



Test Report No.: RF181011N013-7

FCC TEST REPORT

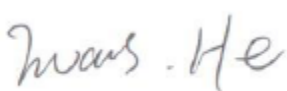
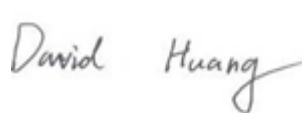
(PART 90S)

Applicant:	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address:	Building B, Boton Science Park, Chaguang Road, Xili Town, Nanshan District, Shenzhen
Manufacturer or Supplier:	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address:	Building B, Boton Science Park, Chaguang Road, Xili Town, Nanshan District, Shenzhen
Product:	Feature phone
Brand Name:	coolpad
Model Name:	Coolpad 3312A
FCC ID:	R38YL3312A
Date of tests:	Oct. 12, 2018 ~ Nov. 30, 2018

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

- ☒ **FCC Part 90 Subpart S** ☒ **ANSI/TIA-603-C-2004**
☒ **FCC Part 2**

This report should not be used by the client to claim product certification, approval, or endorsement by A2LA or any government agencies

Prepared by Evans He Engineer / Mobile Department	Approved by David Huang Manager / Mobile Department
	
Date: Nov. 30, 2018	Date: Nov. 30, 2018

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF181011N013-7	Original release	Nov. 30, 2018

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
2.1046 90.635(b)	Maximum Peak Output Power Limit	PASS	Meet the requirement of limit.
2.1055 90.213	Frequency Stability	PASS	Meet the requirement of limit.
2.1049 90.209	Occupied Bandwidth	PASS	Meet the requirement of limit.
2.1051 90.691	Emission Mask	PASS	Meet the requirement of limit.
2.1051 90.691	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 90.691	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -17.95dB at 1641MHz.

NOTE : Test Lab Information:

Lab: Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch

Test Lab Address: Zone A, Floor 1, Building 2 Wan Ye Long Technology Park
South Side of Zhoushi Road, Bao'an District Shenzhen, Guangdong, 518108, People's
Republic of China

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	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	3.11dB
Radiated emissions	9KHz ~ 30MHz	3.11dB
	30MHz ~ 1GMHz	5.12dB
	1GHz ~ 18GHz	5.34dB
	18GHz ~ 40GHz	5.02dB

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

Instrument	Model	Serial #	Cal Date	Cal Due
EMI test receiver	ESL6	100262	Jan. 05, 18	Jan. 04, 19
Active Antenna	AL-130	121031	Feb. 08, 18	Feb. 07, 19
3m Semi-anechoic Chamber	9m*6m*6m	N/A	Oct. 18, 18	Oct. 17, 19
Signal Amplifier	8447E	443008	Jan. 25, 18	Jan. 24, 19
MXA signal analyzer	N9020A	MY49100060	Jan. 05, 18	Jan. 04, 19
Horn Antenna	HAH-118	71259	Jan. 26, 18	Jan. 25, 19
Horn Antenna	HAH-118	71283	Feb. 02, 18	Feb. 01, 19
AMPLIFIER	EM01G26G	60613	Feb. 25, 18	Feb. 24, 19
AMPLIFIER	Emc012645	980077	Jan. 05, 18	Jan. 04, 19
Bilog Antenna (30MHz~6GHz)	JB6	A110712	Feb. 08, 18	Feb. 07, 19
DC Power Supply	E3640A	MY40004013	Jan. 05, 18	Jan. 04, 19
MXA Signal Analyzer	N9020A	MY49100060	Jan. 05, 18	Jan. 04, 19
MXG Vector Signal Generator	N5182A	MY50140530	Jan. 05, 18	Jan. 04, 19
Series Signal Generator	E4421B	US40051152	May. 12, 18	May. 11, 19
RF control unit	JS0806-0806-2	188060112	Apr. 25, 18	Apr. 24, 19
Wireless Connectivity Tester	CMW270	1201.0002K75-1016 01-PE	Apr. 25, 18	Apr. 24, 19
Universal Radio Communication Tester	CMU200	121393	Jan. 05, 18	Jan. 04, 19
Programmable Temperature & Humidity Chamber	HYL-TH-225DH	DG-180746	Jul. 15, 18	Jul. 14, 19
Test Software	EZ-EMC	ver.lcp-03A1	N/A	N/A

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

2. The test was performed in 966 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 535293.



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2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Feature phone	
MODEL NO.	Coolpad 3312A	
POWER SUPPLY	5.0Vdc (adapter or host equipment) 3.7Vdc (Li-ion, ion battery)	
MODULATION TECHNOLOGY	LTE Band 26	QPSK, 16QAM
	CDMA	GMSK
FREQUENCY RANGE	CDMA BC10	817.9MHz ~ 823.10MHz
	LTE Band 26 (Channel Bandwidth: 1.4MHz)	814.7MHz ~ 848.3MHz
	LTE Band 26 (Channel Bandwidth: 3MHz)	815.5MHz ~ 847.5MHz
	LTE Band 26 (Channel Bandwidth: 5MHz)	816.5MHz ~ 846.5MHz
	LTE Band 26 (Channel Bandwidth: 10MHz)	820MHz~ 844MHz
	LTE Band 26 (Channel Bandwidth: 15MHz)	822.5MHz~ 841.5MHz
EMISSION DESIGNATOR	CDMA BC10	1M28F9W
	LTE Band 26 (Channel Bandwidth: 1.4MHz)	QPSK: 1M09G7D
		16QAM: 1M09W7D
	LTE Band 26 (Channel Bandwidth: 3MHz)	QPSK: 2M69G7D
		16QAM: 2M68W7D
	LTE Band 26 (Channel Bandwidth: 5MHz)	QPSK: 4M48G7D
		16QAM: 4M48W7D
	LTE Band 26 (Channel Bandwidth: 10MHz)	QPSK: 8M95G7D
		16QAM: 8M96W7D
MAX. ERP POWER	CDMA BC10	216.77mW
	LTE Band 26 (Channel Bandwidth: 1.4MHz)	165.96mW
	LTE Band 26 (Channel Bandwidth: 3MHz)	153.46mW
	LTE Band 26 (Channel Bandwidth: 5MHz)	158.12mW



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	LTE Band 26 (Channel Bandwidth: 10MHz)	163.68mW
	LTE Band 26 (Channel Bandwidth: 15MHz)	142.23mW
ANTENNA TYPE	FPC Antenna with 1.3dBi for LTE Band26 FPC Antenna with 3.8dBi for CDMA BC 10	
DATA CABLE	USB cable: non-shielded, detachable, 1.0m Earphone cable: non-shielded, detachable, 1.2m	
HW VERSION	P1	
SW VERSION	3312A.SPRINT.181214.0D	
I/O PORTS	Refer to user's manual	
ACCESSORY DEVICES	Refer to NOTE as below	

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:	N/A
MODEL:	RD0501000-USBA-18MG
INPUT:	AC 100-240V~50/60Hz, 0.25A MAX
OUTPUT:	DC 5V,1000mA

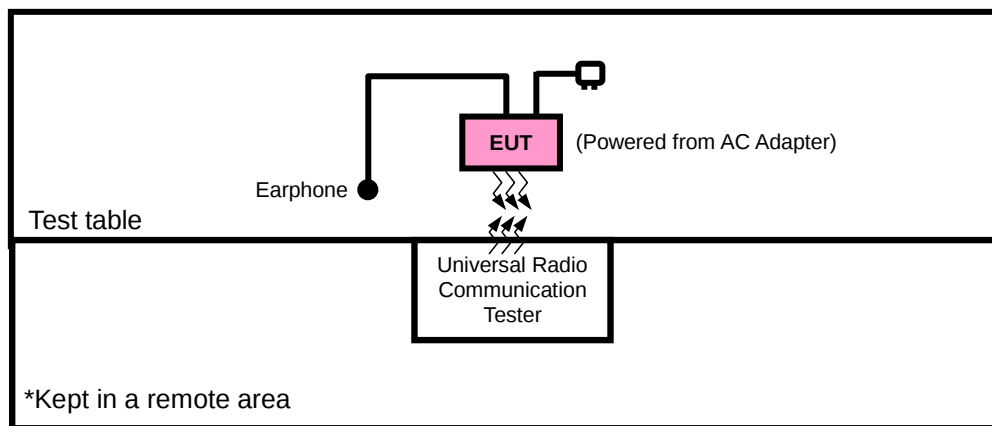
3. The EUT matched the following USB cable:

