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Test Report No.: RF170428W003-3



FCC TEST REPORT

(PART 22)

Product: Tablet PC

Model Name: 9024O

FCC ID: 2ACCJBT02

Applicant: TCL Communication Ltd.

Address: 5F, C-Tower, No. 232, Liang Jing Road, ZhangJiang High-Tech Park, Pudong Area, Shanghai, 201203, P.R.China

Manufacturer: TCL Communication Ltd.

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Report No.: RF170428W003-3

Received Date: Apr. 28, 2017

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF170428W003-3	Original release	May 27, 2017

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1 CERTIFICATION

PRODUCT: Tablet PC

BRAND NAME: alcatel

MODEL NAME: 9024O

APPLICANT: TCL Communication Ltd.

TESTED: Apr. 29, 2017 ~ May 27, 2017

TEST SAMPLE: Identical Prototype

TEST STANDARDS: FCC PART 22, Subpart H

ANSI/TIA/EIA-603-D

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

PREPARED BY : 
_____, **DATE:** May 27, 2017
(Harry Li/ Engineer)

APPROVED BY : 
_____, **DATE:** May 27, 2017
(Sam Tung / Manager)



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2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 22 & Part 2			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
2.1046 22.913 (a)	Effective Radiated Power	PASS	Meet the requirement of limit.
2.1055 22.355	Frequency Stability	PASS	Meet the requirement of limit.
2.1049 22.917b	Occupied Bandwidth	PASS	Meet the requirement of limit.
--	Peak to average ratio*	PASS	Meet the requirement of limit.
22.917	Band Edge Measurements	PASS	Meet the requirement of limit.
2.1051 22.917	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 22.917	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -20.05dB at 30.00MHz.

* Refer to KDB 971168 D01 Power Meas License Digital Systems v02r02.

2.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.70dB
Radiated emissions	9KHz ~ 30MHz	2.90dB
	30MHz ~ 1GHz	4.06dB
	1GHz ~ 18GHz	4.58dB
	18GHz ~ 40GHz	1.94dB

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



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2.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR7	101494	Mar. 05,17	Mar. 04,18
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Nov. 04,16	Nov. 03,17
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Mar. 05,17	Mar. 04,18
Bilog Antenna 1	Teseq	CBL 6111D	30643	Jul. 14, 16	Jul. 13, 17
Bilog Antenna 2	Teseq	CBL 6111D	27089	Jul. 14, 16	Jul. 13, 17
Loop antenna	Daze	ZN30900A	0708	Nov. 28, 16	Nov. 27, 17
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	May 05,17	May 04,18
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062557	May 05,17	May 04,18
10m Semi-anechoic Chamber	CHANGLING	21.4m*12.1m*8 .8m	NSEMC006	Mar. 12,16	Mar. 11,18
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	ADT	ADT_Radiated \V7.6.15.9.2	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SM A	1505	Jul. 27, 16	Jul. 26,17
Horn Antenna (15GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170147	Mar. 02,17	Mar. 01,18
Horn Antenna (15GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170242	Mar. 02,17	Mar. 01,18
Amplifier	Burgeon	BPA-530	100220	Mar. 05,17	Mar. 04,18
Amplifier (9kHz-1GHz)	SONOMA	310D	186955	Feb. 10,17	Feb. 09,18
Pre-Amplifier(1-18G)	HP	8449B	3008A00409	Apr. 16,16	Apr. 15,18
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 04,16	Nov. 03,17
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,16	Sep. 04,17
Signal Generator	Agilent	N5183A	MY50140980	Nov. 04,16	Nov. 03,17

- NOTE:**
1. The calibration interval of the above test instruments is 12 months or 24 months and the calibrations are traceable to CEPREI/CHINA, GRRGT/CHINA and NIM/CHINA.
 2. The test was performed in 10m 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 502831.



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3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Tablet PC	
MODEL NAME	90240	
POWER SUPPLY	5.0Vdc (adapter or host equipment) 3.85Vdc (Li-polymer, battery)	
MODULATION TYPE	GSM/GPRS/EDGE	GMSK
	WCDMA	BPSK,QPSK
	LTE	QPSK, 16QAM
FREQUENCY RANGE	GSM/GPRS/EDGE	824.2MHz ~ 848.8MHz
	WCDMA	826.4MHz ~ 846.6MHz
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	824.7MHz ~ 848.3MHz
	LTE Band 5 (Channel Bandwidth: 3MHz)	825.5MHz ~ 847.5MHz
	LTE Band 5 (Channel Bandwidth: 5MHz)	826.5MHz ~ 846.5MHz
	LTE Band 5 (Channel Bandwidth: 10MHz)	829MHz ~ 844MHz
MAX. ERP POWER	GSM	1013mW
	EDGE	519mW
	WCDMA	217mW
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	144mW
	LTE Band 5 (Channel Bandwidth: 3MHz)	146mW
	LTE Band 5 (Channel Bandwidth: 5MHz)	158mW
	LTE Band 5 (Channel Bandwidth: 10MHz)	129mW
EMISSION DESIGNATOR	GSM	246KGXW
	EDGE	248KG7W
	WCDMA	4M16F9W
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	QPSK: 1M09G7D 16QAM: 1M08W7D
	LTE Band 5 (Channel Bandwidth: 3MHz)	QPSK: 2M69G7D 16QAM: 2M69W7D
	LTE Band 5 (Channel Bandwidth: 5MHz)	QPSK: 4M48G7D 16QAM: 4M47W7D



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	LTE Band 5 (Channel Bandwidth: 10MHz)	QPSK: 8M94G7D 16QAM: 8M93W7D
ANTENNA TYPE	Fixed Internal antenna with -5dBi gain	
HW VERSION	05	
SW VERSION	MAB-UDB0	
I/O PORTS	Refer to user's manual	
DATA CABLE	USB cable: non-shielded, detachable, 0.8meter	

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT was powered by the following adapter:

ADAPTER	
BRAND:	alcatel
MODEL:	UC13US
INPUT:	AC 100-240V, 400mA
OUTPUT:	DC 5V, 2000mA

3. The EUT matched the following USB cable:

USB CABLE	
BRAND:	N/A
MODEL:	N/A
SIGNAL LINE:	0.8 METER

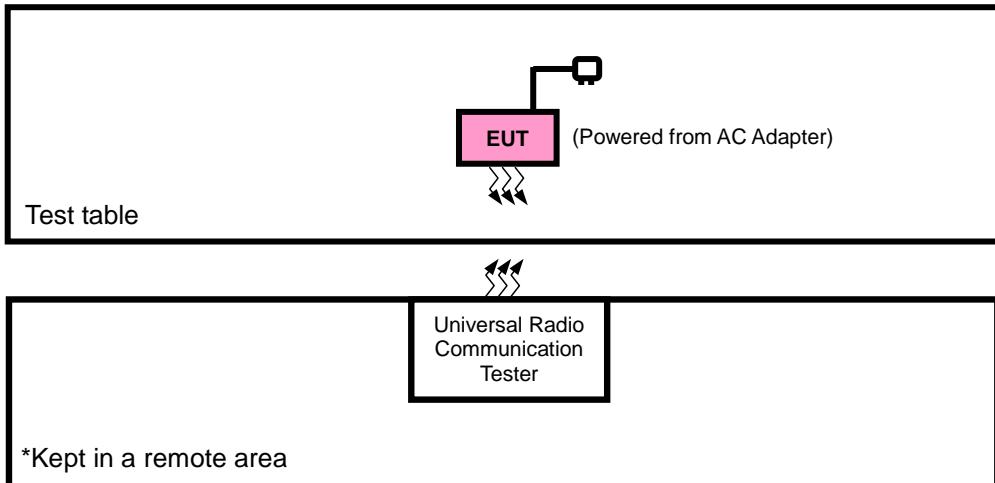
4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.



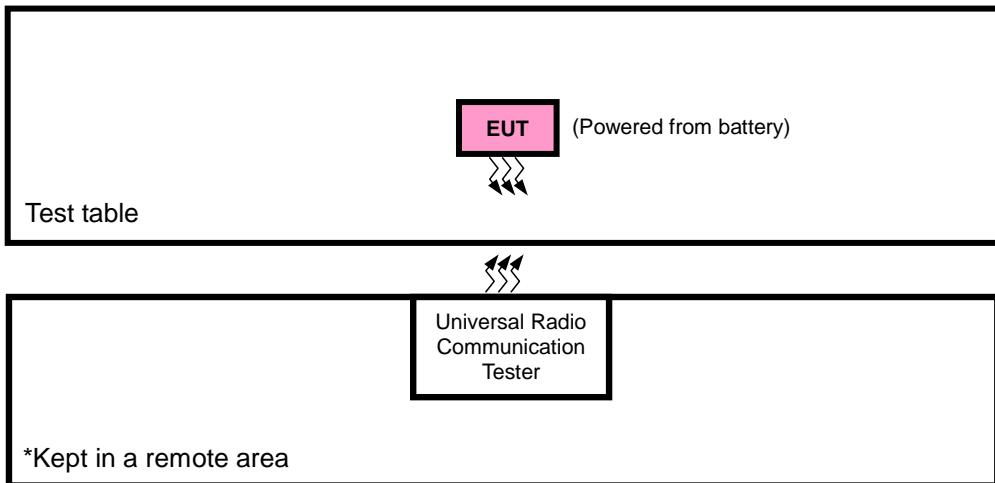
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3.2 CONFIGURATION OF SYSTEM UNDER TEST FOR RADIATION EMISSION



FOR CONDUCTED & E.R.P. TEST





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3.3 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	DC source	LONG WEI	PS-6403D	010934269	N/A
2	PC	HP	A6608CN	3CR83825X3	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 1.0m
2	AC Line: Unshielded, Detachable 1.5m

NOTE:

1. All power cords of the above support units are non shielded (1.8m).

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

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + Adapter + USB Cable with GSM ,WCDMA or LTE link
B	EUT + Battery with GSM ,WCDMA or LTE link

GSM MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
B	ERP	128 to 251	128, 189, 251	GSM, EDGE
B	FREQUENCY STABILITY	128 to 251	128, 251	GSM, EDGE
B	OCCUPIED BANDWIDTH	128 to 251	128, 189, 251	GSM, EDGE
B	BAND EDGE	128 to 251	128, 251	GSM, EDGE
B	CONDUCDETED EMISSION	128 to 251	128, 189, 251	GSM, EDGE
A	RADIATED EMISSION	128 to 251	128, 189, 251	GSM, EDGE



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WCDMA MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
B	ERP	4132 to 4233	4132, 4182, 4233	WCDMA
B	FREQUENCY STABILITY	4132 to 4233	4132, 4233	WCDMA
B	OCCUPIED BANDWIDTH	4132 to 4233	4132, 4182, 4233	WCDMA
B	BAND EDGE	4132 to 4233	4132, 4233	WCDMA
B	CONDUCDETED EMISSION	4132 to 4233	4132, 4182, 4233	WCDMA
A	RADIATED EMISSION	4132 to 4233	4132, 4182, 4233	WCDMA

LTE BAND 5 MODE

TEST ITEM	Available Channel	Tested Channel	Channel bandwidth	modulation	mode
ERP	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
FREQUENCY STABILITY	20407 to 20643	20407, 20643	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
	20415 to 20635	20415, 20635	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
	20425 to 20625	20425, 20625	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
	20450 to 20600	20450, 20600	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
OCCUPIED BANDWIDTH	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK	6 RB / 0 RB Offset
				16QAM	6 RB / 0 RB Offset
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK	15 RB / 0 RB Offset
				16QAM	15 RB / 0 RB Offset
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK	25 RB / 0 RB Offset
				16QAM	25 RB / 0 RB Offset
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK	50 RB / 0 RB Offset
				16QAM	50 RB / 0 RB Offset



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BAND EDGE	20407 to 20643	20407	1.4 MHz	QPSK	1 RB / 0 RB Offset
					6 RB / 0 RB Offset
	20407 to 20643	20643	1.4 MHz	QPSK	1 RB / 5 RB Offset
					6 RB / 0 RB Offset
	20415 to 20635	20415	3 MHz	QPSK	1 RB / 0 RB Offset
					15 RB / 0 RB Offset
	20415 to 20635	20635	3 MHz	QPSK	1 RB / 14 RB Offset
					15 RB / 0 RB Offset
	20425 to 20625	20425	5MHz	QPSK	1 RB / 0 RB Offset
					25 RB / 0 RB Offset
CONDCUDETED EMISSION	20425 to 20625	20625	5MHz	QPSK	1 RB / 24 RB Offset
					25 RB / 0 RB Offset
	20450 to 20600	20450	10MHz	QPSK	1 RB / 0 RB Offset
					50 RB / 0 RB Offset
RADIATED EMISSION	20450 to 20600	20600	10MHz	QPSK	1 RB / 49 RB Offset
					50 RB / 0 RB Offset
	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK	1 RB / 0 RB Offset
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK	1 RB / 0 RB Offset
CONDCUDETED EMISSION	20425 to 20625	20425, 20525, 20625	5MHz	QPSK	1 RB / 0 RB Offset
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK	1 RB / 0 RB Offset
	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK	1 RB / 0 RB Offset
	20415 to 20635	20525	3MHz	QPSK	1 RB / 0 RB Offset
RADIATED EMISSION	20425 to 20625	20525	5MHz	QPSK	1 RB / 0 RB Offset
	20450 to 20600	20525	10MHz	QPSK	1 RB / 0 RB Offset

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP	23deg. C, 62%RH	3.85Vdc from Battery	Wenliang Wu
FREQUENCY STABILITY	23deg. C, 62%RH	3.85Vdc from Battery	Wenliang Wu
OCCUPIED BANDWIDTH	23deg. C, 62%RH	3.85Vdc from Battery	Wenliang Wu
BAND EDGE	23deg. C, 62%RH	3.85Vdc from Battery	Moon Xiong
CONDCUDETED EMISSION	23deg. C, 62%RH	3.85Vdc from Battery	Moon Xiong
RADIATED EMISSION	23deg. C, 60%RH	5Vdc from adapter	Tony Zou

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3.5 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

3.6 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 22

KDB 971168 D01 Power Meas License Digital Systems v02r02

ANSI/TIA/EIA-603-D

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



4 TEST TYPES AND RESULTS

4.1 OUTPUT POWER MEASUREMENT

4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile / Portable station are limited to 7 watts e.r.p.

4.1.2 TEST PROCEDURES

EIRP / ERP MEASUREMENT:

- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is1MHz for GSM, GPRS & EDGE, 5MHz for WCDMA mode, and 10MHz for LTE mode.
- b. 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.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step b. Record the power level of S.G
- d. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$.
E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,
 $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15\text{dBi}$.

CONDUCTED POWER MEASUREMENT:

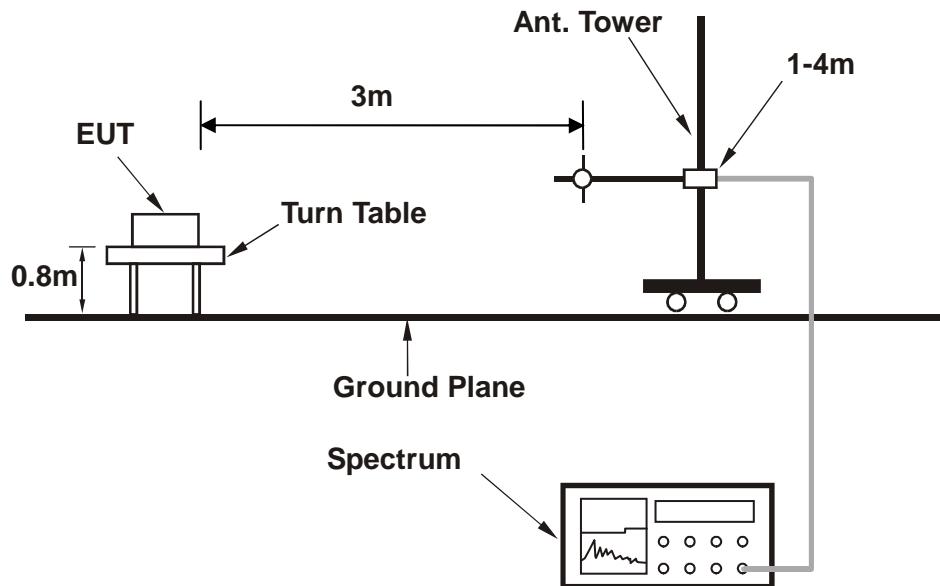
The EUT was set up for the maximum power with WCDMA & LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.



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4.1.3 TEST SETUP

EIRP / ERP MEASUREMENT:



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

CONDUCTED POWER MEASUREMENT:



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



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4.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

Band	GSM850		
Channel	128	189	251
Frequency (MHz)	824.2	836.4	848.8
GSM	32.43	32.66	32.79
GPRS 8	32.42	32.65	32.78
GPRS 10	30.21	30.44	30.57
GPRS 11	27.89	28.12	28.25
GPRS 12	26.35	26.58	26.71
EDGE 8 (MCS9)	26.27	26.50	26.63
EDGE 10 (MCS9)	25.64	25.87	26.00
EDGE 11 (MCS9)	24.47	24.70	24.83
EDGE 12 (MCS9)	23.27	23.50	23.63

Band	WCDMA V		
Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
RMC 12.2K	24.08	24.13	24.17
HSPA			
HSDPA Subtest-1	23.16	23.21	23.25
HSDPA Subtest-2	23.14	23.19	23.23
HSDPA Subtest-3	22.73	22.78	22.82
HSDPA Subtest-4	22.69	22.74	22.78
HSUPA Subtest-1	23.13	23.18	23.22
HSUPA Subtest-2	21.26	21.31	21.35
HSUPA Subtest-3	22.22	22.27	22.31
HSUPA Subtest-4	21.20	21.25	21.29
HSUPA Subtest-5	23.21	23.26	23.30



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LTE Band 5

Band/BW	Modulation	RB Size	RB Offset	Low CH 20407	Mid CH 20525	High CH 20643	3GPP MPR (dB)
				Frequency 824.7 MHz	Frequency 836.5 MHz	Frequency 848.3 MHz	
5/1.4	QPSK	1	0	23.65	23.62	23.52	0
		1	2	23.63	23.60	23.50	0
		1	5	23.60	23.57	23.47	0
		3	0	23.63	23.60	23.50	0
		3	1	23.61	23.58	23.48	0
		3	3	23.58	23.55	23.45	0
		6	0	22.67	22.64	22.54	1
	16QAM	1	0	22.72	22.69	22.59	1
		1	2	22.62	22.59	22.49	1
		1	5	22.55	22.52	22.42	1
		3	0	22.71	22.68	22.58	1
		3	1	22.61	22.58	22.48	1
		3	3	22.54	22.51	22.41	1
		6	0	21.75	21.72	21.62	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 20415	Mid CH 20525	High CH 20635	3GPP MPR (dB)
				Frequency 825.5 MHz	Frequency 836.5 MHz	Frequency 847.5 MHz	
5/3	QPSK	1	0	23.69	23.66	23.56	0
		1	7	23.67	23.64	23.54	0
		1	14	23.64	23.61	23.51	0
		8	0	22.72	22.69	22.59	1
		8	3	22.67	22.64	22.54	1
		8	7	22.63	22.60	22.50	1
		15	0	22.71	22.68	22.58	1
	16QAM	1	0	22.76	22.73	22.63	1
		1	7	22.66	22.63	22.53	1
		1	14	22.59	22.56	22.46	1
		8	0	21.80	21.77	21.67	2
		8	3	21.65	21.62	21.52	2
		8	7	21.62	21.59	21.49	2
		15	0	21.79	21.76	21.66	2



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Band/BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH	3GPP MPR (dB)
				20425	20525	20625	
5/5	QPSK	1	0	23.75	23.72	23.62	0
		1	12	23.73	23.70	23.60	0
		1	24	23.70	23.67	23.57	0
		12	0	22.78	22.75	22.65	1
		12	6	22.73	22.70	22.60	1
		12	13	22.69	22.66	22.56	1
		25	0	22.77	22.74	22.64	1
	16QAM	1	0	22.82	22.79	22.69	1
		1	12	22.72	22.69	22.59	1
		1	24	22.65	22.62	22.52	1
		12	0	21.86	21.83	21.73	2
		12	6	21.71	21.68	21.58	2
		12	13	21.68	21.65	21.55	2
		25	0	21.85	21.82	21.72	2

Band/BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH	3GPP MPR (dB)
				20450	20525	20600	
5/10	QPSK	1	0	23.78	23.75	23.65	0
		1	24	23.76	23.73	23.63	0
		1	49	23.73	23.70	23.60	0
		25	0	22.81	22.78	22.68	1
		25	12	22.76	22.73	22.63	1
		25	25	22.72	22.69	22.59	1
		50	0	22.80	22.77	22.67	1
	16QAM	1	0	22.85	22.82	22.72	1
		1	24	22.75	22.72	22.62	1
		1	49	22.68	22.65	22.55	1
		25	0	21.89	21.86	21.76	2
		25	12	21.74	21.71	21.61	2
		25	25	21.71	21.68	21.58	2
		50	0	21.88	21.85	21.75	2



Test Report No.: RF170428W003-3

ERP POWER (dBm)
GSM

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)
128	824.2	-7.54	33.56	23.87	243.72	H
189	836.4	-7.65	33.63	23.83	241.49	H
251	848.8	-7.98	33.57	23.44	220.70	H
128	824.2	-2.11	34.24	29.98	994.49	V
189	836.4	-2.38	34.59	30.06	1012.98	V
251	848.8	-2.49	34.62	29.98	996.09	V

REMARKS: 1. ERP Output Power (dBm) = SPA LVL (dBm) + Correction Factor (dB) -2.15(dB).
2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss

EDGE

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)
128	824.2	-10.33	33.56	21.08	128.20	H
189	836.4	-10.67	33.63	20.81	120.48	H
251	848.8	-10.92	33.57	20.50	112.15	H
128	824.2	-5.22	34.24	26.87	485.96	V
189	836.4	-5.49	34.59	26.95	494.99	V
251	848.8	-5.32	34.62	27.15	519.16	V

REMARKS: 1. ERP Output Power (dBm) = SPA LVL (dBm) + Correction Factor (dB) -2.15(dB).
2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss

WCDMA

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)
4132	826.4	-12.19	33.56	19.22	83.54	H
4182	836.4	-12.37	33.63	19.11	81.45	H
4233	846.6	-12.76	33.57	18.66	73.42	H
4132	826.4	-9.42	34.24	22.67	184.76	V
4182	836.4	-9.29	34.59	23.15	206.35	V
4233	846.6	-9.10	34.62	23.37	217.42	V

REMARKS: 1. ERP Output Power (dBm) = SPA LVL (dBm) + Correction Factor (dB) -2.15(dB).
2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss



Test Report No.: RF170428W003-3

LTE BAND 5

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
20407	824.7	-15.09	33.67	16.43	43.98	H	7
20525	836.5	-15.21	33.62	16.26	42.31	H	7
20643	848.3	-15.31	33.65	16.19	41.54	H	7
20407	824.7	-10.89	34.25	21.21	132.07	V	7
20525	836.5	-10.87	34.60	21.58	143.81	V	7
20643	848.3	-11.16	34.63	21.32	135.52	V	7

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
20407	824.7	-15.92	33.67	15.60	36.33	H	7
20525	836.5	-16.23	33.62	15.24	33.45	H	7
20643	848.3	-16.41	33.65	15.09	32.25	H	7
20407	824.7	-11.72	34.25	20.38	109.09	V	7
20525	836.5	-11.89	34.60	20.56	113.71	V	7
20643	848.3	-12.26	34.63	20.22	105.20	V	7

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
20415	825.5	-14.90	33.72	16.67	46.46	H	7
20525	836.5	-15.15	33.62	16.32	42.89	H	7
20635	847.5	-15.18	33.65	16.32	42.84	H	7
20415	825.5	-10.70	34.30	21.45	139.67	V	7
20525	836.5	-10.81	34.60	21.64	145.81	V	7
20635	847.5	-11.03	34.57	21.39	137.75	V	7



Test Report No.: RF170428W003-3

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
20415	825.5	-16.05	33.72	15.52	35.65	H	7
20525	836.5	-16.25	33.62	15.22	33.30	H	7
20635	847.5	-16.34	33.65	15.16	32.80	H	7
20415	825.5	-11.85	34.30	20.30	107.18	V	7
20525	836.5	-11.91	34.60	20.54	113.19	V	7
20635	847.5	-12.19	34.57	20.23	105.46	V	7

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
20425	826.5	-14.91	33.69	16.63	46.07	H	7
20525	836.5	-15.22	33.62	16.25	42.21	H	7
20625	846.5	-15.25	33.66	16.26	42.28	H	7
20425	826.5	-10.71	34.85	21.99	158.09	V	7
20525	836.5	-10.88	34.60	21.57	143.48	V	7
20625	846.5	-11.10	34.59	21.34	136.27	V	7

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
20425	826.5	-15.77	33.69	15.77	37.79	H	7
20525	836.5	-16.09	33.62	15.38	34.55	H	7
20625	846.5	-16.10	33.66	15.41	34.76	H	7
20425	826.5	-11.57	34.85	21.13	129.69	V	7
20525	836.5	-11.75	34.60	20.70	117.44	V	7
20625	846.5	-11.95	34.59	20.49	112.05	V	7



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CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
20450	829	-15.49	33.73	16.09	40.60	H	7
20525	836.5	-15.67	33.62	15.80	38.05	H	7
20600	844	-15.83	33.51	15.53	35.75	H	7
20450	829	-11.29	34.54	21.10	128.71	V	7
20525	836.5	-11.33	34.60	21.12	129.36	V	7
20600	844	-11.68	34.46	20.63	115.48	V	7

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
20450	829	-16.42	33.73	15.16	32.77	H	7
20525	836.5	-16.74	33.62	14.73	29.74	H	7
20600	844	-16.66	33.51	14.70	29.53	H	7
20450	829	-12.22	34.54	20.17	103.90	V	7
20525	836.5	-12.40	34.60	20.05	101.11	V	7
20600	844	-12.51	34.46	19.80	95.39	V	7

REMARKS: 1. ERP Output Power (dBm) = SPA LVL (dBm) + Correction Factor (dB) -2.15(dB).
2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss



4.2 FREQUENCY STABILITY MEASUREMENT

4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

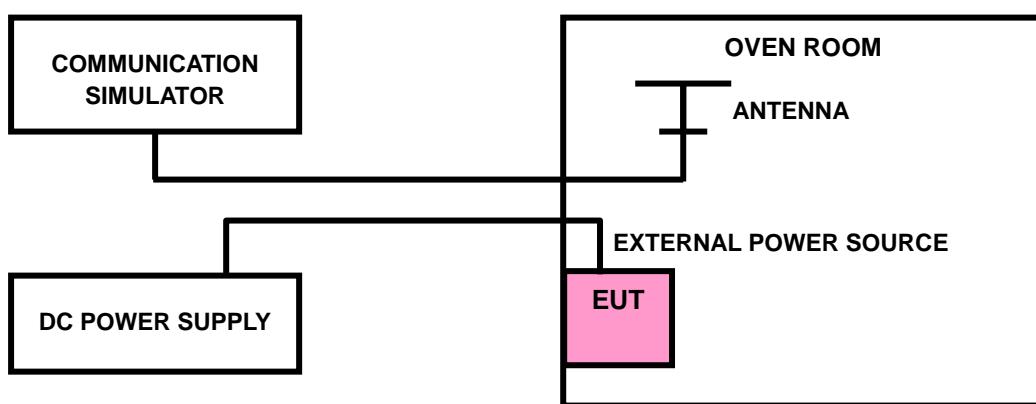
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

4.2.2 TEST PROCEDURE

- a. 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.
- b. 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.
- c. 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.

