX channel 810	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,819.600	-48.92	-13.0	35.92	22.2	V	359.1	1.0
4	5,729.400	-48.46	-13.0	35.46	24.92	V	233.5	1.0





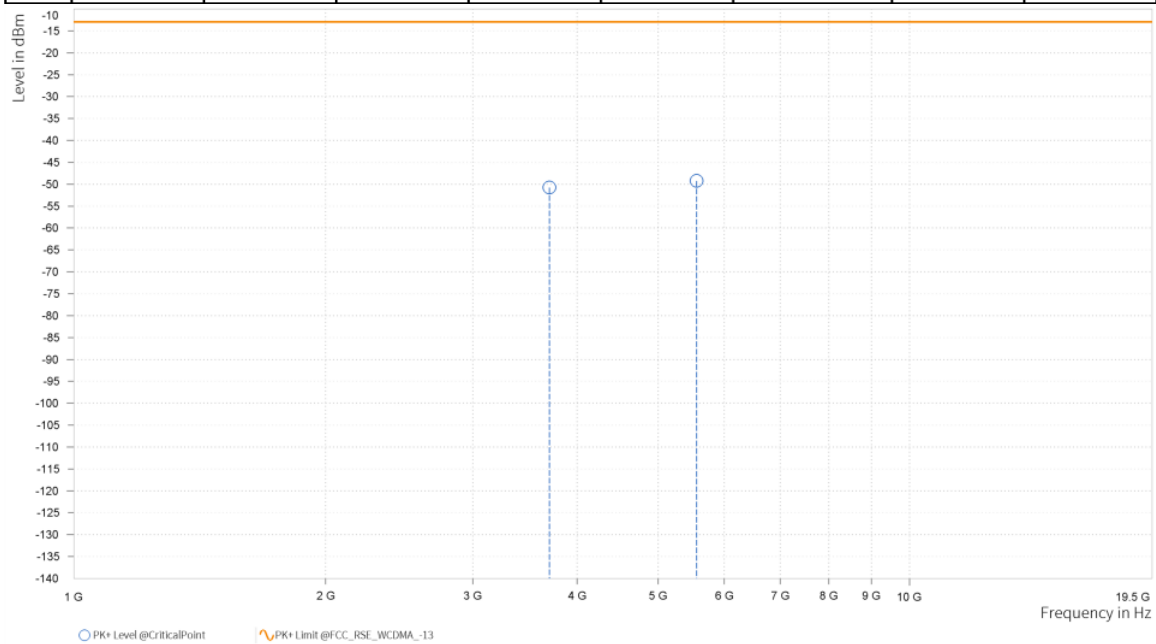
WCDMA Band II

CH 9262

MODE	TX channel 9262	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,704.800	-50.77	-13.0	37.77	20.95	H	98.2	1.0
4	5,557.200	-49.24	-13.0	36.24	23.75	H	193.8	1.0

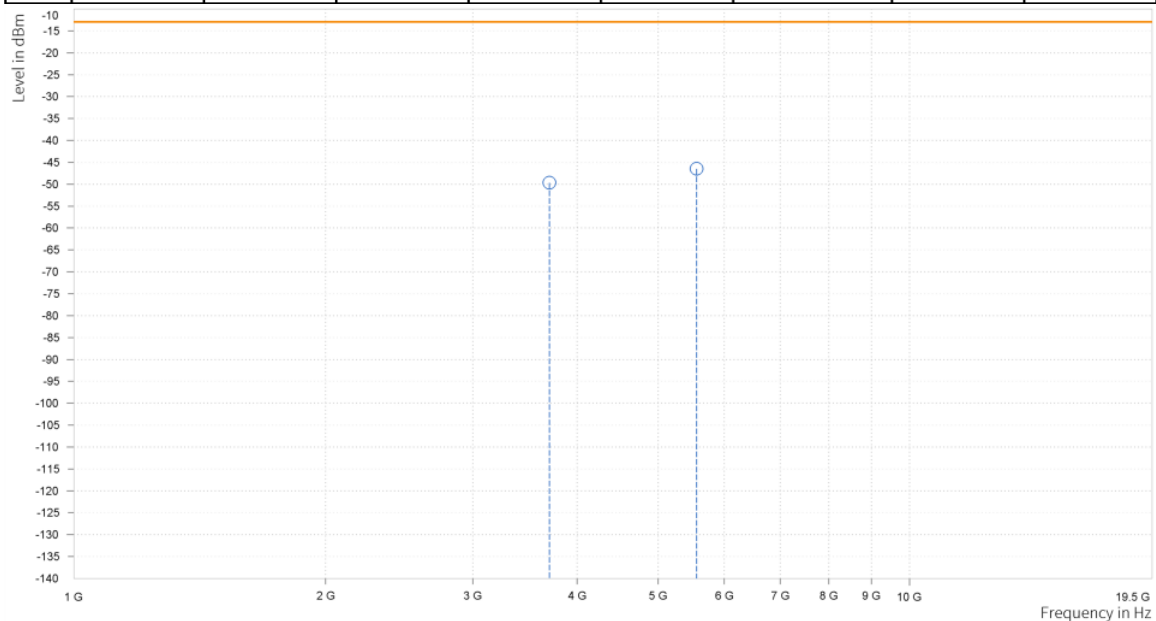




MODE	TX channel 9262	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,704.800	-49.69	-13.0	36.69	21.55	V	102.5	1.0
4	5,557.200	-46.47	-13.0	33.47	24.45	V	116.6	2.0



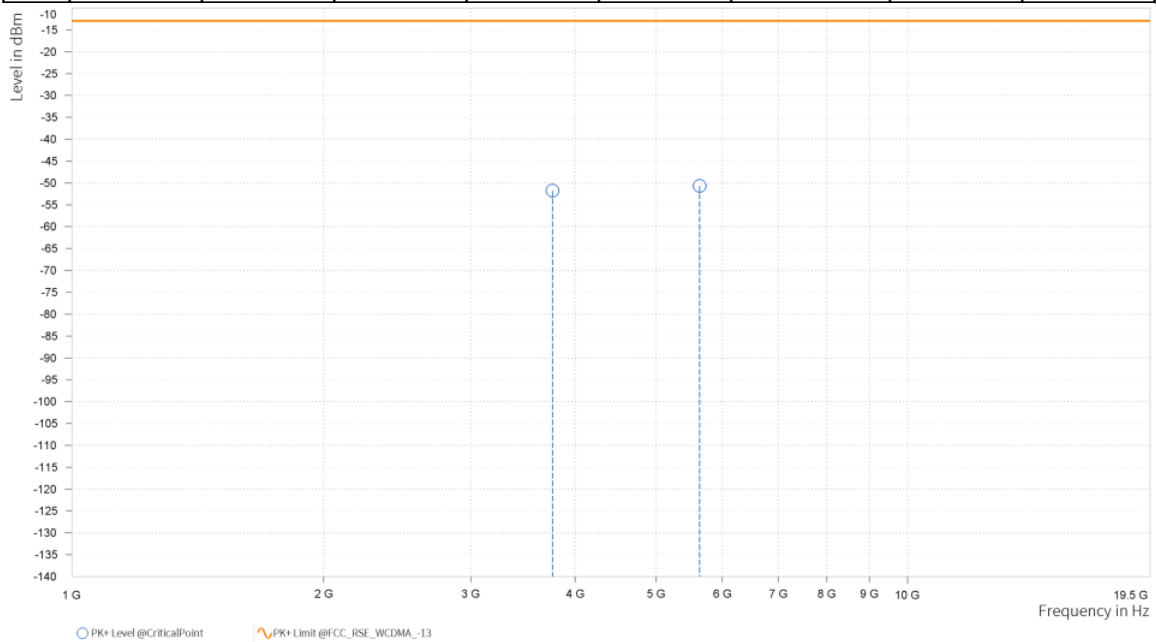


CH 9400

MODE	TX channel 9400	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,760.000	-51.76	-13.0	38.76	21.19	H	170.4	2.0
4	5,640.000	-50.69	-13.0	37.69	24.12	H	229.2	1.0

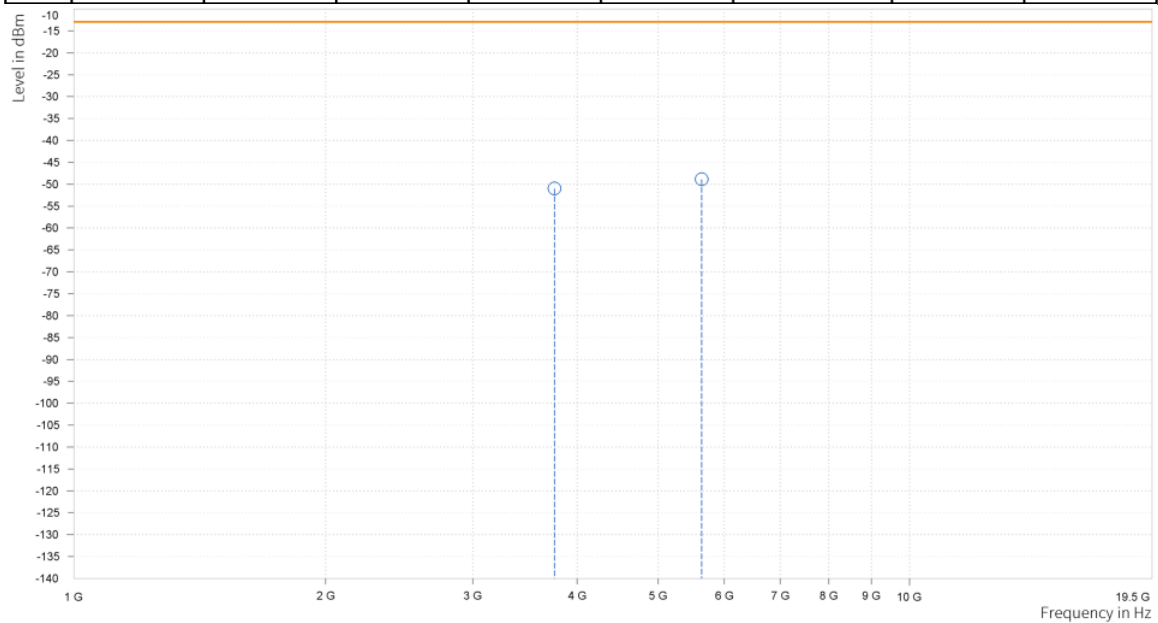




MODE	TX channel 9400	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,760.000	-50.97	-13.0	37.97	21.68	V	196.6	1.0
4	5,640.000	-48.87	-13.0	35.87	24.46	V	115.9	2.0



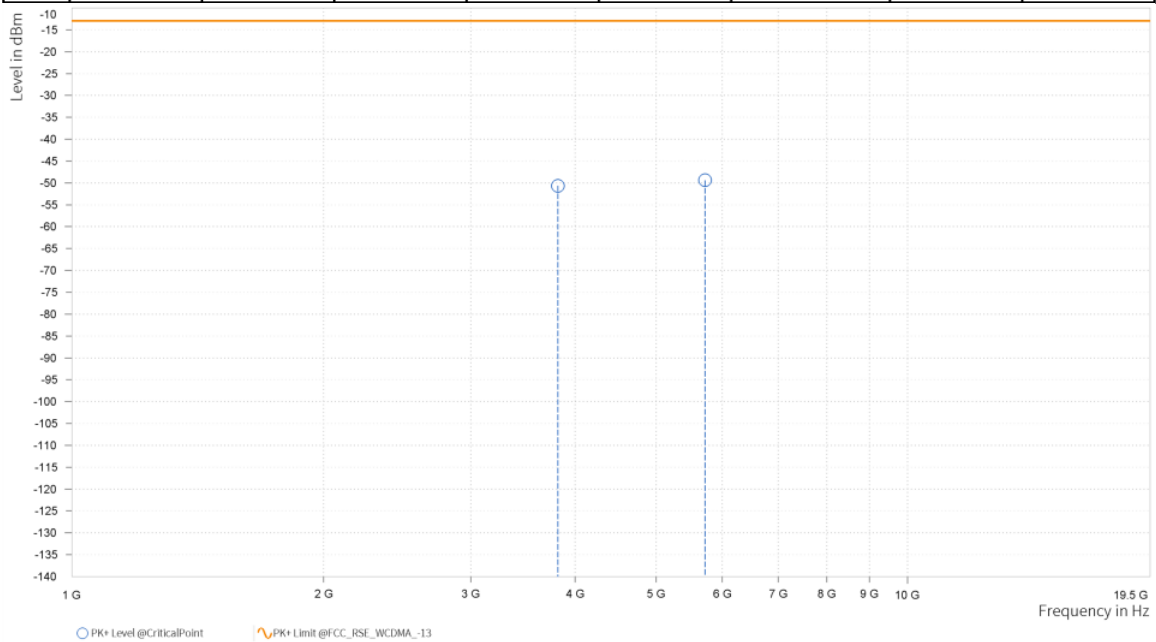


CH 9538

MODE	TX channel 9538	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,815.200	-50.64	-13.0	37.64	21.82	H	301.4	1.0
4	5,722.800	-49.39	-13.0	36.39	24.42	H	301.4	1.0

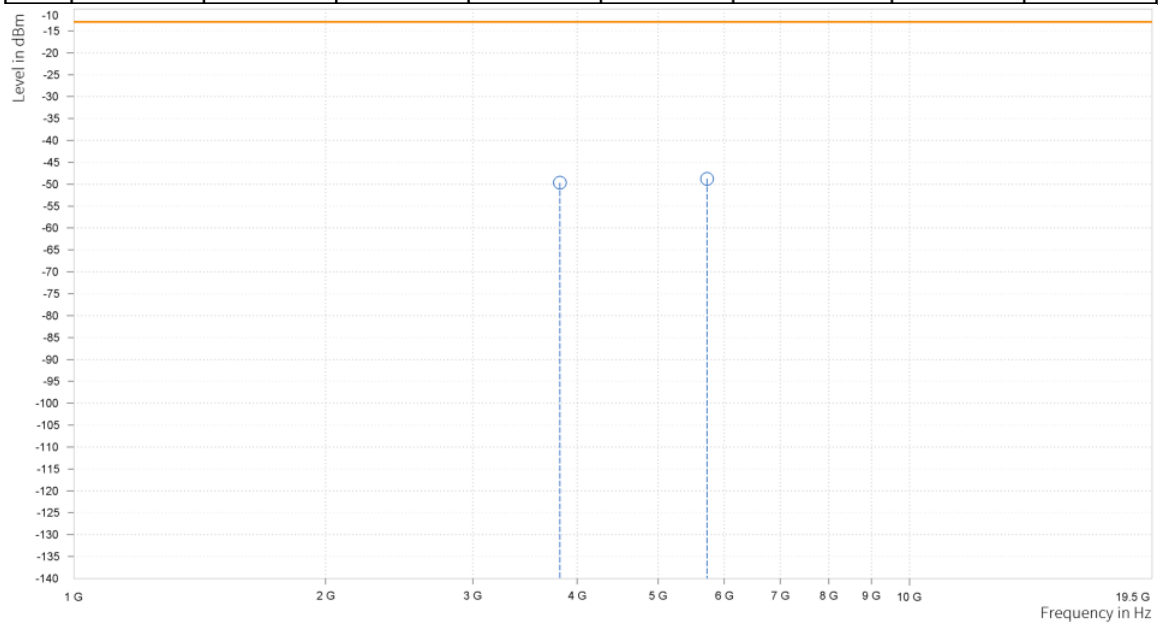




MODE	TX channel 9538	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,815.200	-49.67	-13.0	36.67	22.15	V	62.2	2.0
4	5,722.800	-48.75	-13.0	35.75	24.88	V	116.6	2.0