USB CABLE	
BRAND:	N/A
MODEL:	N/A
SIGNAL LINE:	1.0 METER

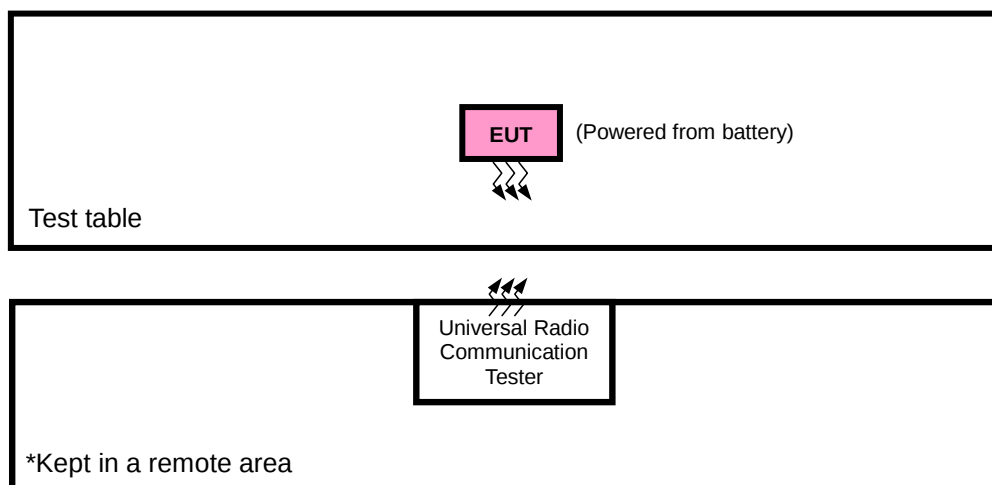
4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION TEST



FOR E.I.R.P 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	E40	LR-1EHRX	N/A
2					

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 2.0m
2	AC Line: Unshielded, Detachable 1.2m

NOTE: All power cords of the above support units are no shielded (1.8m).

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

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + Adapter + Earphone with LTE link
B	EUT + Battery + Earphone with LTE link

CDMA BC 10 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
B	OUTPUT POWER	476 to 684	476, 580, 684	CDMA BC 10
B	ERP	476 to 684	476, 580, 684	CDMA BC 10
B	PEAK TO AVERAGE RATIO	476 to 684	476, 580, 684	CDMA BC 10
B	FREQUENCY STABILITY	476 to 684	476, 684	CDMA BC 10
B	OCCUPIED BANDWIDTH	476 to 684	476, 580, 684	CDMA BC 10
B	BAND EDGE	476 to 684	476, 684	CDMA BC 10
B	CONDCUDED EMISSION	476 to 684	476, 580, 684	CDMA BC 10
A	RADIATED EMISSION	476 to 684	476, 580, 684	CDMA BC 10

LTE BAND 26 MODE

EUT CONFIGURE MODE	TEST ITEM	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
-	OUTPUT POWER	26697, 26865, 27033	1.4 MHz	QPSK, 16QAM	1RB /50%/100%RB
		26705, 26865, 27025	3 MHz	QPSK, 16QAM	1RB /50%/100%RB
		26715, 26865, 27015	5 MHz	QPSK, 16QAM	1RB /50%/100%RB
		26750, 26865, 26990	10 MHz	QPSK, 16QAM	1RB /50%/100%RB
		26775, 26865, 26965	15MHz	QPSK, 16QAM	1RB /50%/100%RB
	E.R.P.	26697, 26865, 27033	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26705, 26865, 27025	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26715, 26865, 27015	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26750, 26865, 26990	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26775, 26865, 26965	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	FREQUENCY STABILITY	26865	1.4 MHz	QPSK, 16QAM	100%RB
		26865	3 MHz	QPSK, 16QAM	100%RB
		26865	5 MHz	QPSK, 16QAM	100%RB
		26865	10 MHz	QPSK, 16QAM	100%RB
		26865	15 MHz	QPSK, 16QAM	100%RB
-	OCCUPIED BANDWIDTH	26697, 26865, 27033	1.4 MHz	QPSK, 16QAM	100%RB
		26705, 26865, 27025	3 MHz	QPSK, 16QAM	100%RB
		26715, 26865, 27015	5 MHz	QPSK, 16QAM	100%RB
		26750, 26865, 26990	10 MHz	QPSK, 16QAM	100%RB
		26775, 26865, 26965	15 MHz	QPSK, 16QAM	100%RB
	PEAK TO AVERAGE RATIO	26697, 26865, 27033	1.4 MHz	QPSK, 16QAM	100%RB
		26705, 26865, 27025	3 MHz	QPSK, 16QAM	100%RB
		26715, 26865, 27015	5 MHz	QPSK, 16QAM	100%RB
		26750, 26865, 26990	10 MHz	QPSK, 16QAM	100%RB



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		26775, 26865, 26965	15 MHz	QPSK, 16QAM	100%RB
-	MASK	26697, 26865, 27033	1.4 MHz	QPSK, 16QAM	1RB /100%RB
		26705, 26865, 27025	3 MHz	QPSK, 16QAM	1RB /100%RB
		26715, 26865, 27015	5 MHz	QPSK, 16QAM	1RB /100%RB
		26750, 26865, 26990	10 MHz	QPSK, 16QAM	1RB /100%RB
		26775, 26865, 26965	15 MHz	QPSK, 16QAM	1RB /100%RB
-	CONDCUDED EMISSION	26697, 26865, 27033	1.4 MHz	QPSK	1 RB / 0 RB Offset
		26705, 26865, 27025	3 MHz	QPSK	1 RB / 0 RB Offset
		26715, 26865, 27015	5 MHz	QPSK	1 RB / 0 RB Offset
		26750, 26865, 26990	10 MHz	QPSK	1 RB / 0 RB Offset
		26775, 26865, 26965	15 MHz	QPSK	1 RB / 0 RB Offset
-	RADIATED EMISSION	26697, 26865, 27033	1.4 MHz	QPSK	1 RB / 0 RB Offset
		26705, 26865, 27025	3 MHz	QPSK	1 RB / 0 RB Offset
		26715, 26865, 27015	5 MHz	QPSK	1 RB / 0 RB Offset
		26750, 26865, 26990	10 MHz	QPSK	1 RB / 0 RB Offset
		26775, 26865, 26965	15 MHz	QPSK	1 RB / 0 RB Offset

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

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
EIRP	24deg. C, 60%RH	3.7Vdc from Battery	Evans He
FREQUENCY STABILITY	22deg. C, 60%RH	DC 3.4V/3.7V/4.2V	Aaron Liang
OCCUPIED BANDWIDTH	24deg. C, 61%RH	3.7Vdc from Battery	Aaron Liang
PEAK TO AVERAGE RATIO	23deg. C, 60%RH	3.7Vdc from Battery	Aaron Liang
BAND EDGE	24deg. C, 60%RH	3.7Vdc from Battery	Aaron Liang
CONDCUDED EMISSION	23deg. C, 60%RH	3.7Vdc from Battery	Evans He
RADIATED EMISSION	26deg. C, 61%RH	5Vdc from adapter	Evans He

2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC 47 CFR Part 2

FCC 47 CFR Part 90

ANSI/TIA-603-C-2004

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

3 TEST TYPES AND RESULTS

3.1 OUTPUT POWER MEASUREMENT

3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Per FCC Part 90.635(a)(b)

The maximum output power of the transmitter for mobile stations is 100 watts

3.1.2 TEST PROCEDURES

ERP MEASUREMENT:

- a. The EUT was set up for the maximum power with LTE link data modulation. The power was measured with Agilent Spectrum Analyzer. All measurements were done at low, middle and high. RWB and VBW is 5MHz for LTE
- b. E.I.R.P power 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 a. Record the power level of S.G
- d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn
- e. E.R.P = E.I.R.P- 2.15 dB

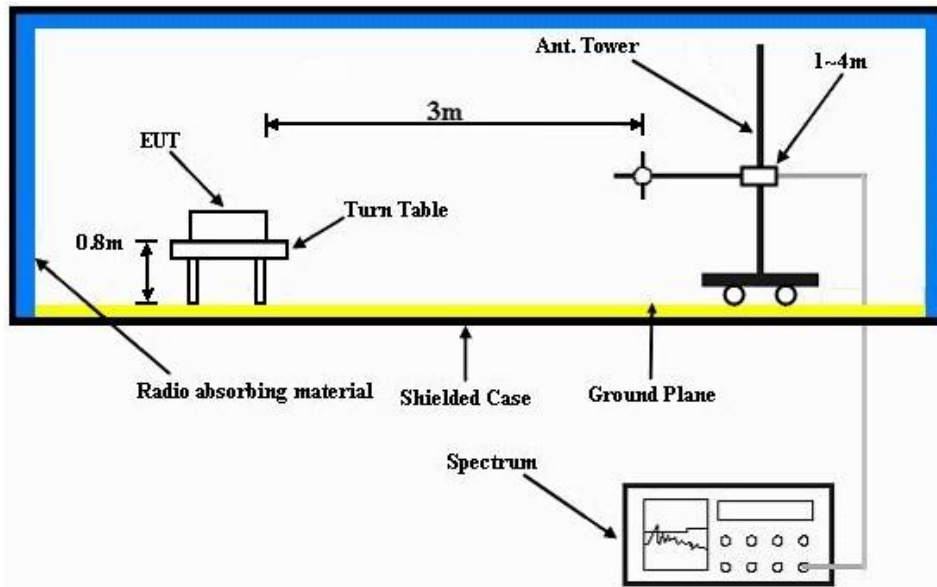
CONDUCTED POWER MEASUREMENT:

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



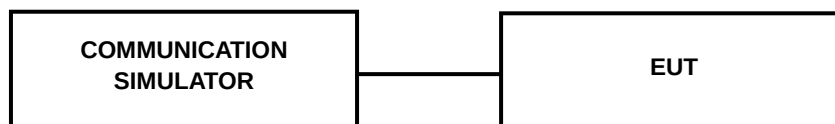
3.1.2 TEST SETUP

ERP MEASUREMENT:



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

CONDUCTED POWER MEASUREMENT:



3.1.3 EUT OPERATING CONDITIONS

- 1) Upload test waveform to signal generator and produce test signal to link up with EUT.
- 2) Execute test tool to control EUT transmit at specific modulation, RB size, frequency and output power level continuously.