4.2.3 TEST SETUP





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4.2.4 TEST RESULTS

GSM 850

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	FREQUENCY ERROR (ppm)		LIMIT (ppm)
	Low Channel	High Channel	
3.9	0.0027	0.0035	2.5
3.6	0.0026	0.0028	2.5
4.2	0.0023	0.0023	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	FREQUENCY ERROR (ppm)		LIMIT (ppm)
	Low Channel	High Channel	
-30	-0.0132	-0.0125	2.5
-20	-0.0125	-0.0118	2.5
-10	-0.0105	-0.0099	2.5
0	-0.0096	-0.0090	2.5
10	-0.0076	-0.0071	2.5
20	-0.0062	-0.0058	2.5
30	-0.0052	-0.0049	2.5
40	-0.0045	-0.0042	2.5
50	-0.0037	-0.0035	2.5
60	-0.0026	-0.0024	2.5



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EDGE 850

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	FREQUENCY ERROR (ppm)		LIMIT (ppm)
	Low Channel	High Channel	
3.9	0.0037	0.0037	2.5
3.6	0.0026	0.0032	2.5
4.2	0.0024	0.0028	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	FREQUENCY ERROR (ppm)		LIMIT (ppm)
	Low Channel	High Channel	
-30	-0.0132	-0.0125	2.5
-20	-0.0125	-0.0118	2.5
-10	-0.0117	-0.0111	2.5
0	-0.0112	-0.0106	2.5
10	-0.0087	-0.0083	2.5
20	-0.0073	-0.0069	2.5
30	-0.0055	-0.0052	2.5
40	-0.0049	-0.0047	2.5
50	-0.0038	-0.0037	2.5
60	-0.0033	-0.0032	2.5



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Test Report No.: RF170428W003-3

WCDMA Band V

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	FREQUENCY ERROR (ppm)		LIMIT (ppm)
	Low Channel	High Channel	
3.9	0.0037	0.0036	2.5
3.6	0.0031	0.0031	2.5
4.2	0.0025	0.0024	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	FREQUENCY ERROR (ppm)		LIMIT (ppm)
	Low Channel	High Channel	
-30	-0.0118	-0.0128	2.5
-20	-0.0112	-0.0121	2.5
-10	-0.0095	-0.0104	2.5
0	-0.0081	-0.0090	2.5
10	-0.0070	-0.0078	2.5
20	-0.0063	-0.0070	2.5
30	-0.0048	-0.0054	2.5
40	-0.0037	-0.0043	2.5
50	-0.0031	-0.0036	2.5
60	-0.0020	-0.0025	2.5



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LTE Band 5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	1.4MHz		LIMIT (ppm)	
	FREQUENCY ERROR (ppm)			
	Low Channel	High Channel		
3.9	0.0043	0.0047	2.5	
3.6	0.0038	0.0040	2.5	
4.2	0.0033	0.0029	2.5	

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	1.4MHz		LIMIT (ppm)	
	FREQUENCY ERROR (ppm)			
	Low Channel	High Channel		
-30	-0.0151	-0.0138	2.5	
-20	-0.0137	-0.0127	2.5	
-10	-0.0118	-0.0117	2.5	
0	-0.0104	-0.0102	2.5	
10	-0.0090	-0.0085	2.5	
20	-0.0083	-0.0074	2.5	
30	-0.0060	-0.0059	2.5	
40	-0.0048	-0.0045	2.5	
50	-0.0035	-0.0039	2.5	
60	-0.0026	-0.0031	2.5	



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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	3MHz		LIMIT (ppm)	
	FREQUENCY ERROR (ppm)			
	Low Channel	High Channel		
3.9	0.0042	0.0029	2.5	
3.6	0.0034	0.0039	2.5	
4.2	0.0028	0.0031	2.5	

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	3MHz		LIMIT (ppm)	
	FREQUENCY ERROR (ppm)			
	Low Channel	High Channel		
-30	-0.0153	-0.0139	2.5	
-20	-0.0131	-0.0127	2.5	
-10	-0.0116	-0.0117	2.5	
0	-0.0104	-0.0094	2.5	
10	-0.0088	-0.0090	2.5	
20	-0.0083	-0.0082	2.5	
30	-0.0062	-0.0073	2.5	
40	-0.0054	-0.0062	2.5	
50	-0.0042	-0.0052	2.5	
60	-0.0028	-0.0037	2.5	



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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)	
	FREQUENCY ERROR (ppm)			
	Low Channel	High Channel		
3.9	0.0039	0.0041	2.5	
3.6	0.0036	0.0036	2.5	
4.2	0.0027	0.0031	2.5	

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)	
	FREQUENCY ERROR (ppm)			
	Low Channel	High Channel		
-30	-0.0146	-0.0143	2.5	
-20	-0.0137	-0.0134	2.5	
-10	-0.0118	-0.0115	2.5	
0	-0.0108	-0.0106	2.5	
10	-0.0097	-0.0095	2.5	
20	-0.0077	-0.0075	2.5	
30	-0.0061	-0.0060	2.5	
40	-0.0055	-0.0053	2.5	
50	-0.0041	-0.0041	2.5	
60	-0.0033	-0.0032	2.5	



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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz		LIMIT (ppm)	
	FREQUENCY ERROR (ppm)			
	Low Channel	High Channel		
3.9	0.0037	0.0043	2.5	
3.6	0.0030	0.0032	2.5	
4.2	0.0023	0.0027	2.5	

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz		LIMIT (ppm)	
	FREQUENCY ERROR (ppm)			
	Low Channel	High Channel		
-30	-0.0152	-0.0140	2.5	
-20	-0.0139	-0.0130	2.5	
-10	-0.0127	-0.0121	2.5	
0	-0.0116	-0.0106	2.5	
10	-0.0112	-0.0096	2.5	
20	-0.0091	-0.0083	2.5	
30	-0.0075	-0.0064	2.5	
40	-0.0058	-0.0051	2.5	
50	-0.0055	-0.0045	2.5	
60	-0.0031	-0.0026	2.5	



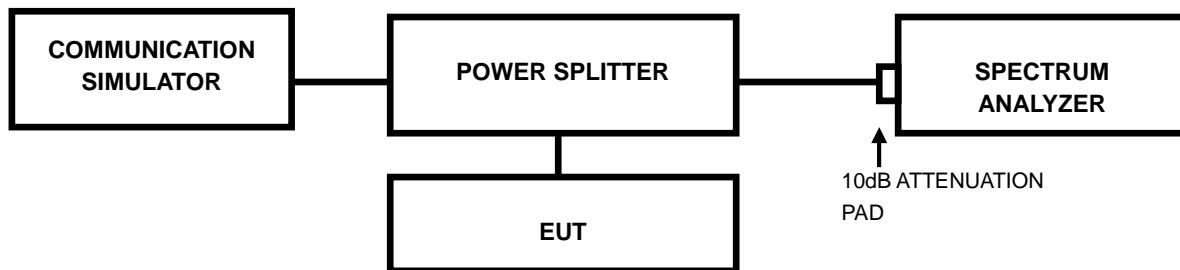
Test Report No.: RF170428W003-3

4.3 OCCUPIED BANDWIDTH MEASUREMENT

4.3.1 TEST PROCEDURES

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.3.2 TEST SETUP



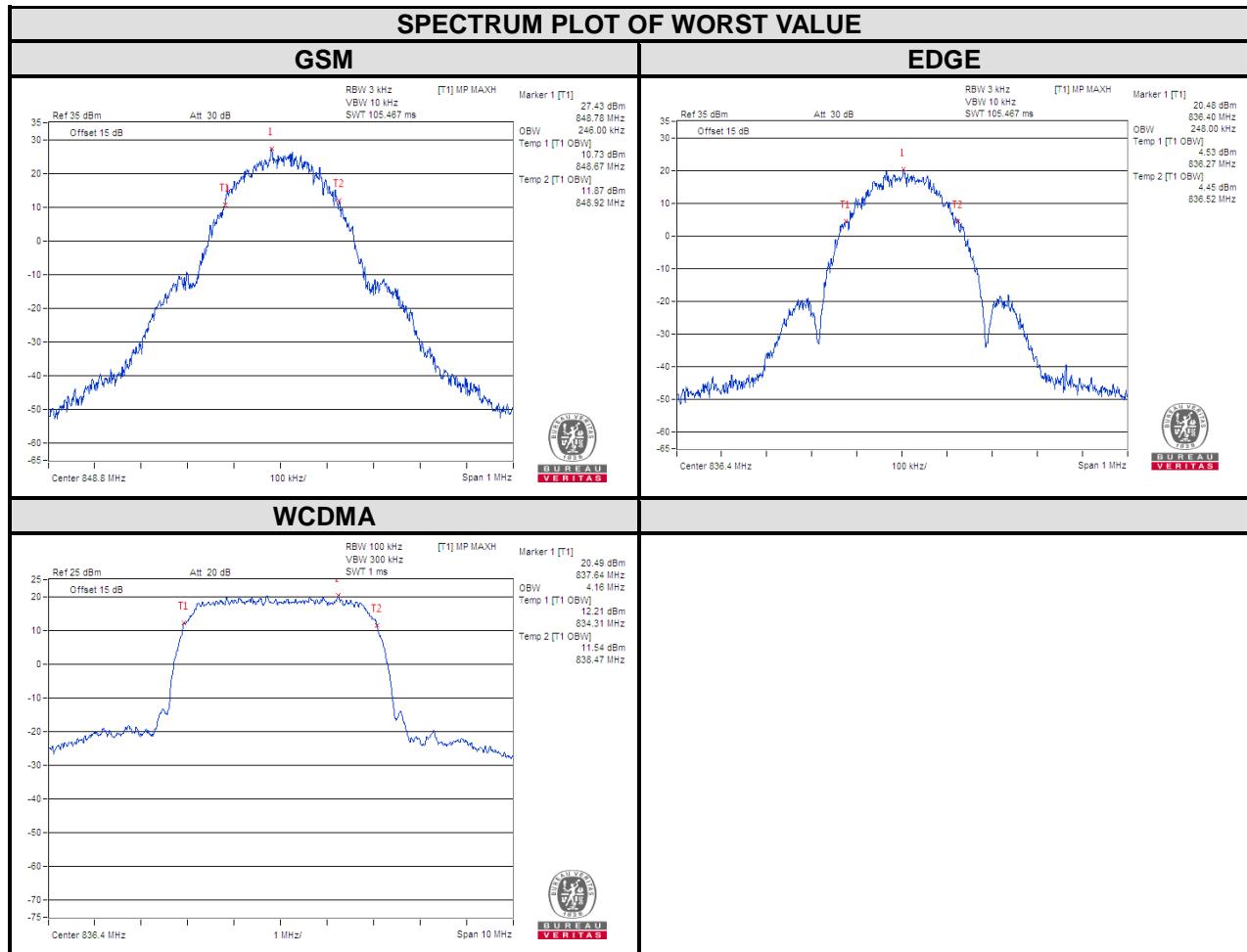


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Test Report No.: RF170428W003-3

4.3.3 TEST RESULTS

CHANNEL	Frequency (MHz)	99% OCCUPIED Bandwidth (kHz)		CHANNEL	Frequency (MHz)	99% OCCUPIED Bandwidth (MHz)	
		GSM	EDGE			WCDMA	
128	824.2	243.00	246.00	4132	826.4	4.15	
189	836.4	243.00	248.00	4182	836.4	4.16	
251	848.8	246.00	243.00	4233	846.6	4.15	



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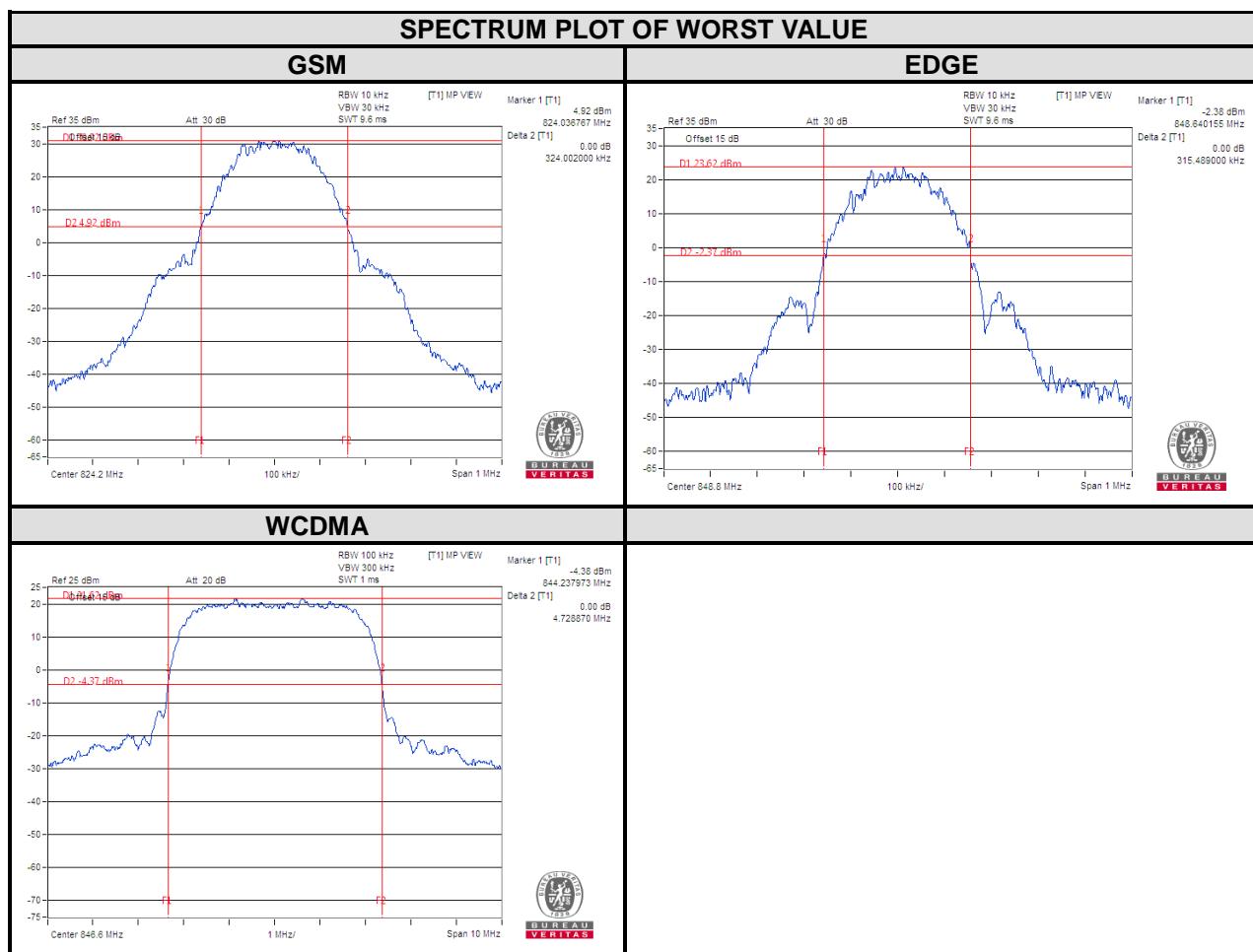
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Test Report No.: RF170428W003-3

CHANNEL	Frequency (MHz)	26dB Bandwidth (kHz)		CHANNEL	Frequency (MHz)	26dB Bandwidth (MHz)	
		GSM	EDGE			WCDMA	
128	824.2	324.00	313.47	4132	826.4	4.72	
189	836.4	314.66	311.49	4182	836.4	4.73	
251	848.8	319.50	315.49	4233	846.6	4.73	



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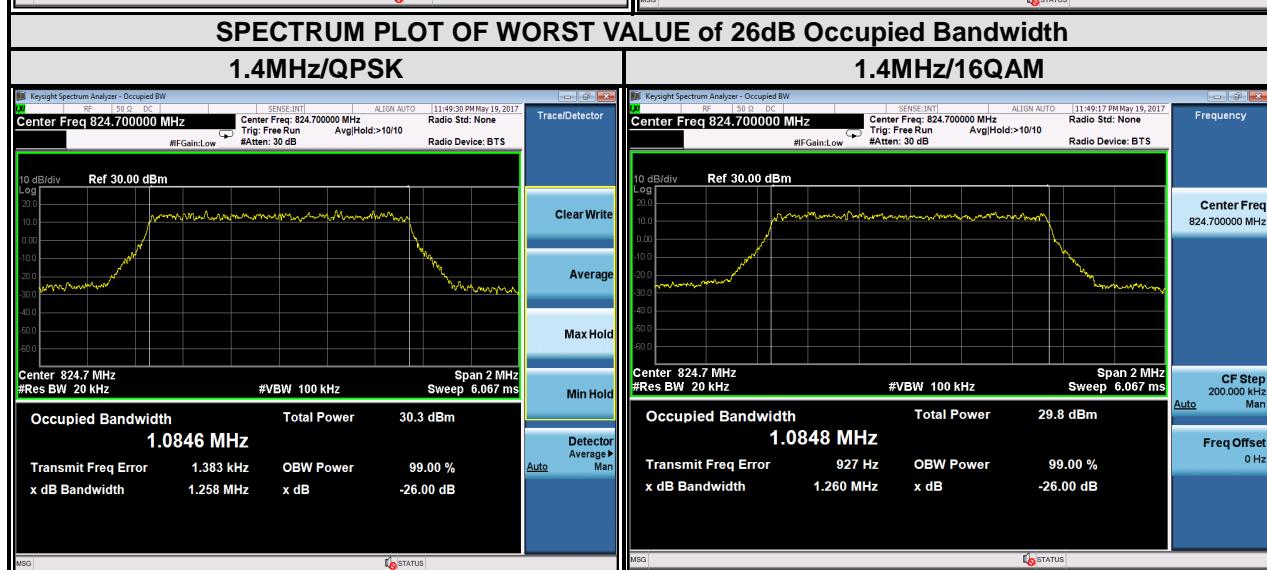
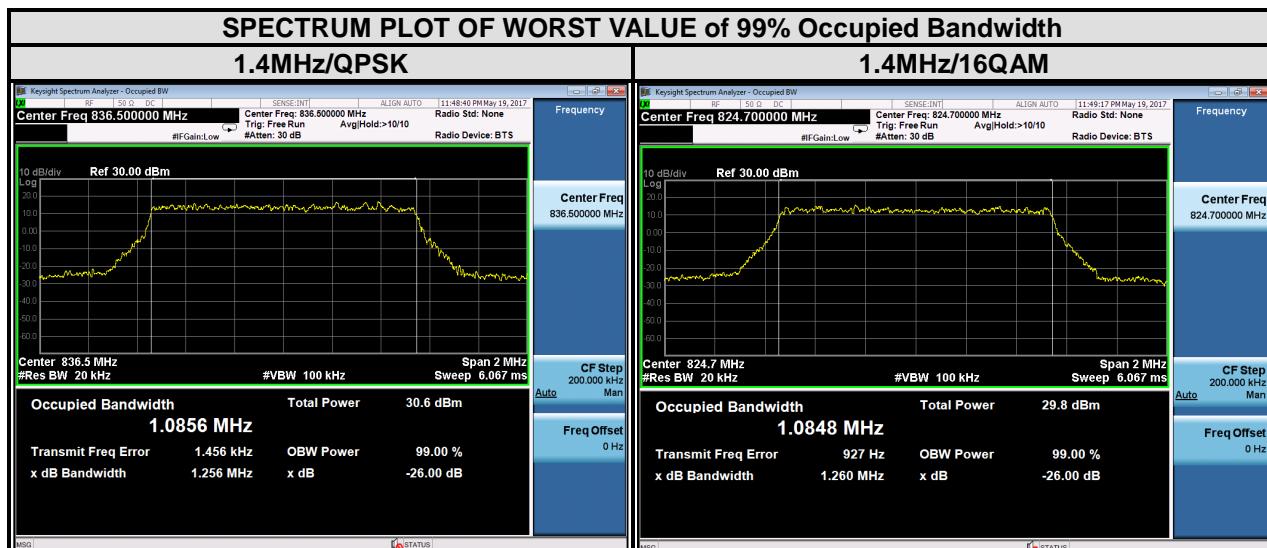
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Test Report No.: RF170428W003-3

LTE band 5

Channel Bandwidth : 1.4MHz

Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		Channel	Frequency (MHz)	26 dB bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
20407	824.7	1.08	1.08	20407	824.7	1.26	1.26
20525	836.5	1.09	1.08	20525	836.5	1.26	1.25
20643	848.3	1.09	1.08	20643	848.3	1.26	1.26



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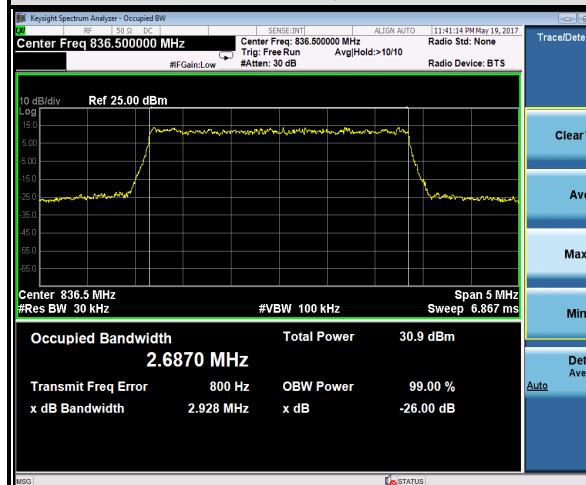
LTE band 5

Channel Bandwidth : 3MHz

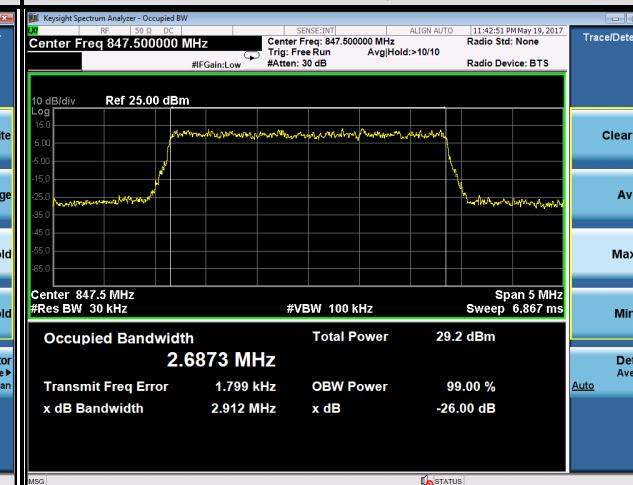
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		Channel	Frequency (MHz)	26 dB bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
20415	825.5	2.69	2.68	20415	825.5	2.94	2.92
20525	836.5	2.69	2.68	20525	836.5	2.93	2.92
20635	847.5	2.69	2.69	20635	847.5	2.92	2.91