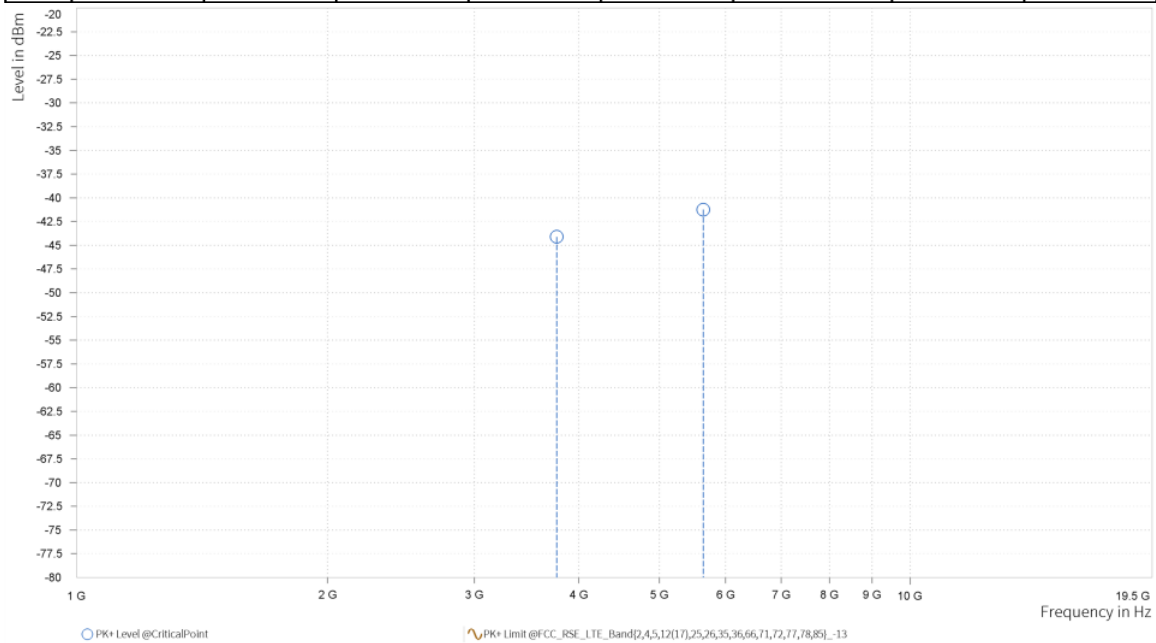
LTE Band 25

CHANNEL BANDWIDTH: 1.4MHz / QPSK

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

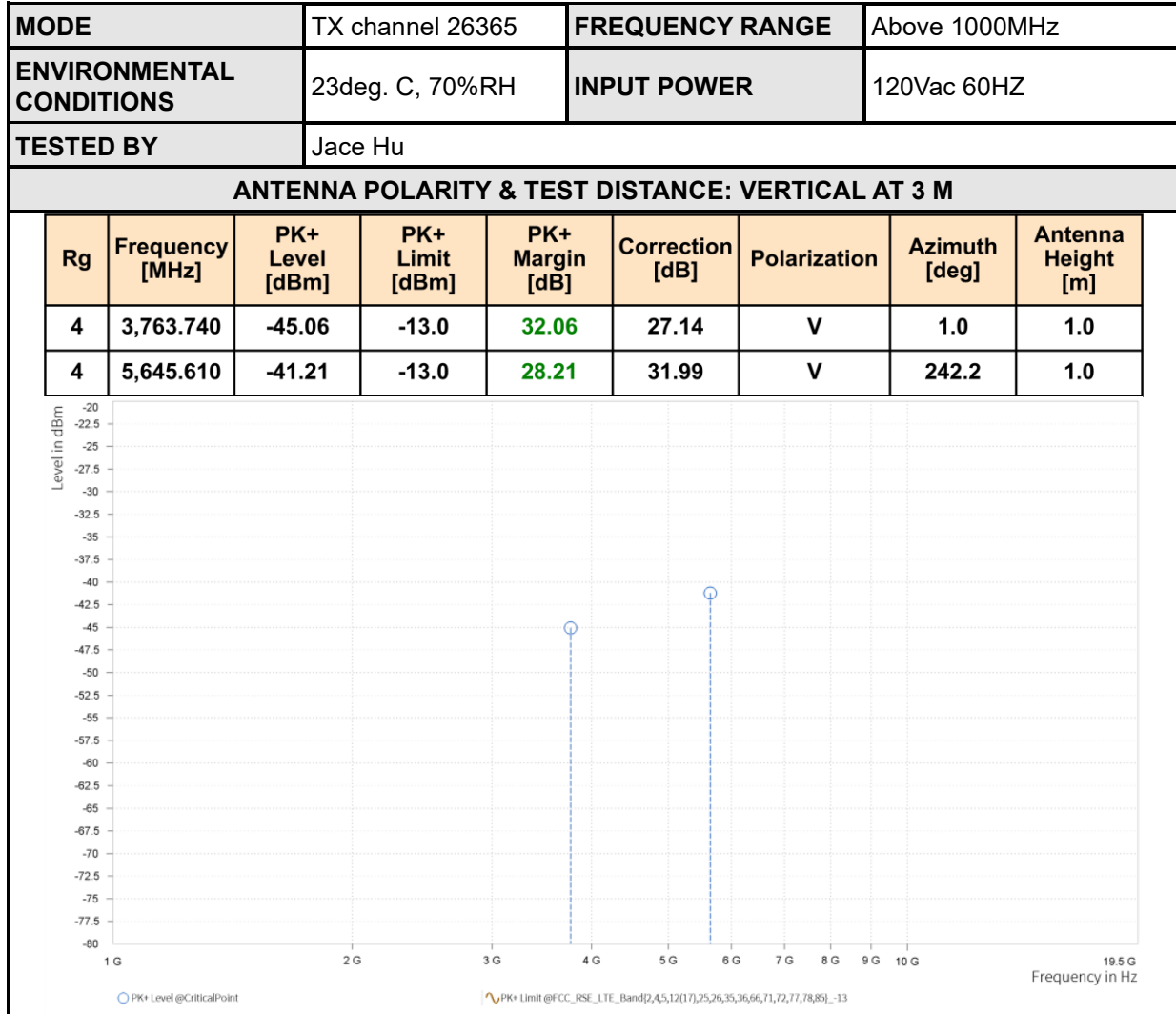
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,763.740	-44.11	-13.0	31.11	27.46	H	1	1.0
4	5,645.610	-41.25	-13.0	28.25	32.25	H	1	1.0





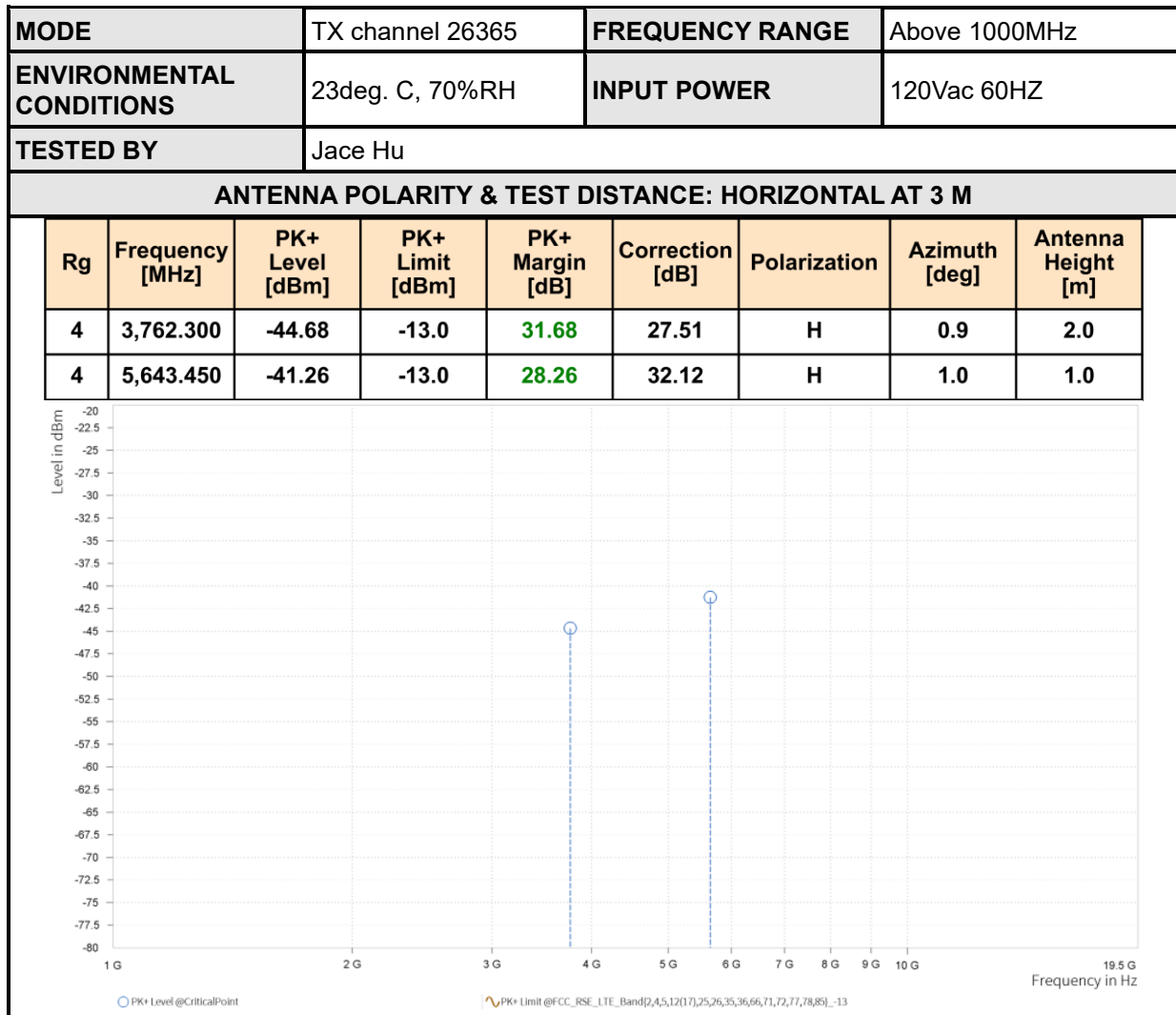
**BUREAU
VERITAS**

Test Report No.: PSU-NQN2407300216RF02





CHANNEL BANDWIDTH: 3MHz / QPSK

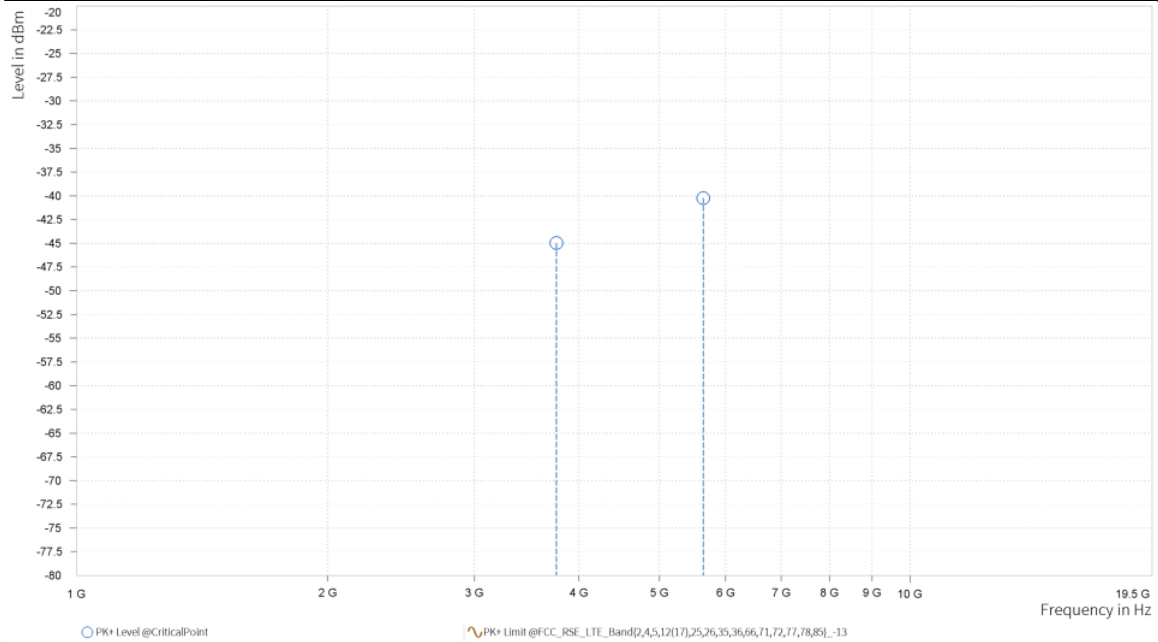




MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,762.300	-44.98	-13.0	31.98	27.19	V	359.0	2.0
4	5,643.450	-40.24	-13.0	27.24	31.85	V	103.5	2.0





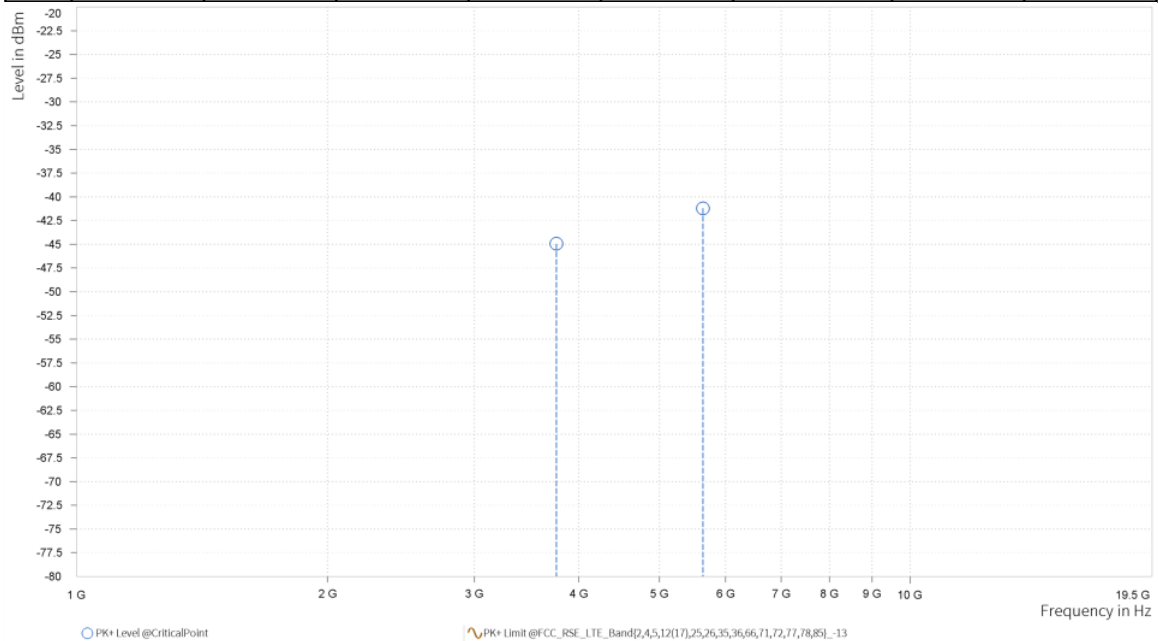
CHANNEL BANDWIDTH: 5MHz / QPSK

CH26365

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,760.500	-44.94	-13.0	31.94	27.62	H	0.9	2.0
4	5,640.750	-41.21	-13.0	28.21	31.92	H	1.0	1.0





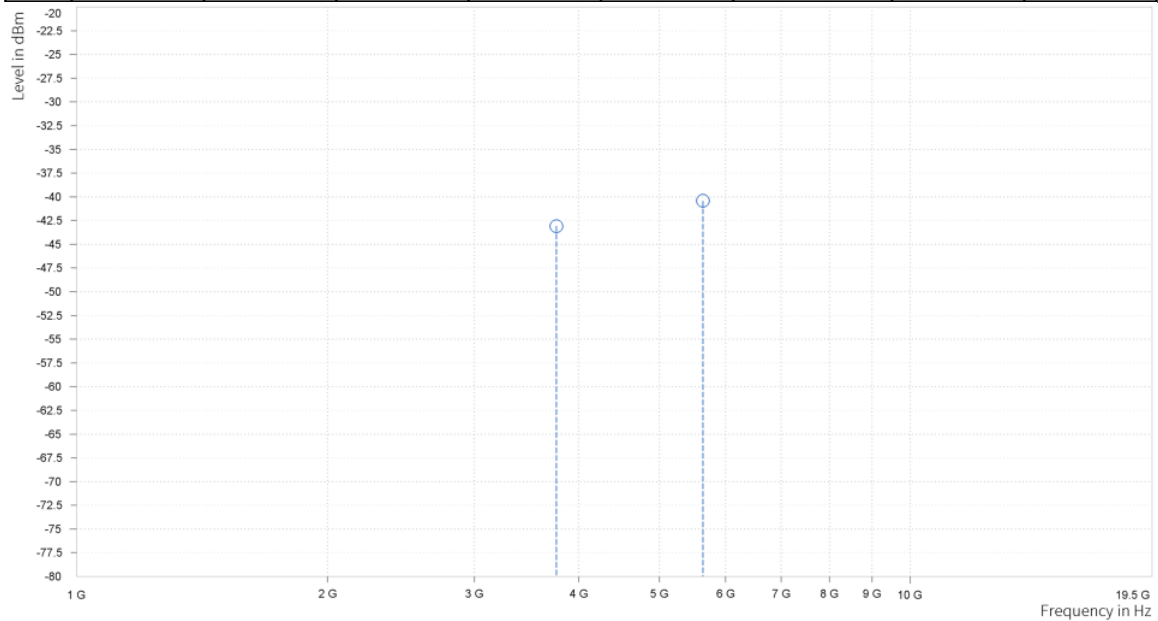
BUREAU
VERITAS

Test Report No.: PSU-NQN2407300216RF02

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

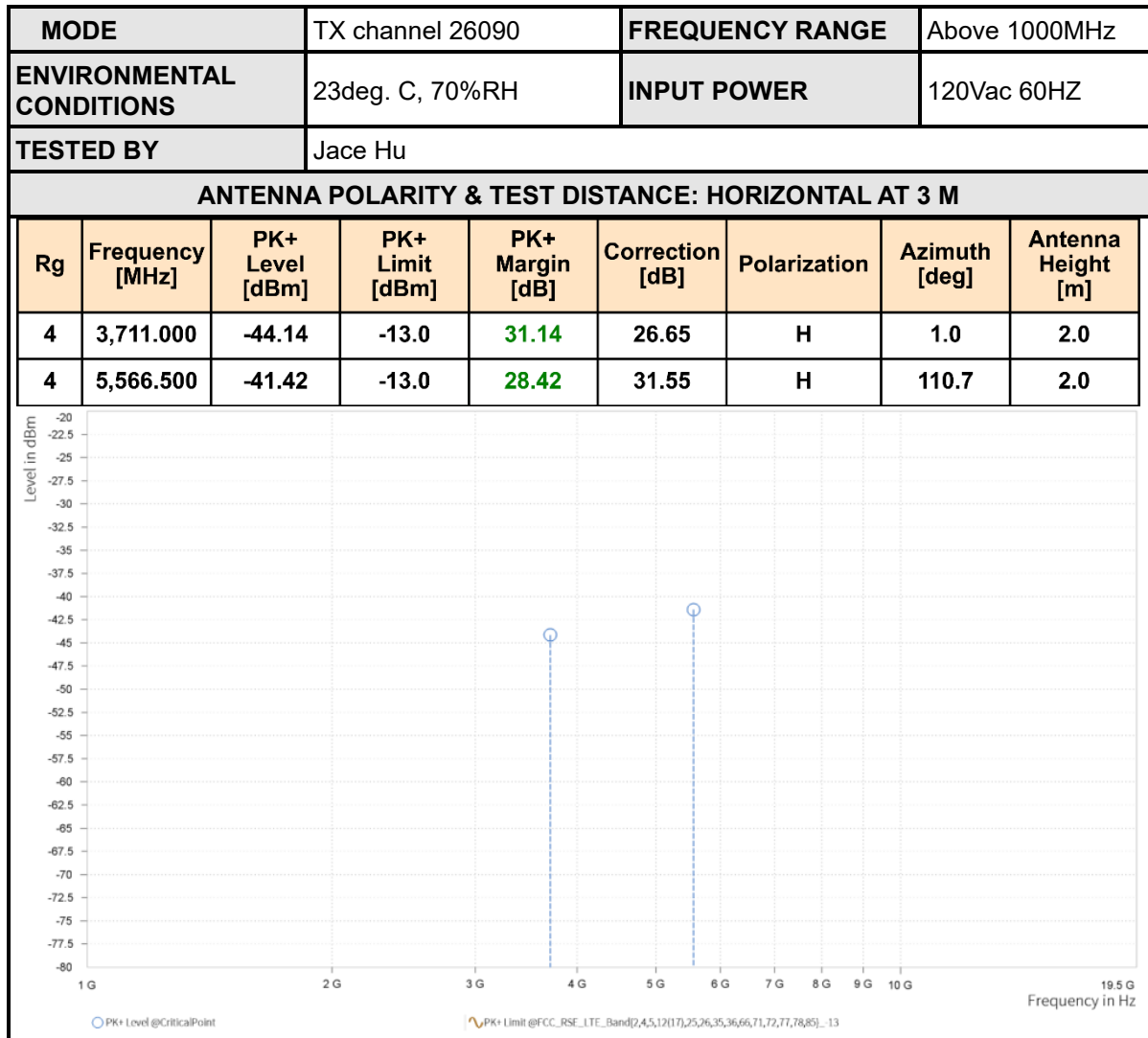
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,760.500	-43.09	-13.0	30.09	27.3	V	1.0	1.0
4	5,640.750	-40.43	-13.0	27.43	31.65	V	264.8	1.0