Note: Test waveform and tool are provided by client.

3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

Band	CDMA2000 BC10		
Channel	476	580	684
Frequency (MHz)	817.9	820.5	823.1
RC1+SO55	23.04	23.06	22.88
RC3+SO55	23.12	22.99	22.86
RC3+SO32(FCH)	22.99	22.96	22.89
RC3+SO32(SCH)	22.99	22.94	22.85
RTAP 153.6	22.98	22.93	22.84
RETAP 4096	22.96	22.91	22.82
RC1+SO3	22.99	22.94	22.85
RC3+SO3	22.94	22.89	22.80

LTE Band 26							
Band / BW	Modulation	RB Size	RB Offset	Low CHG 26697	Mid CH 26865	High CH 27033	3GPP MPR (dB)
				Frequency 814.7 MHz	Frequency 831.5 MHz	Frequency 848.3 MHz	
26/1.4	QPSK	1	0	22.84	22.92	22.80	0
		1	2	23.07	23.15	23.03	0
		1	5	23.04	23.12	23.00	0
		3	0	22.82	22.90	22.78	0
		3	1	23.05	23.13	23.01	0
		3	3	23.02	23.10	22.98	0
		6	0	22.00	22.08	21.96	1
	16QAM	1	0	22.07	22.15	22.03	1
		1	2	21.82	21.90	21.78	1
		1	5	21.55	21.63	21.51	1
		3	0	22.06	22.14	22.02	1
		3	1	21.81	21.89	21.77	1
		3	3	21.54	21.62	21.50	1
		6	0	21.12	21.20	21.08	2



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Band / BW	Modulation	RB Size	RB Offset	Low CHG 26705	Mid CH 26865	High CH 27025	3GPP MPR (dB)
				Frequency 815.5 MHz	Frequency 831.5 MHz	Frequency 847.5 MHz	
26/3	QPSK	1	0	22.88	22.96	22.84	0
		1	7	23.11	23.19	23.07	0
		1	14	23.08	23.16	23.04	0
		8	0	22.06	22.14	22.02	1
		8	3	22.12	22.20	22.08	1
		8	7	21.97	22.05	21.93	1
		15	0	22.04	22.12	22.00	1
	16QAM	1	0	22.11	22.19	22.07	1
		1	7	21.86	21.94	21.82	1
		1	14	21.59	21.67	21.55	1
		8	0	21.04	21.12	21.00	2
		8	3	21.17	21.25	21.13	2
		8	7	21.11	21.19	21.07	2
		15	0	21.16	21.24	21.12	2

Band / BW	Modulation	RB Size	RB Offset	Low CHG 26715	Mid CH 26865	High CH 27015	3GPP MPR (dB)
				Frequency 816.5 MHz	Frequency 831.5 MHz	Frequency 846.5 MHz	
26/5	QPSK	1	0	22.91	22.99	22.87	0
		1	12	23.14	23.22	23.10	0
		1	24	23.11	23.19	23.07	0
		12	0	22.09	22.17	22.05	1
		12	6	22.15	22.23	22.11	1
		12	13	22.00	22.08	21.96	1
		25	0	22.07	22.15	22.03	1
	16QAM	1	0	22.14	22.22	22.10	1
		1	12	21.89	21.97	21.85	1
		1	24	21.62	21.70	21.58	1
		12	0	21.07	21.15	21.03	2
		12	6	21.20	21.28	21.16	2
		12	13	21.14	21.22	21.10	2
		25	0	21.19	21.27	21.15	2



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Band / BW	Modulation	RB Size	RB Offset	Low CHG 26750	Mid CH 26865	High CH 26990	3GPP MPR (dB)
				Frequency 820 MHz	Frequency 831.5 MHz	Frequency 844 MHz	
26/10	QPSK	1	0	22.94	23.02	22.90	0
		1	24	23.17	23.25	23.13	0
		1	49	23.14	23.22	23.10	0
		25	0	22.12	22.20	22.08	1
		25	12	22.18	22.26	22.14	1
		25	25	22.03	22.11	21.99	1
		50	0	22.10	22.18	22.06	1
	16QAM	1	0	22.17	22.25	22.13	1
		1	24	21.92	22.00	21.88	1
		1	49	21.65	21.73	21.61	1
		25	0	21.10	21.18	21.06	2
		25	12	21.23	21.31	21.19	2
		25	25	21.17	21.25	21.13	2
		50	0	21.22	21.30	21.18	2

Band / BW	Modulation	RB Size	RB Offset	Low CHG 26775	Mid CH 26865	High CH 26965	3GPP MPR (dB)
				Frequency 822.5 MHz	Frequency 831.5 MHz	Frequency 841.5 MHz	
26/15	QPSK	1	0	22.97	23.05	22.93	0
		1	37	23.20	23.28	23.16	0
		1	74	23.17	23.25	23.13	0
		36	0	22.15	22.23	22.11	1
		36	19	22.21	22.29	22.17	1
		36	39	22.06	22.14	22.02	1
		75	0	22.13	22.21	22.09	1
	16QAM	1	0	22.20	22.28	22.16	1
		1	37	21.95	22.03	21.91	1
		1	74	21.68	21.76	21.64	1
		36	0	21.13	21.21	21.09	2
		36	19	21.26	21.34	21.22	2
		36	39	21.20	21.28	21.16	2
		75	0	21.25	21.33	21.21	2



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VERITAS**

Test Report No.: RF181011N013-7

ERP POWER (dBm)

CDMA2000 BC10

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
476	817.9	-12.42	35.26	20.69	117.22	H
580	820.5	-11.48	34.43	20.8	120.23	H
684	823.1	-12.11	35.78	21.52	141.91	H
476	817.9	-9.63	34.95	23.17	207.49	V
580	820.5	-10.67	35.79	22.97	198.15	V
684	823.1	-10.35	35.86	23.36	216.77	V

REMARKS: 1. EIRP Output Power (dBm) = SPA LVL (dBm) + Correction Factor (dB).

2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss

LTE BAND 26

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
26697	814.7	-13.36	34.56	21.2	131.83	H	7
26865	831.5	-14.7	35.74	21.04	127.06	H	7
27033	848.3	-13.29	34.11	20.82	120.78	H	7
26697	814.7	-14.2	35.4	21.2	131.83	V	7
26865	831.5	-12.78	34.94	22.16	164.44	V	7
27033	848.3	-13	35.2	22.2	165.96	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)
26697	814.7	-13.5	34.56	21.06	127.64	H	7
26865	831.5	-14.54	35.74	21.2	131.83	H	7
27033	848.3	-13.24	34.11	20.87	122.18	H	7
26697	814.7	-13.78	35.4	21.62	145.21	V	7
26865	831.5	-12.83	34.94	22.11	162.55	V	7
27033	848.3	-13.31	35.2	21.89	154.53	V	7

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
26705	815.5	-13.61	34.5	20.89	122.74	H	7
26865	831.5	-13.69	34.81	21.12	129.42	H	7
27025	847.5	-13.02	34.03	21.01	126.18	H	7
26705	815.5	-14.23	35.73	21.5	141.25	V	7
26865	831.5	-13.41	34.83	21.42	138.68	V	7
27025	847.5	-14.17	35.36	21.19	131.52	V	7

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
26705	815.5	-13.28	34.5	21.22	132.43	H	7
26865	831.5	-13.71	34.81	21.1	128.82	H	7
27025	847.5	-13.19	34.03	20.84	121.34	H	7
26705	815.5	-13.87	35.73	21.86	153.46	V	7
26865	831.5	-13.11	34.83	21.72	148.59	V	7
27025	847.5	-14.44	35.36	20.92	123.59	V	7