SPECTRUM PLOT OF WORST VALUE of 99% Occupied Bandwidth

3MHz/QPSK

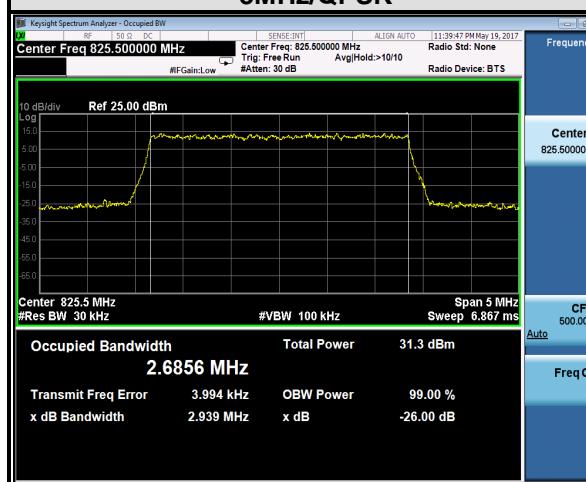


3MHz/16QAM

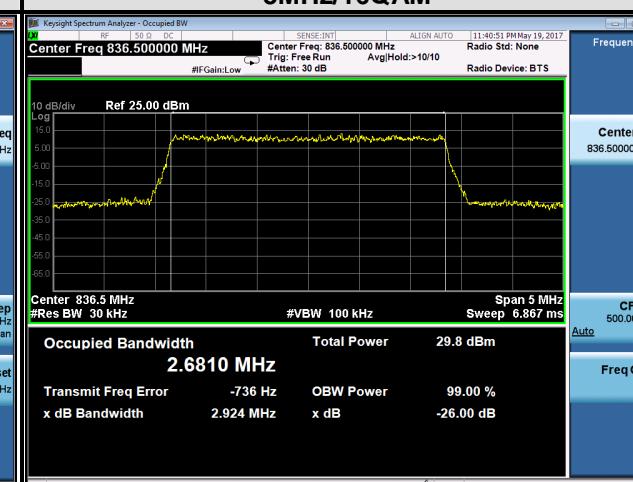


SPECTRUM PLOT OF WORST VALUE of 26dB Occupied Bandwidth

3MHz/QPSK



3MHz/16QAM



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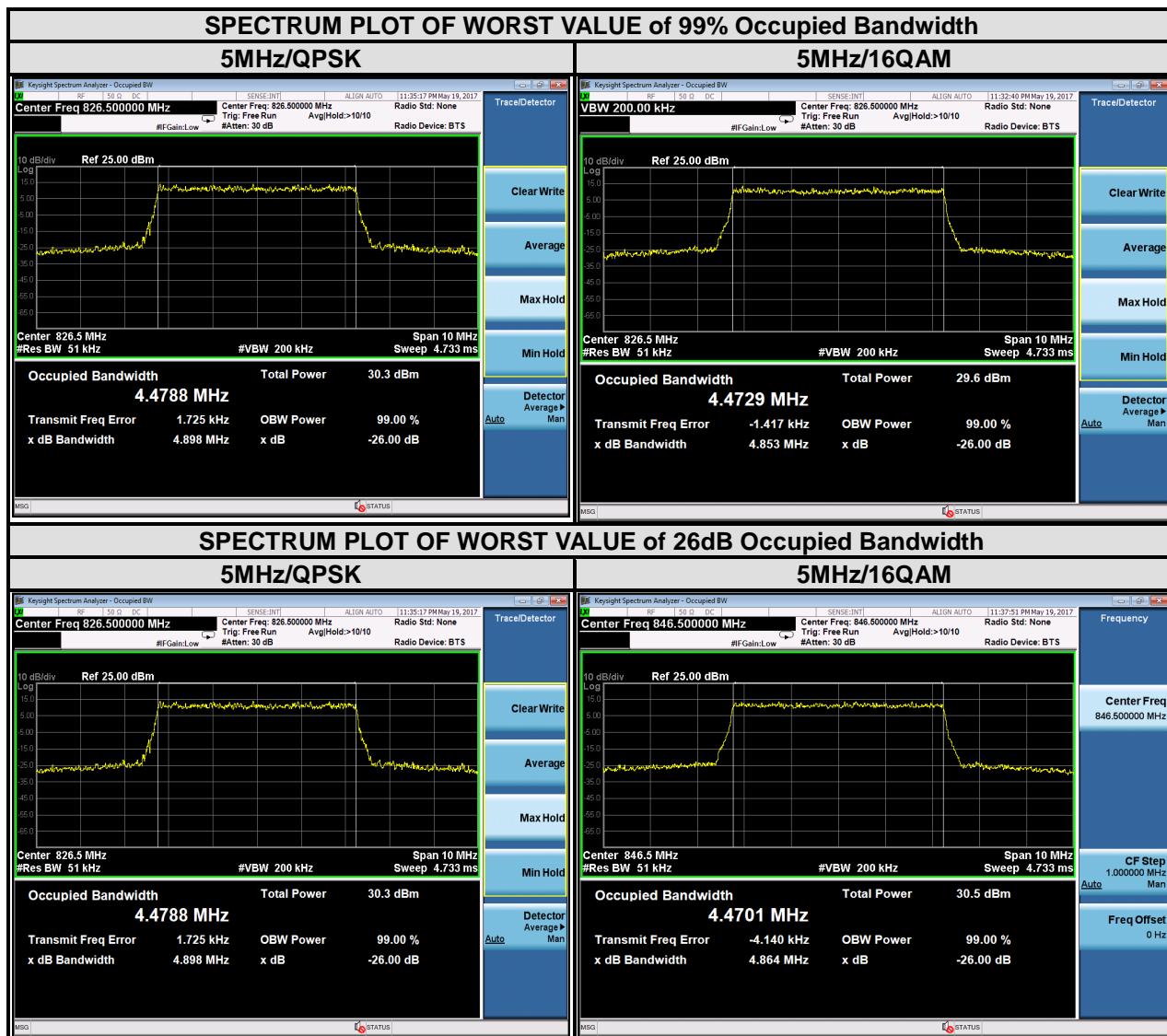
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LTE band 5

Channel Bandwidth : 5 MHz

Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		Channel	Frequency (MHz)	26 dB bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
20425	826.5	4.48	4.47	20425	826.5	4.90	4.85
20525	836.5	4.48	4.47	20525	836.5	4.89	4.84
20625	846.5	4.47	4.47	20625	846.5	4.89	4.86



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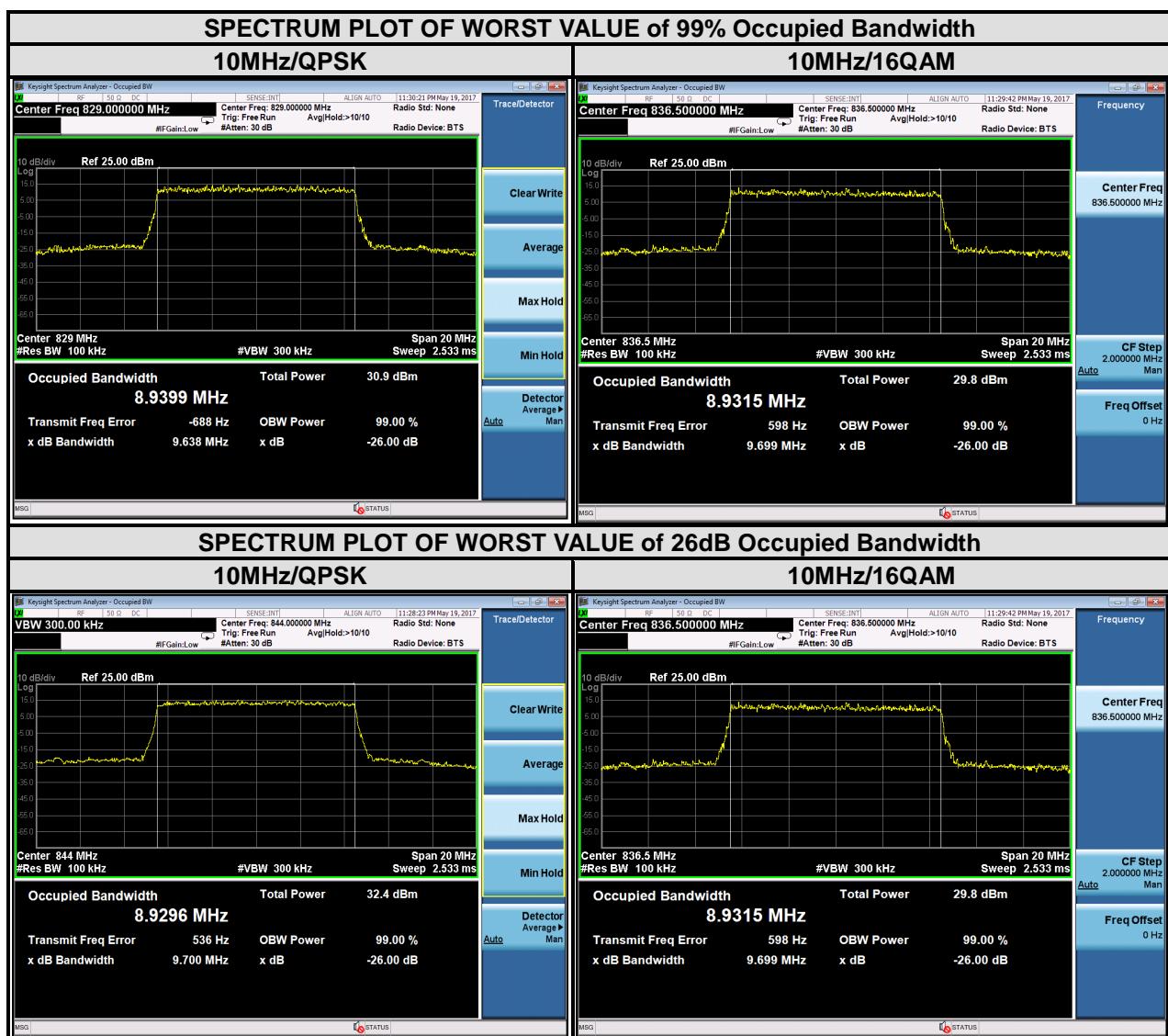
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LTE band 5							
Channel Bandwidth : 10 MHz				26 dB bandwidth (MHz)			
Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)		Channel	Frequency (MHz)	26 dB bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
20450	829	8.94	8.92	20450	829	8.94	8.93
20525	836.5	8.94	8.93	20525	836.5	8.94	8.93
20600	844	8.93	8.93	20600	844	8.93	8.93



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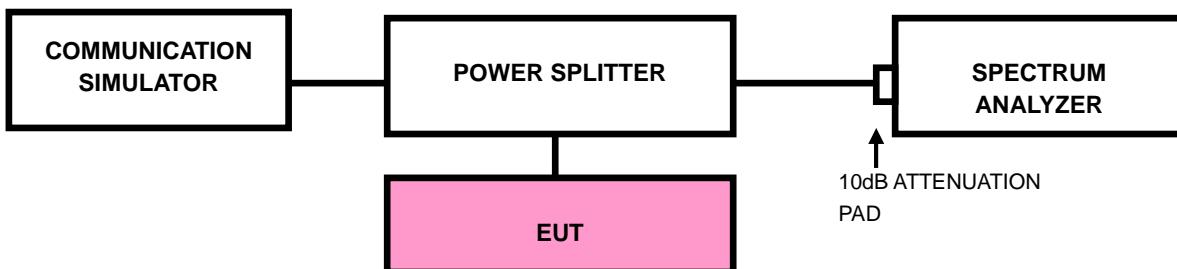


4.4 BAND EDGE MEASUREMENT

4.4.1 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.

4.4.2 TEST SETUP





4.4.3 TEST PROCEDURES

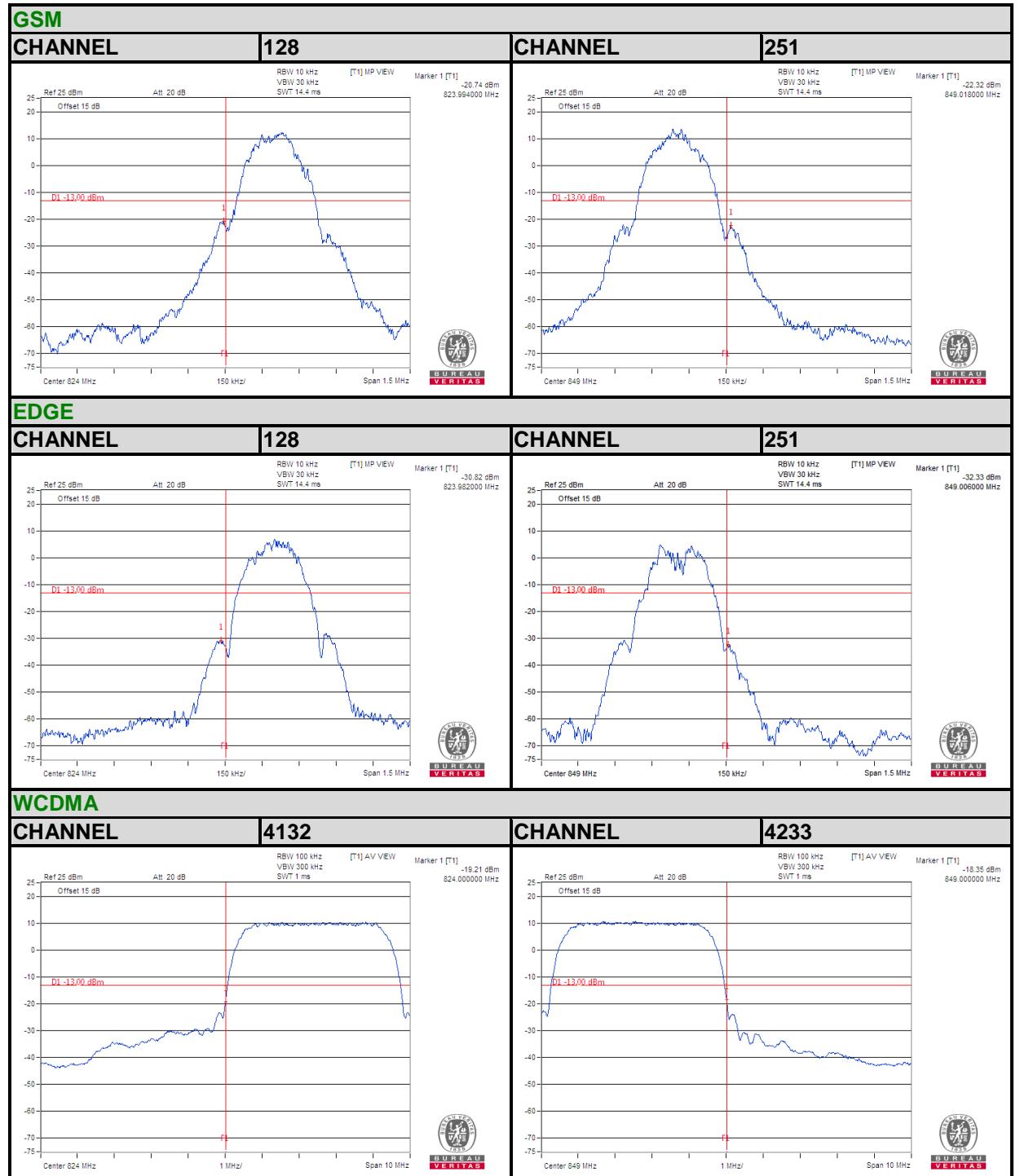
- a. All measurements were done at low and high operational frequency range.
- b. The center frequency of spectrum is the band edge frequency and span is 1.5MHz.
RBW of the spectrum is 10kHz and VBW of the spectrum is 30kHz (GSM/GPRS/EDGE).
- c. The center frequency of spectrum is the band edge frequency and span is 10MHz.
RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz (WCDMA).
- d. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz.
RBW of the spectrum is 20kHz and VBW of the spectrum is 100 kHz. (LTE bandwidth 1.4MHz).
- e. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz.
RBW of the spectrum is 30kHz and VBW of the spectrum is 100kHz. (LTE bandwidth 3MHz)
- f. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz.
RBW of the spectrum is 50kHz and VBW of the spectrum is 200kHz. (LTE bandwidth 5MHz)
- g. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz.
RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz. (LTE bandwidth 10MHz)
- h. Record the max trace plot into the test report.



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4.4.4 TEST RESULTS



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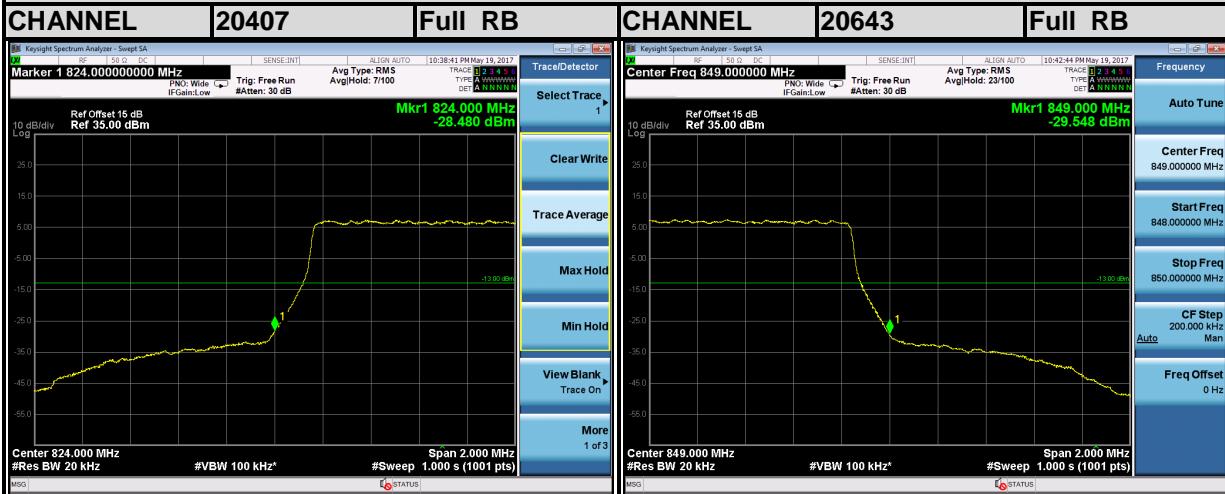
LTE Band5

Channel Bandwidth: 1.4MHz



LTE Band5

Channel Bandwidth: 1.4MHz



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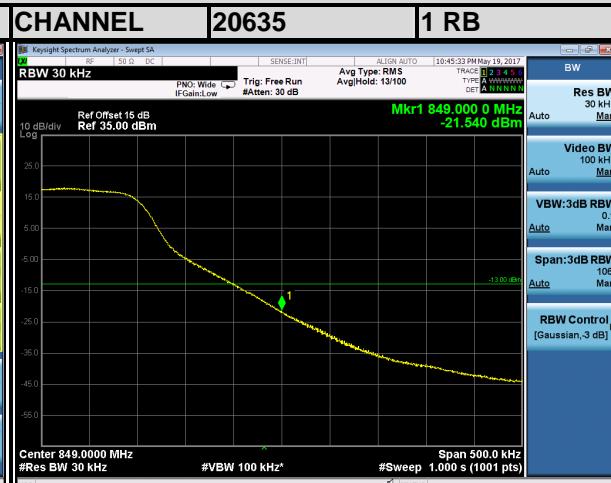
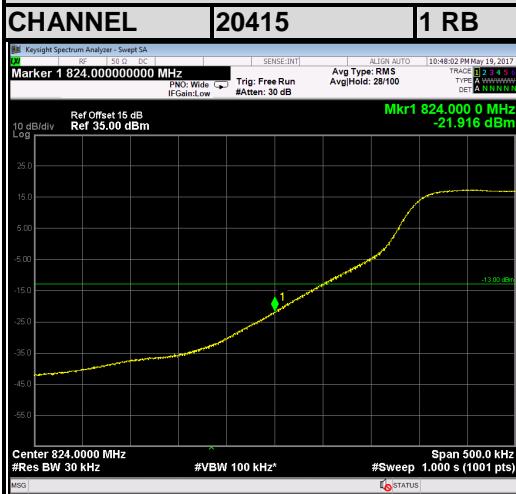


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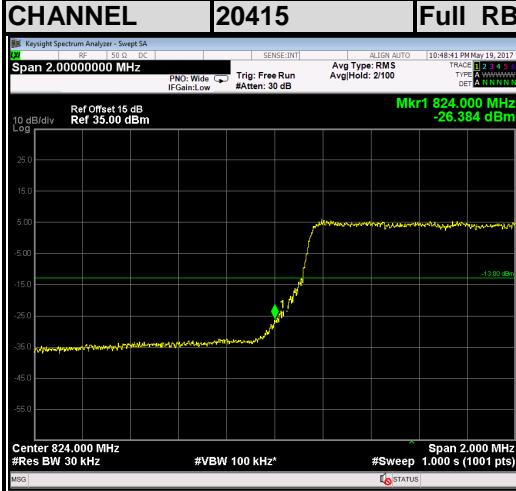
LTE Band5

Channel Bandwidth: 3MHz



LTE Band5

Channel Bandwidth: 3MHz



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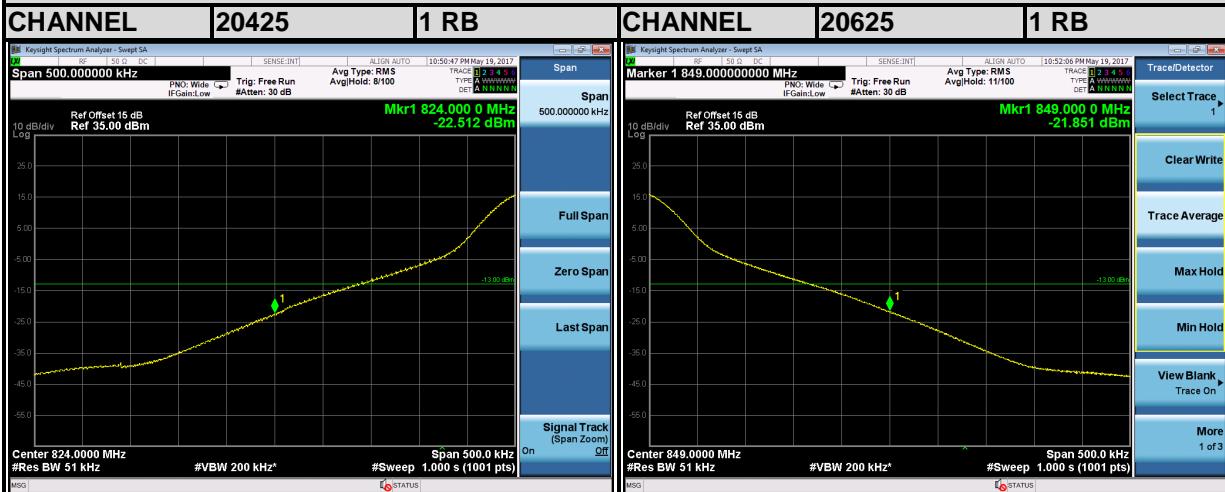


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Test Report No.: RF170428W003-3

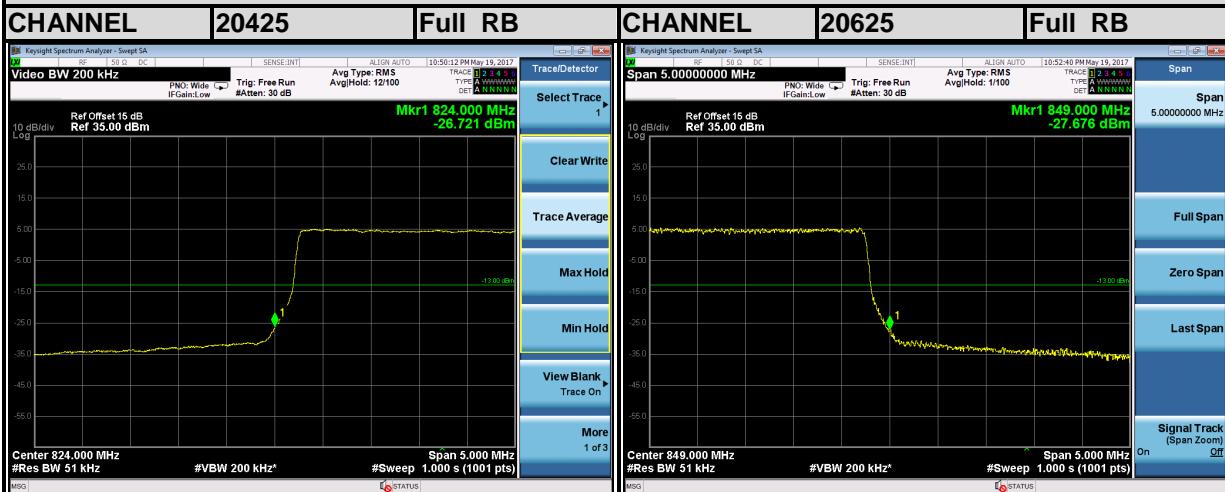
LTE Band5

Channel Bandwidth: 5MHz



LTE Band5

Channel Bandwidth: 5MHz



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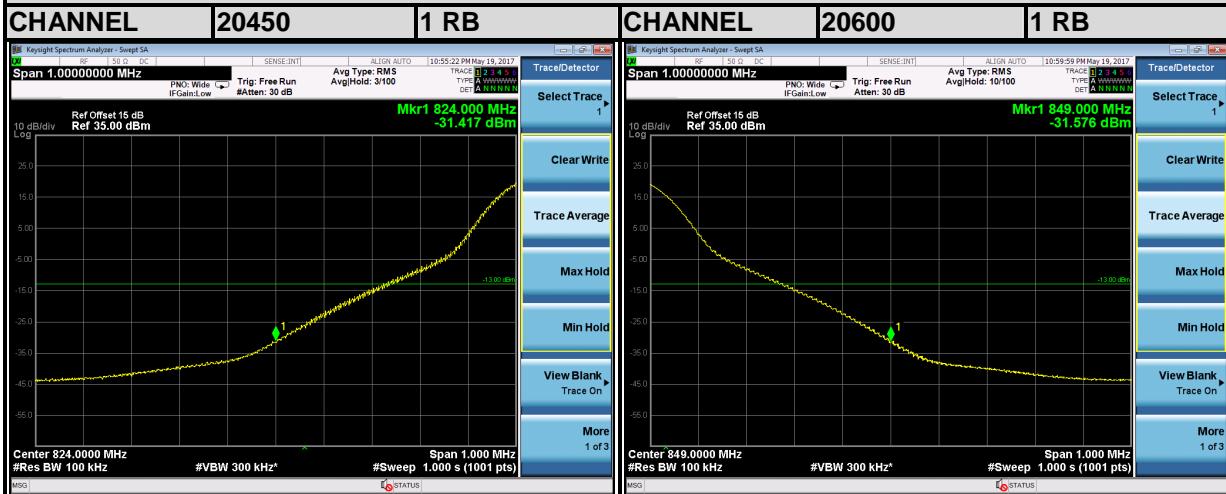


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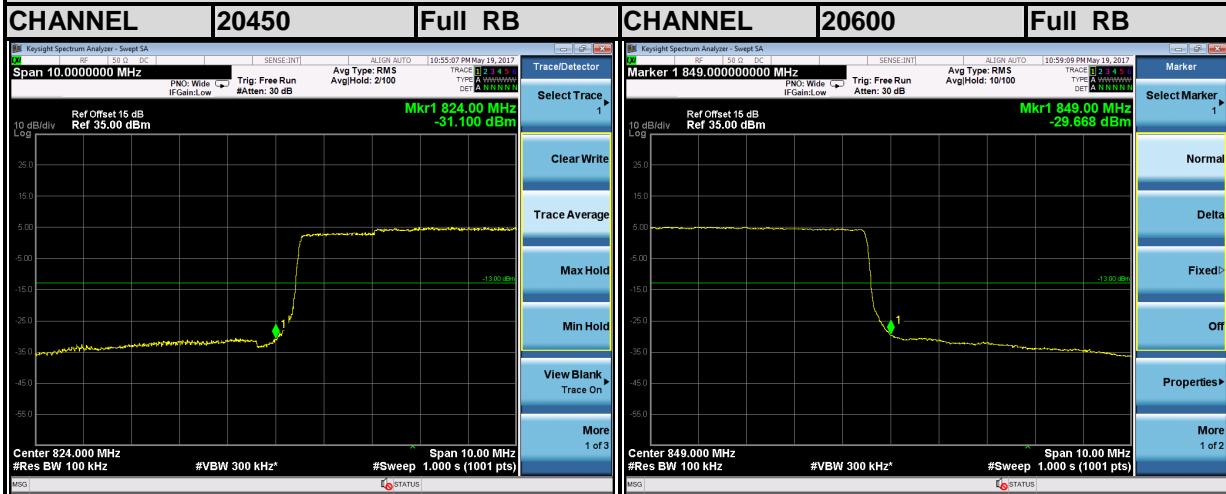
LTE Band5

Channel Bandwidth: 10MHz



LTE Band5

Channel Bandwidth: 10MHz



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4.5 CONDUCTED SPURIOUS EMISSIONS

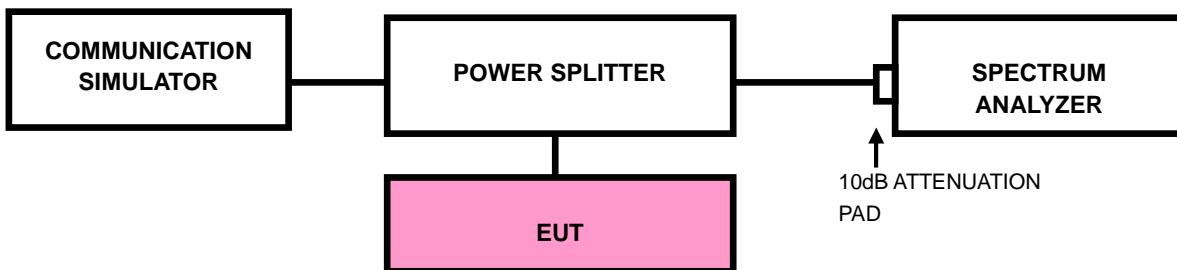
4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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 .