CHANNEL BANDWIDTH: 10MHz / QPSK





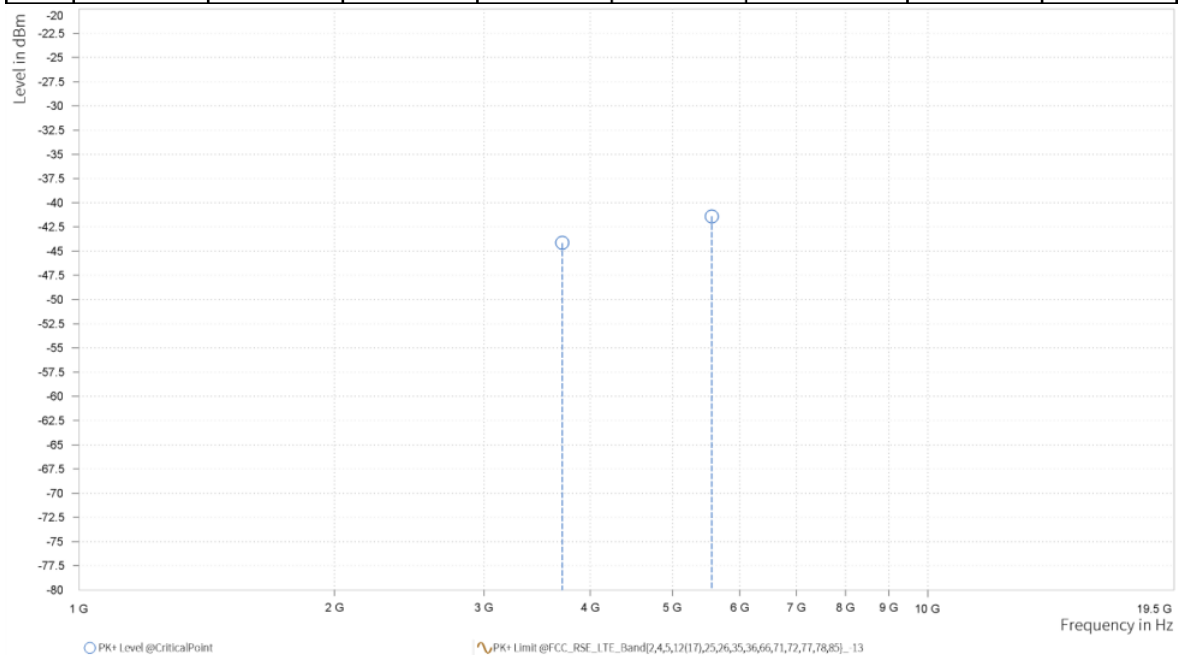
BUREAU
VERITAS

Test Report No.: PSU-NQN2407300216RF02

MODE	TX channel 26090	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,711.000	-44.14	-13.0	31.14	26.65		1.0	2.00
4	5,566.500	-41.42	-13.0	28.42	31.55	V	110.7	2.00 V





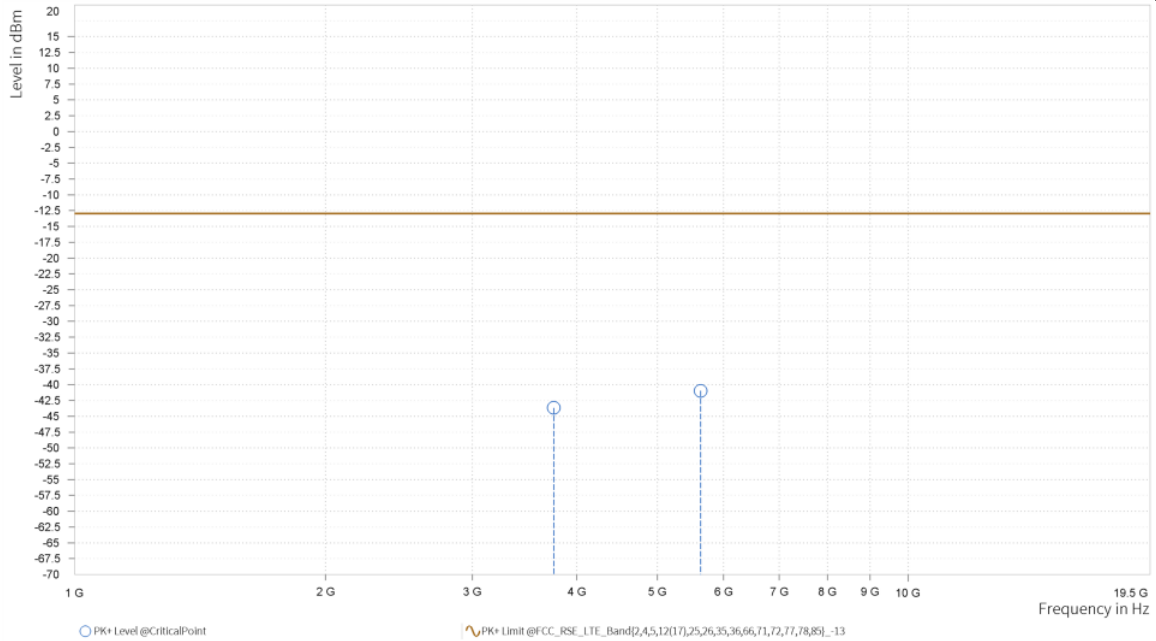
BUREAU
VERITAS

Test Report No.: PSU-NQN2407300216RF02

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,756.000	-43.66	-13.0	30.66	27.54	H	359.0	2.0
4	5,634.000	-40.97	-13.0	27.97	32.89	H	230.2	1.0





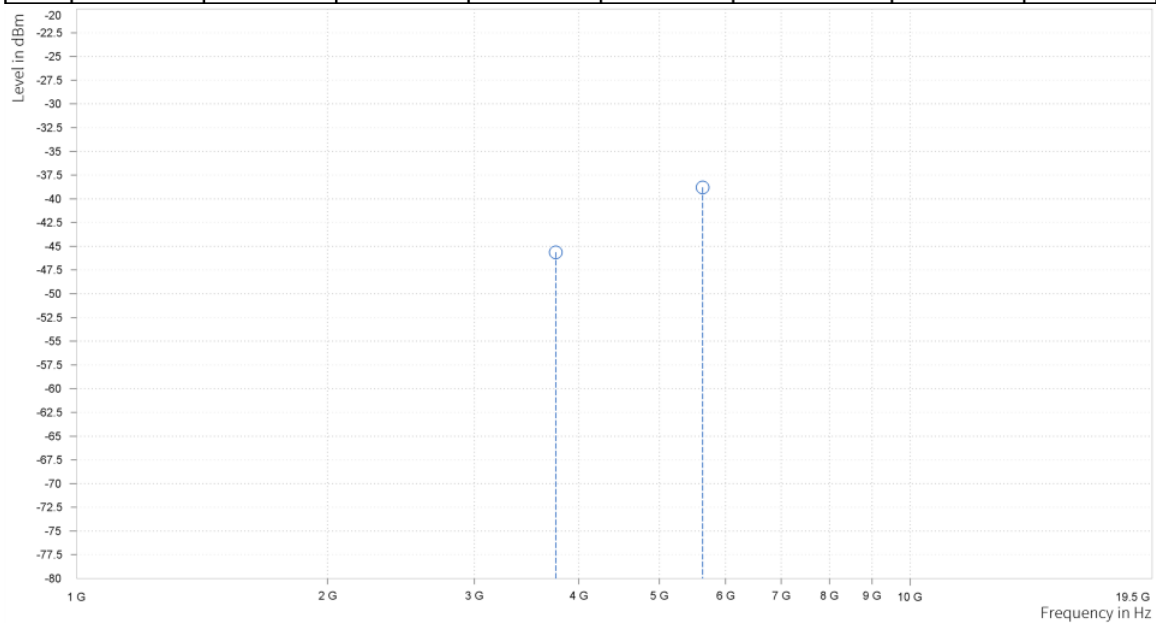
BUREAU
VERITAS

Test Report No.: PSU-NQN2407300216RF02

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,756.000	-45.63	-13.0	32.63	27.24	V	242.3	1.0
4	5,634.000	-38.79	-13.0	25.79	32.62	V	123.8	2.0

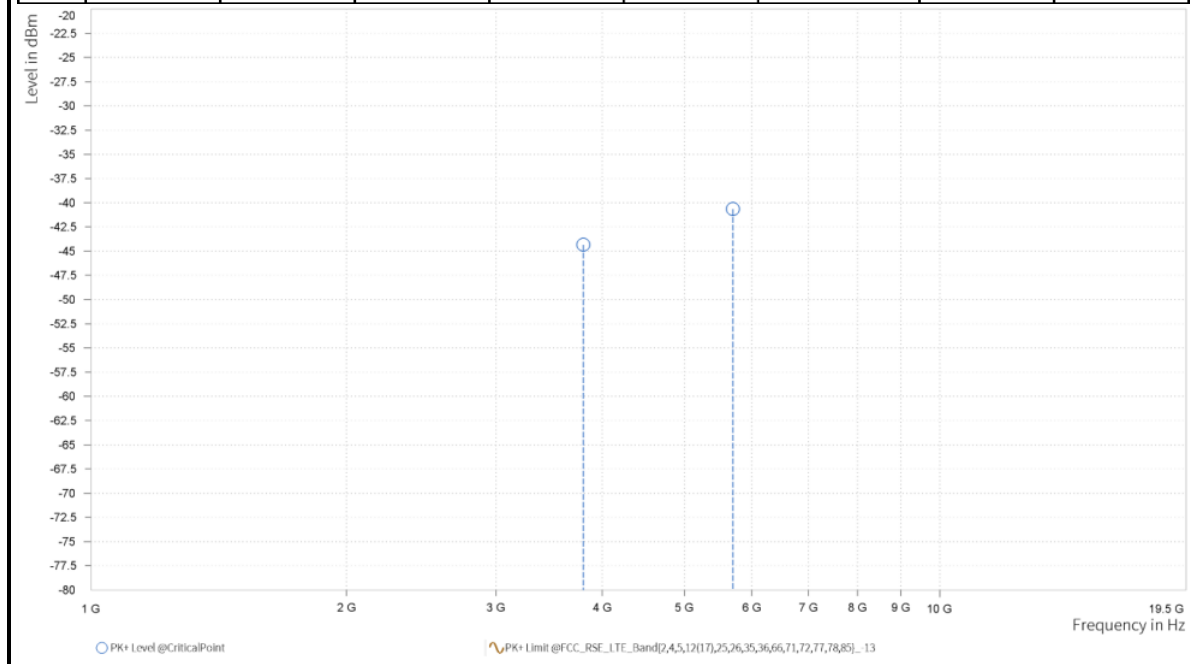




MODE	TX channel 26640	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,801.000	-44.35	-13.0	31.35	27.74	H	1	1.0
4	5,701.500	-40.66	-13.0	27.66	32.79	H	359	2.0

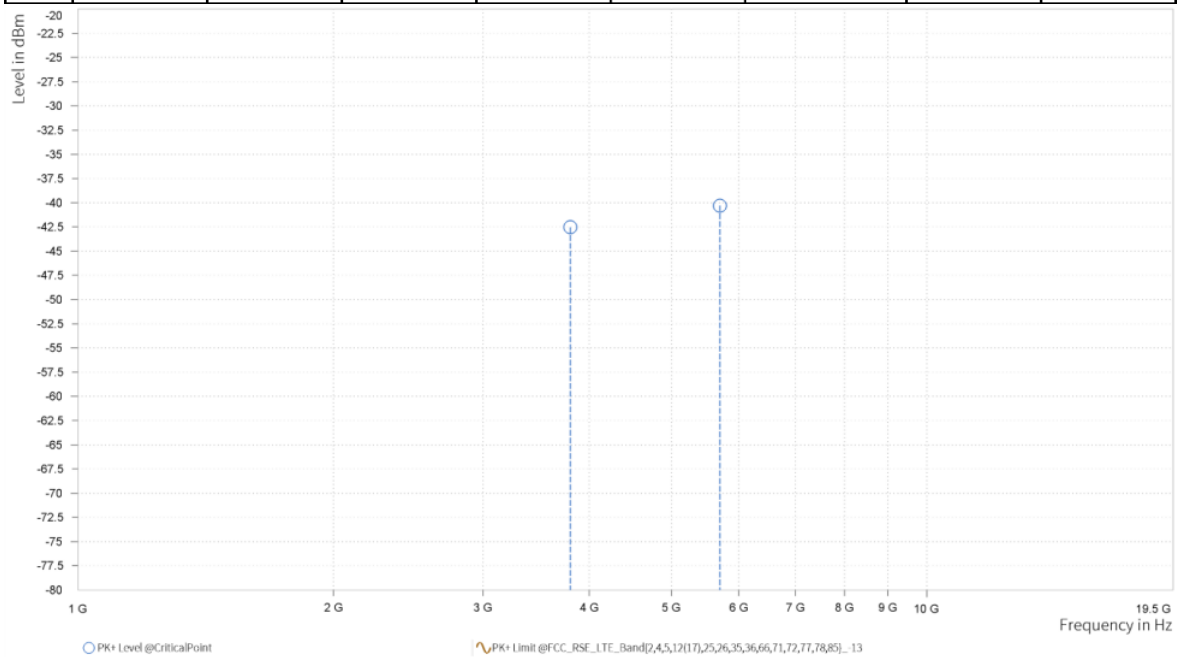




MODE	TX channel 26640	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,801.000	-42.53	-13.0	29.53	27.44	V	359.1	1.0
4	5,701.500	-40.31	-13.0	27.31	32.52	V	96.4	2.0



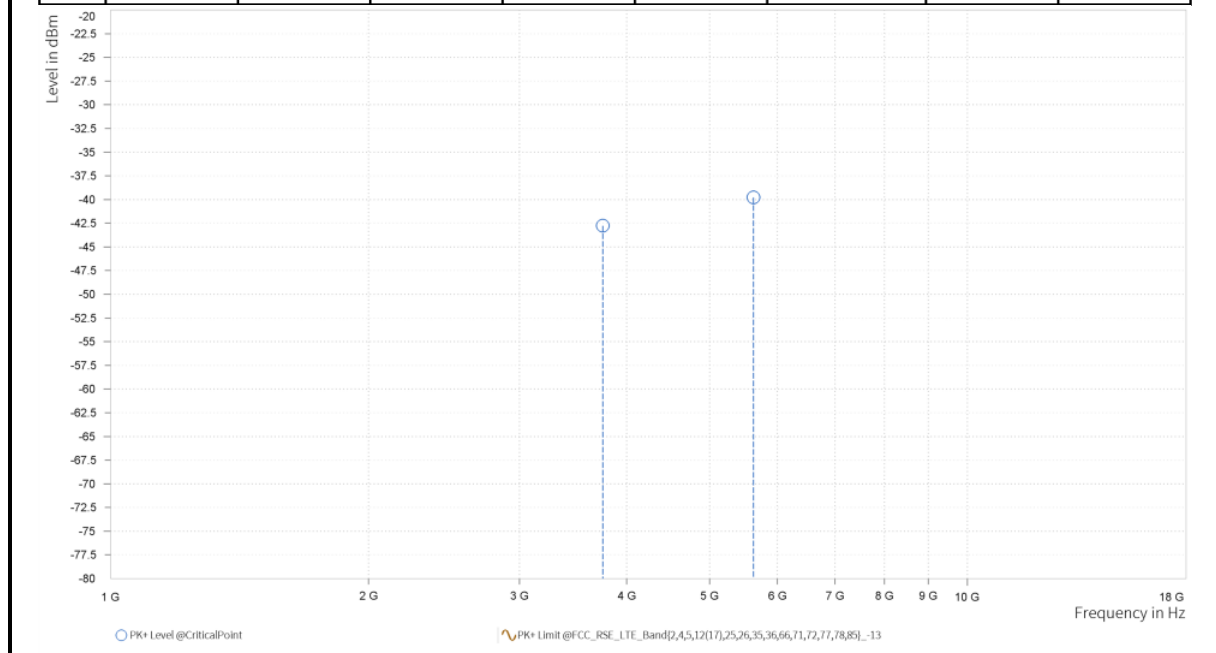


CHANNEL BANDWIDTH: 15MHz / QPSK

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,751.500	-42.77	-13.0	29.77	27.43	H	109.6	2.0
4	5,627.250	-39.78	-13.0	26.78	33.3	H	359.1	1.0





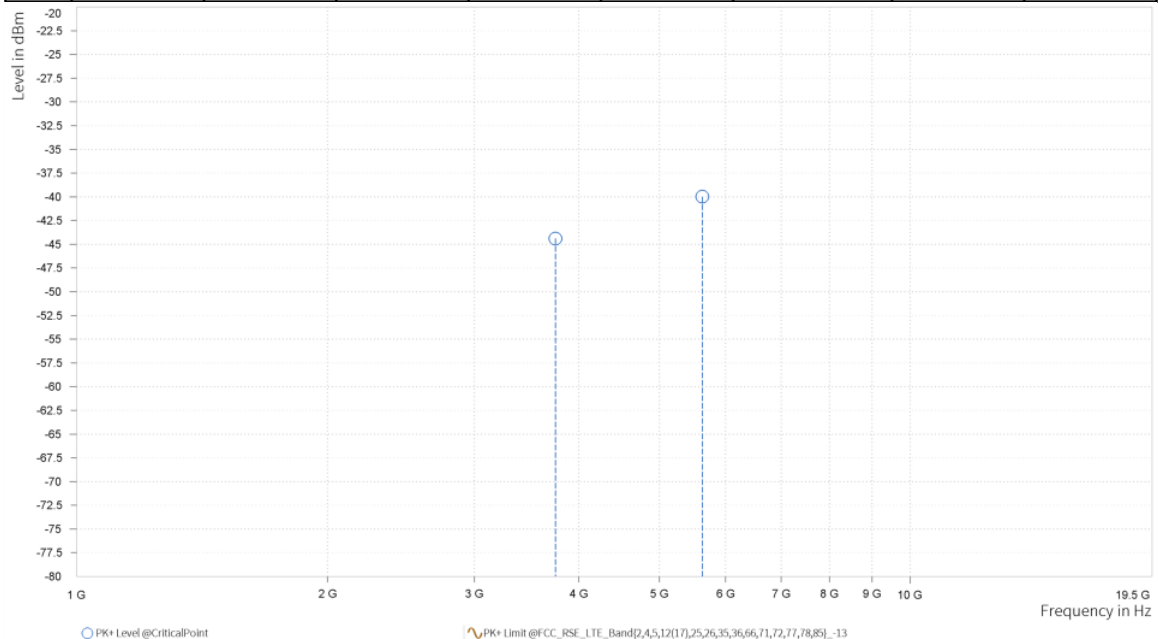
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MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