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
26715	816.5	-14.46	35.63	21.17	130.92	H	7
26865	831.5	-13.3	34.56	21.26	133.66	H	7
27015	846.5	-15.1	35.93	20.83	121.06	H	7
26715	816.5	-15.12	36.1	20.98	125.31	V	7
26865	831.5	-12.94	34.77	21.83	152.41	V	7
27015	846.5	-13.62	35.61	21.99	158.12	V	7

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
26715	816.5	-14.91	35.63	20.72	118.03	H	7
26865	831.5	-13.29	34.56	21.27	133.97	H	7
27015	846.5	-15.06	35.93	20.87	122.18	H	7
26715	816.5	-14.35	36.1	21.75	149.62	V	7
26865	831.5	-13.1	34.77	21.67	146.89	V	7
27015	846.5	-13.74	35.61	21.87	153.82	V	7

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
26750	820	-13.69	34.49	20.8	120.23	H	7
26865	831.5	-14.25	35	20.75	118.85	H	7
26990	844	-15	35.93	20.93	123.88	H	7
26750	820	-12.81	34.95	22.14	163.68	V	7
26865	831.5	-14.45	35.35	20.9	123.03	V	7
26990	844	-14.41	35.63	21.22	132.43	V	7

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
26750	820	-13.31	34.49	21.18	131.22	H	7
26865	831.5	-13.84	35	21.16	130.62	H	7
26990	844	-14.92	35.93	21.01	126.18	H	7
26750	820	-13.24	34.95	21.71	148.25	V	7
26865	831.5	-14.22	35.35	21.13	129.72	V	7
26990	844	-14.02	35.63	21.61	144.88	V	7

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
26775	822.5	-14.44	35.33	20.89	122.74	H	7
26865	831.5	-13.29	34.08	20.79	119.95	H	7
26965	841.5	-14.43	35.22	20.79	119.95	H	7
26775	822.5	-14.91	35.81	20.9	123.03	V	7
26865	831.5	-13.56	35.09	21.53	142.23	V	7
26965	841.5	-14.92	35.78	20.86	121.9	V	7

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)	LIMIT (W)
26775	822.5	-14.28	35.33	21.05	127.35	H	7
26865	831.5	-13.21	34.08	20.87	122.18	H	7
26965	841.5	-14.23	35.22	20.99	125.6	H	7
26775	822.5	-14.81	35.81	21	125.89	V	7
26865	831.5	-14.04	35.09	21.05	127.35	V	7
26965	841.5	-14.33	35.78	21.45	139.64	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

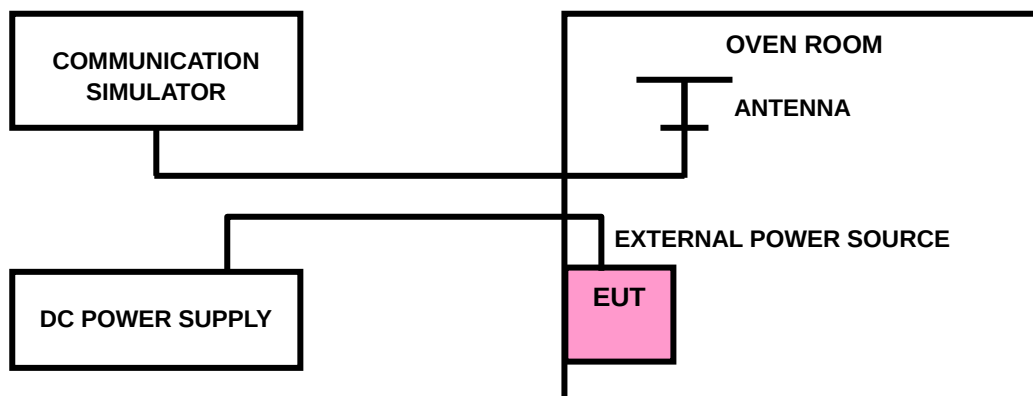
The frequency stability of mobile, portable and control transmitters operating in the wideband segment must be 1.25 parts per million or better when AFC is locked to a base station, and 5 parts per million or better when AFC is not locked.

4.2.2 TEST PROCEDURE

- a. The oven room could control the temperatures and humidity.
- b. Power must be removed when changing from one temperature to another or one voltage to another voltage. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- c. Laptop pc is connected the external power supply to control the DC input power. The various Volts from the minimum to maximum working voltage. Each step shall be record the frequency error rate.
- d. 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.
- e. 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



4.2.4 EUT OPERATING CONDITIONS

Same as 4.1.4.

4.2.5 TEST RESULTS

CDMA BC10

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	FREQUENCY ERROR (ppm)		LIMIT (ppm)
	Low Channel	High Channel	
3.8	0.0021	0.0025	2.5
3.4(BEP)	-0.0026	-0.0027	2.5
4.2	0.0018	0.0021	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.5Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	FREQUENCY ERROR (ppm)		LIMIT (ppm)
	Low Channel	High Channel	
-30	--0.0120	-0.0109	2.5
-20	-0.0106	-0.0096	2.5
-10	-0.0088	-0.0084	2.5
0	-0.0080	-0.0070	2.5
10	-0.0062	-0.0056	2.5
20	-0.0050	-0.0041	2.5
30	-0.0035	-0.0028	2.5
40	-0.0022	-0.0007	2.5
50	0.0008	0.0001	2.5

LTE BAND 26

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	1.4MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
3.8	0.0008	0.0010	2.5
3.4(BEP)	-0.0013	-0.0014	2.5
4.2	-0.0008	0.0009	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.4Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	1.4MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0060	-0.0055	2.5
-20	-0.0054	-0.0050	2.5
-10	-0.0048	-0.0043	2.5
0	-0.0039	-0.0036	2.5
10	-0.0035	-0.0031	2.5
20	-0.0026	-0.0024	2.5
30	-0.0016	-0.0014	2.5
40	-0.0009	-0.0008	2.5
50	-0.0002	-0.0002	2.5



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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	3MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
3.8	0.0008	0.0009	2.5
3.4(BEP)	-0.0009	-0.0011	2.5
4.2	0.0008	0.0008	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.4Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	3MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0060	-0.0055	2.5
-20	-0.0055	-0.0050	2.5
-10	-0.0045	-0.0041	2.5
0	-0.0039	-0.0036	2.5
10	-0.0029	-0.0025	2.5
20	-0.0024	-0.0019	2.5
30	-0.0019	-0.0018	2.5
40	-0.0011	-0.0011	2.5
50	-0.0003	-0.0003	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
3.8	0.0009	0.0010	2.5
3.4(BEP)	-0.0007	-0.0012	2.5
4.2	0.0009	0.0008	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.4Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0056	-0.0052	2.5
-20	-0.0049	-0.0046	2.5
-10	-0.0044	-0.0041	2.5
0	-0.0037	-0.0033	2.5
10	-0.0028	-0.0026	2.5
20	-0.0019	-0.0019	2.5
30	-0.0015	-0.0014	2.5
40	-0.0007	-0.0007	2.5
50	-0.0002	-0.0002	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
3.8	0.0009	0.0012	2.5
3.4(BEP)	-0.0011	-0.0013	2.5
4.2	0.0009	0.0009	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.4Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0056	-0.0053	2.5
-20	-0.0050	-0.0048	2.5
-10	-0.0043	-0.0041	2.5
0	-0.0033	-0.0030	2.5
10	-0.0026	-0.0024	2.5
20	-0.0021	-0.0019	2.5
30	-0.0014	-0.0012	2.5
40	-0.0008	-0.0007	2.5
50	-0.0001	-0.0001	2.5



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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
3.8	0.0010	0.0009	2.5
3.4(BEP)	-0.0012	-0.0012	2.5
4.2	0.0009	0.0010	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.4Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

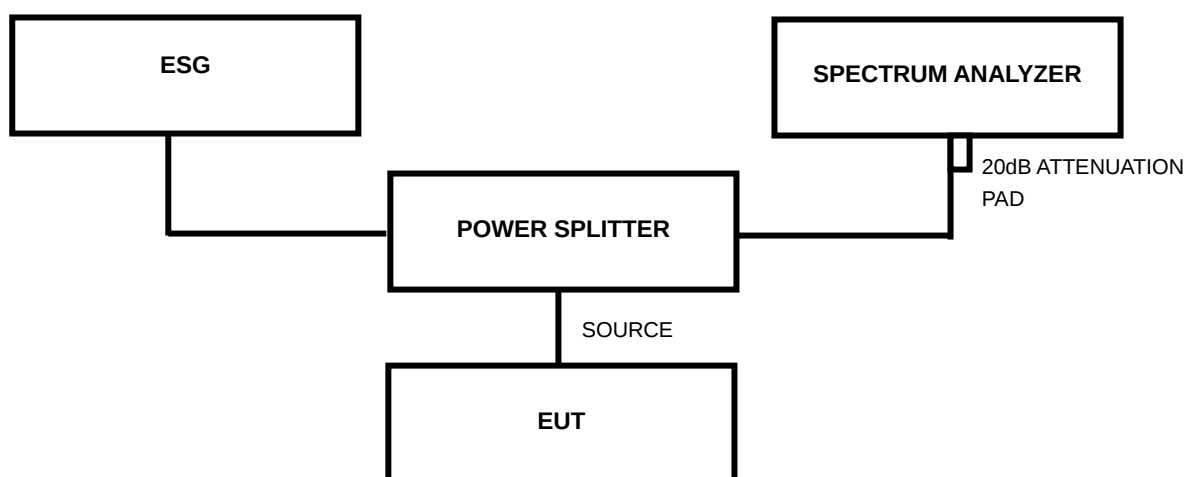
TEMP. (°C)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0056	-0.0053	2.5
-20	-0.0048	-0.0045	2.5
-10	-0.0042	-0.0039	2.5
0	-0.0032	-0.0031	2.5
10	-0.0026	-0.0024	2.5
20	-0.0019	-0.0018	2.5
30	-0.0013	-0.0012	2.5
40	-0.0009	-0.0008	2.5
50	-0.0002	-0.0003	2.5

4.3 OCCUPIED BANDWIDTH MEASUREMENT

4.3.1 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.