4.5.2 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- b. Measuring frequency range is from 9 kHz to 9.1GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

4.5.3 TEST SETUP





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4.5.4 TEST RESULTS



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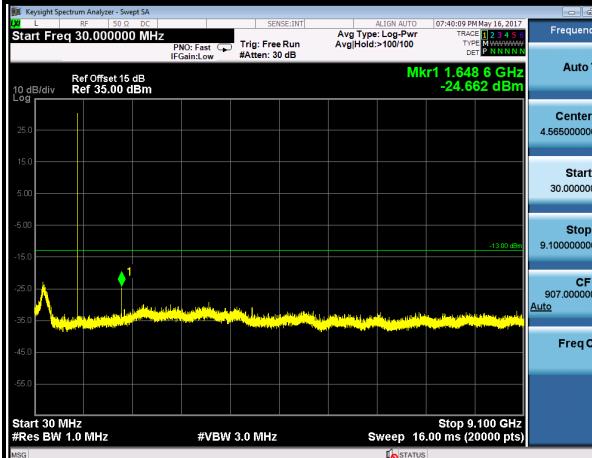
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EDGE

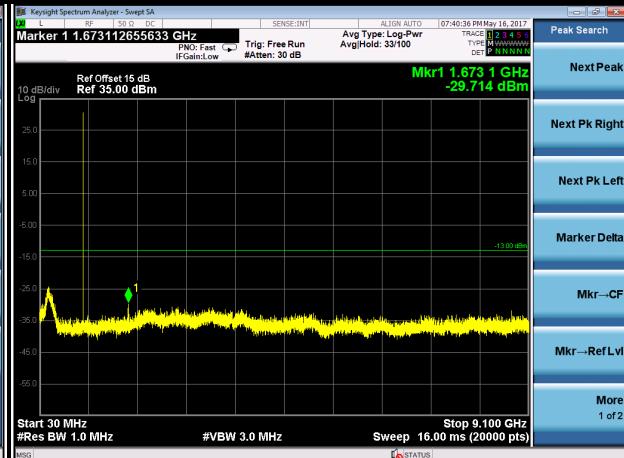
CHANNEL 128

FREQUENCY RANGE : 30MHz~9.1GHz



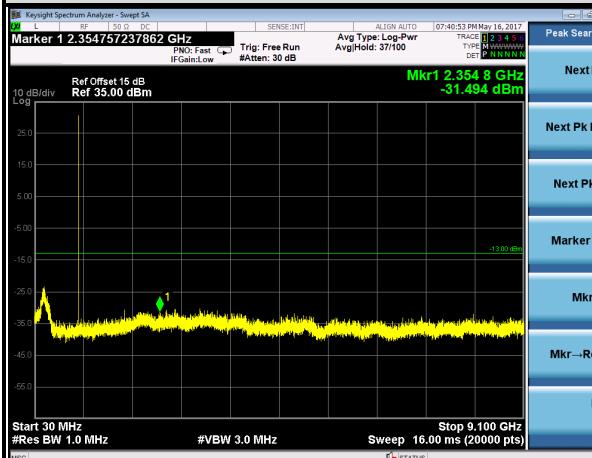
CHANNEL 189

FREQUENCY RANGE : 30MHz~9.1GHz



CHANNEL 251

FREQUENCY RANGE : 30MHz~9.1GHz



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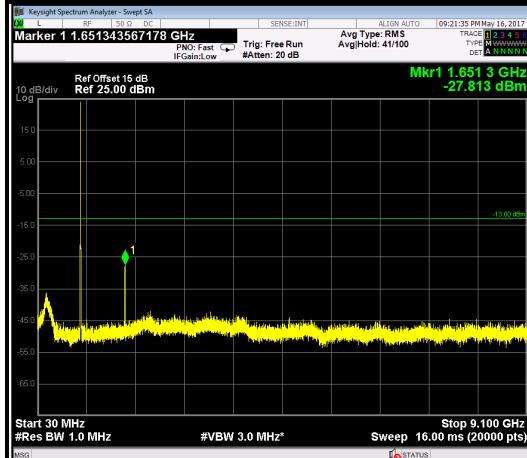
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WCDMA

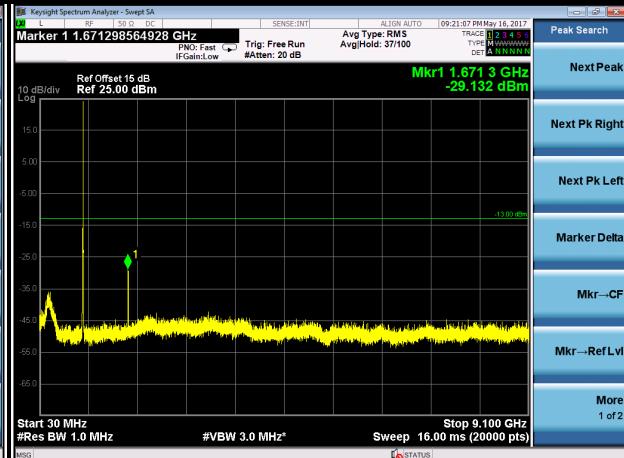
CHANNEL 4132

FREQUENCY RANGE : 30MHz~9.1GHz



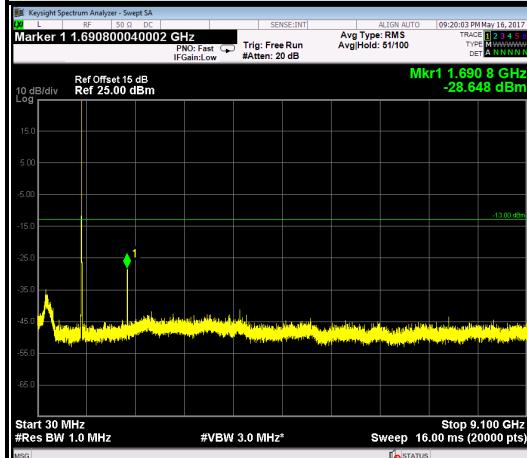
CHANNEL 4182

FREQUENCY RANGE : 30MHz~9.1GHz



CHANNEL 4233

FREQUENCY RANGE : 30MHz~9.1GHz



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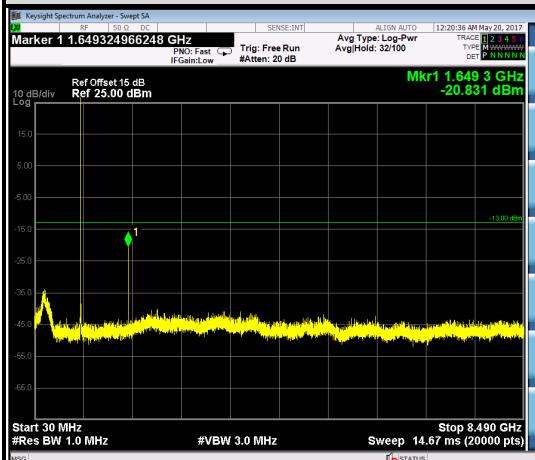
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LTE Band 5 (Channel Bandwidth: 1.4MHz)

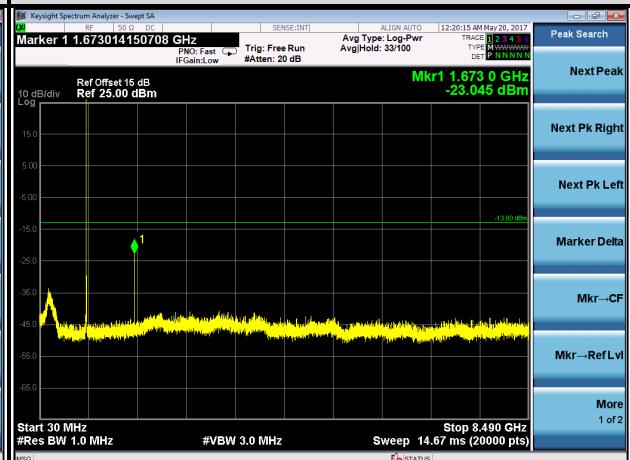
CHANNEL 20407

FREQUENCY RANGE : 30MHz~9.0GHz



CHANNEL 20525

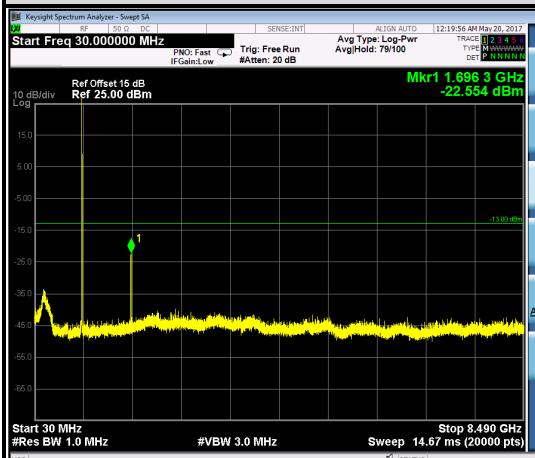
FREQUENCY RANGE : 30MHz~9.0GHz



LTE Band 5 (Channel Bandwidth: 1.4MHz)

CHANNEL 20643

FREQUENCY RANGE : 30MHz~9.0GHz



Frequency
Auto Tune
Center Freq 4.260000000 GHz
Start Freq 30.000000 MHz
Stop Freq 8.490000000 GHz
CF Step 846.000000 MHz Man
Freq Offset 0 Hz

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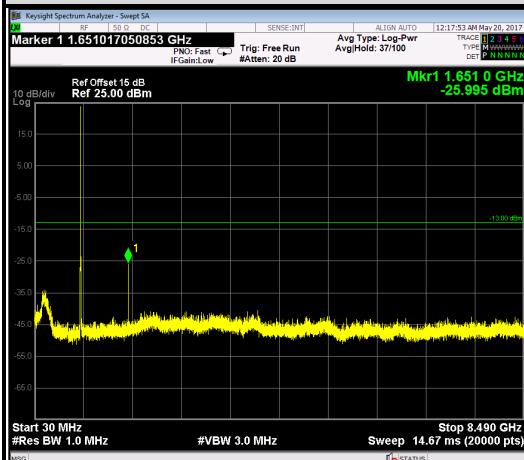
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LTE Band 5 (Channel Bandwidth: 3MHz)

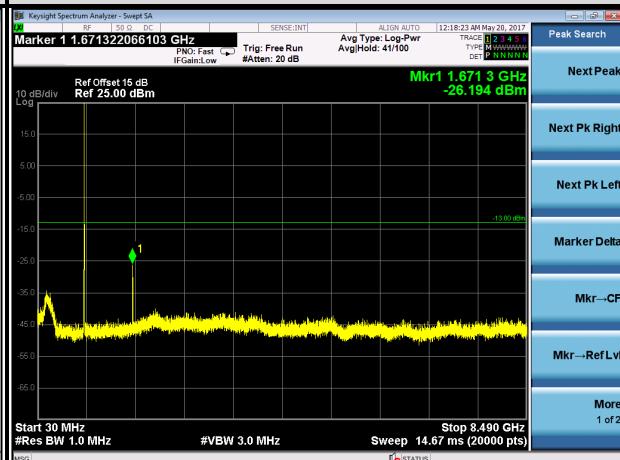
CHANNEL 20415

FREQUENCY RANGE : 30MHz~9.0GHz



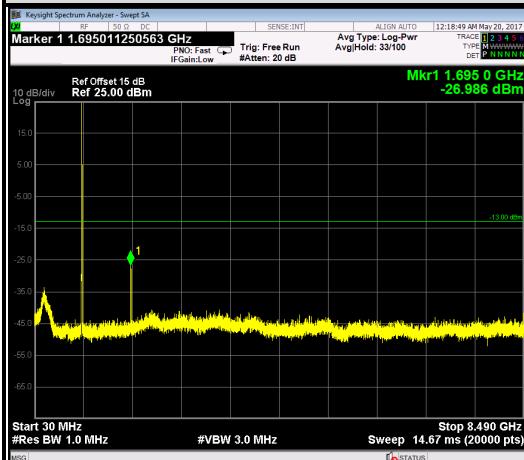
CHANNEL 20525

FREQUENCY RANGE : 30MHz~9.0GHz



CHANNEL 20635

FREQUENCY RANGE : 30MHz~9.0GHz



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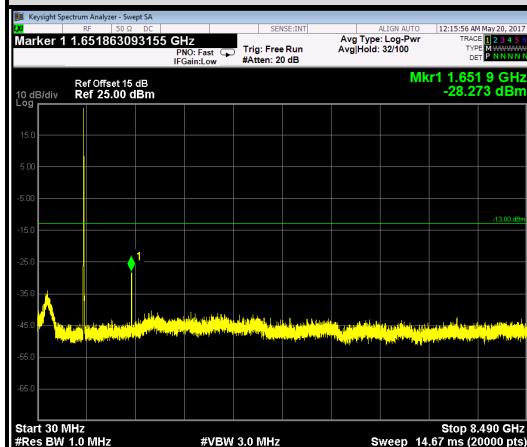
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LTE Band 5 (Channel Bandwidth: 5MHz)

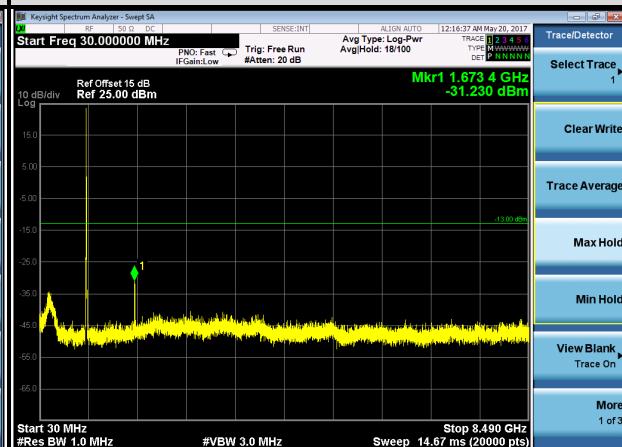
CHANNEL 20425

FREQUENCY RANGE : 30MHz~9.0GHz



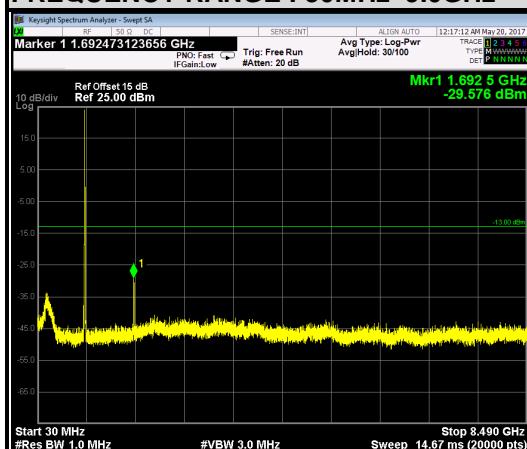
CHANNEL 20525

FREQUENCY RANGE : 30MHz~9.0GHz



CHANNEL 20625

FREQUENCY RANGE : 30MHz~9.0GHz



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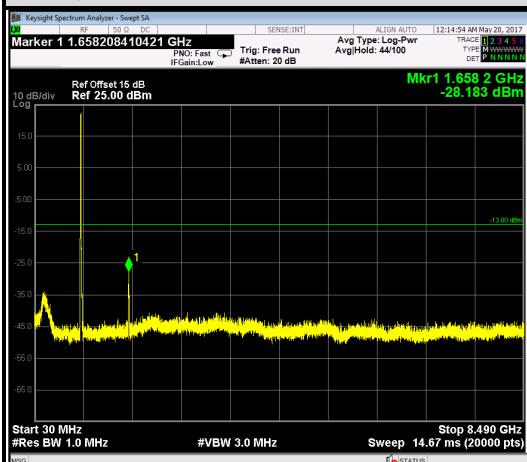
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LTE Band 5 (Channel Bandwidth: 10MHz)

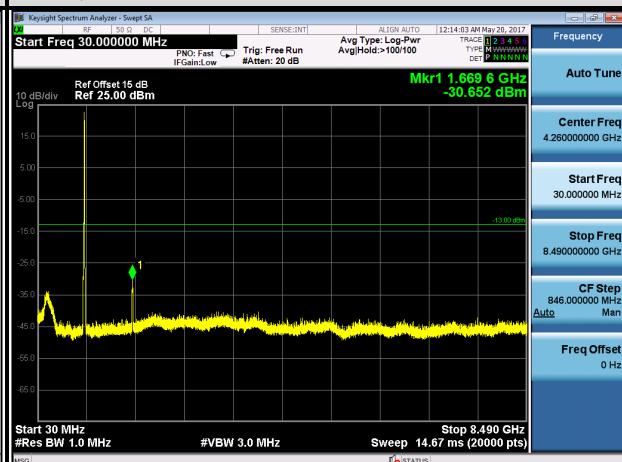
CHANNEL 20450

FREQUENCY RANGE : 30MHz~9.0GHz



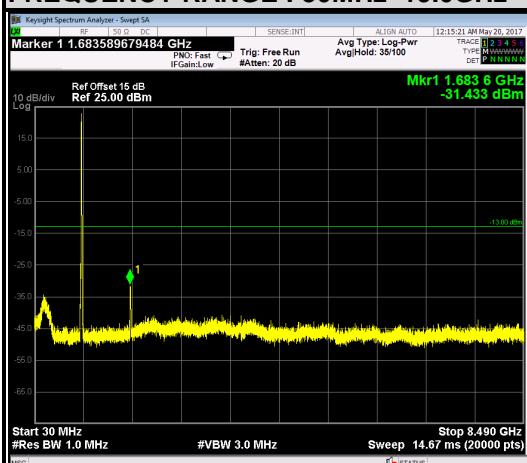
CHANNEL 20525

FREQUENCY RANGE : 30MHz~9.0GHz



CHANNEL 20600

FREQUENCY RANGE : 30MHz~19.0GHz



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4.6 RADIATED EMISSION MEASUREMENT

4.6.1 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 .

4.6.2 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. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

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

4.6.3 DEVIATION FROM TEST STANDARD

No deviation

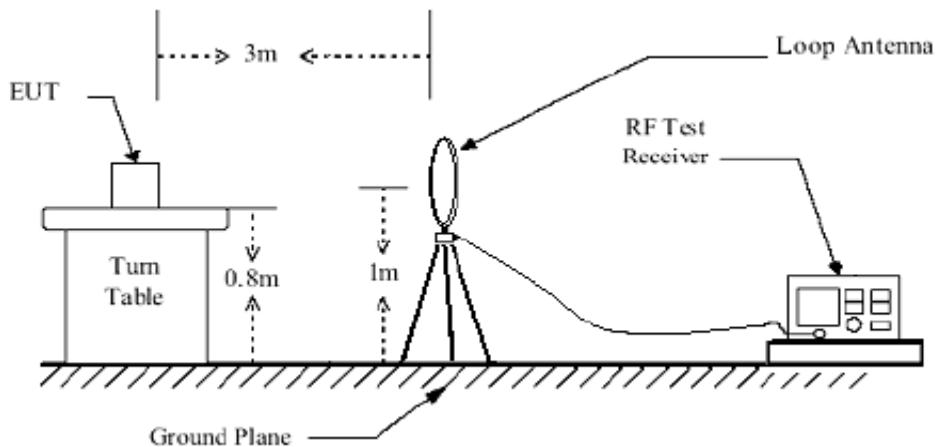
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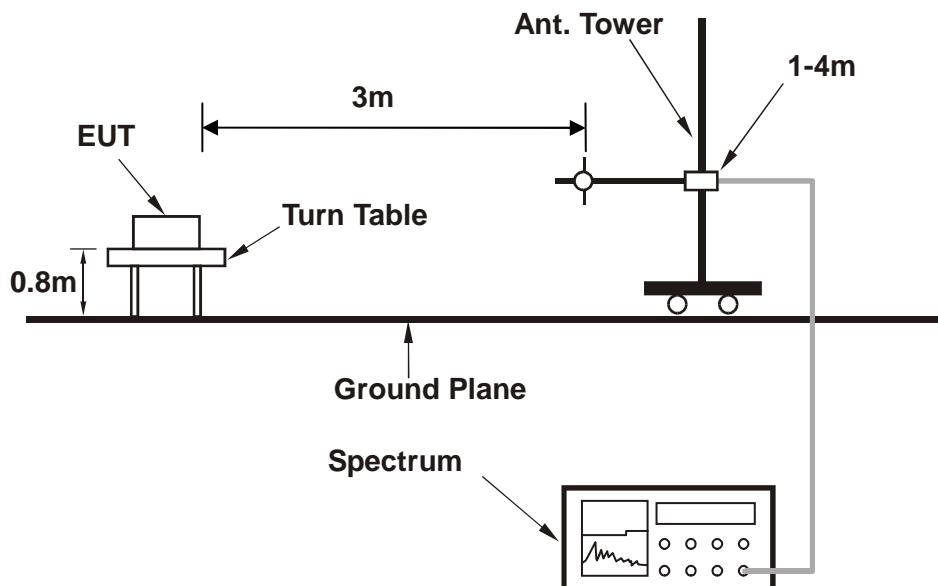
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4.6.4 TEST SETUP

<Below 30MHz>



<Above 30MHz>



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



Test Report No.: RF170428W003-3

4.6.5 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

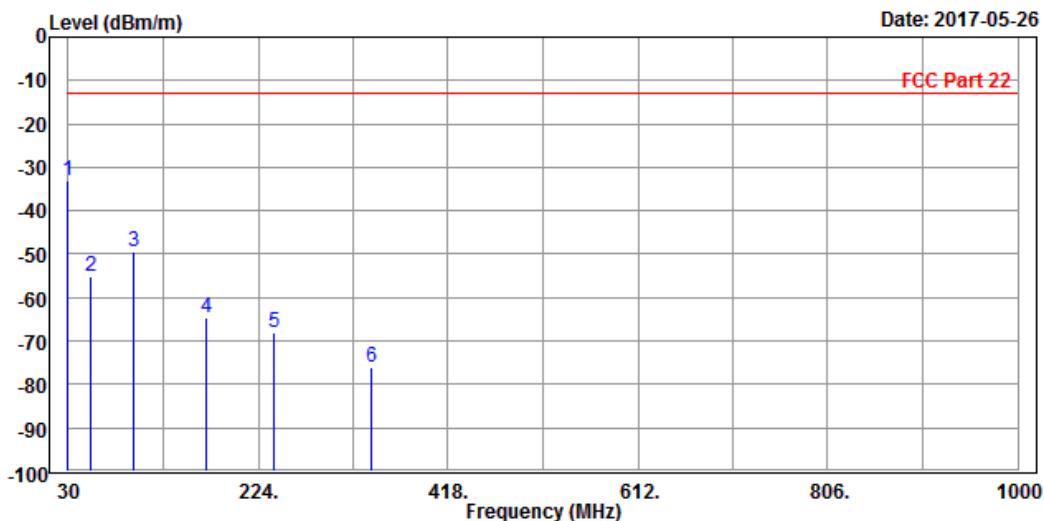
9 KHz – 30 KHz data: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