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]
4	3,751.500	-44.39	-13.0	31.39	27.14	V	1.0	1.0
4	5,627.250	-39.99	-13.0	26.99	33.04	V	0.9	2.0

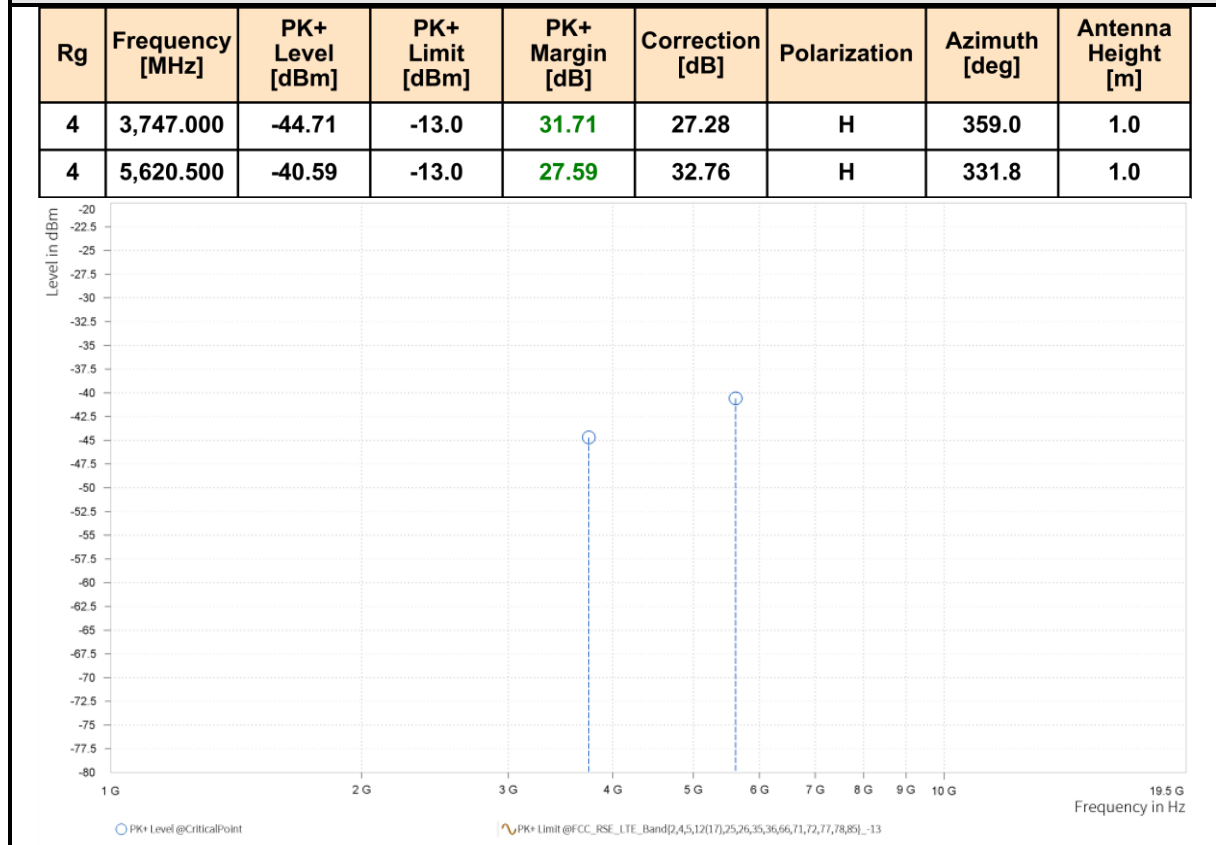




CHANNEL BANDWIDTH: 20MHz / QPSK

MODE	TX channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

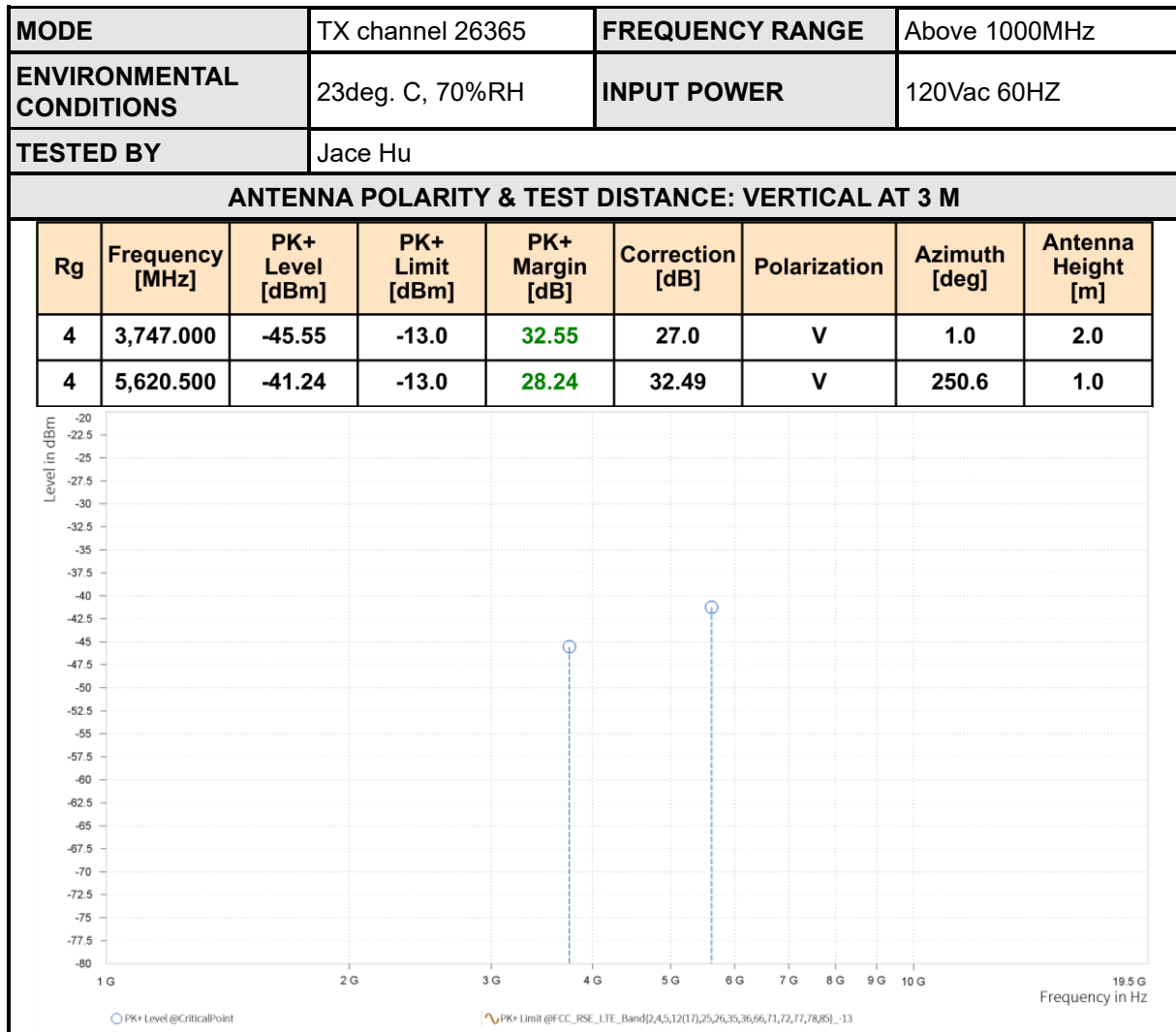
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M





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Test Report No.: PSU-NQN2407300216RF02



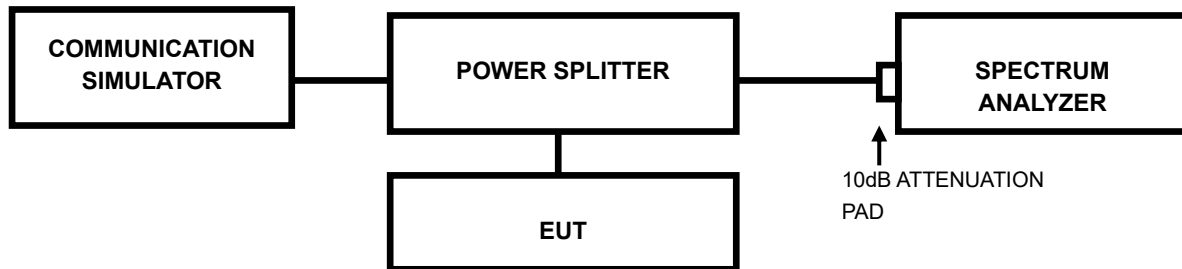


3.7 PEAK TO AVERAGE RATIO

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%.



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3.7.4 TEST RESULTS

Please Refer to Appendix Of this test report.



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4 INFORMATION ON THE TESTING LABORATORIES

We, BV 7LAYERS COMMUNICATIONS TECHNOLOGY (SHENZHEN) CO. LTD., were founded in 2015 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

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

Shenzhen EMC/RF Lab:

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Fax: +86-755-88696577

Email: customerservice.sw@bureauveritas.com

Web Site: www.adt.com.tw

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



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

No any modifications are made to the EUT by the lab during the test.



6 Appendix

GSM1900

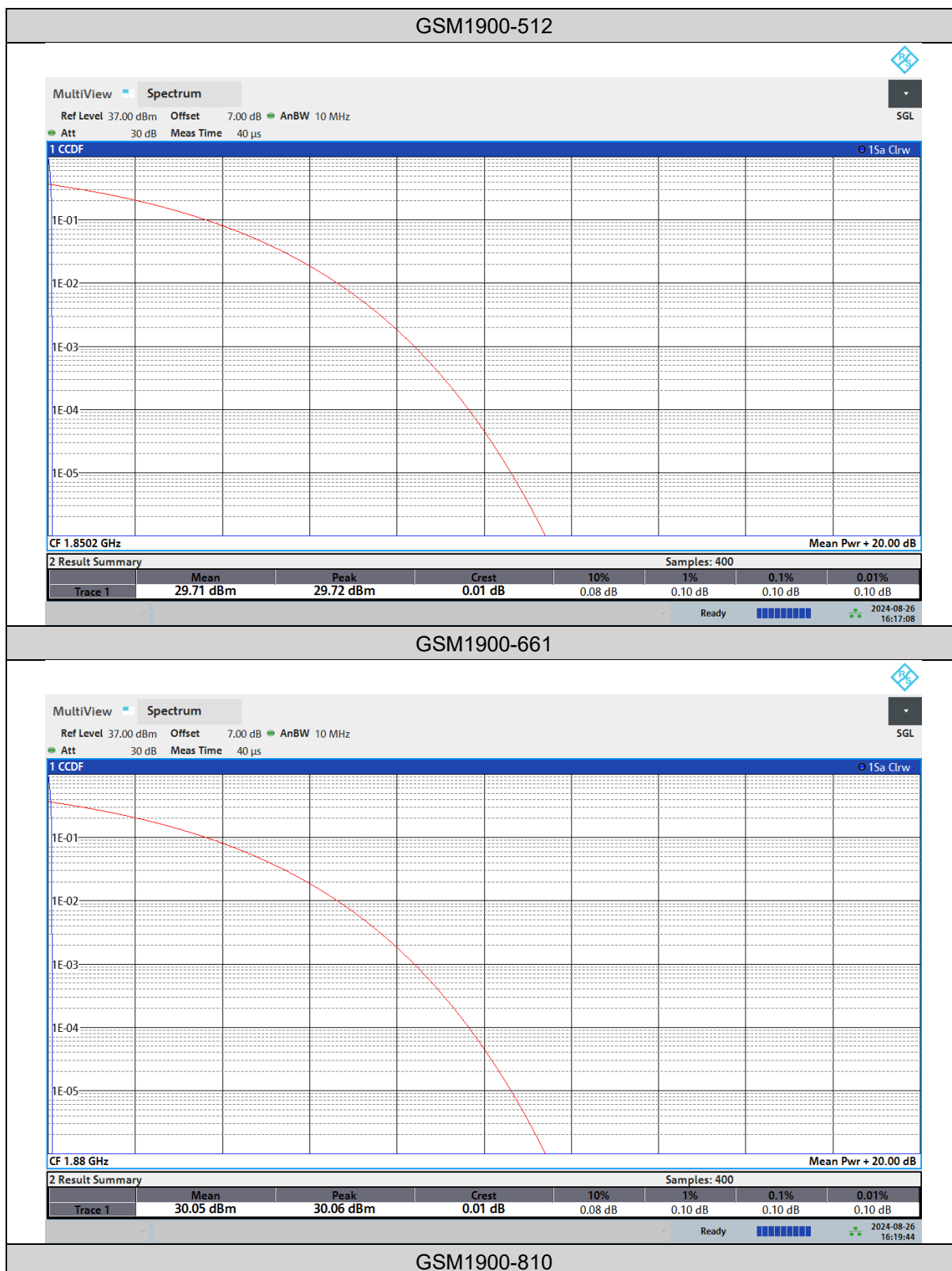
PEAK-TO-AVERAGE RATIO(CCDF)

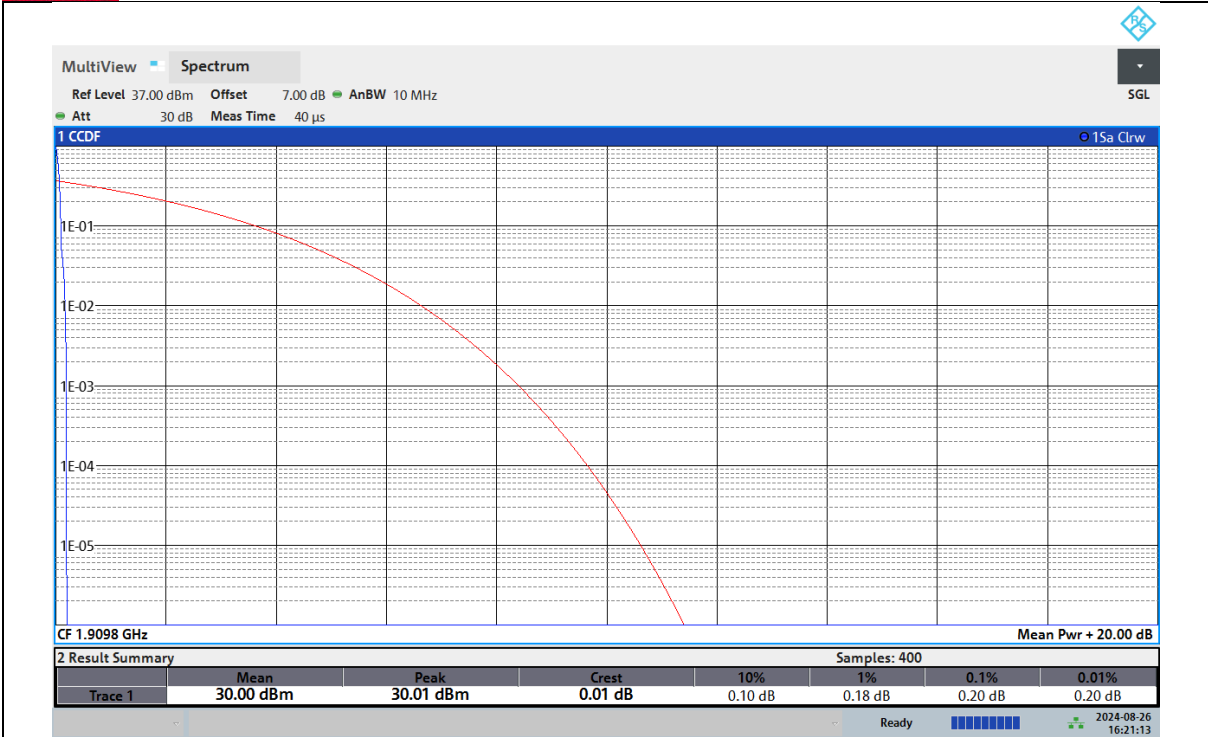
Test Result

Band	Channel	Result(dB)	Limit(dB)	Verdict
GSM1900	512	0.10	13	PASS
GSM1900	661	0.10	13	PASS
GSM1900	810	0.20	13	PASS
EGPRS1900	512	3.12	13	PASS
EGPRS1900	661	3.30	13	PASS
EGPRS1900	810	2.82	13	PASS