4.3.2 TEST SETUP



4.3.3 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.

4.3.4 EUT OPERATING CONDITIONS

Same as 4.1.4.



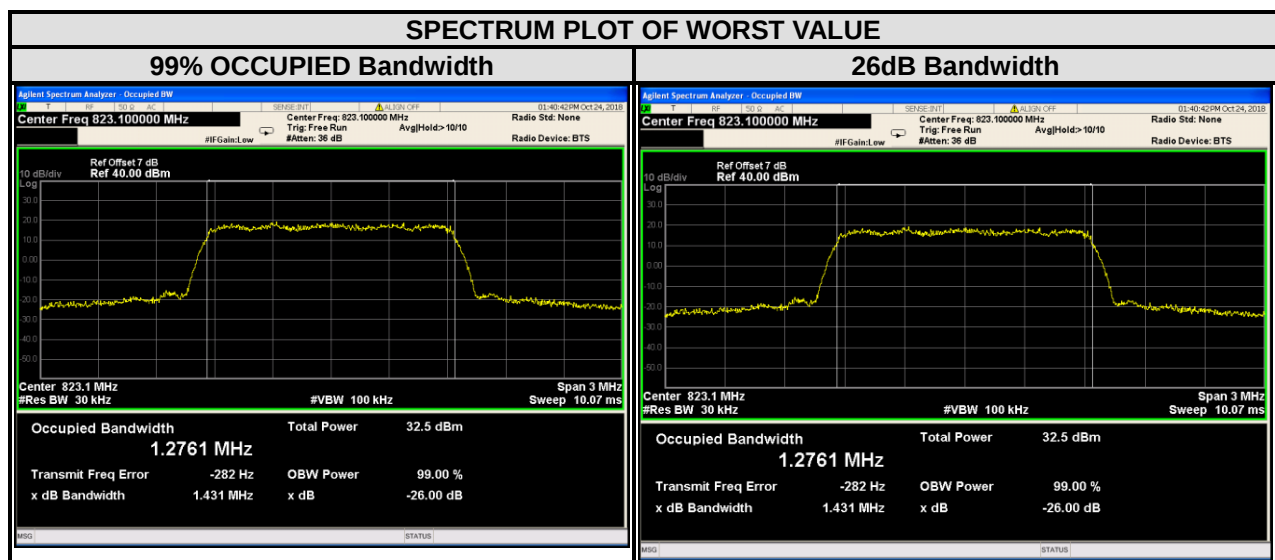
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4.3.5 TEST RESULTS

CDMA BC 10

CHANNEL	Frequency (MHz)	99% OCCUPIED Bandwidth (MHz)	CHANNEL	Frequency (MHz)	26dB Bandwidth (MHz)
476	817.9	1.2741	476	817.9	1.422
580	820.5	1.2740	580	820.5	1.422
684	823.1	1.2761	684	823.1	1.431

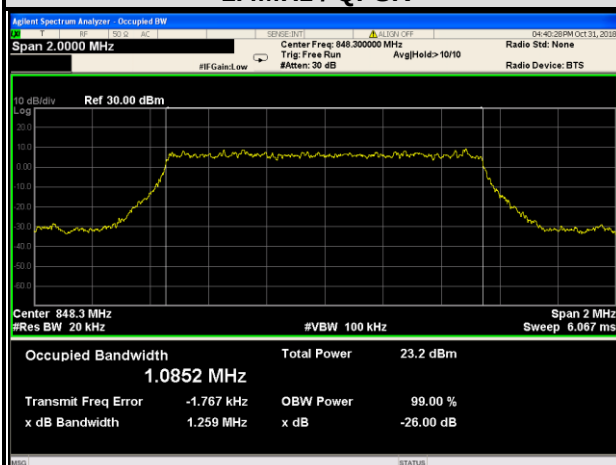


LTE BAND 26

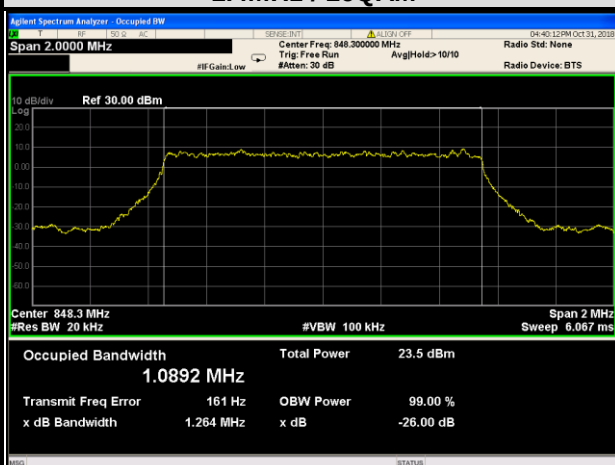
CHANNEL BANDWIDTH: 1.4MHz							
CHANNEL	Frequency (MHz)	99% OCCUPIED Bandwidth (kHz)		CHANNEL	Frequency (MHz)	26dB Bandwidth (kHz)	
		QPSK	16QAM			QPSK	16QAM
26697	814.7	1.0849	1.0852	26697	814.7	1.270	1.269
26865	831.5	1.0843	1.0842	26865	831.5	1.272	1.274
27033	848.3	1.0852	1.0892	27033	848.3	1.259	1.264