30 MHz – 1GHz data:

LTE Band 5:

MODE	TX channel 20525	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq MHz	Level dBm/m	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		dBm	dBm/m	dB			
1 PP	30.000	-33.05	-52.39	-13.00	-20.05	19.34 Peak	Horizontal
2	52.310	-55.02	-55.76	-13.00	-42.02	0.74 Peak	Horizontal
3	96.930	-49.25	-38.74	-13.00	-36.25	-10.51 Peak	Horizontal
4	171.620	-64.70	-46.64	-13.00	-51.70	-18.06 Peak	Horizontal
5	240.490	-68.15	-51.69	-13.00	-55.15	-16.46 Peak	Horizontal
6	339.430	-75.95	-63.46	-13.00	-62.95	-12.49 Peak	Horizontal



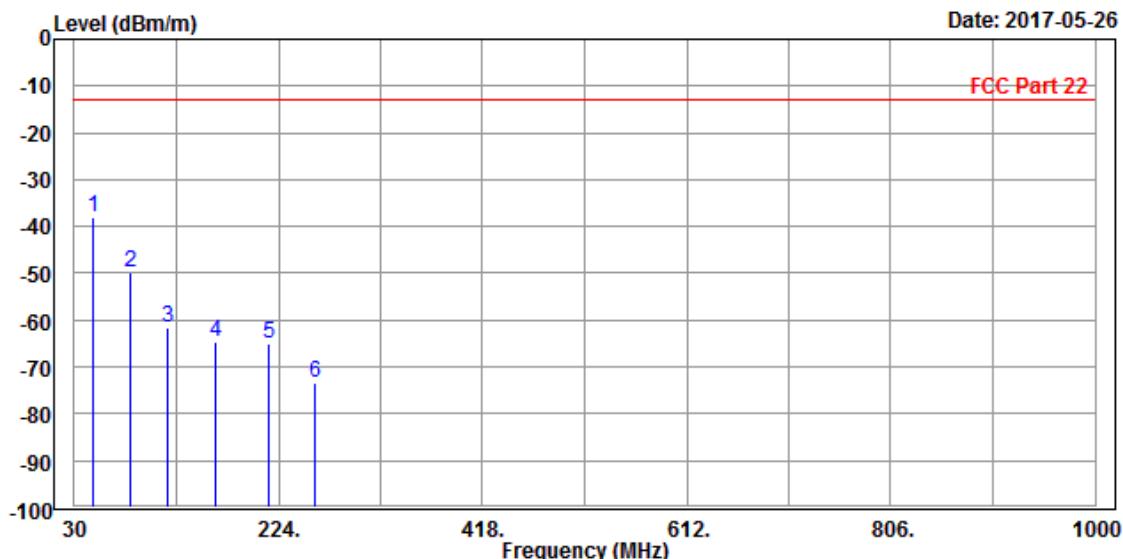


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Test Report No.: RF170428W003-3

MODE	TX channel 20525	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M	
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Freq	Level	Read	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1 PP	47.460	-38.05	-34.11	-13.00	-25.05	-3.94 Peak Vertical
2	83.350	-49.94	-39.60	-13.00	-36.94	-10.34 Peak Vertical
3	119.240	-61.47	-48.26	-13.00	-48.47	-13.21 Peak Vertical
4	164.830	-64.79	-50.03	-13.00	-51.79	-14.76 Peak Vertical
5	214.300	-65.13	-54.24	-13.00	-52.13	-10.89 Peak Vertical
6	258.920	-73.48	-62.00	-13.00	-60.48	-11.48 Peak Vertical



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Test Report No.: RF170428W003-3

ABOVE 1GHz DATA

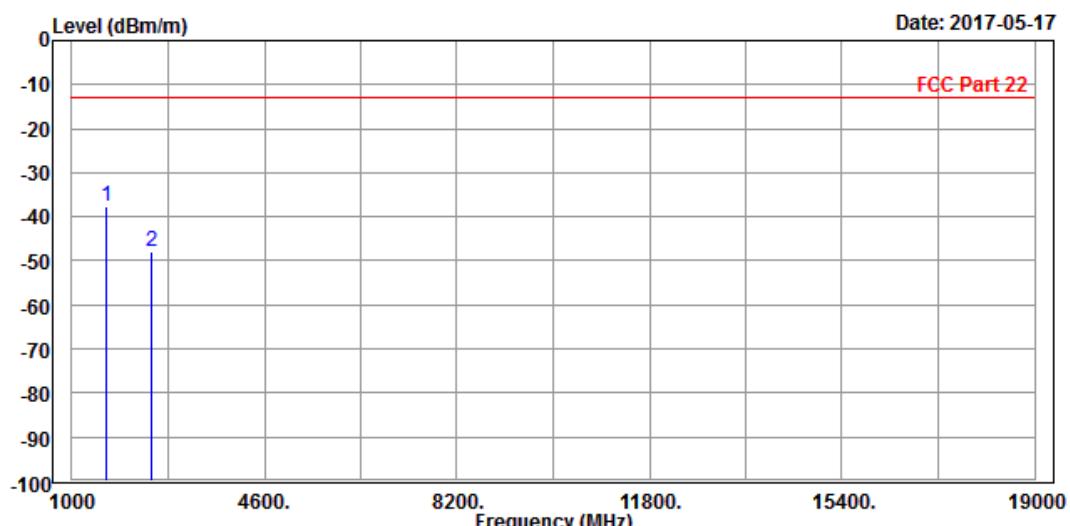
Note: For higher frequency, the emission is too low to be detected.

GSM 850

CH 128:

MODE	TX channel 128	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq MHz	Level dBm/m	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		dBm	dBm/m	dB	dB/m		
1 PP 1648.000	-37.75	-32.78	-13.00	-24.75	-4.97	Peak	Horizontal
2 2476.000	-48.00	-46.35	-13.00	-35.00	-1.65	Peak	Horizontal



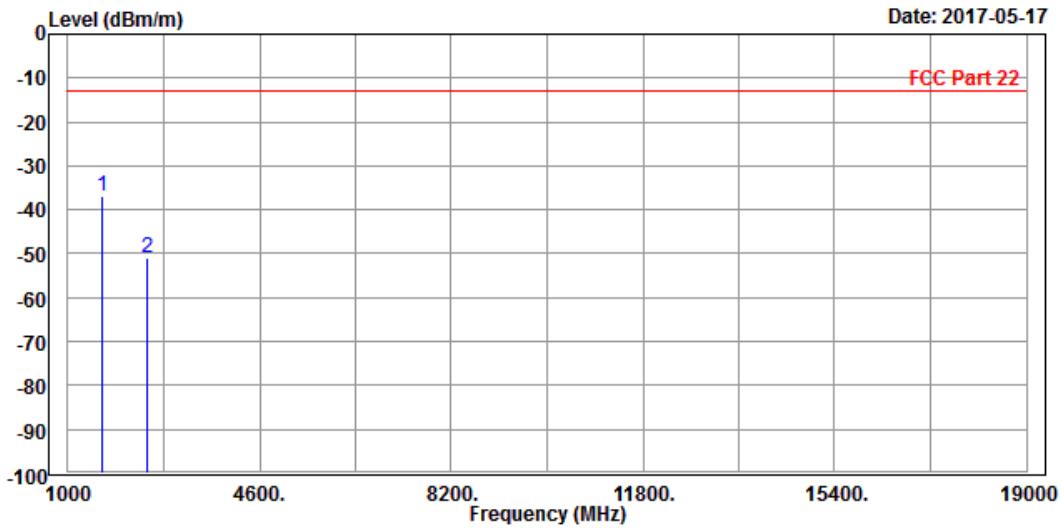


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Test Report No.: RF170428W003-3

MODE	TX channel 128	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M	

Freq	Level	Read	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1 PP	1648.000	-36.79	-33.24	-13.00	-23.79	-3.55 Peak
2	2476.000	-50.93	-50.76	-13.00	-37.93	-0.17 Peak





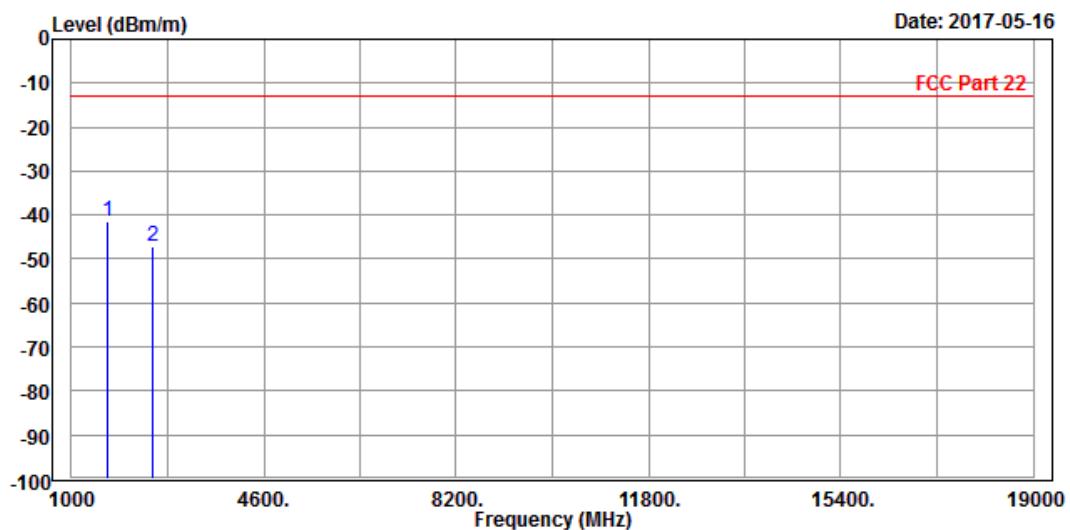
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Test Report No.: RF170428W003-3

CH 189:

MODE	TX channel 189	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq MHz	Level dBm/m	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		dBm	dBm/m	dB			
1 PP	1666.000	-41.62	-36.80	-13.00	-28.62	-4.82 Peak	Horizontal
2	2512.000	-47.30	-45.71	-13.00	-34.30	-1.59 Peak	Horizontal



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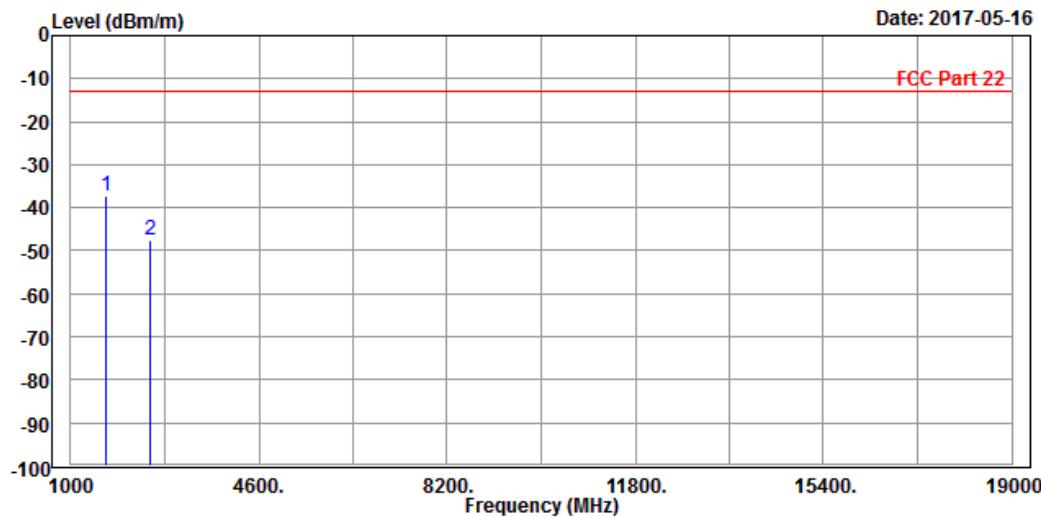


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Test Report No.: RF170428W003-3

MODE	TX channel 189	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M	

Freq	Level	Read	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1 PP	1666.000	-37.44	-34.06	-13.00	-24.44	-3.38 Peak Vertical
2	2512.000	-47.72	-47.60	-13.00	-34.72	-0.12 Peak Vertical





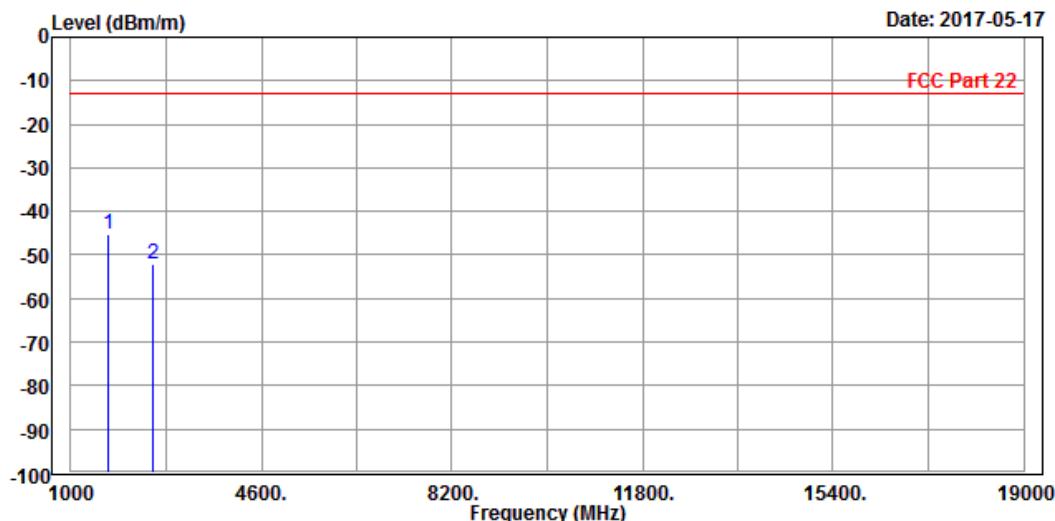
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Test Report No.: RF170428W003-3

CH 251:

MODE	TX channel 251	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Line	dBm	dBm/m			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP 1702.000	-45.23	-40.71	-13.00	-32.23	-4.52	Peak	Horizontal
2 2548.000	-52.27	-50.82	-13.00	-39.27	-1.45	Peak	Horizontal



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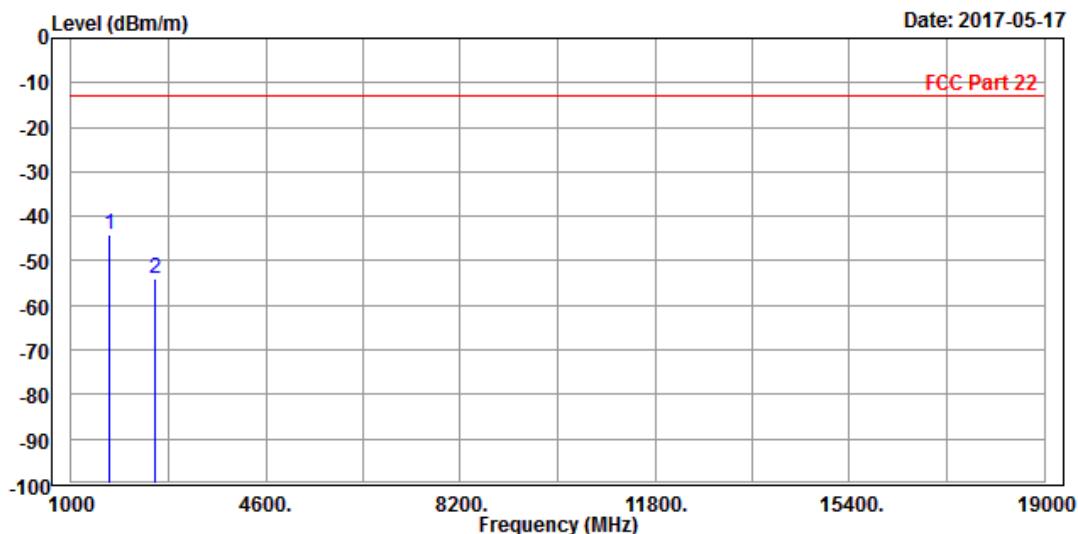


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Test Report No.: RF170428W003-3

MODE	TX channel 251	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M	

Freq	Level	Read	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1 PP 1702.000	-43.93	-40.88	-13.00	-30.93	-3.05 Peak	Vertical
2 2548.000	-54.03	-54.06	-13.00	-41.03	0.03 Peak	Vertical





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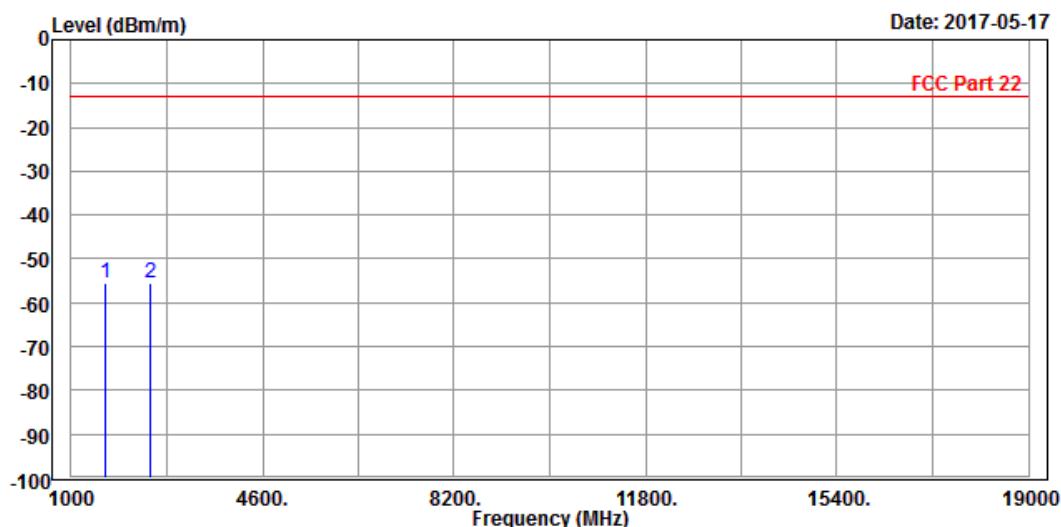
Test Report No.: RF170428W003-3

EDGE 850:

CH 128:

MODE	TX channel 128	FREQUENCY RANGE		Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER		DC 5V from adapter
TESTED BY	Tony Zou			
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M				

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Line	Line	Limit Factor			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1648.000	-55.37	-50.40	-13.00	-42.37	-4.97 Peak	Horizontal
2	2476.000	-55.48	-53.83	-13.00	-42.48	-1.65 Peak	Horizontal



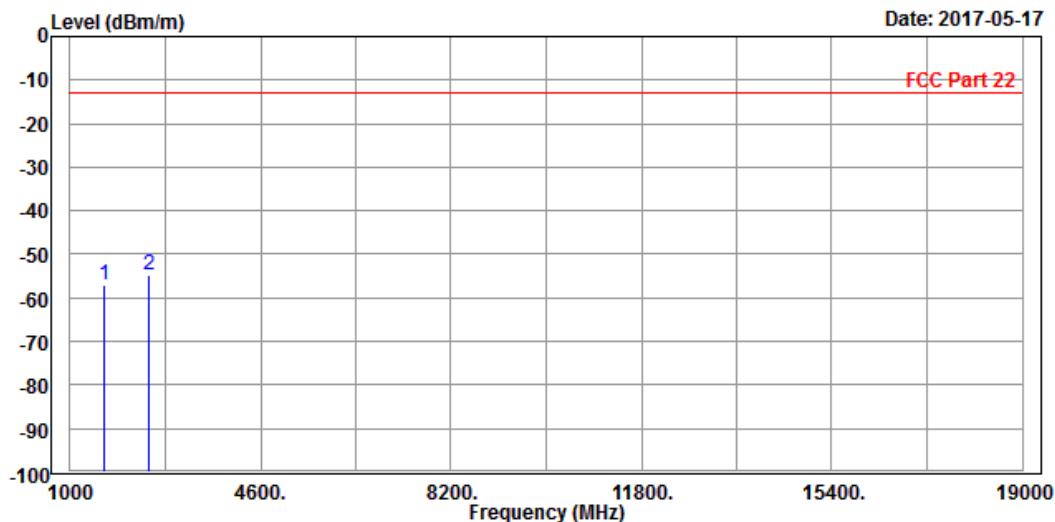


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Test Report No.: RF170428W003-3

MODE	TX channel 128	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M	

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Level	Line	Limit			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1648.000	-56.88	-53.33	-13.00	-43.88	-3.55 Peak	Vertical
2 PP	2476.000	-54.63	-54.46	-13.00	-41.63	-0.17 Peak	Vertical



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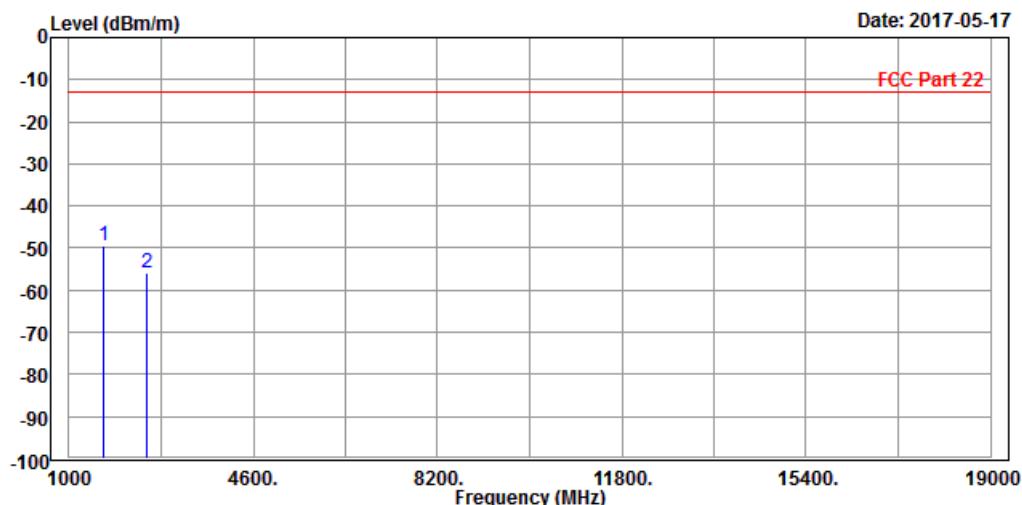
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Test Report No.: RF170428W003-3

CH 189:

MODE	TX channel 189	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Level	Line	Limit			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP 1666.000	-49.37	-44.55	-13.00	-36.37	-4.82	Peak	Horizontal
2 2512.000	-55.99	-54.40	-13.00	-42.99	-1.59	Peak	Horizontal



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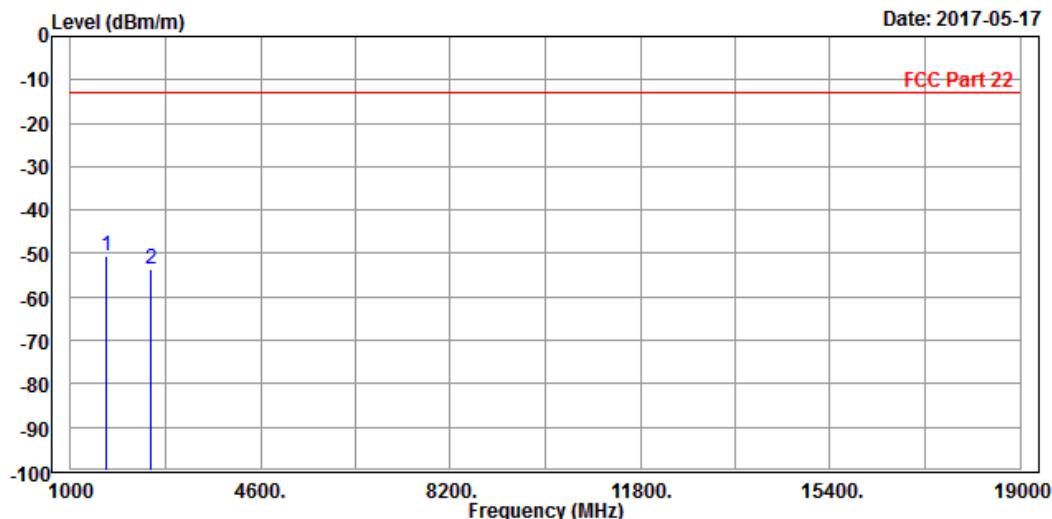


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Test Report No.: RF170428W003-3

MODE	TX channel 189	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M	

	Freq	Read Level	Limit Level	Over Line	Limit	Over Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1666.000	-50.69	-47.31	-13.00	-37.69	-3.38	Peak	Vertical
2	2512.000	-53.48	-53.36	-13.00	-40.48	-0.12	Peak	Vertical