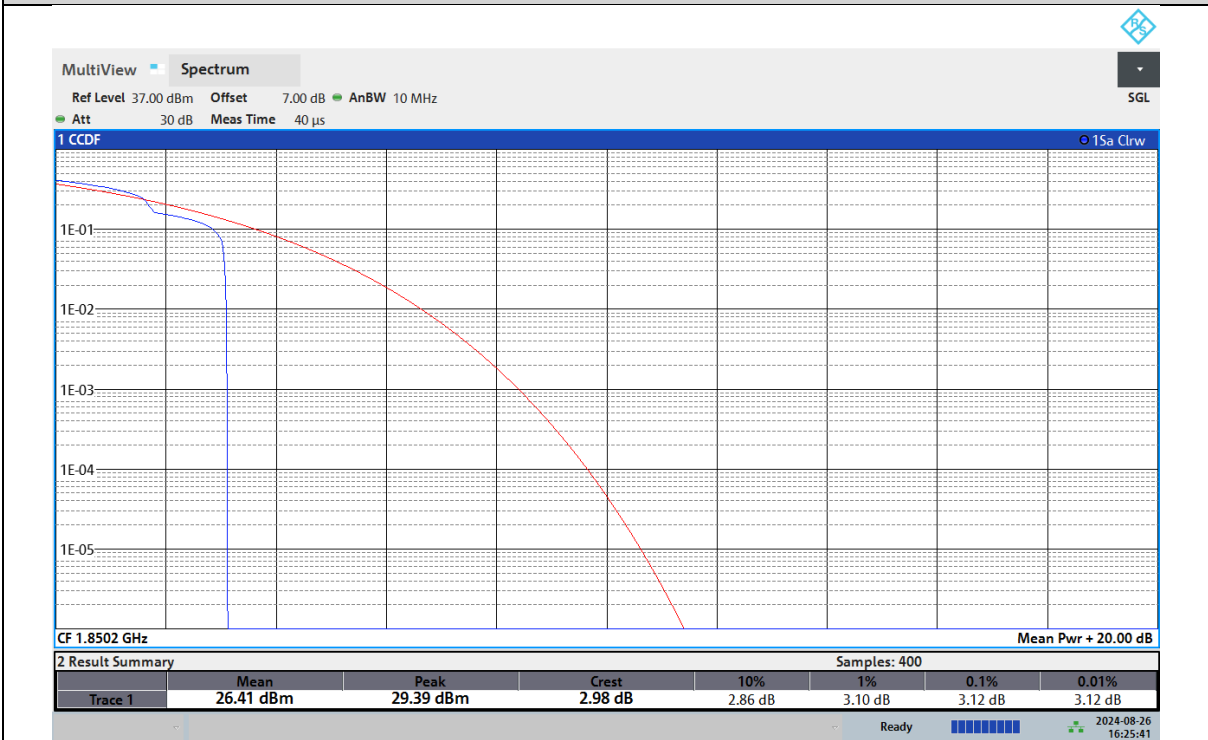


Test Graphs

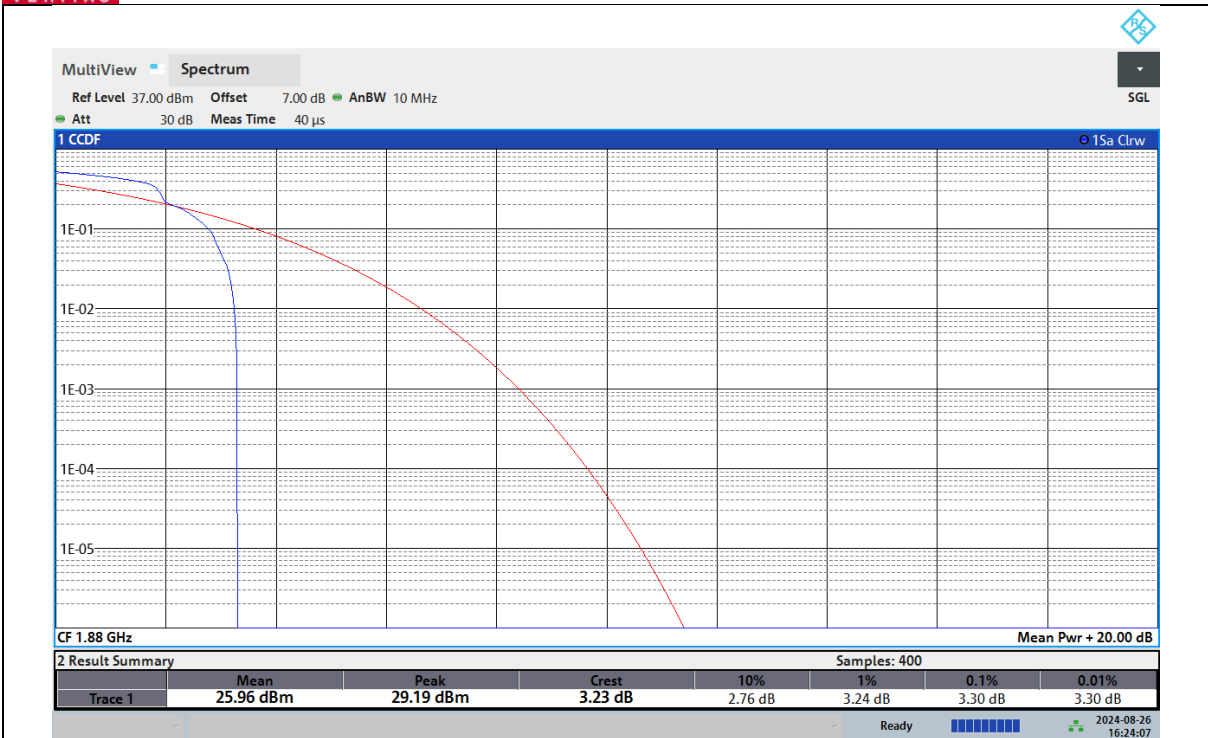




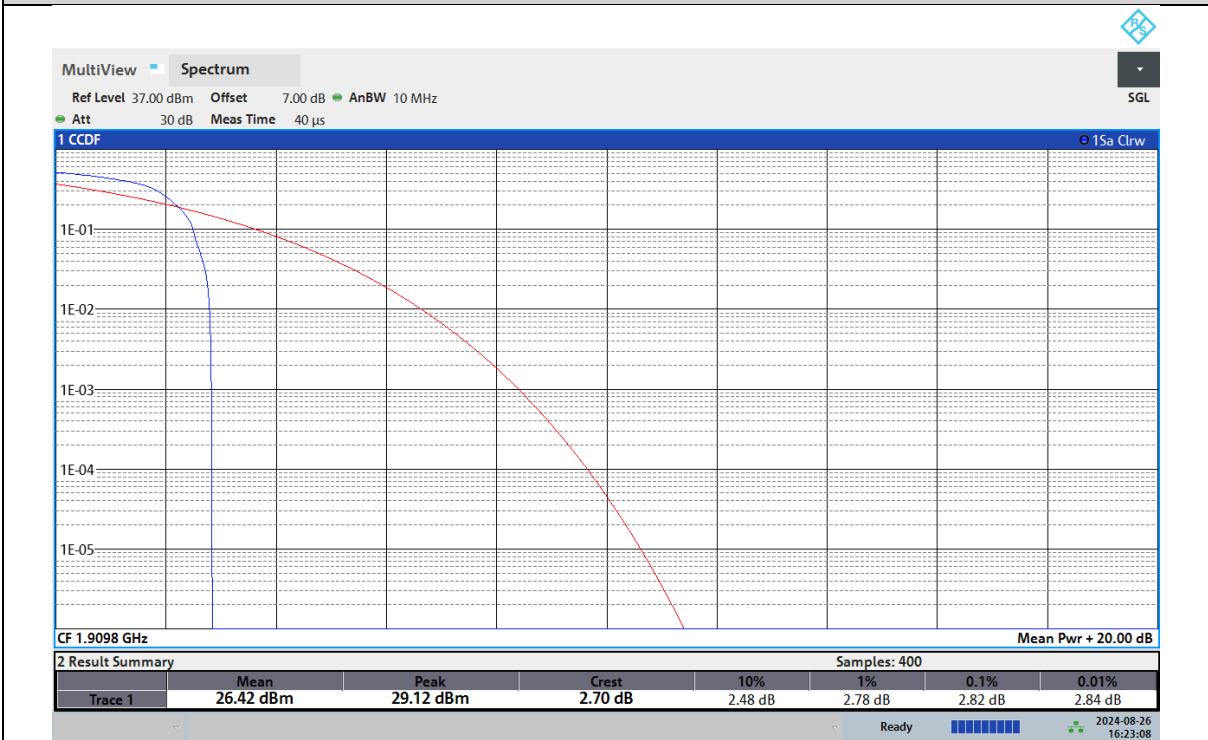
EGPRS1900-512



EGPRS1900-661



EGPRS1900-810



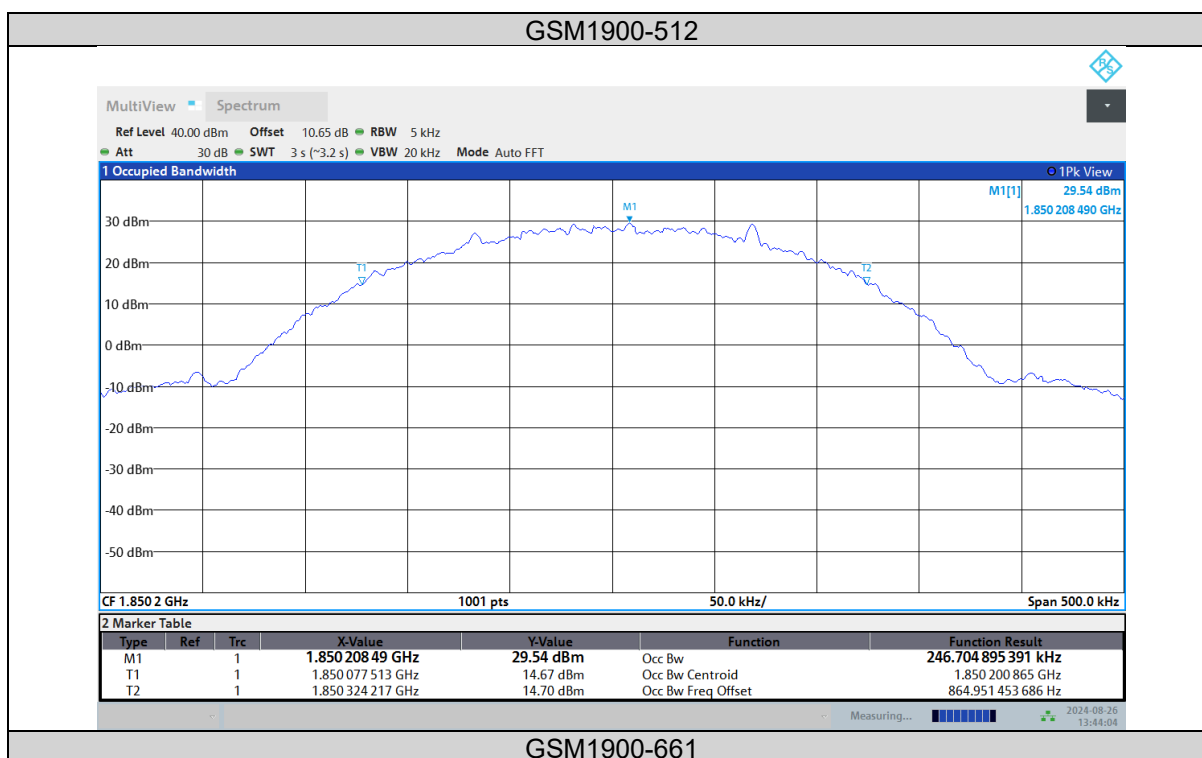
26DB BANDWIDTH AND OCCUPIED BANDWIDTH

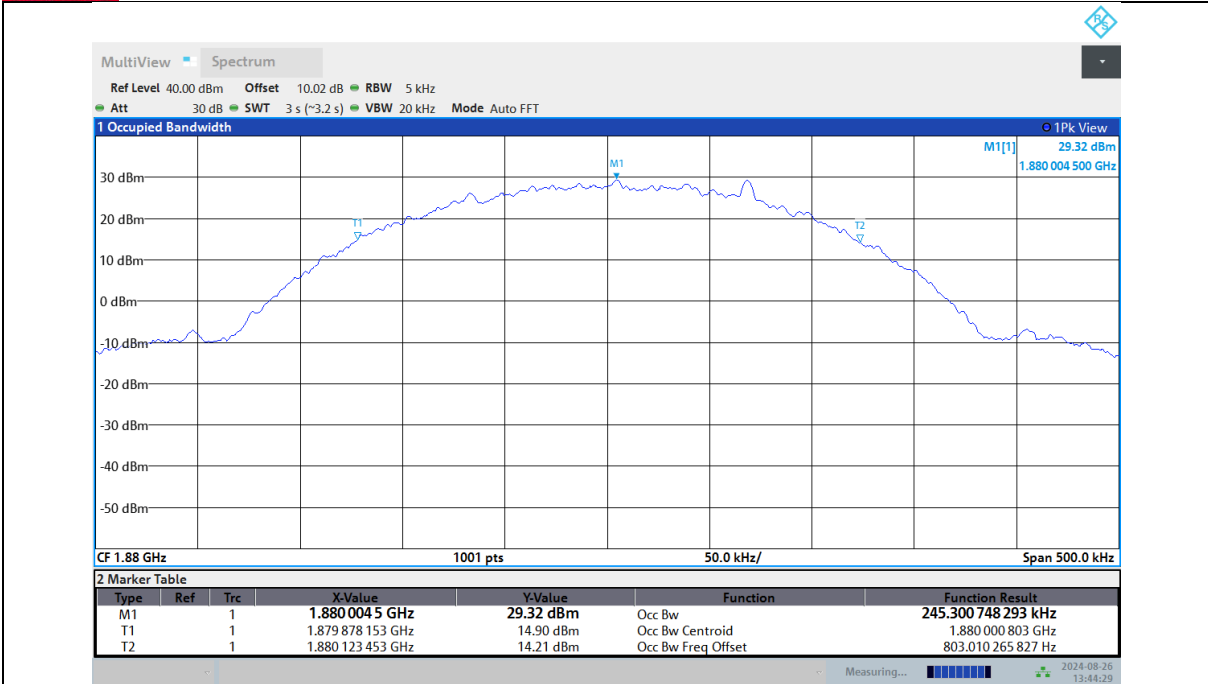
Test Result

Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
GSM1900	512	246.705	313.69	PASS
GSM1900	661	245.301	320.18	PASS
GSM1900	810	245.872	322.18	PASS
EGPRS1900	512	246.695	321.68	PASS
EGPRS1900	661	244.949	317.68	PASS
EGPRS1900	810	245.860	320.68	PASS