SPECTRUM PLOT OF WORST VALUE of 99% Occupied Bandwidth

1.4MHz / QPSK

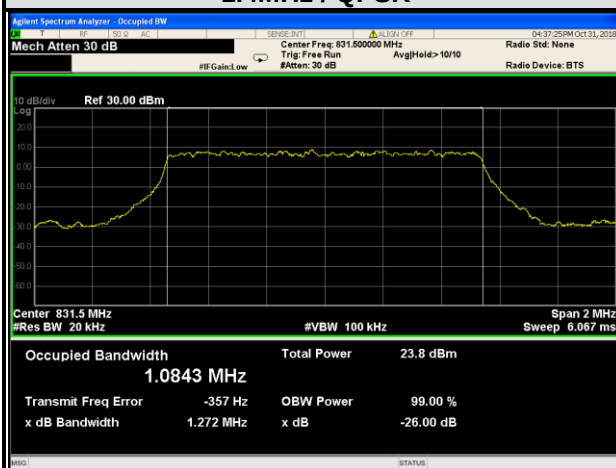


1.4MHz / 16QAM

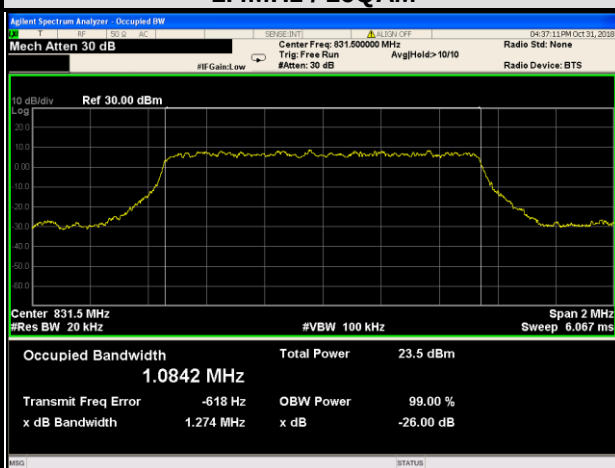


SPECTRUM PLOT OF WORST VALUE of 26dB Occupied Bandwidth

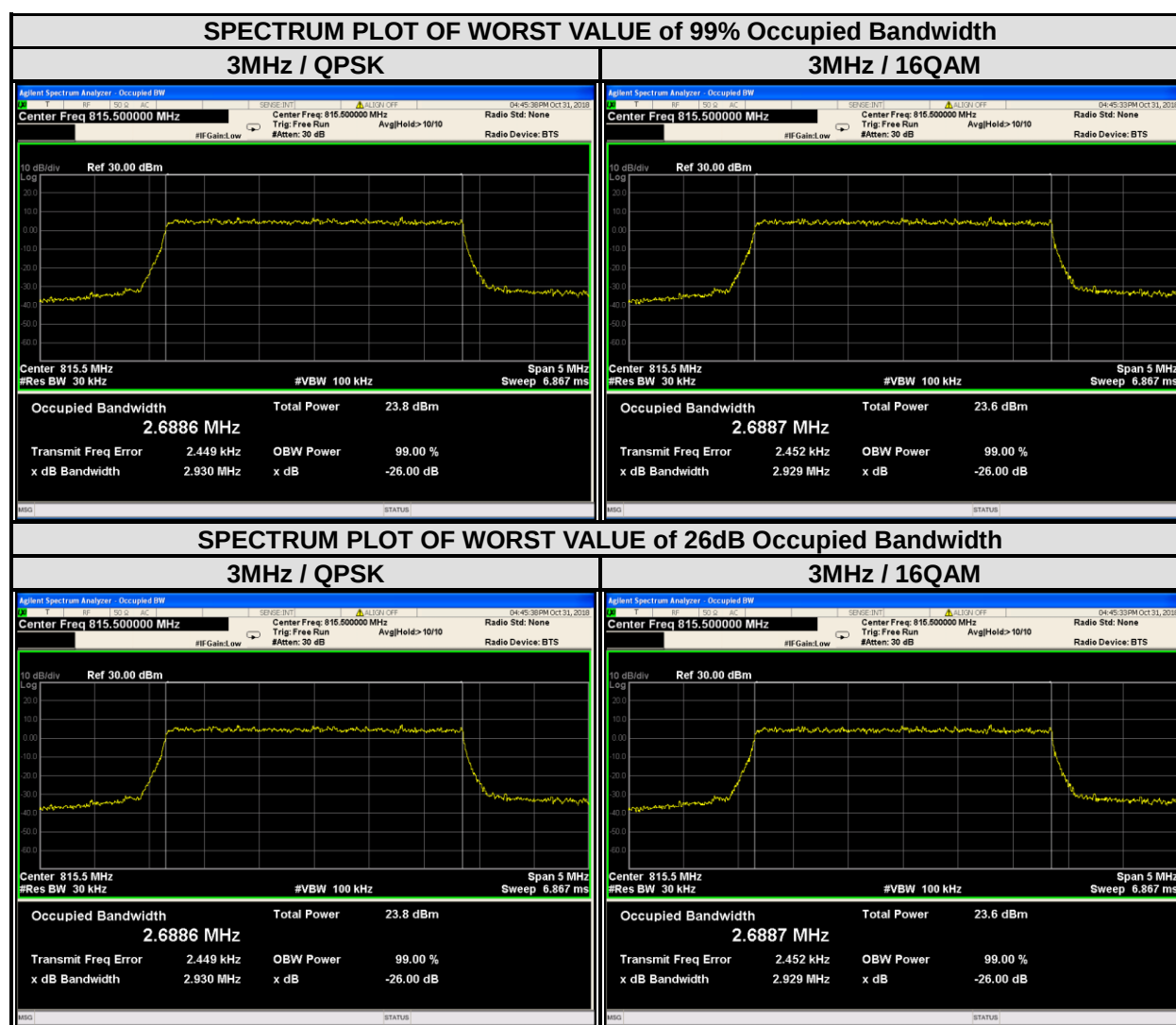
1.4MHz / QPSK



1.4MHz / 16QAM



CHANNEL BANDWIDTH: 3MHz							
CHANNEL	Frequency (MHz)	99% OCCUPIED Bandwidth (kHz)		CHANNEL	Frequency (MHz)	26dB Bandwidth (kHz)	
		QPSK	16QAM			QPSK	16QAM
26705	815.5	2.6886	2.6887	26705	815.5	2.930	2.929
26865	831.5	2.6827	2.6836	26865	831.5	2.915	2.913
27025	847.5	2.6841	2.6815	27025	847.5	2.929	2.928





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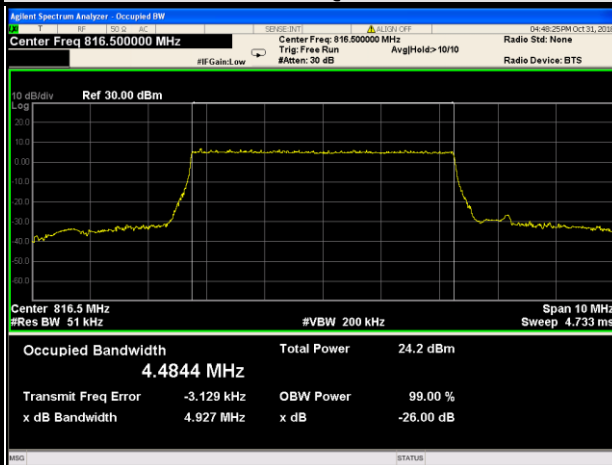
Test Report No.: RF181011N013-7

CHANNEL BANDWIDTH: 5MHz

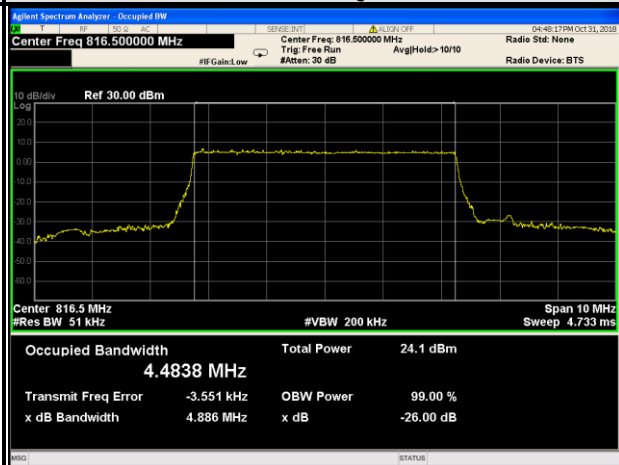
CHANNEL	Frequency (MHz)	99% OCCUPIED Bandwidth (kHz)		CHANNEL	Frequency (MHz)	26dB Bandwidth (kHz)	
		QPSK	16QAM			QPSK	16QAM
26715	816.5	4.4844	4.4838	26715	816.5	4.927	4.886
26865	831.5	4.4844	4.4794	26865	831.5	4.927	4.930
27015	846.5	4.4614	4.4617	27015	846.5	4.894	4.880