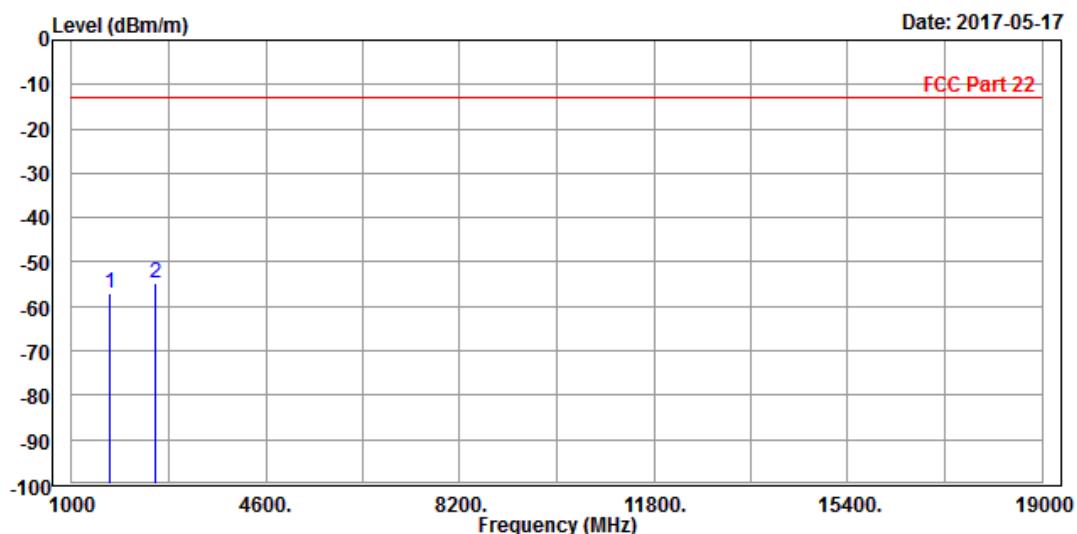
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Test Report No.: RF170428W003-3

CH 251:

MODE	TX channel 251	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Line	dBm	dBm/m			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1702.000	-57.14	-52.62	-13.00	-44.14	-4.52 Peak	Horizontal
2	PP 2548.000	-54.87	-53.42	-13.00	-41.87	-1.45 Peak	Horizontal



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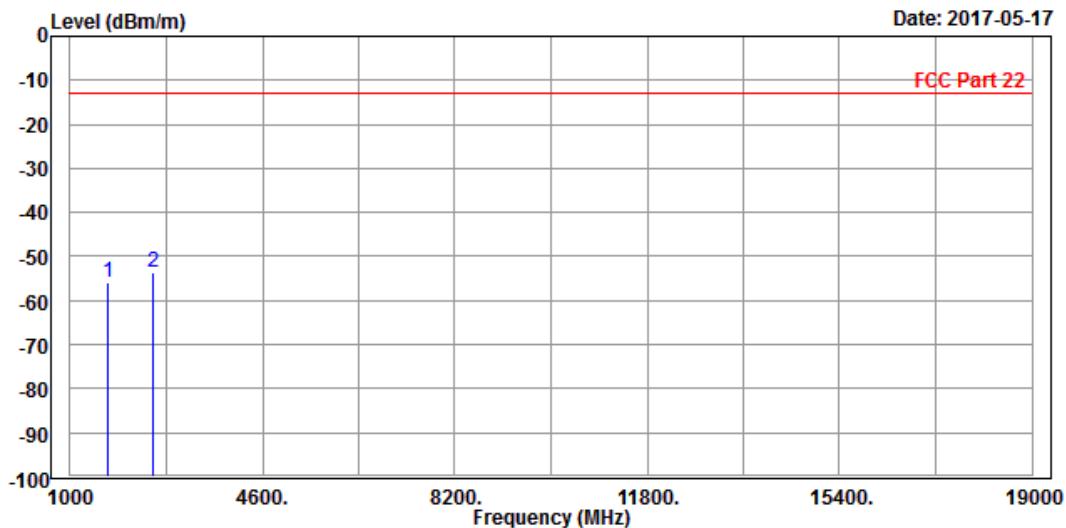


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Test Report No.: RF170428W003-3

MODE	TX channel 251	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	1702.000	-55.92	-52.87	-13.00	-42.92	-3.05	Peak Vertical
2	PP 2548.000	-53.78	-53.81	-13.00	-40.78	0.03	Peak Vertical



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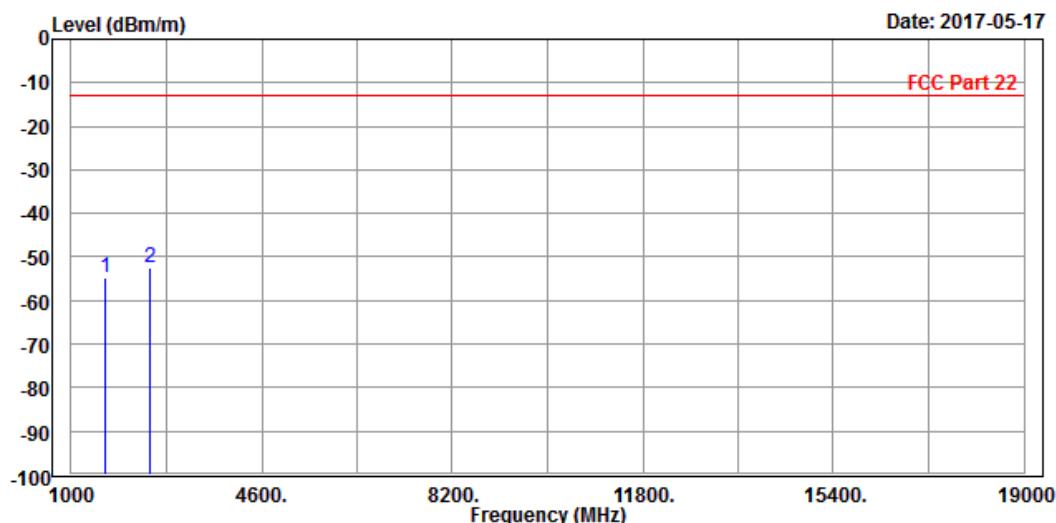
Test Report No.: RF170428W003-3

WCDMA Band V:

CH 4132:

MODE	TX channel 4132	FREQUENCY RANGE		Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER		DC 5V from adapter
TESTED BY	Tony Zou			
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M				

Freq	Level	Read	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	1648.000	-54.85	-49.88	-13.00	-41.85	-4.97 Peak Horizontal
2 PP	2476.000	-52.65	-51.00	-13.00	-39.65	-1.65 Peak Horizontal



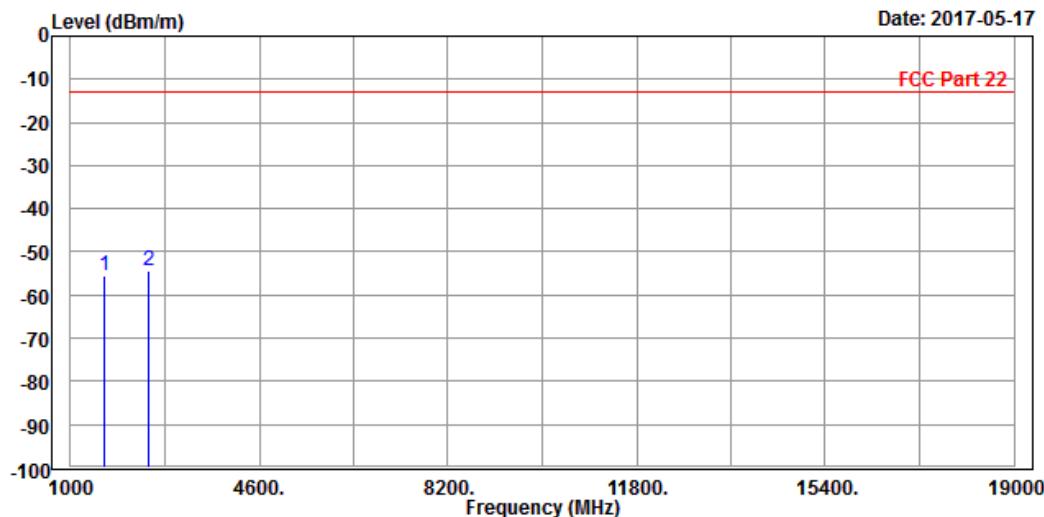


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Test Report No.: RF170428W003-3

MODE	TX channel 4132	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M	

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Level	Line	Limit			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1648.000	-55.41	-51.86	-13.00	-42.41	-3.55 Peak	Vertical
2 PP	2476.000	-54.22	-54.05	-13.00	-41.22	-0.17 Peak	Vertical





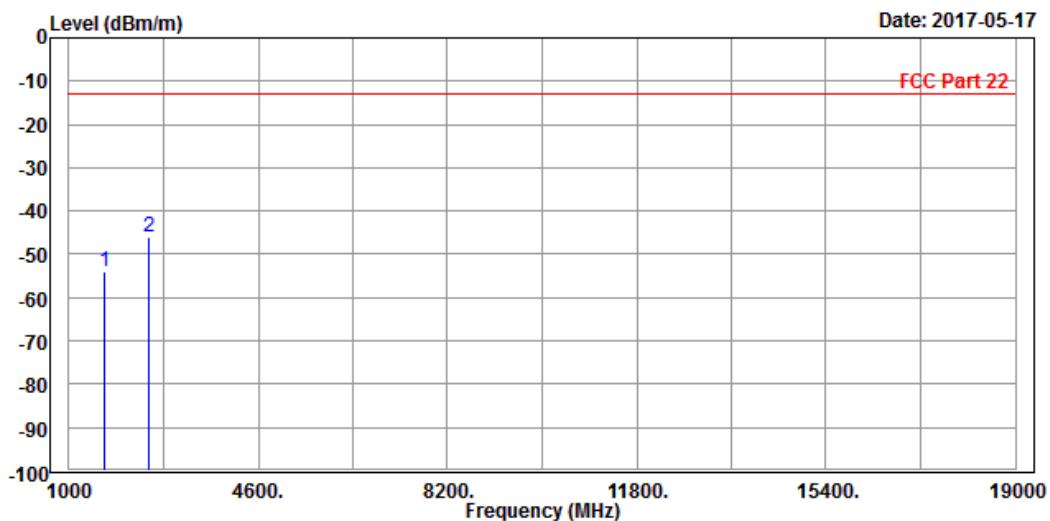
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Test Report No.: RF170428W003-3

CH 4182:

MODE	TX channel 4182	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Line	dBm/m	dB			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1666.000	-53.81	-48.99	-13.00	-40.81	-4.82 Peak	Horizontal
2	PP 2512.000	-45.85	-44.26	-13.00	-32.85	-1.59 Peak	Horizontal



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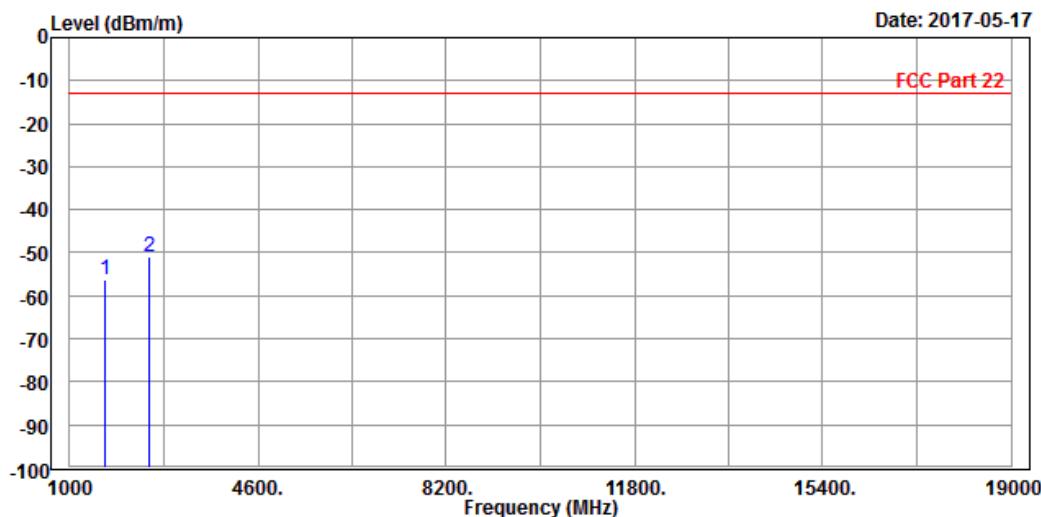


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Test Report No.: RF170428W003-3

MODE	TX channel 4182	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M	

	Freq	Read Level	Limit Level	Over Line	Limit	Over Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1666.000	-56.40	-53.02	-13.00	-43.40	-3.38	Peak	Vertical
2	PP 2512.000	-51.08	-50.96	-13.00	-38.08	-0.12	Peak	Vertical





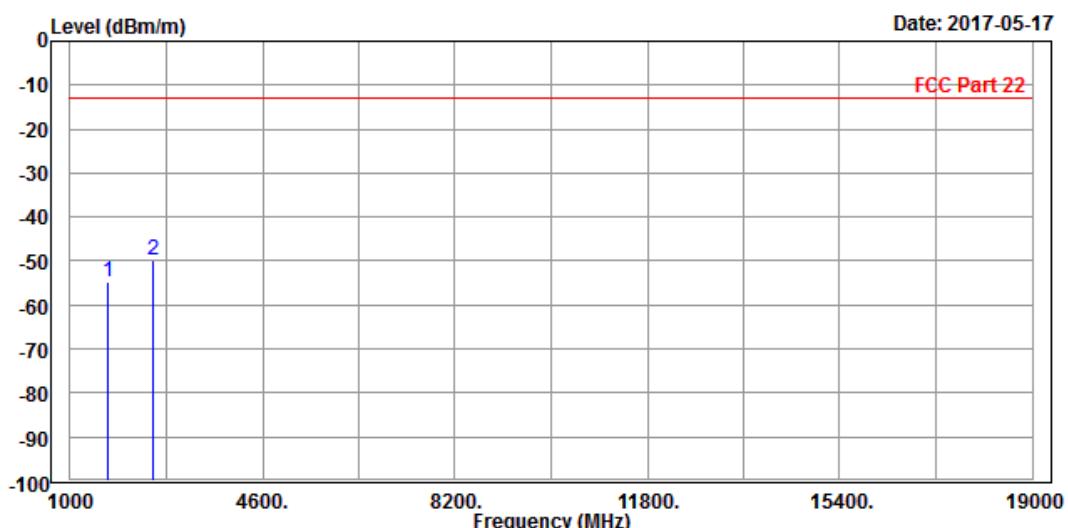
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Test Report No.: RF170428W003-3

CH 4233:

MODE	TX channel 4233	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq MHz	Read Level dBm/m	Limit Level dBm	Line	Over	Factor	Remark	Pol/Phase
			dBm/m	dB			
1 1702.000	-54.77	-50.25	-13.00	-41.77	-4.52	Peak	Horizontal
2 PP 2548.000	-49.73	-48.28	-13.00	-36.73	-1.45	Peak	Horizontal



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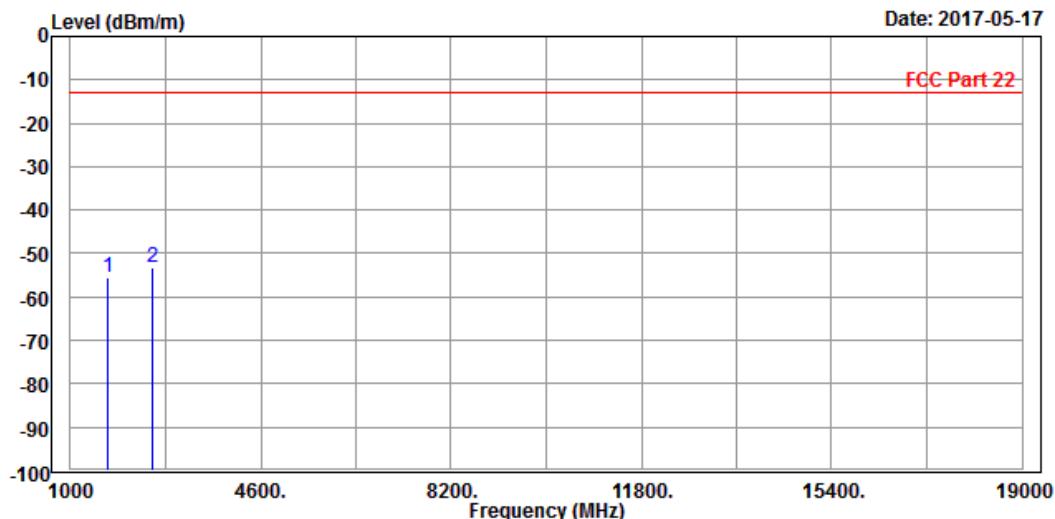


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Test Report No.: RF170428W003-3

MODE	TX channel 4233	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M	

Freq	Level	Read	Limit	Over	Remark	Pol/Phase
		Line	Limit Factor	dB		
MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	1702.000	-55.68	-52.63	-13.00	-42.68	-3.05 Peak Vertical
2 PP	2548.000	-53.08	-53.11	-13.00	-40.08	0.03 Peak Vertical





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Test Report No.: RF170428W003-3

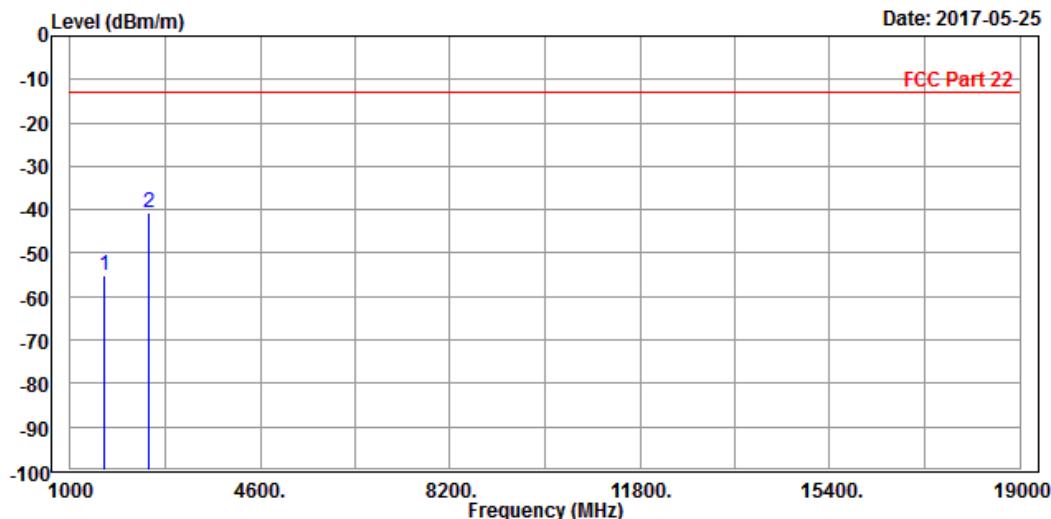
LTE Band 5

CHANNEL BANDWIDTH: 1.4MHz / QPSK

CH 20407

MODE	TX channel 20407	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Level	Line	Limit			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1648.000	-55.27	-50.30	-13.00	-42.27	-4.97 Peak	Horizontal
2	PP 2476.000	-40.64	-38.99	-13.00	-27.64	-1.65 Peak	Horizontal



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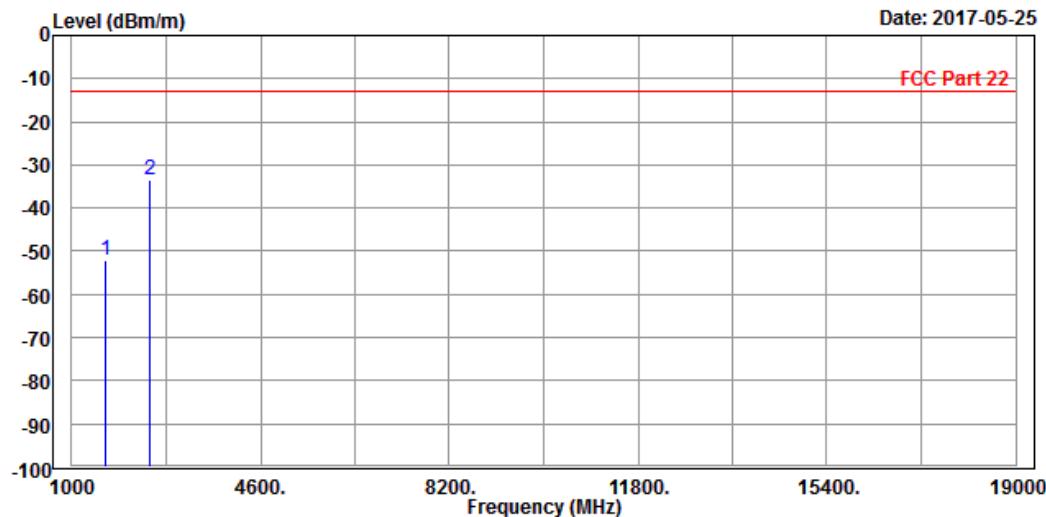


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Test Report No.: RF170428W003-3

MODE	TX channel 20407	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M	

Freq	Level	Read	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	1648.000	-52.24	-48.69	-13.00	-39.24	-3.55 Peak Vertical
2	PP 2476.000	-33.40	-33.23	-13.00	-20.40	-0.17 Peak Vertical



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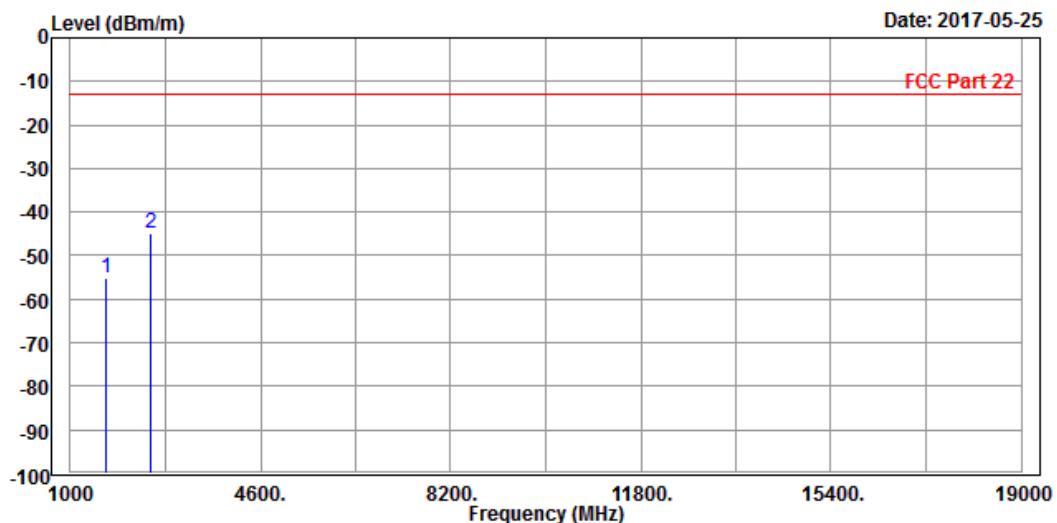


Test Report No.: RF170428W003-3

CH 20525

MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq MHz	Level dBm/m	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		dBm	dBm/m	dB			
1 1666.000	-55.28	-50.46	-13.00	-42.28	-4.82	Peak	Horizontal
2 PP 2512.000	-44.89	-43.30	-13.00	-31.89	-1.59	Peak	Horizontal



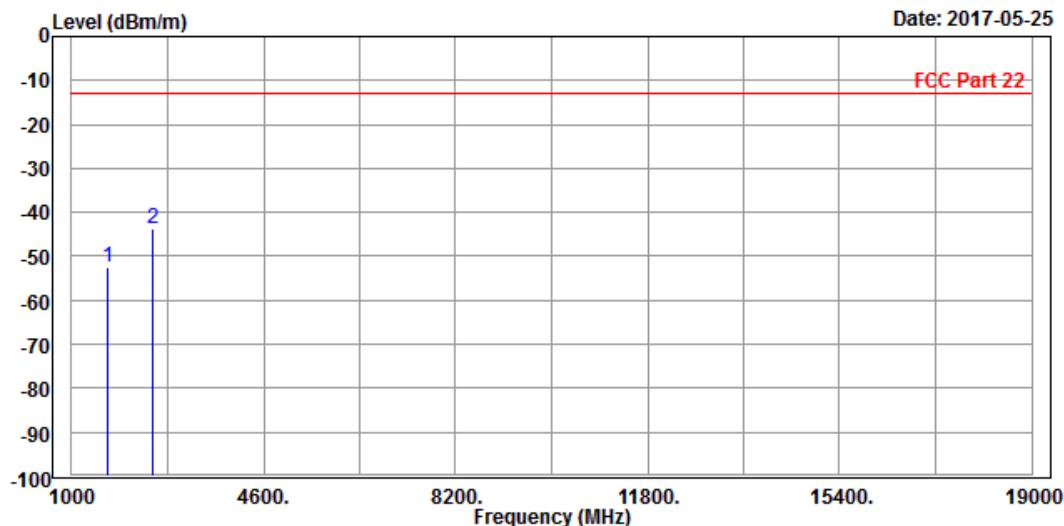


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Test Report No.: RF170428W003-3

MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M	

	Freq	Read Level	Limit Level	Over Line	Limit Factor	Over Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1666.000	-52.52	-49.14	-13.00	-39.52	-3.38	Peak	Vertical
2 PP	2512.000	-43.60	-43.48	-13.00	-30.60	-0.12	Peak	Vertical