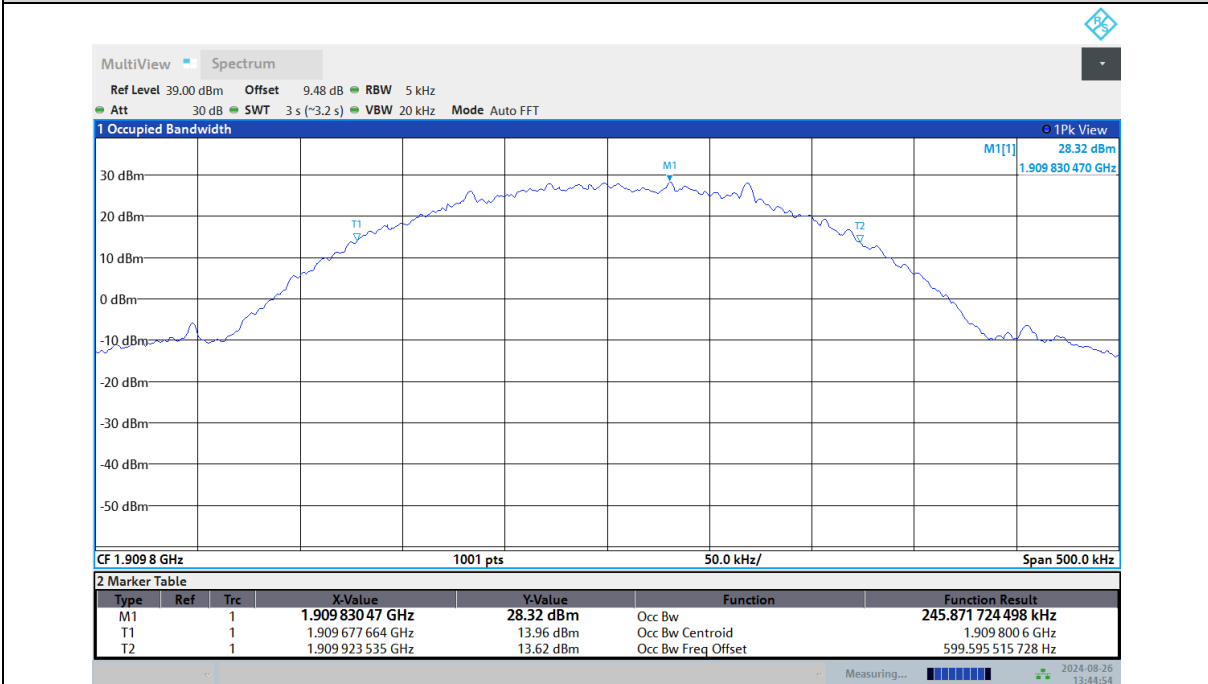
Test Graphs

Occupied Bandwidth

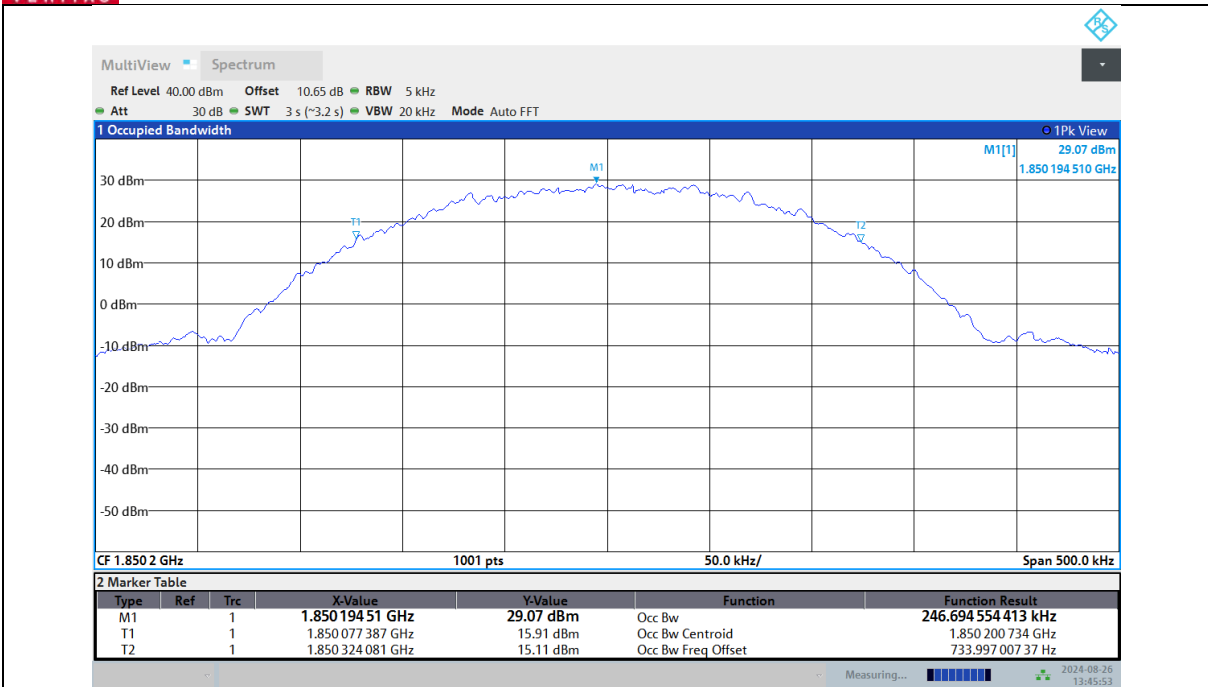




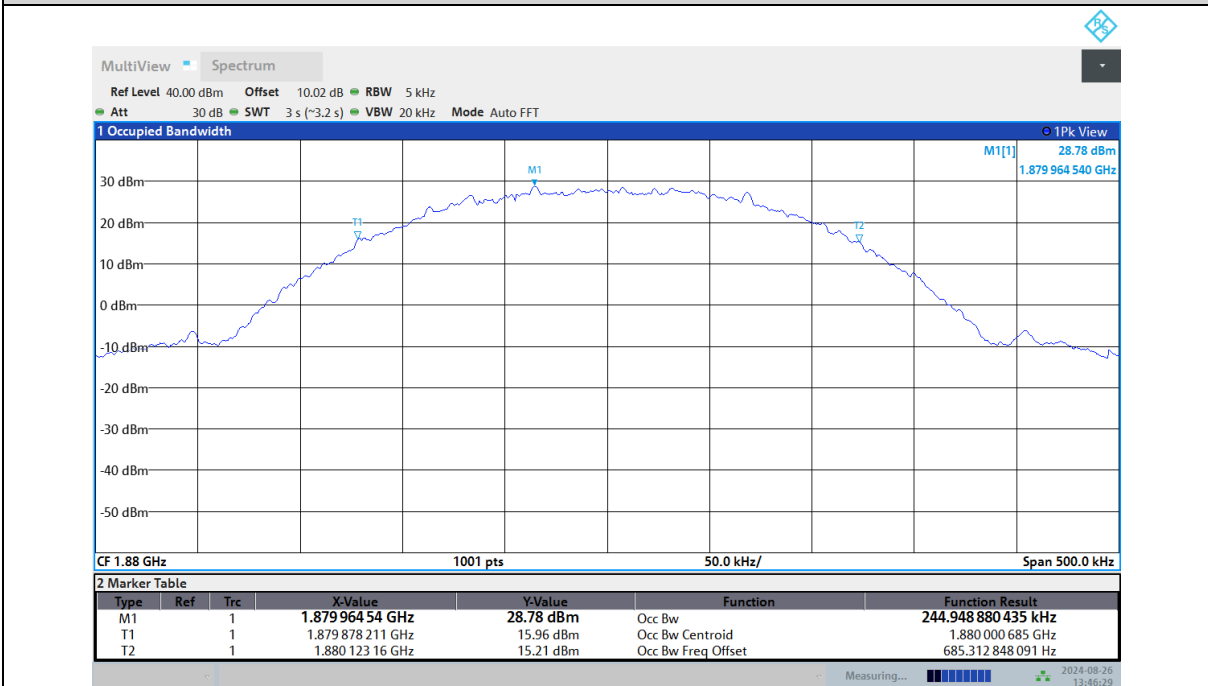
GSM1900-810



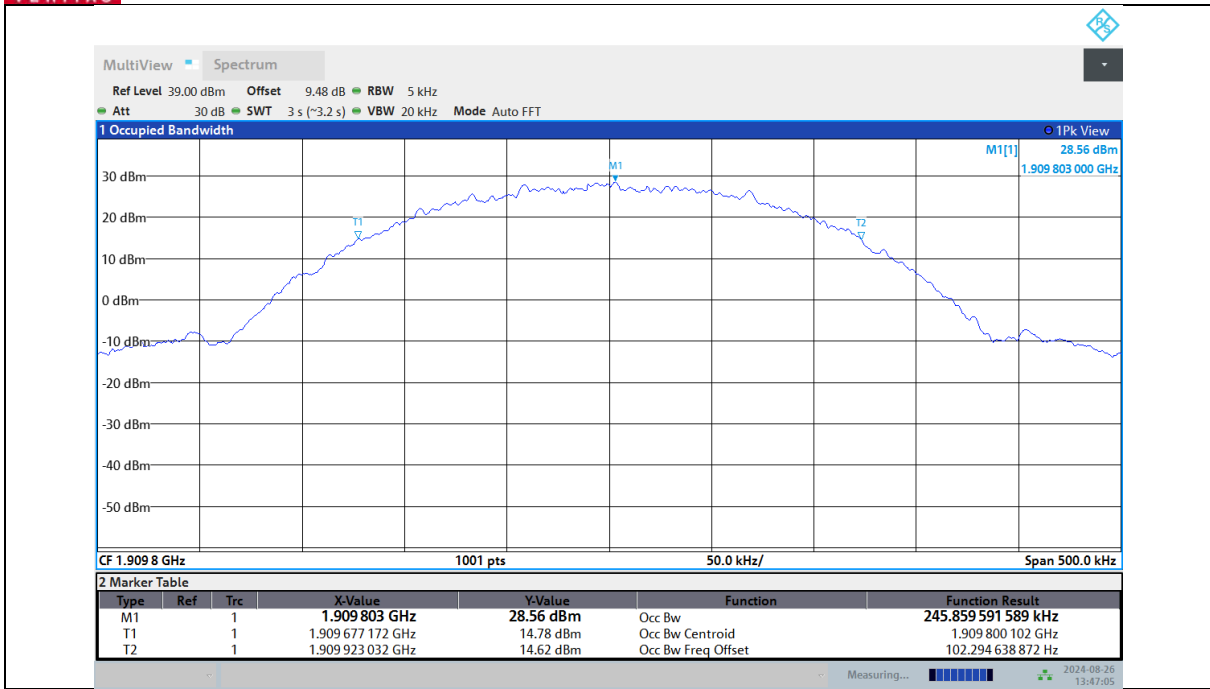
EGPRS1900-512



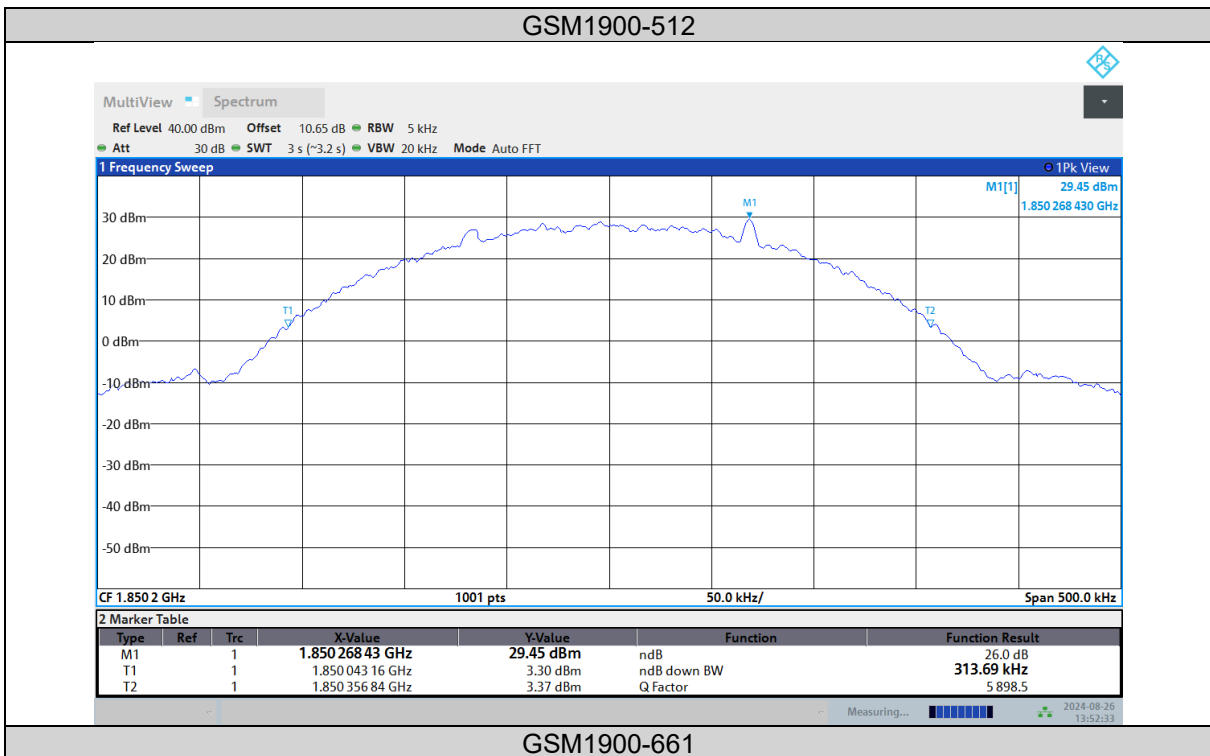
EGPRS1900-661



EGPRS1900-810

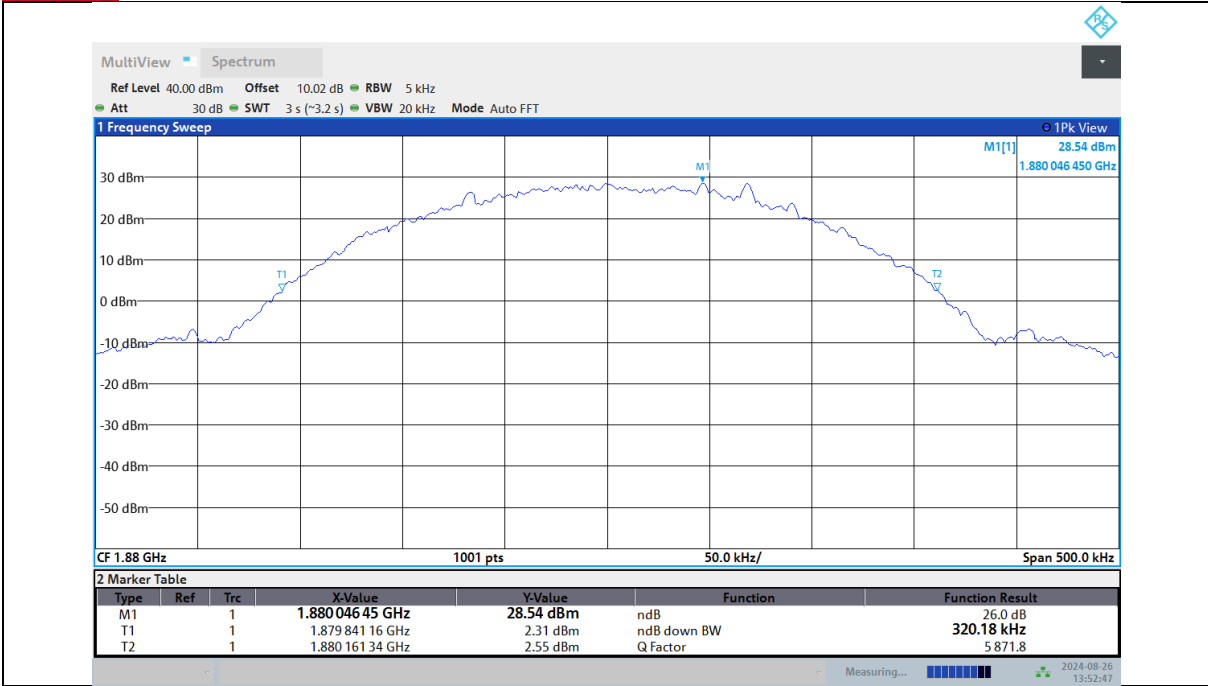


26dB Bandwidth

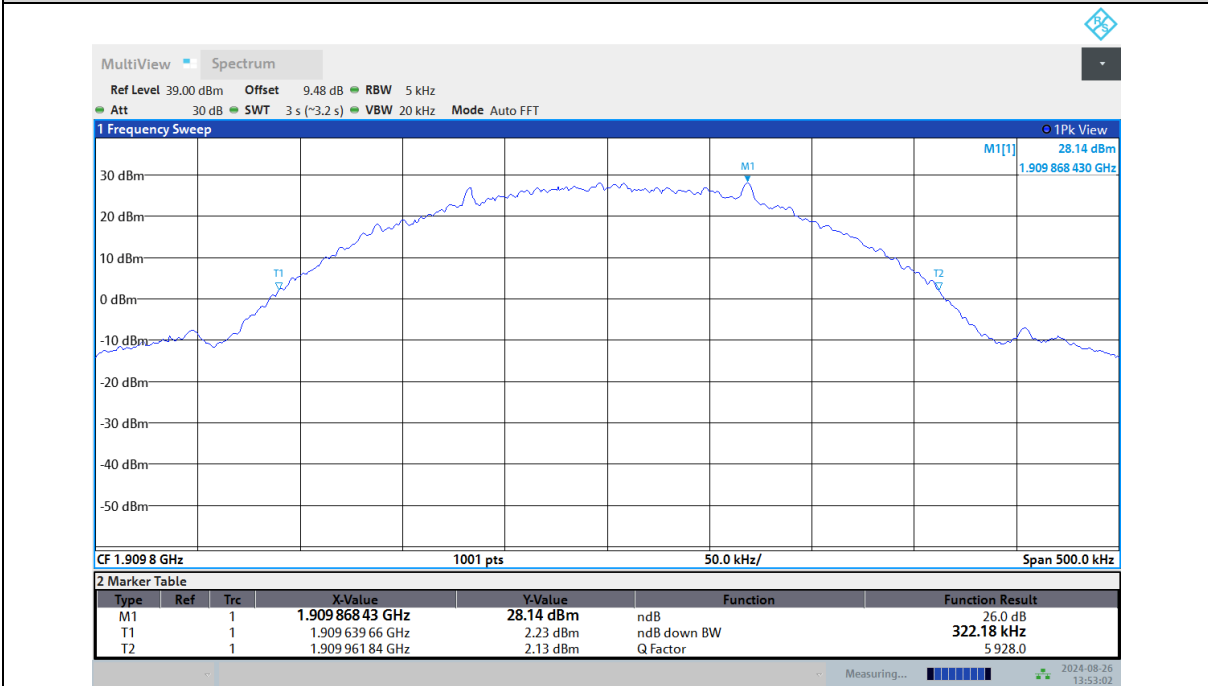




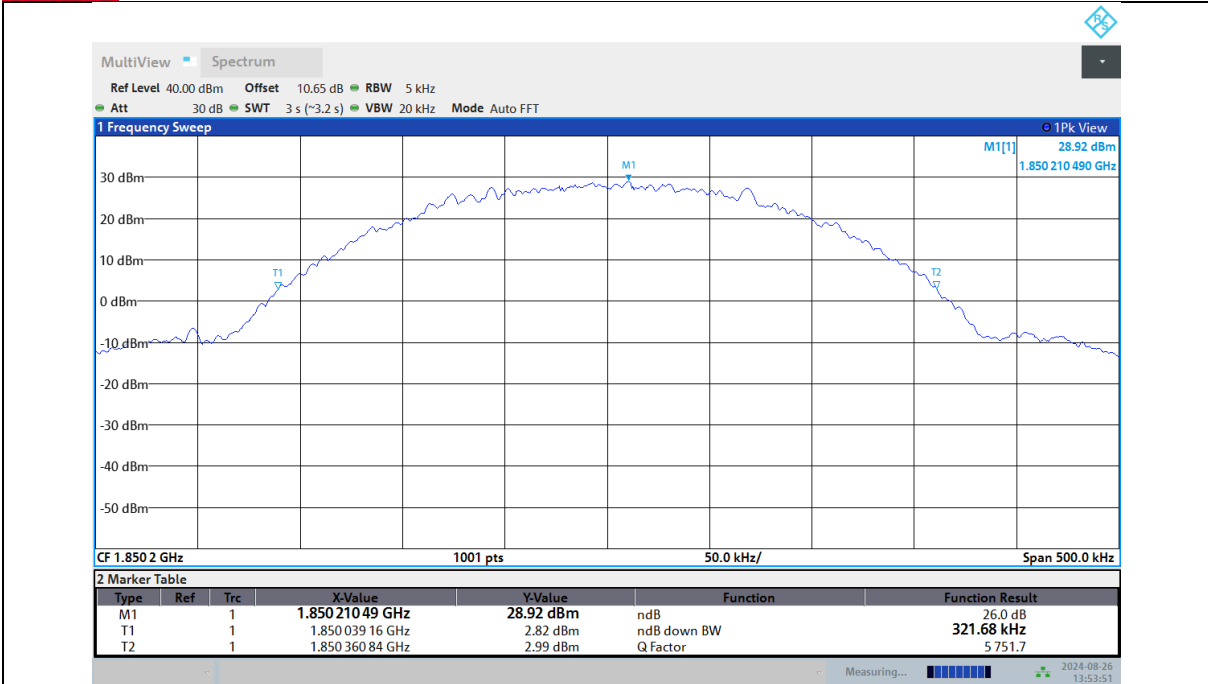
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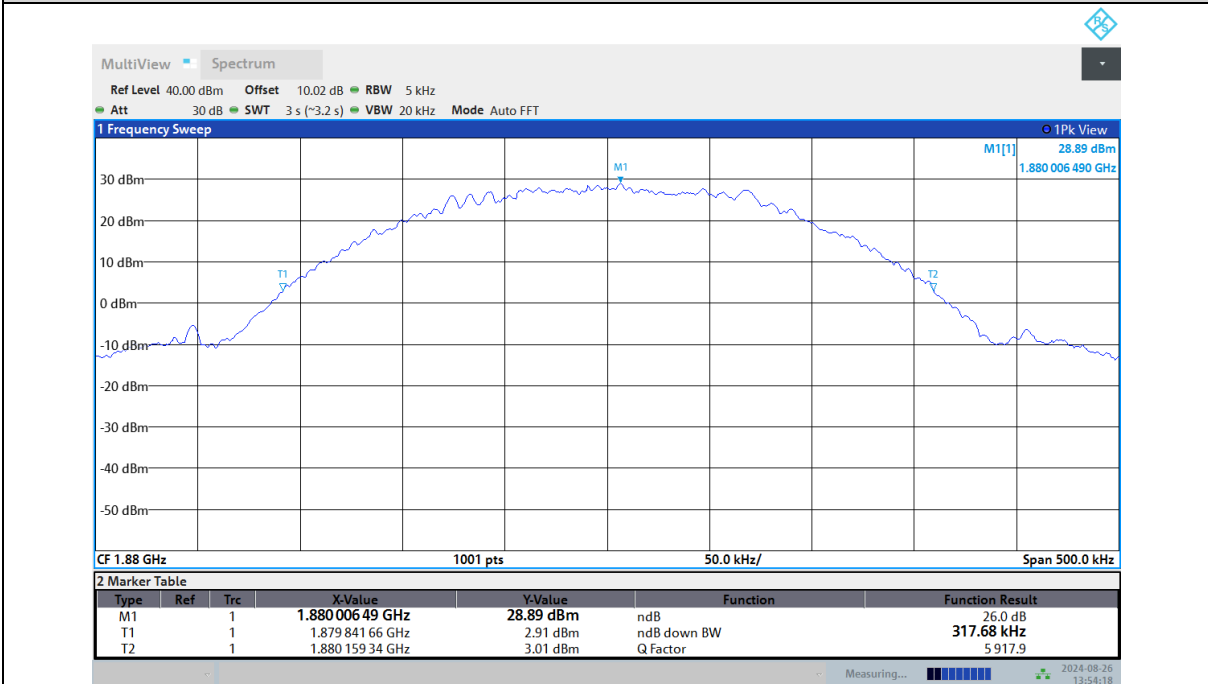
GSM1900-810