SPECTRUM PLOT OF WORST VALUE of 99% Occupied Bandwidth

5MHz / QPSK

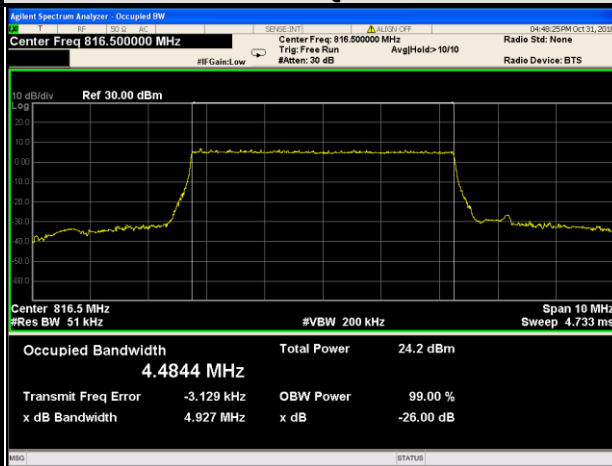


5MHz / 16QAM

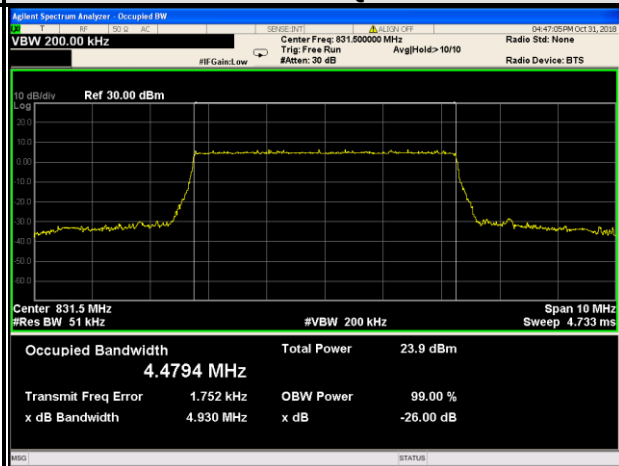


SPECTRUM PLOT OF WORST VALUE of 26dB Occupied Bandwidth

5MHz / QPSK

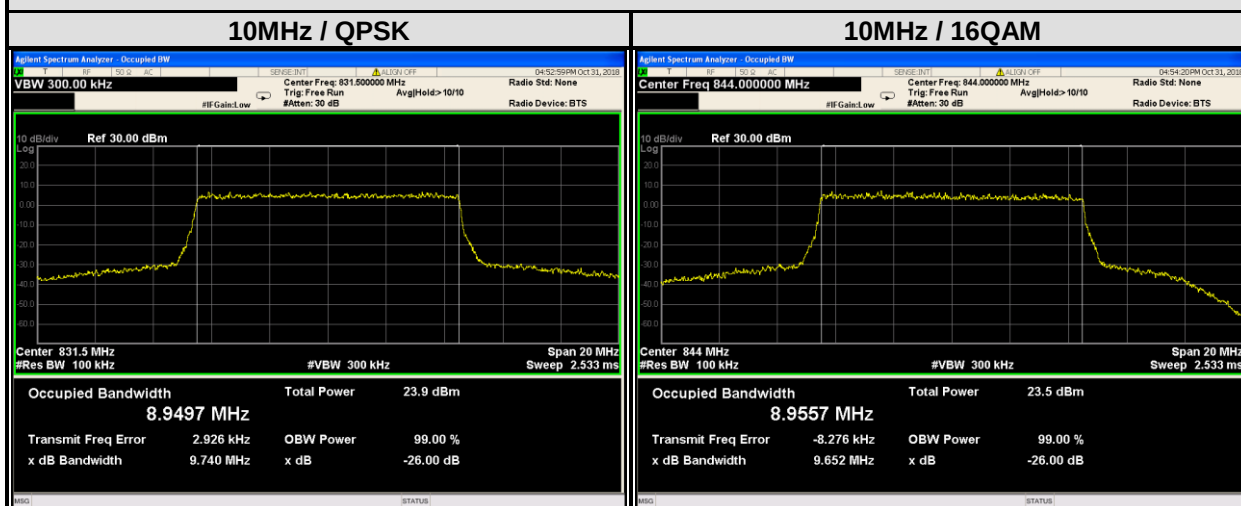


5MHz / 16QAM

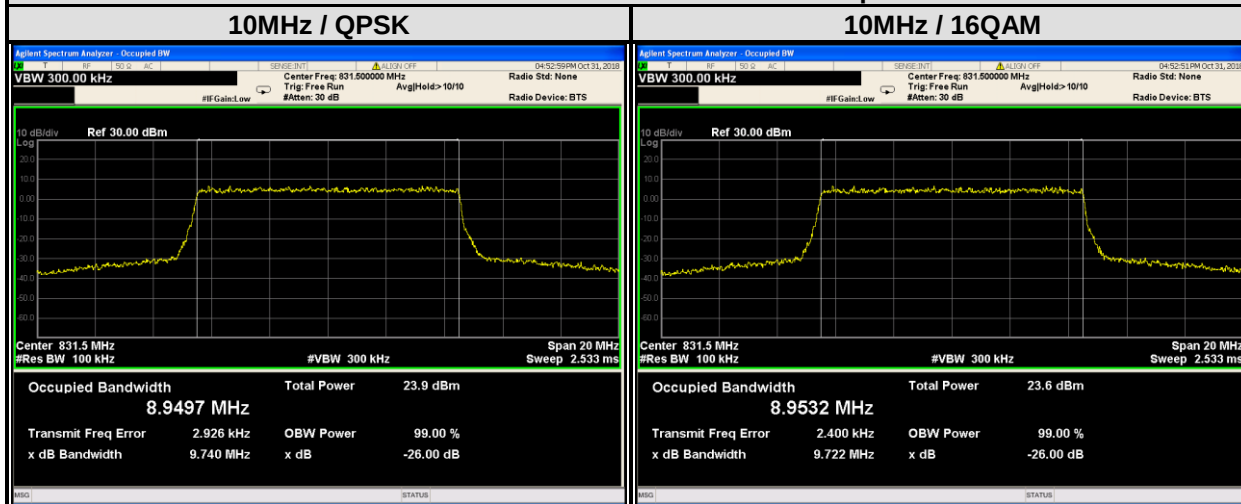


CHANNEL BANDWIDTH: 10MHz							
CHANNEL	Frequency (MHz)	99% OCCUPIED Bandwidth (kHz)		CHANNEL	Frequency (MHz)	26dB Bandwidth (kHz)	
		QPSK	16QAM			QPSK	16QAM
26750	820	8.9216	8.9164	26750	820	9.655	9.582
26865	831.5	8.9497	8.9532	26865	831.5	9.740	9.722
26990	844	8.9476	8.9557	26990	844	9.657	9.652

SPECTRUM PLOT OF WORST VALUE of 99% Occupied Bandwidth



SPECTRUM PLOT OF WORST VALUE of 26dB Occupied Bandwidth

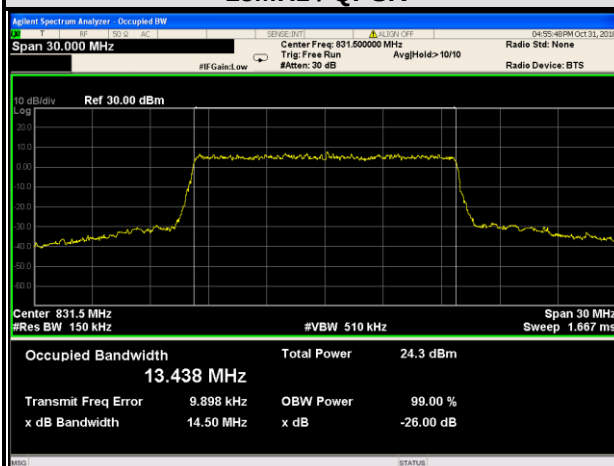


CHANNEL BANDWIDTH: 15MHz

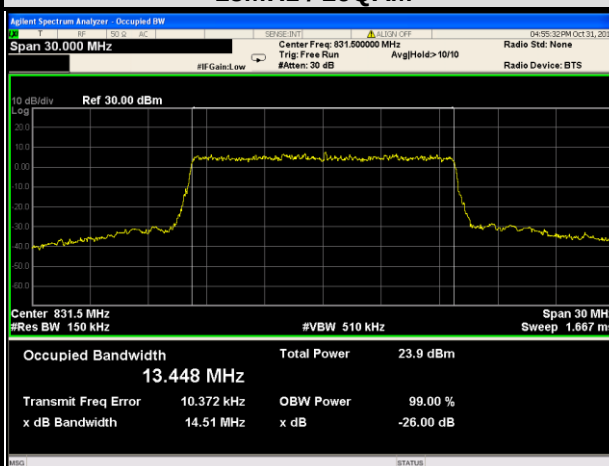
CHANNEL	Frequency (MHz)	99% OCCUPIED Bandwidth (kHz)		CHANNEL	Frequency (MHz)	26dB Bandwidth (kHz)	
		QPSK	16QAM			QPSK	16QAM
26775	822.5	13.334	13.338	26775	822.5	14.34	14.21
26865	831.5	13.438	13.448	26865	831.5	14.50	14.51
26965	841.5	13.380	13.379	26965	841.5	14.46	14.36

SPECTRUM PLOT OF WORST VALUE of 99% Occupied Bandwidth

15MHz / QPSK

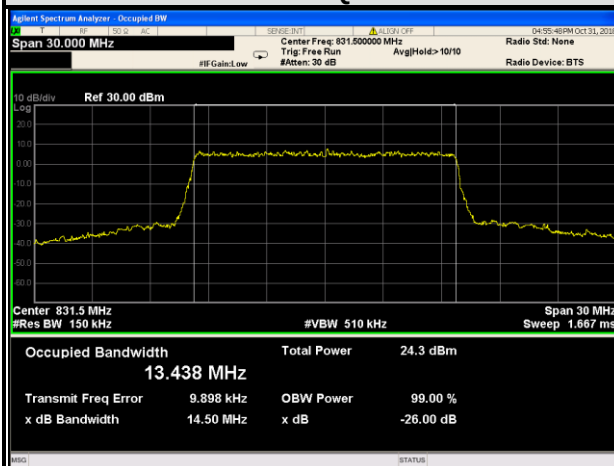


15MHz / 16QAM

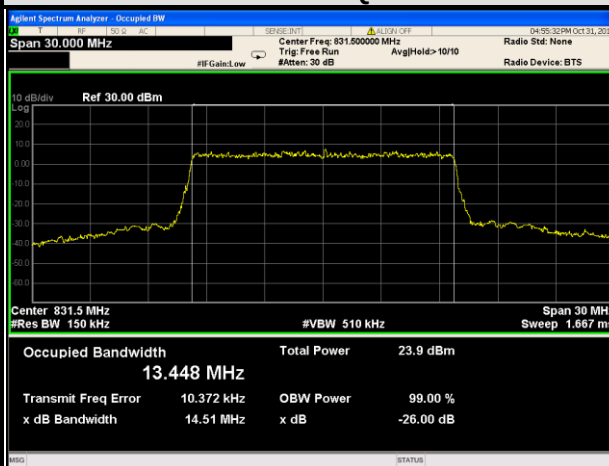


SPECTRUM PLOT OF WORST VALUE of 26dB Occupied Bandwidth

15MHz / QPSK



15MHz / 16QAM



4.4 EMISSION MASK MEASUREMENT

4.4.1 LIMITS OF EMISSION MASK MEASUREMENT

Emission mask shall comply with 90.210(a)

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

4.4.2 TEST PROCEDURES

1. The power was measured with Agilent Spectrum Analyzer. All measurements were done at 1 channel.
2. The measurement used the power splitter via EUT RF power connector between signal generator and spectrum analyzer.
3. Record the test plot.