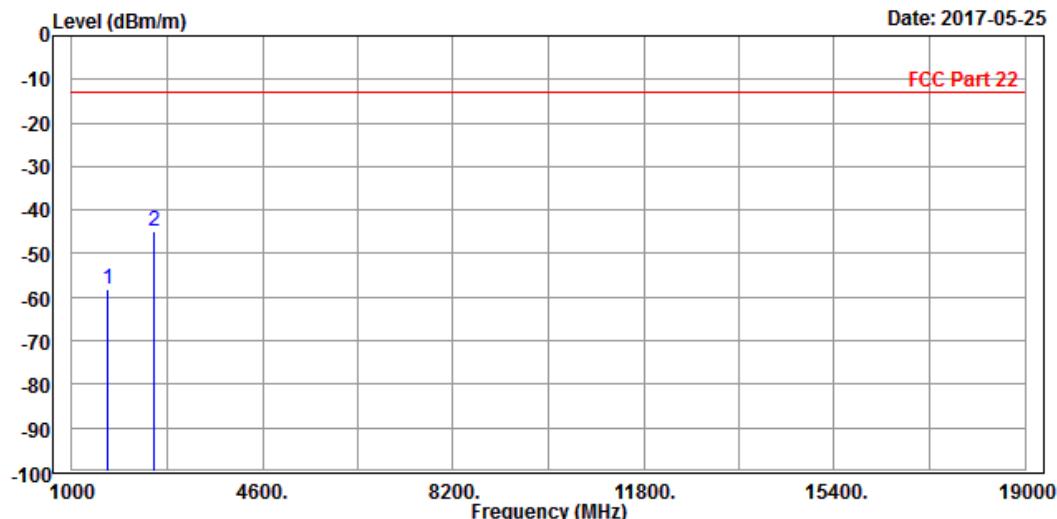


Test Report No.: RF170428W003-3

CH 20643

MODE	TX channel 20643	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq MHz	Level dBm/m	Read	Limit	Over	Remark	Pol/Phase
		Level dBm	Line dBm/m	Limit Factor		
1 1684.000	-58.07	-53.40	-13.00	-45.07	-4.67 Peak	Horizontal
2 PP 2548.000	-44.77	-43.32	-13.00	-31.77	-1.45 Peak	Horizontal



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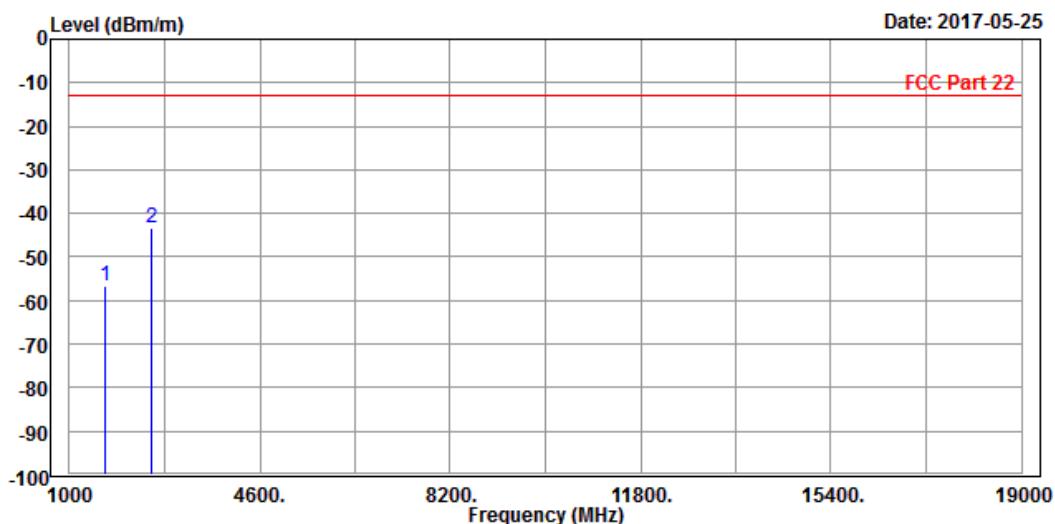


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Test Report No.: RF170428W003-3

MODE	TX channel 20643	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1684.000	-56.82	-53.61	-13.00	-43.82	-3.21	Peak	Vertical
2 PP	2548.000	-43.41	-43.44	-13.00	-30.41	0.03	Peak	Vertical



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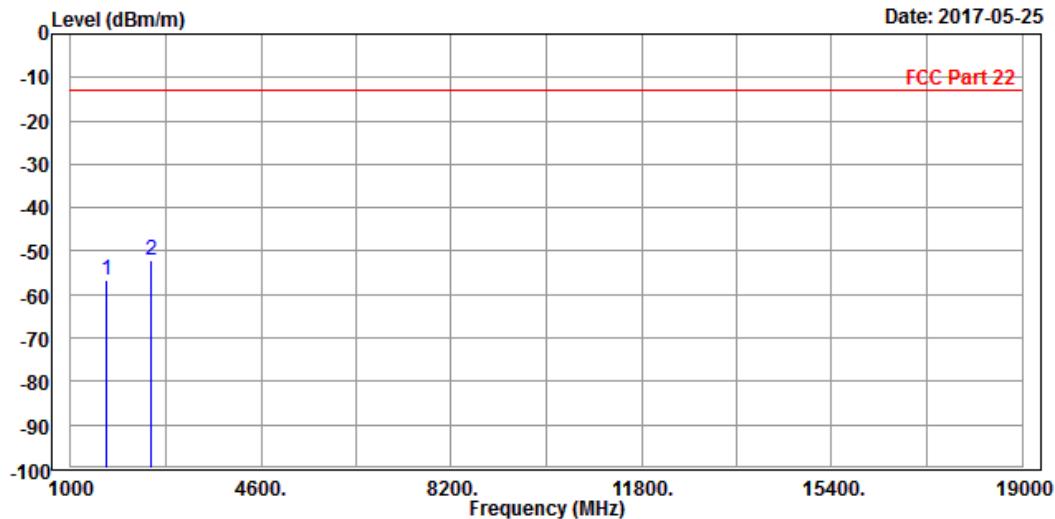
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CHANNEL BANDWIDTH: 3MHz / QPSK

MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq MHz	Level dBm/m	Read	Limit	Over	Factor	Remark	Pol/Phase
		Level dBm	Line dBm/m	Line dBm			
1 1666.000	-56.66	-51.84	-13.00	-43.66	-4.82	Peak	Horizontal
2 PP 2512.000	-51.91	-50.32	-13.00	-38.91	-1.59	Peak	Horizontal



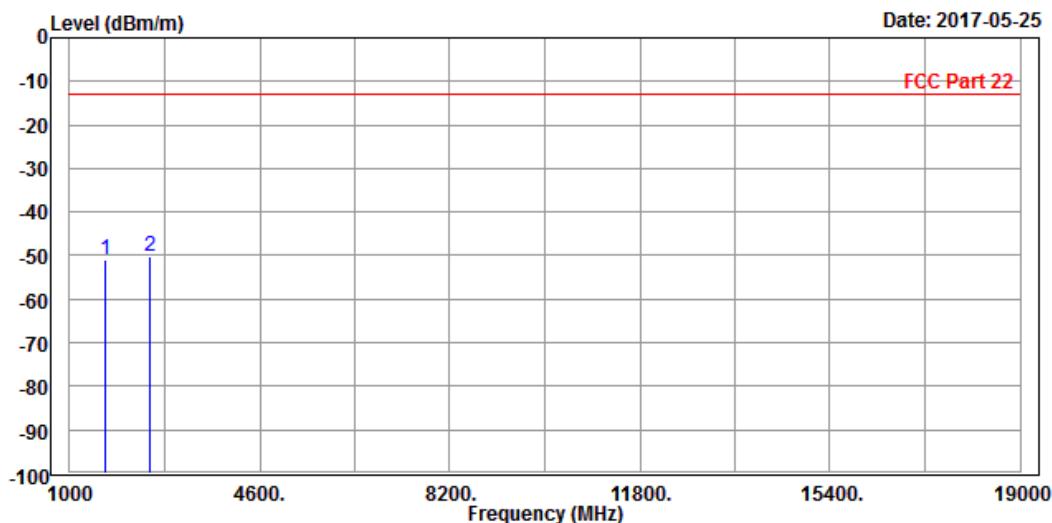


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Test Report No.: RF170428W003-3

MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M	

Freq	Level	Read	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	1666.000	-51.12	-47.74	-13.00	-38.12	-3.38 Peak Vertical
2	PP 2512.000	-50.23	-50.11	-13.00	-37.23	-0.12 Peak Vertical



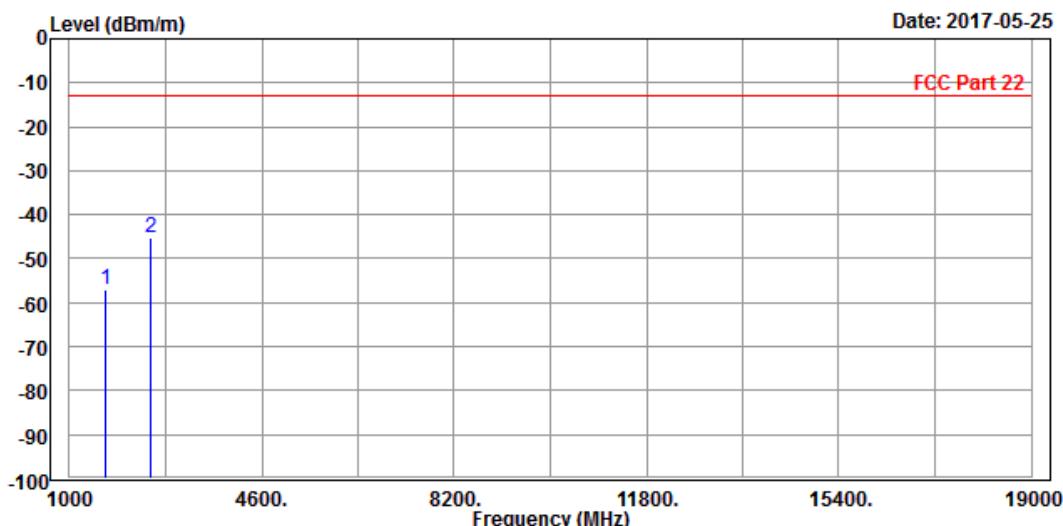


Test Report No.: RF170428W003-3

CHANNEL BANDWIDTH: 5MHz / QPSK

MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Freq MHz	Read Level dBm/m	Limit Level dBm	Over Line dBm/m	Over Limit dB	Over Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	1666.000	-56.85	-52.03	-13.00	-43.85	-4.82	Peak
2	PP 2512.000	-45.29	-43.70	-13.00	-32.29	-1.59	Peak



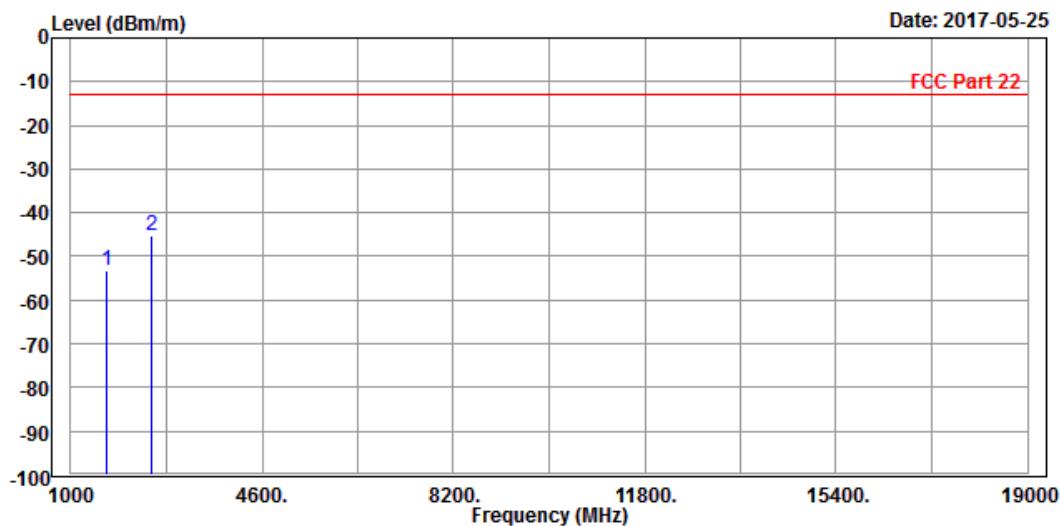


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Test Report No.: RF170428W003-3

MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M	

Freq	Level	Read	Limit	Over	Remark	Pol/Phase
		Level	Line	Limit Factor		
MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	1666.000	-53.35	-49.97	-13.00	-40.35	-3.38 Peak Vertical
2 PP	2512.000	-45.20	-45.08	-13.00	-32.20	-0.12 Peak Vertical



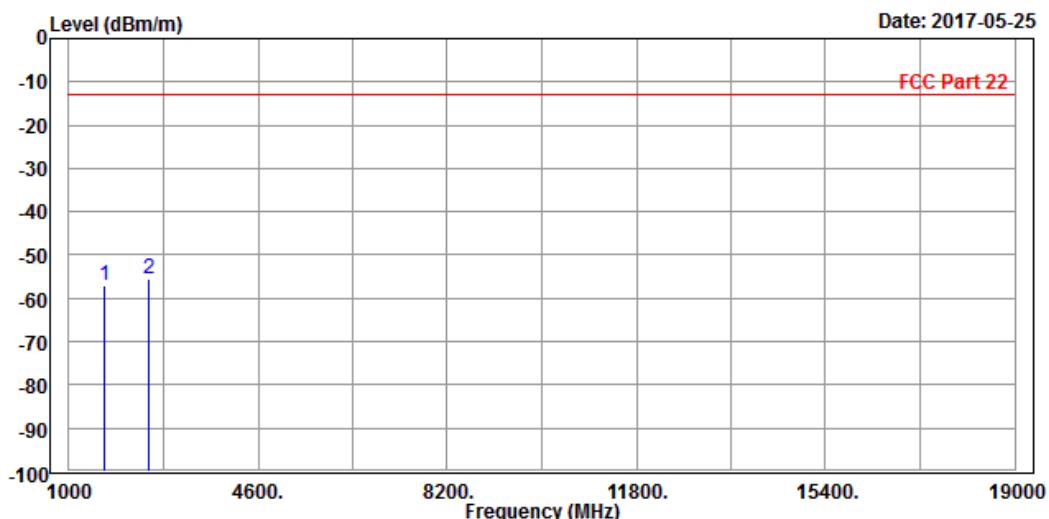


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CHANNEL BANDWIDTH: 10MHz / QPSK

MODE	TX channel 20525	FREQUENCY RANGE		Above 1000MHz	
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER		DC 5V from adapter	
TESTED BY	Tony Zou				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M					

Freq MHz	Read Level dBm/m	Limit Level dBm	Line Limit dBm/m	Over Limit dB	Factor	Remark	Pol/Phase
1 1666.000	-57.22	-52.40	-13.00	-44.22	-4.82	Peak	Horizontal
2 PP 2512.000	-55.33	-53.74	-13.00	-42.33	-1.59	Peak	Horizontal



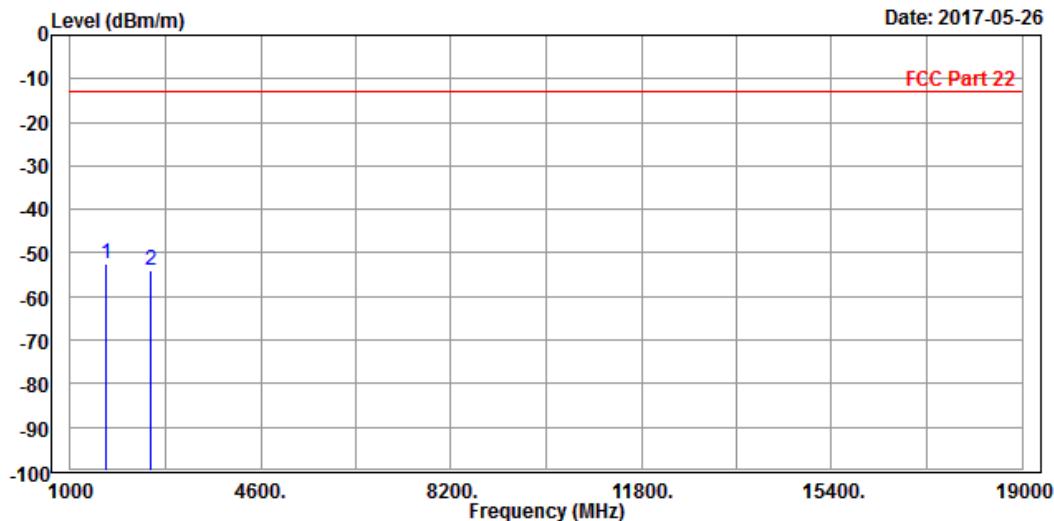


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Test Report No.: RF170428W003-3

MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Zou	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M	

Freq	Level	Read	Limit	Over	Factor	Remark	Pol/Phase
		Line	dBm	dBm/m			
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	1666.000	-52.48	-49.10	-13.00	-39.48	-3.38 Peak
2		2512.000	-54.18	-54.06	-13.00	-41.18	-0.12 Peak



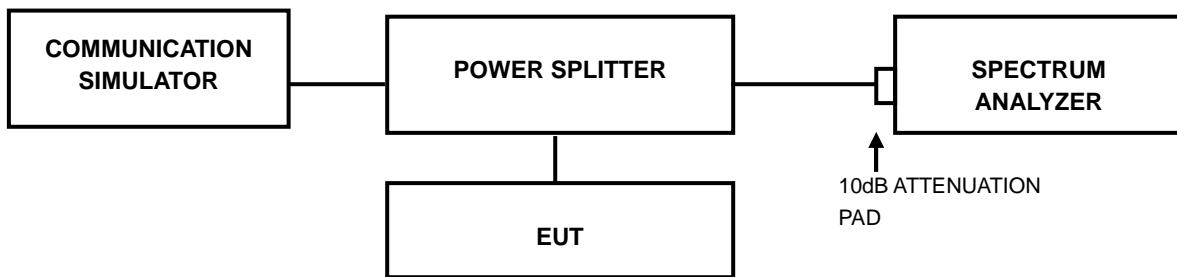


4.7 PEAK TO AVERAGE RATIO

4.7.1 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

4.7.2 TEST SETUP



4.7.3 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%.



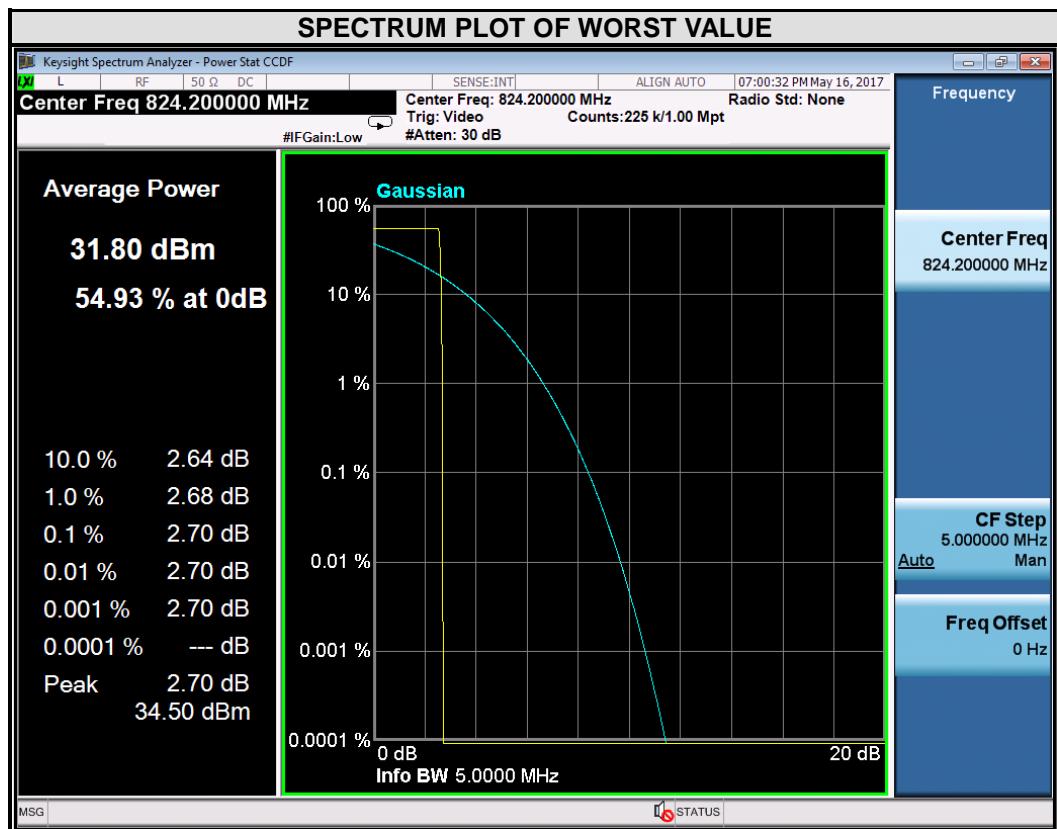
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Test Report No.: RF170428W003-3

4.7.4 TEST RESULTS

GSM

CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
128	824.2	2.70

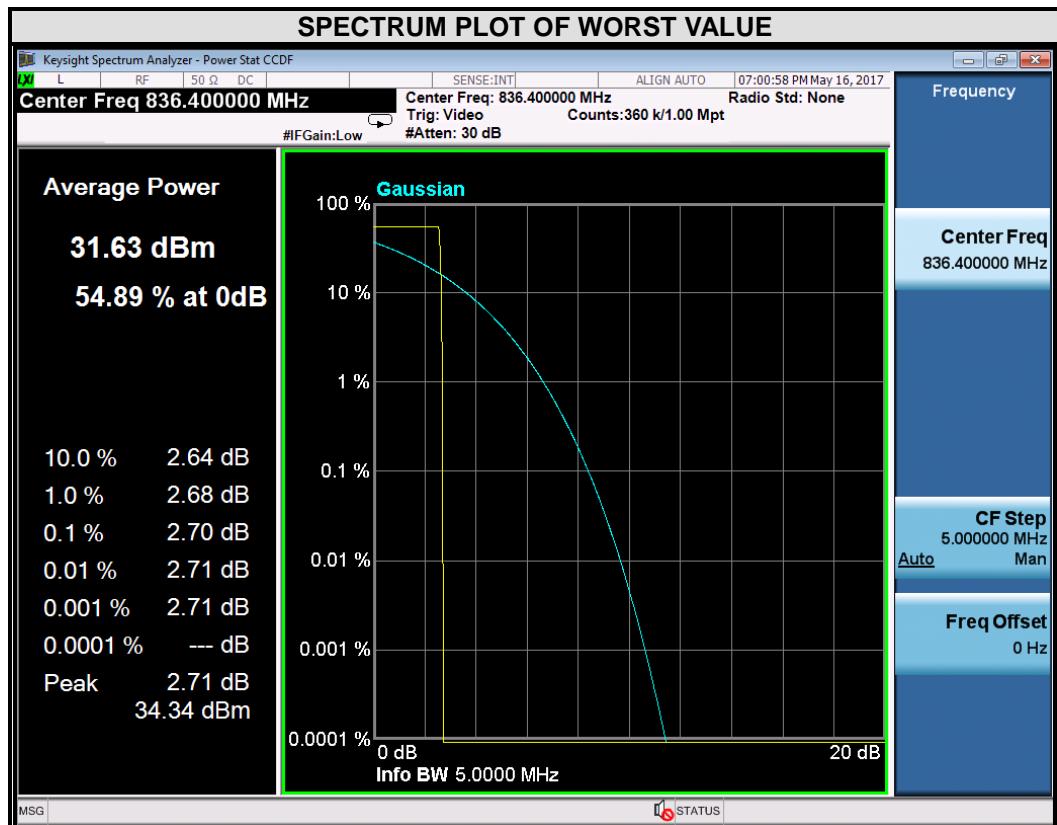




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CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
189	836.4	2.70



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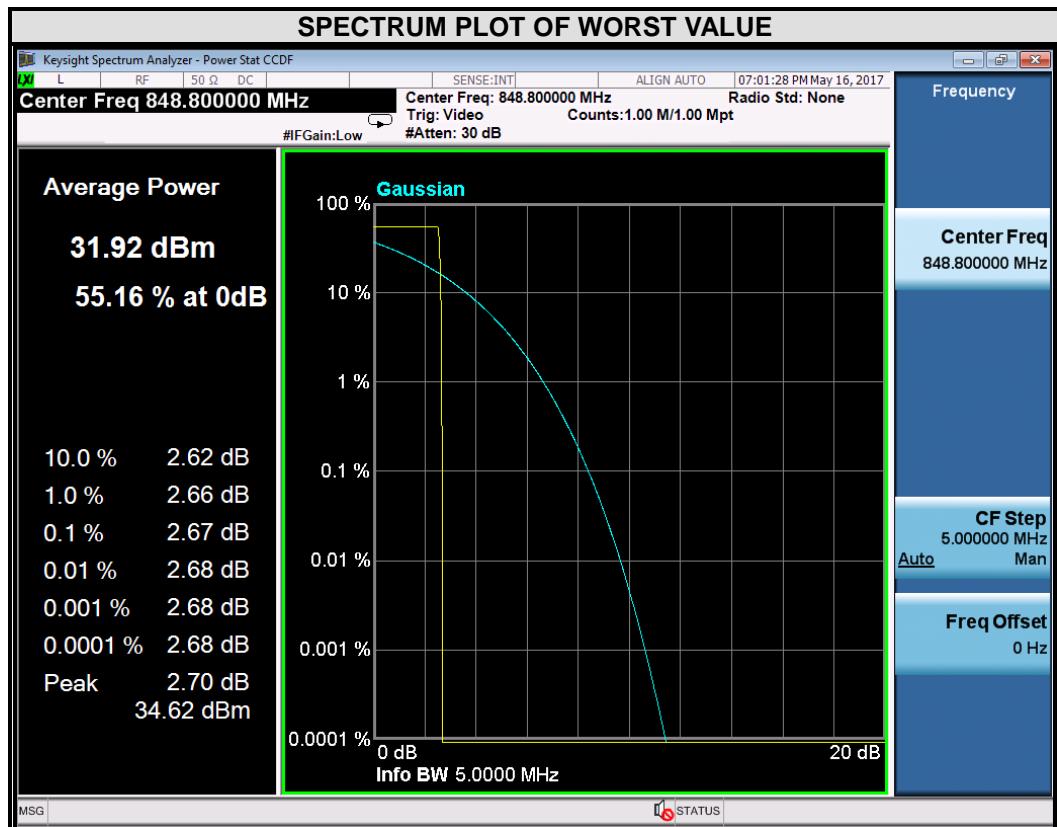
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CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
251	848.8	2.67