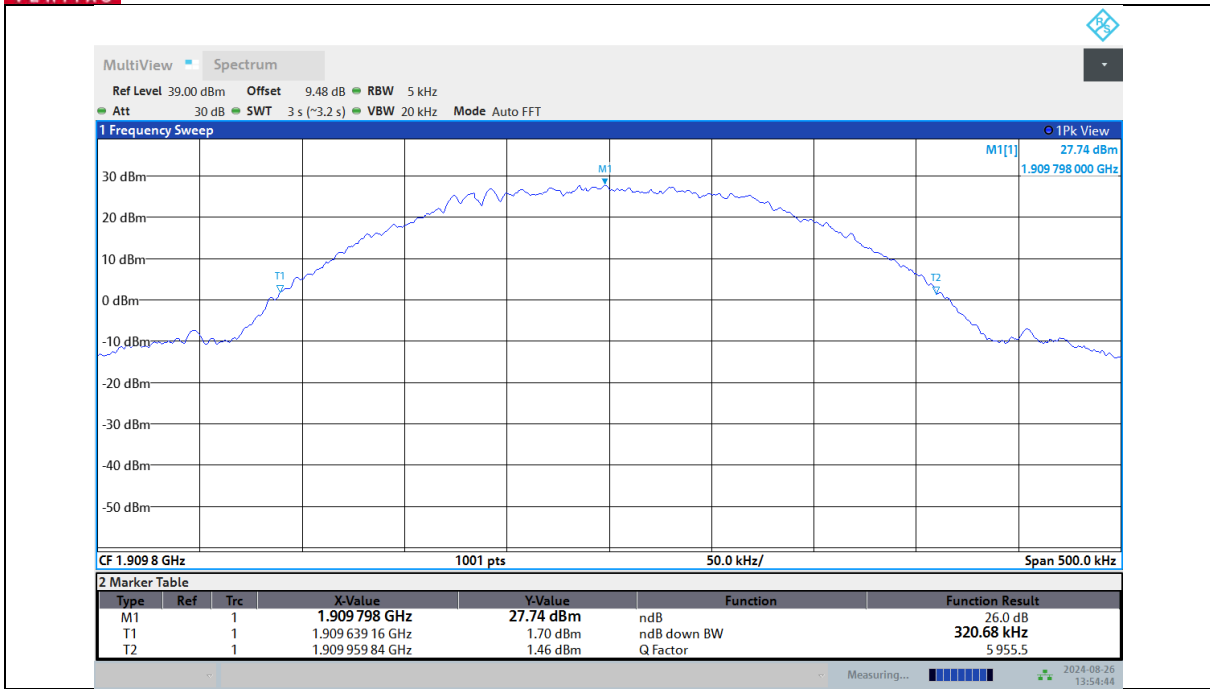
EGPRS1900-512



EGPRS1900-661



EGPRS1900-810





BUREAU Test Report No.: PSU-NQN2407300216RF02
VERITAS

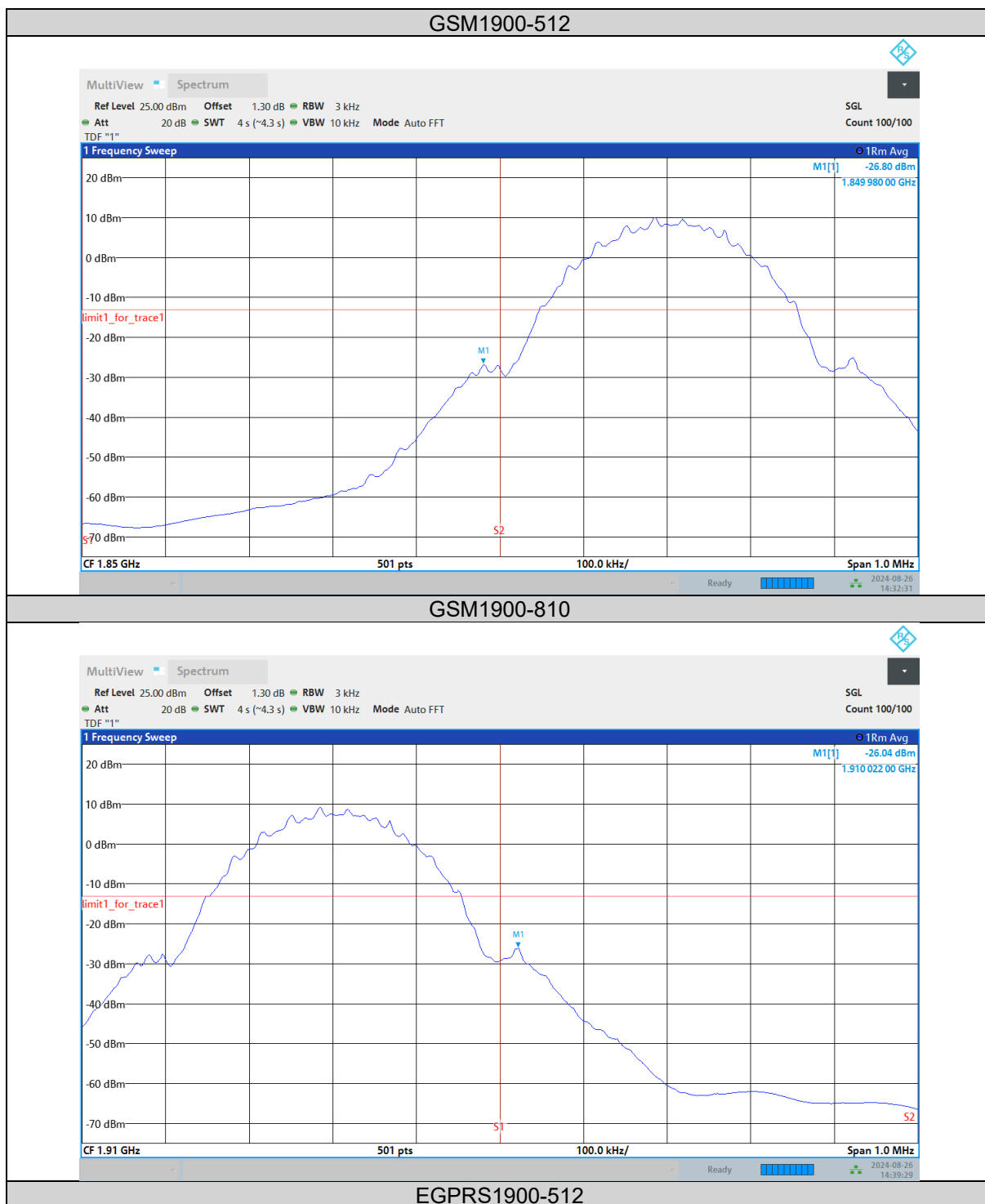
BAND EDGE

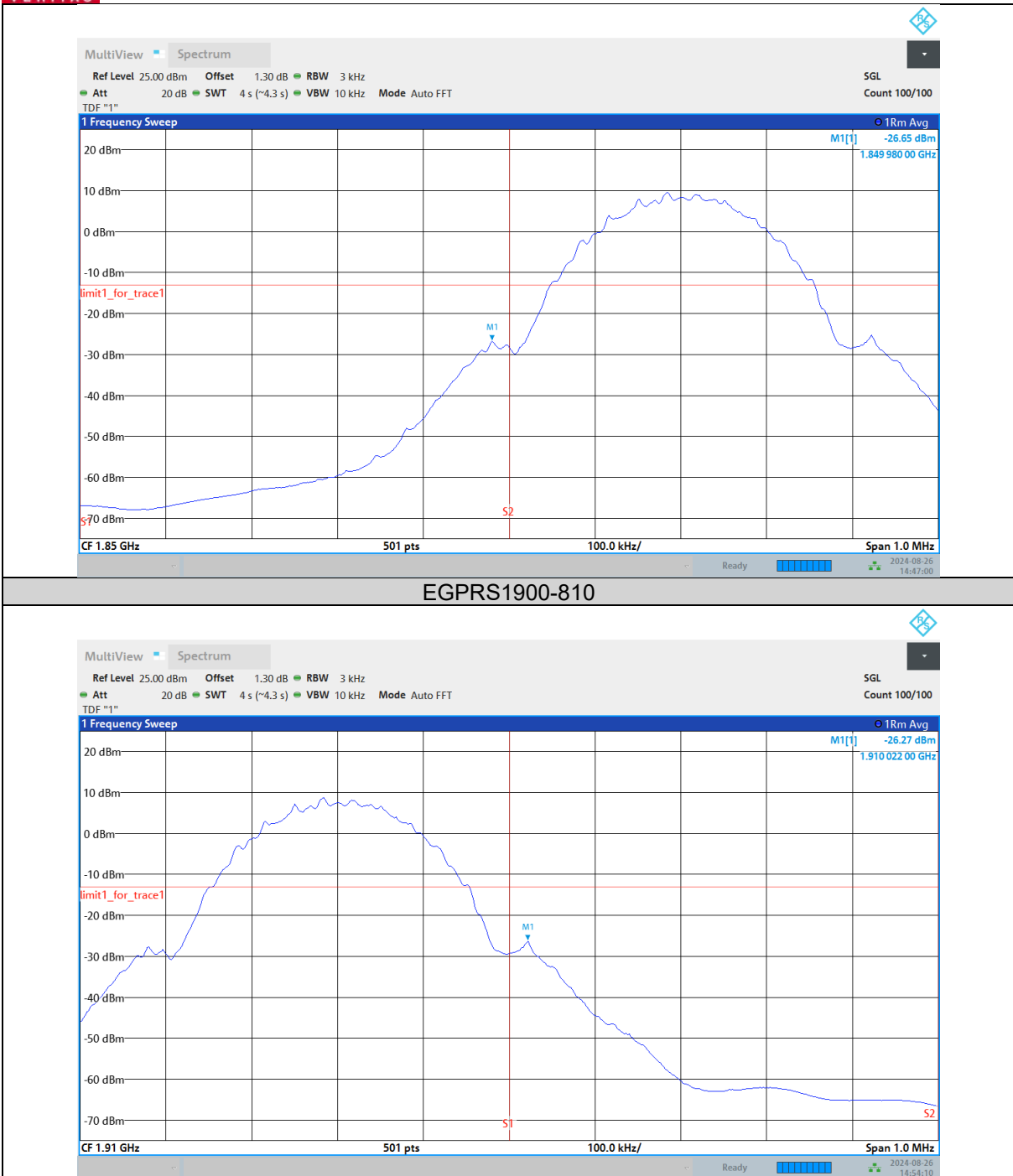
Test Result

Band	Channel	Freq (MHz)	Result (dBm)	Limit(dBm)	Verdict
GSM1900	512	1849.980	-26.80	-13	PASS
GSM1900	810	1910.022	-26.04	-13	PASS
EGPRS1900	512	1849.980	-26.65	-13	PASS
EGPRS1900	810	1910.022	-26.27	-13	PASS



Test Graphs







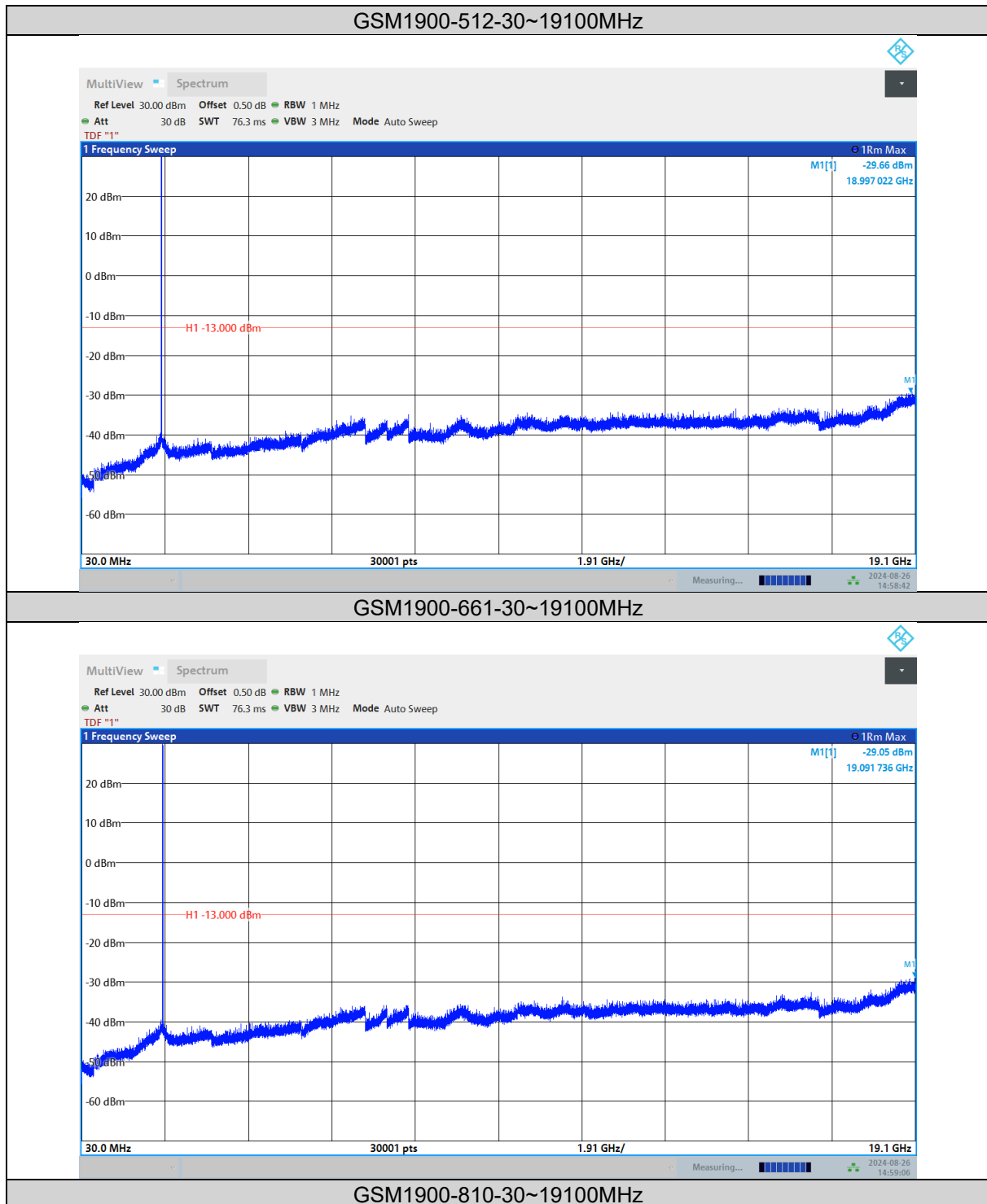
BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF02
CONDUCTED SPURIOUS EMISSION

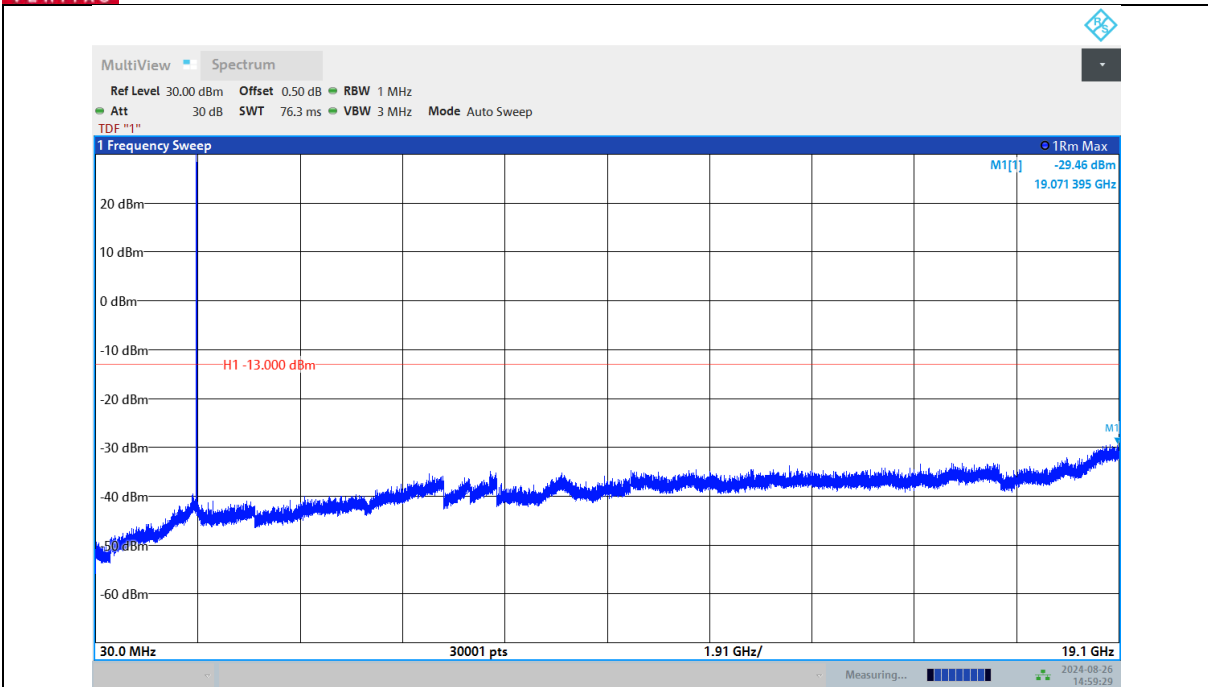
Test Result

Band	Channel	Frequency Range(MHz)	Max.Freq. (MHz)	Result (dBm)	Limit (dBm)	Verdict
GSM1900	512	30~19100MHz	18997.022	-29.66	-13	PASS
GSM1900	661	30~19100MHz	19091.736	-29.05	-13	PASS
GSM1900	810	30~19100MHz	19071.395	-29.46	-13	PASS
EGPRS1900	512	30~19100MHz	19047.240	-29.26	-13	PASS
EGPRS1900	661	30~19100MHz	18825.392	-29.40	-13	PASS
EGPRS1900	810	30~19100MHz	19007.193	-29.01	-13	PASS

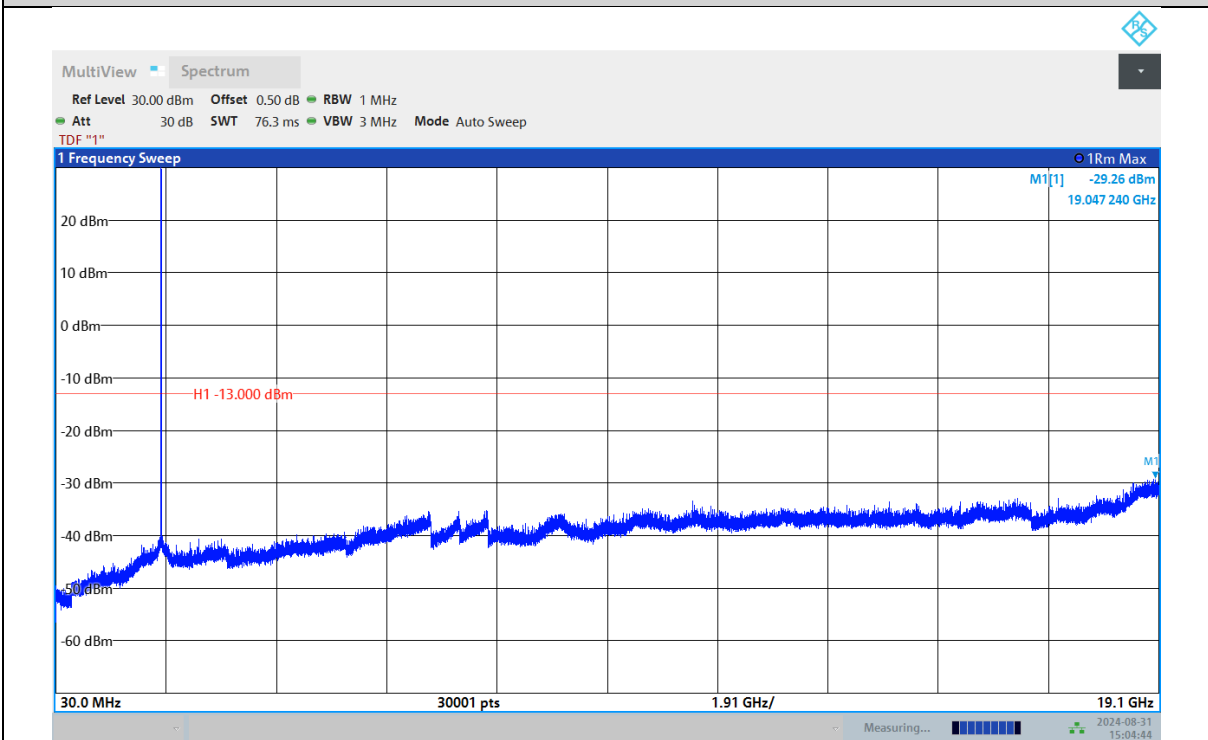


Test Graphs





EGPRS1900-512-30~19100MHz

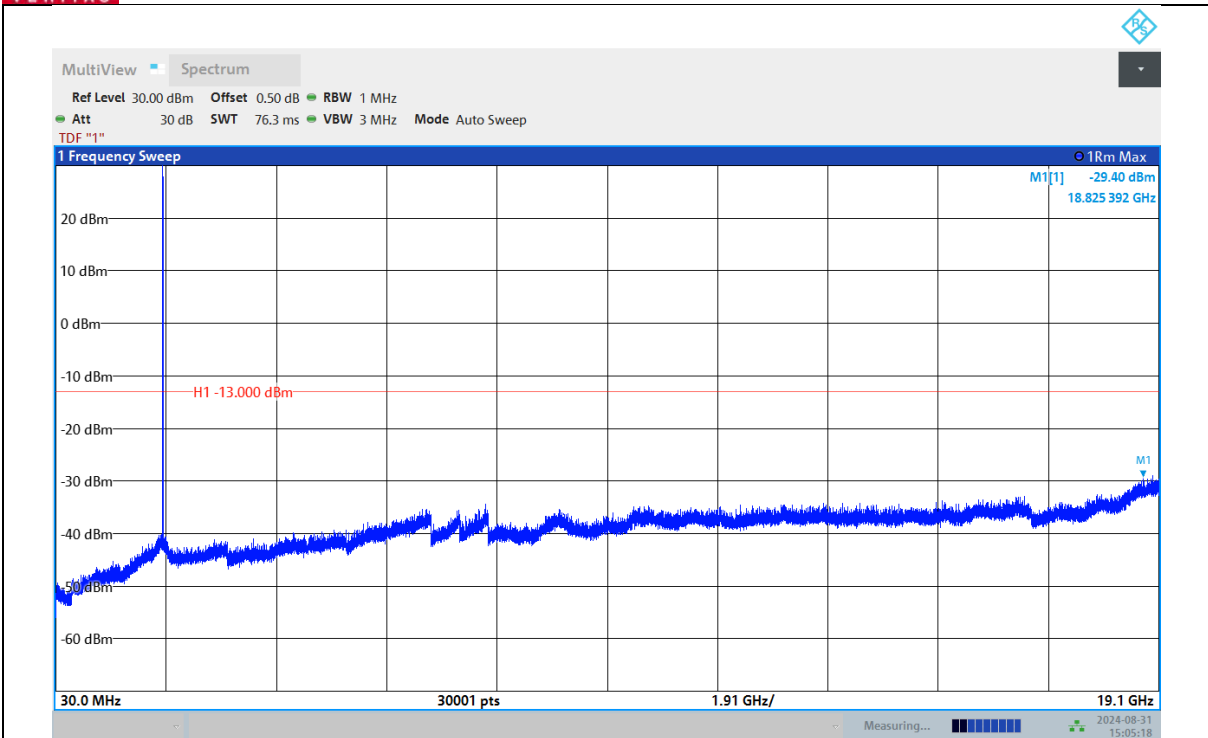


EGPRS1900-661-30~19100MHz

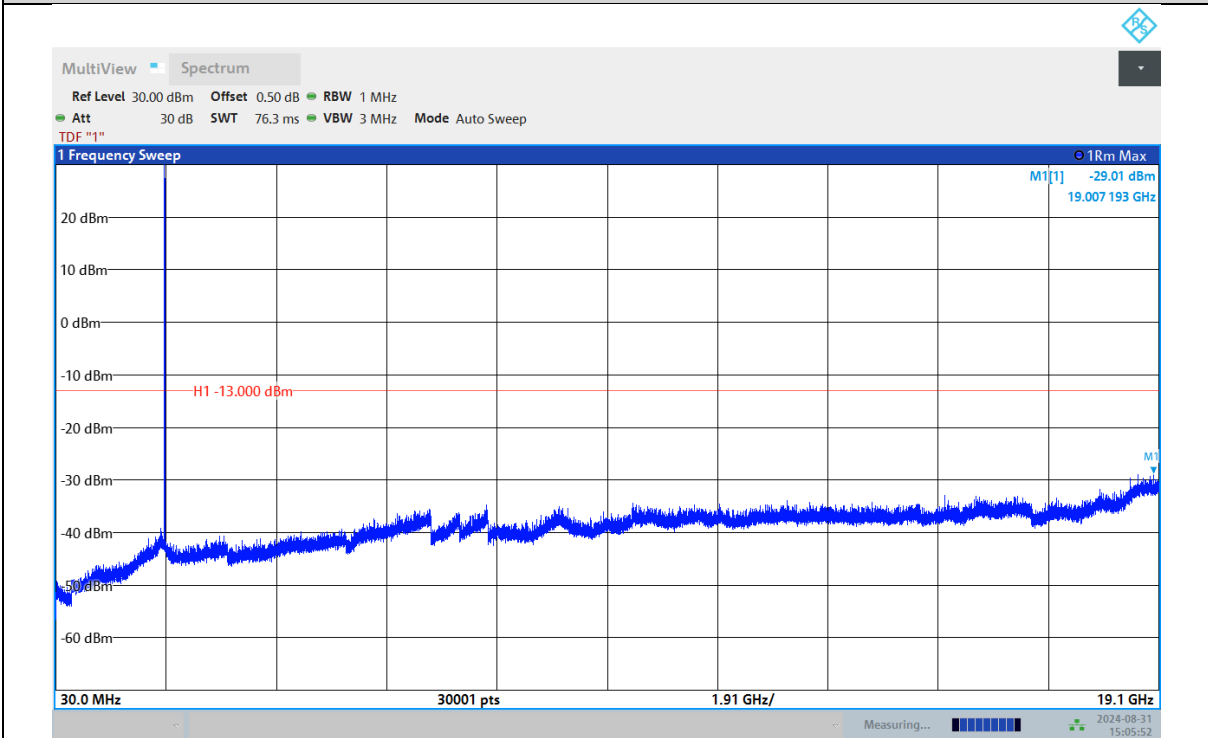


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EGPRS1900-810-30~19100MHz



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FREQUENCY STABILITY

Test Result

Voltage							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM1900	661	VL	NT	0.42	0.0004	±2.5	PASS
GSM1900	661	VN	NT	-2.53	0.0027	±2.5	PASS
GSM1900	661	VH	NT	-0.80	0.0009	±2.5	PASS
EGPRS1900	661	VL	NT	-3.96	-0.0021	±2.5	PASS
EGPRS1900	661	VN	NT	-6.52	-0.0035	±2.5	PASS
EGPRS1900	661	VH	NT	-0.19	-0.0001	±2.5	PASS

Temperature							
Band	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM1900	661	NV	-30	6.82	0.0036	±2.5	PASS
GSM1900	661	NV	-20	-9.20	-0.0049	±2.5	PASS
GSM1900	661	NV	-10	1.94	0.0010	±2.5	PASS
GSM1900	661	NV	0	4.30	0.0023	±2.5	PASS
GSM1900	661	NV	10	-3.73	-0.0020	±2.5	PASS
GSM1900	661	NV	20	-5.38	-0.0029	±2.5	PASS
GSM1900	661	NV	30	-8.56	-0.0046	±2.5	PASS
GSM1900	661	NV	40	-2.28	-0.0012	±2.5	PASS
GSM1900	661	NV	50	5.75	0.0030	±2.5	PASS
EGPRS1900	661	NV	-30	4.28	0.0023	±2.5	PASS
EGPRS1900	661	NV	-20	6.69	0.0036	±2.5	PASS
EGPRS1900	661	NV	-10	3.80	0.0020	±2.5	PASS
EGPRS1900	661	NV	0	0.39	0.0002	±2.5	PASS
EGPRS1900	661	NV	10	-8.13	-0.0043	±2.5	PASS
EGPRS1900	661	NV	20	9.68	0.0051	±2.5	PASS
EGPRS1900	661	NV	30	0.25	0.0001	±2.5	PASS
EGPRS1900	661	NV	40	-5.7	-0.0030	±2.5	PASS
EGPRS1900	661	NV	50	2.90	0.0015	±2.5	PASS

MAX Deviation calculation

Frequency Stability	Frequency (MHz)	Limit Line(MHz)	Result
$f_L - \text{MAX}(\Delta f) $	1850.076990	≥ 1850	PASS
$f_H + \text{MAX}(\Delta f) $	1909.677510	≤ 1910	

- Note: 1. $|\text{MAX}(\Delta f)|$ = Max Deviation
 2. f_L = Occ low channel f_L (-13dBm/MHz)
 3. f_H = Occ High channel f_H (-13dBm/MHz)
 4. $|\text{MAX}(\Delta f)|$ = 9.68 Hz.



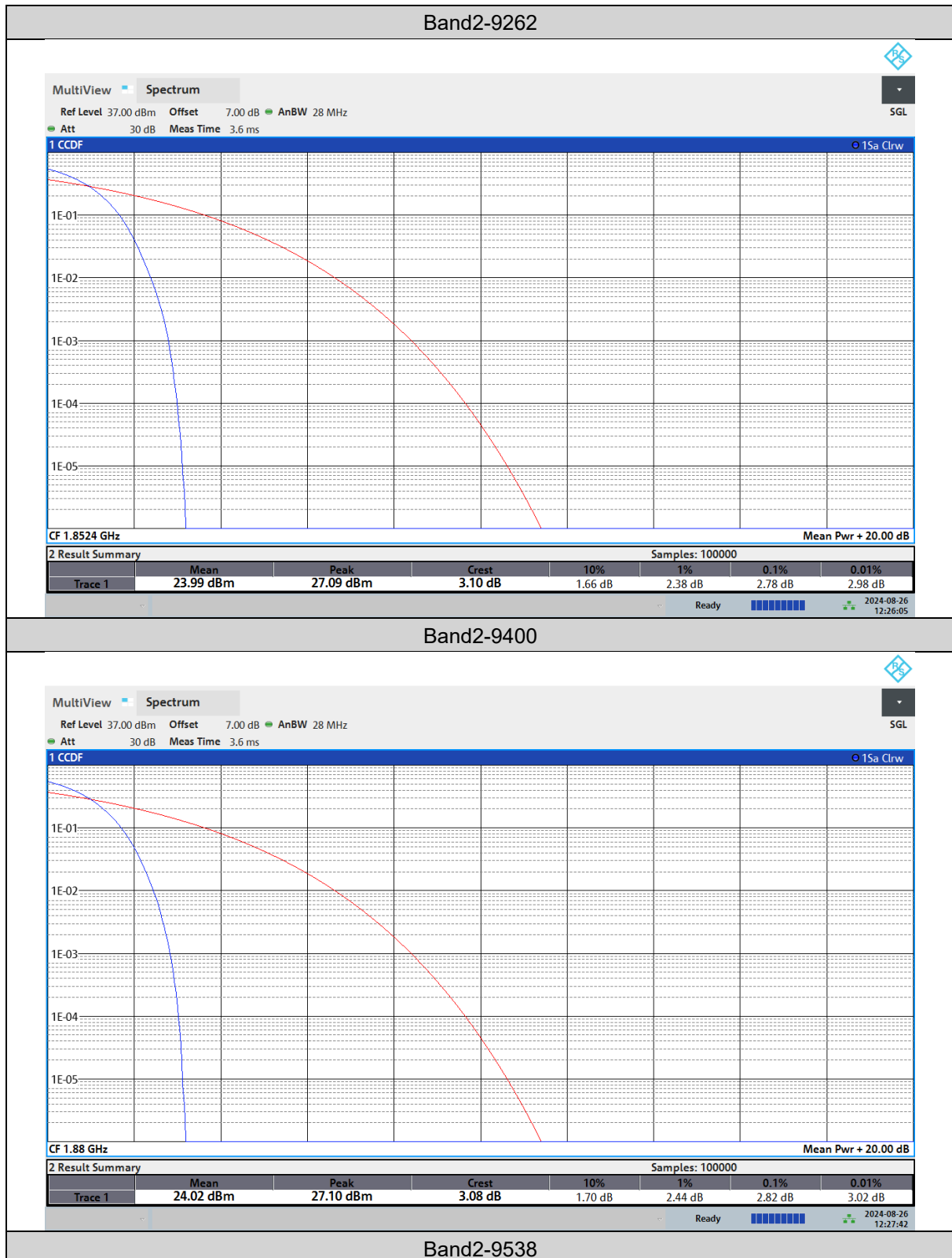
PEAK-TO-AVERAGE RATIO

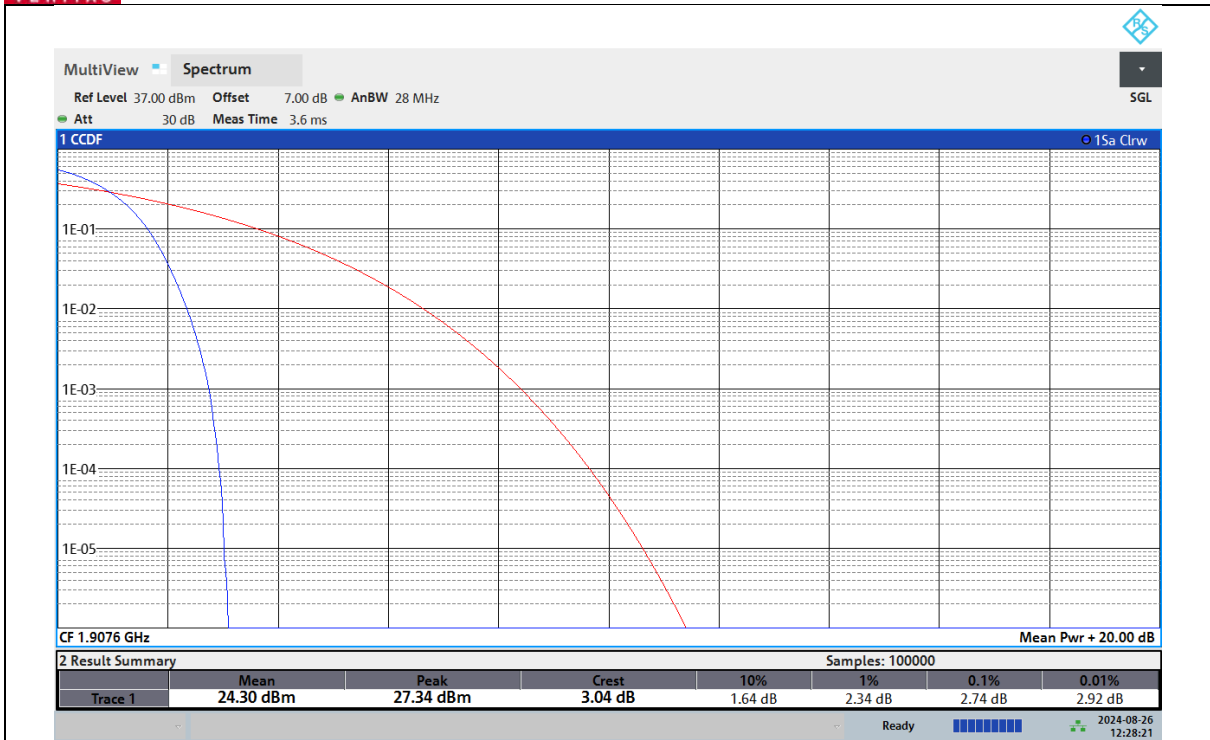
Test Result

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
Band2	9262	2.78	13	PASS
Band2	9400	2.82	13	PASS
Band2	9538	2.74	13	PASS



Test Graphs





26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band2	9262	4.160	4.68	PASS
Band2	9400	4.160	4.68	PASS
Band2	9538	4.160	4.68	PASS