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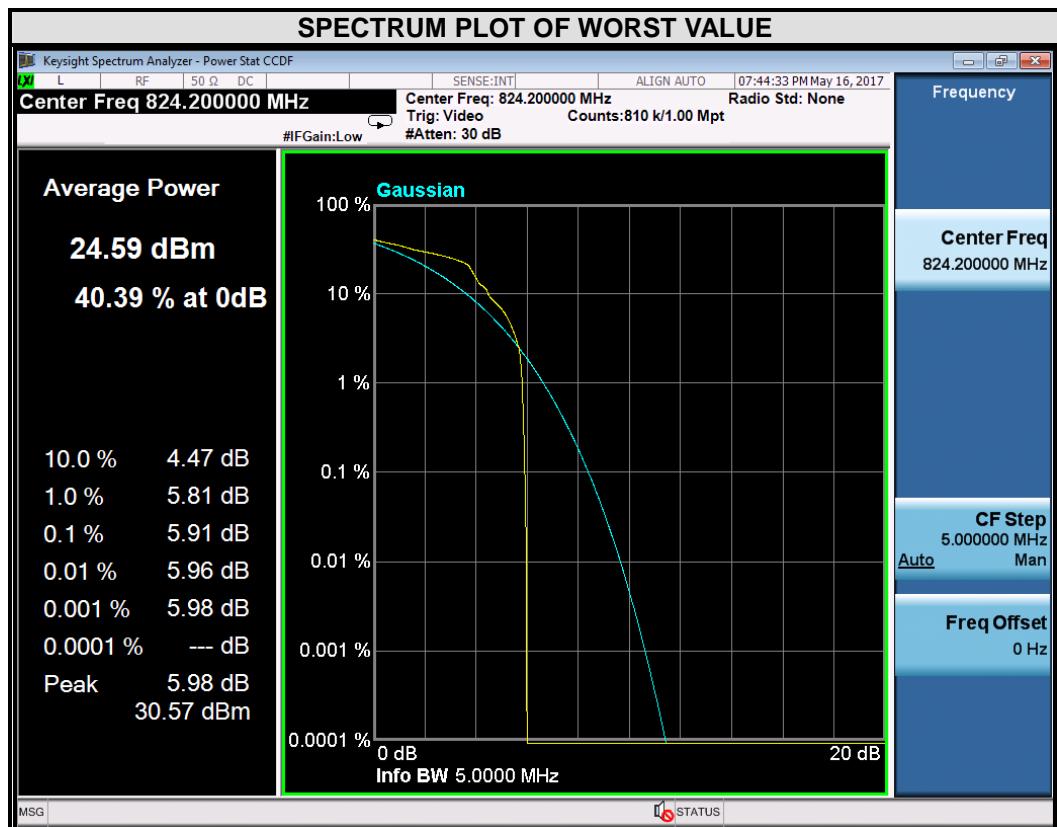


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EDGE

CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
128	824.2	5.91



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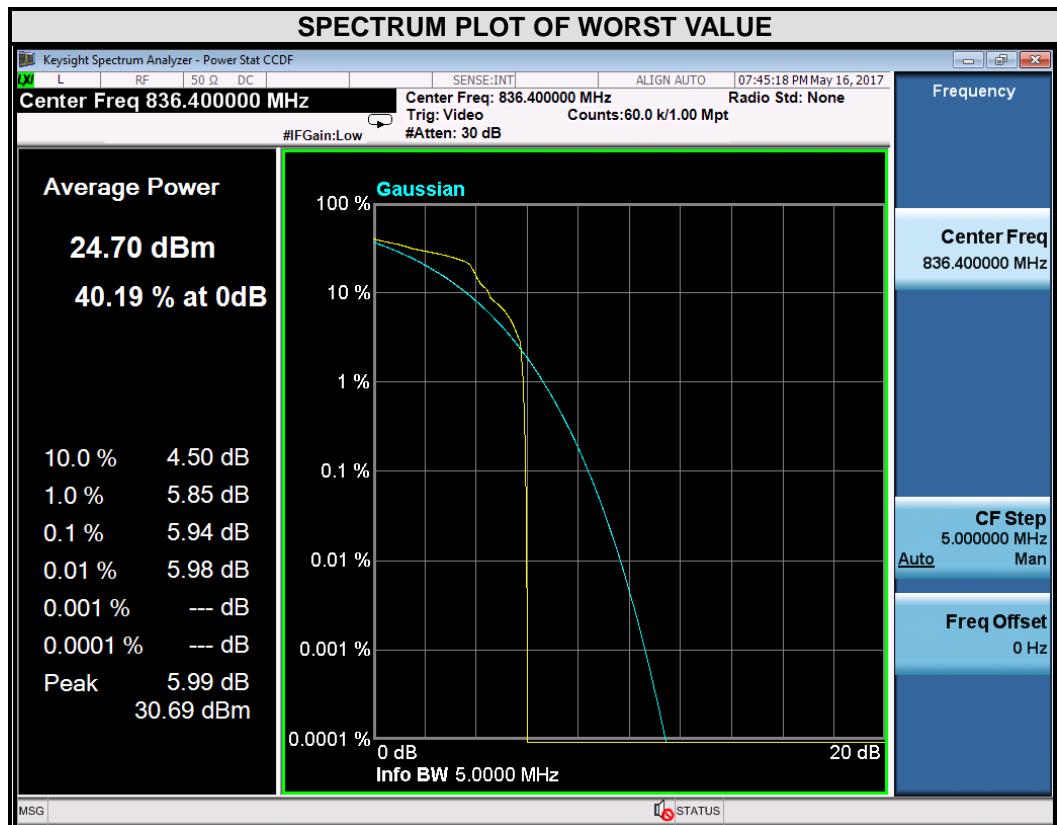
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CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
189	836.4	5.94



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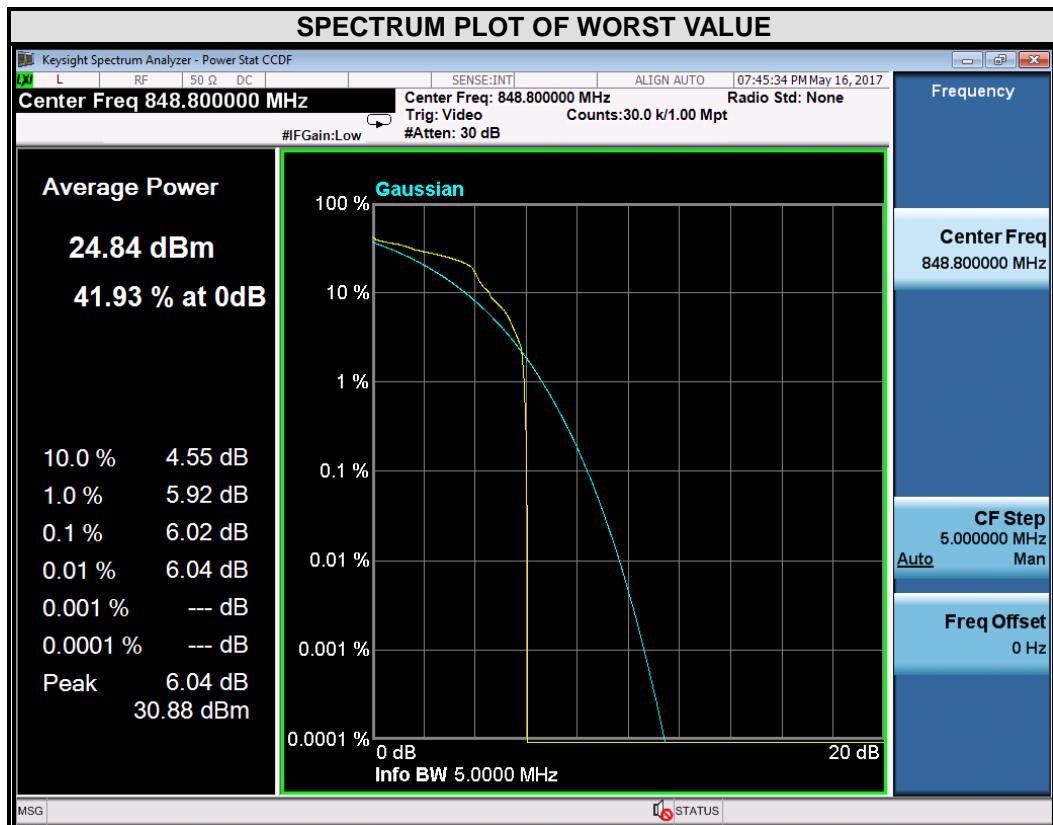
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CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
251	6.02	2.70



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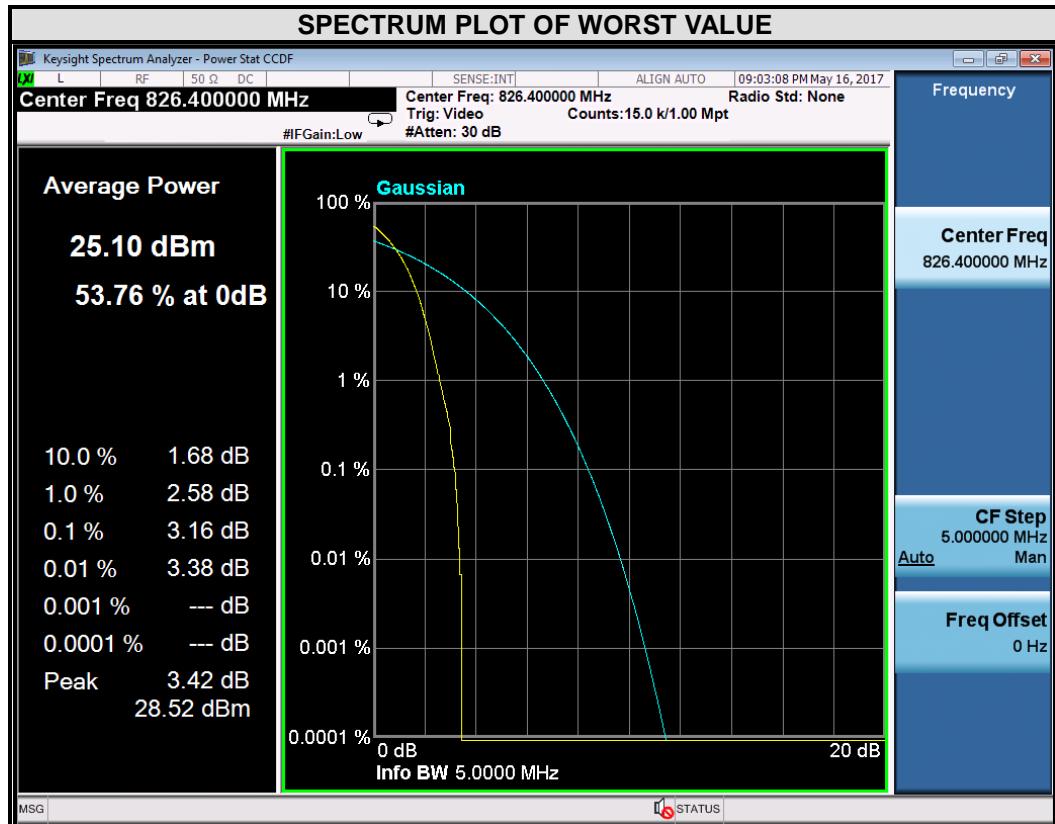


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WCDMA

CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
4132	826.4	3.16



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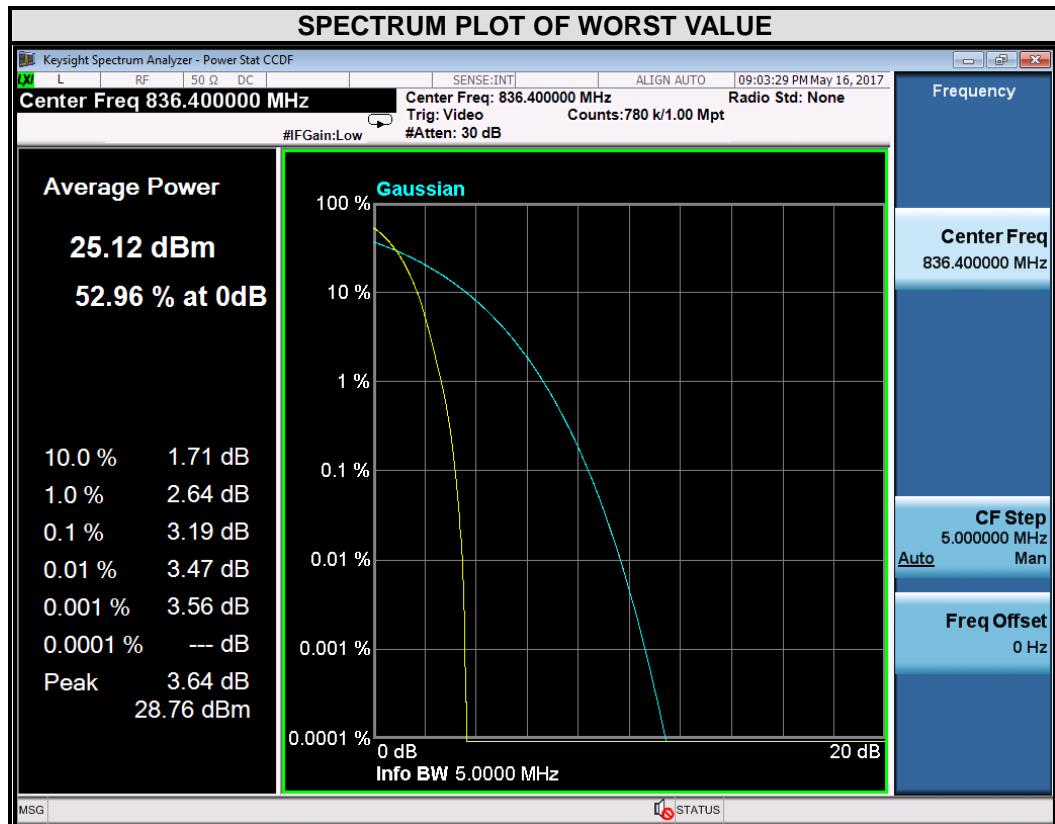
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CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
4182	836.4	3.19



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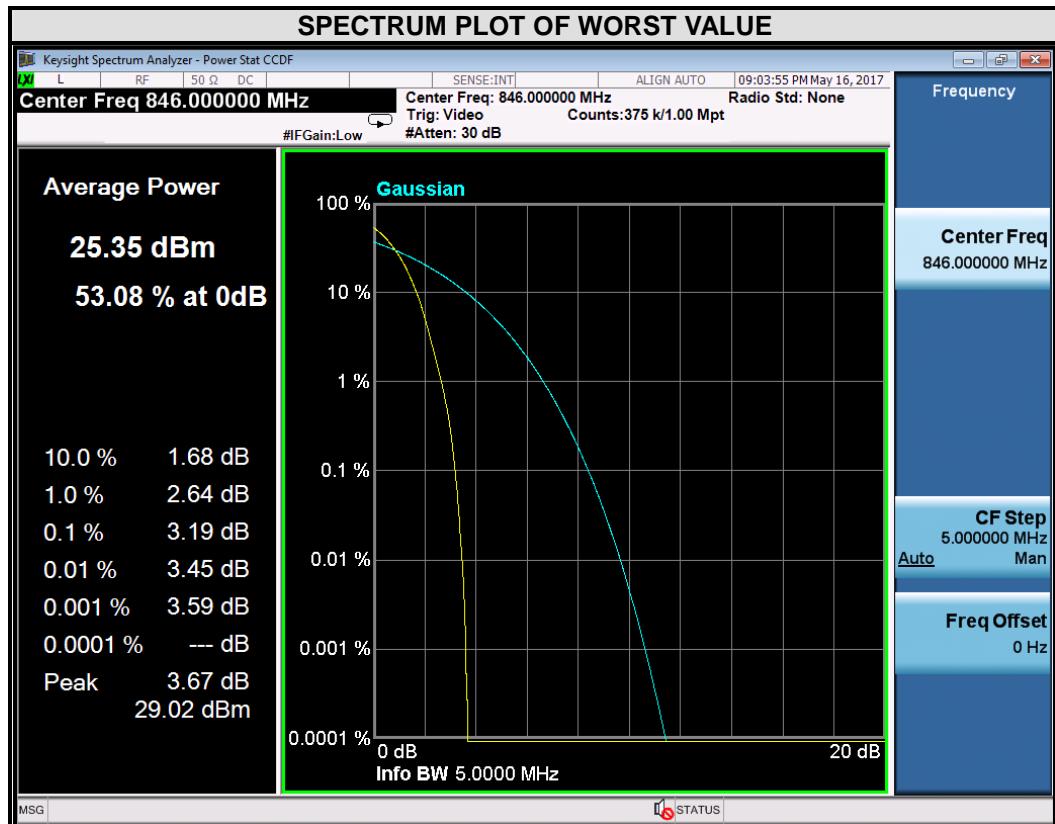
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CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
4233	846.6	3.19



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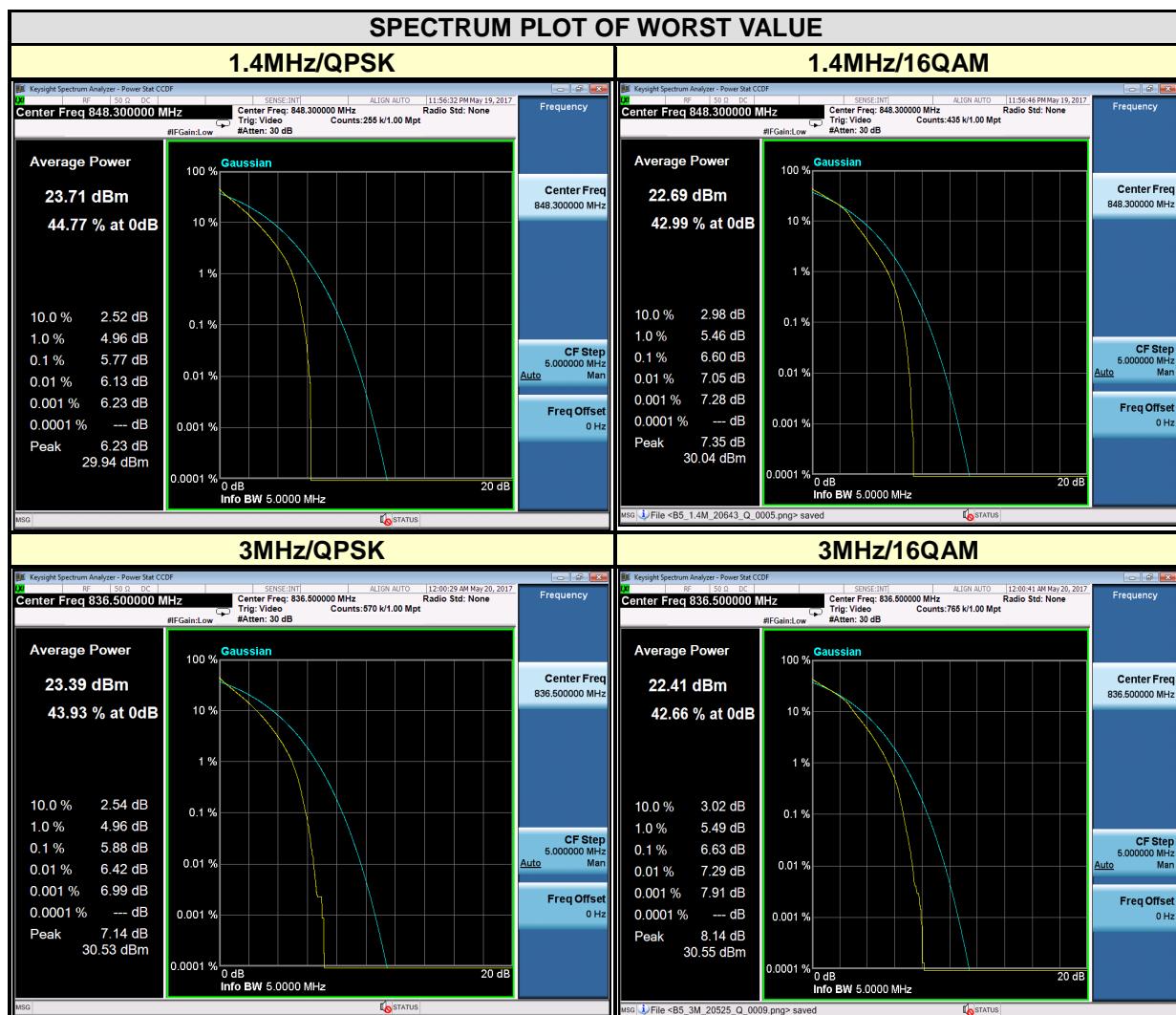


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LTE BAND 5

CHANNEL BANDWIDTH: 1.4MHz			CHANNEL BANDWIDTH: 3MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK			QPSK	
20407	824.7	5.61	20415	825.5	5.79	6.57
20525	836.5	5.69	20525	836.5	5.88	6.63
20643	848.3	5.77	20635	847.5	5.86	6.64



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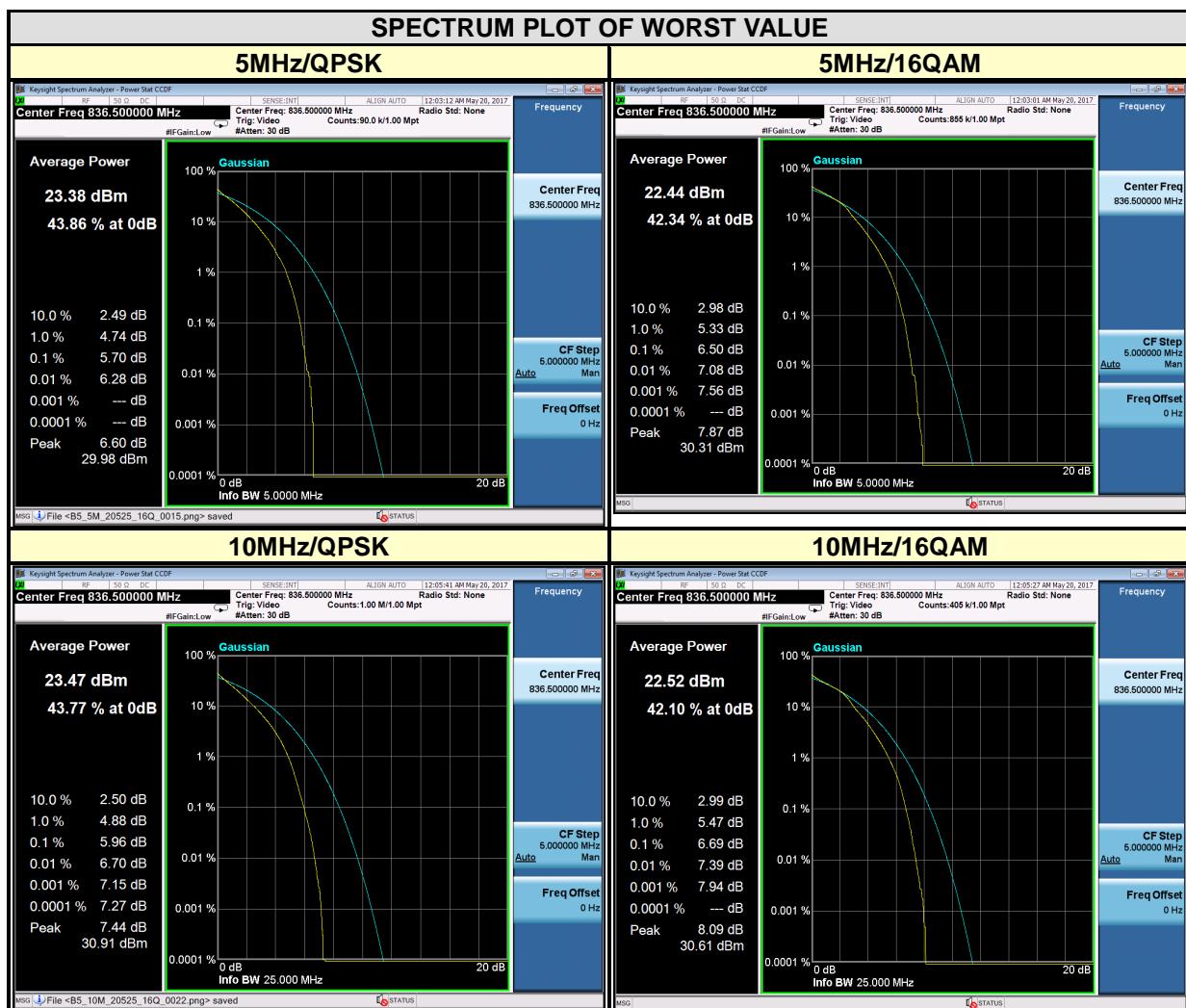
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CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
20425	826.5	5.70	6.50	20450	829	5.80	6.58
20525	836.5	5.66	6.49	20525	836.5	5.96	6.69
20625	846.5	5.67	6.47	20600	844	5.93	6.68



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5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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6 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch, were founded in 2002 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:

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Email: customerservice.dg@cn.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.

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7 APPENDIX A – 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.

---END---