4.4.3 TEST SETUP

Same as Item 4.3.3

4.4.4 EUT OPERATING CONDITIONS

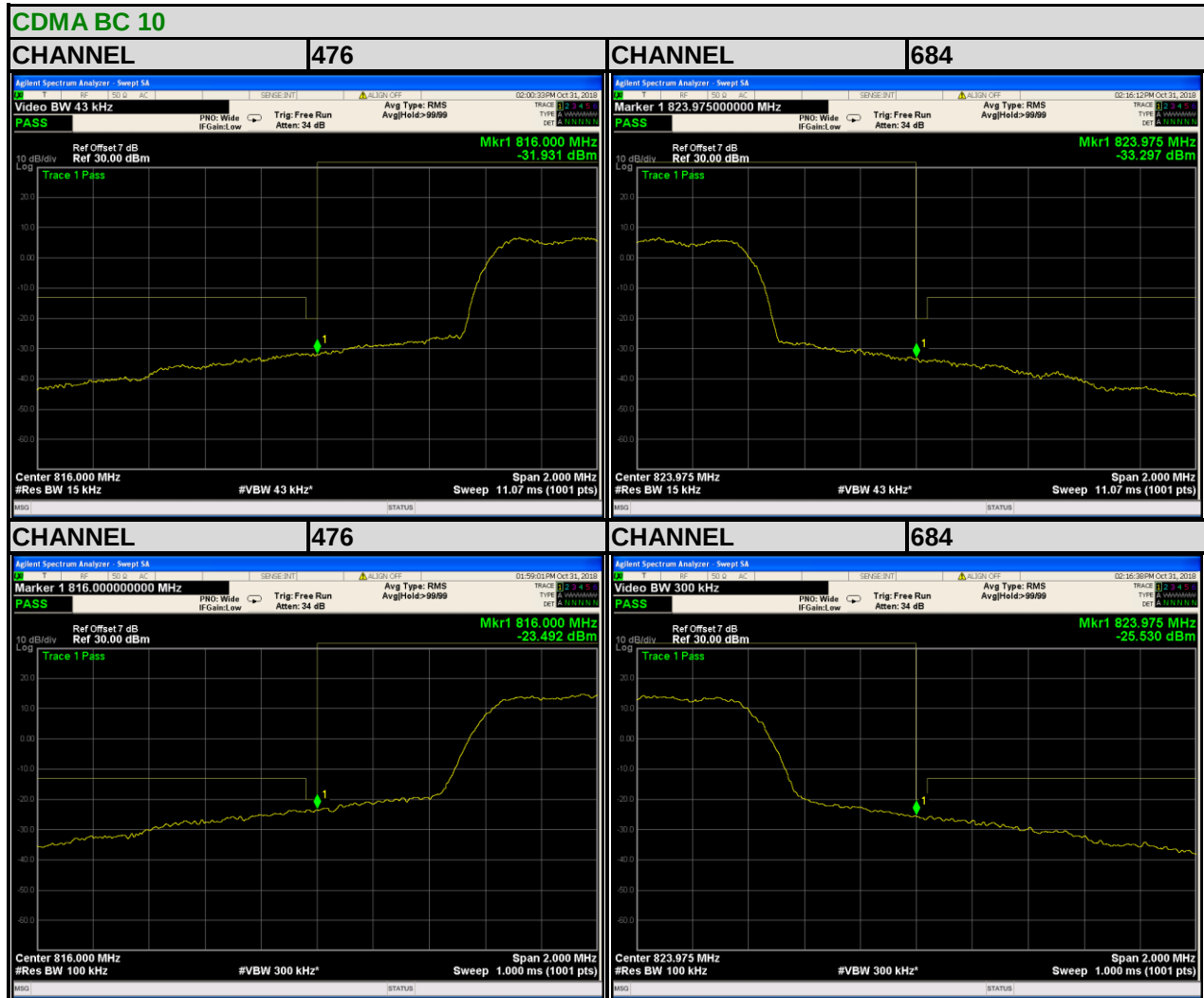
Same as 4.1.4.



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4.4.5 TEST RESULTS

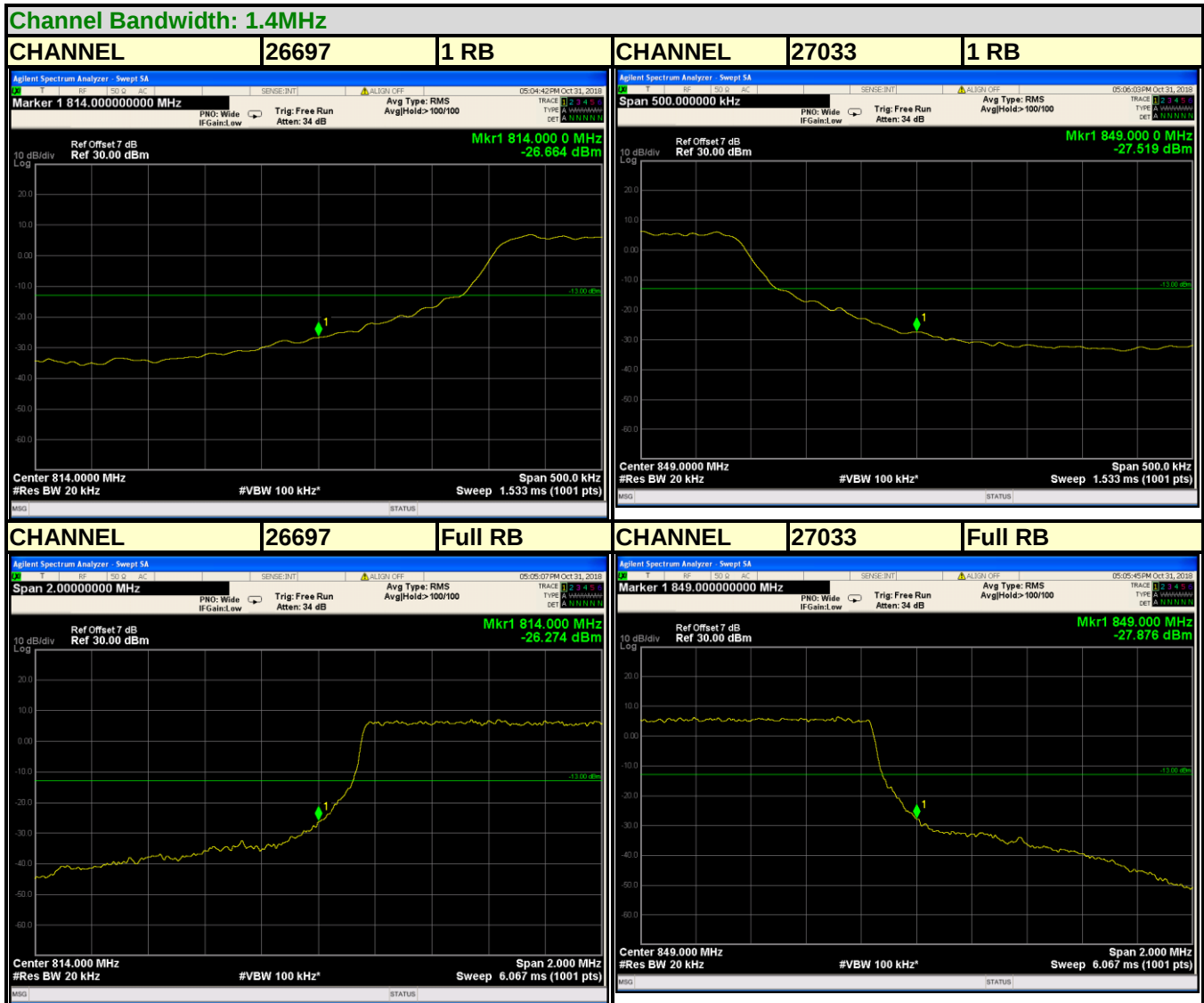




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LTE BAND 26



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Houjie Town, Dongguan City, Guangdong 523942, China

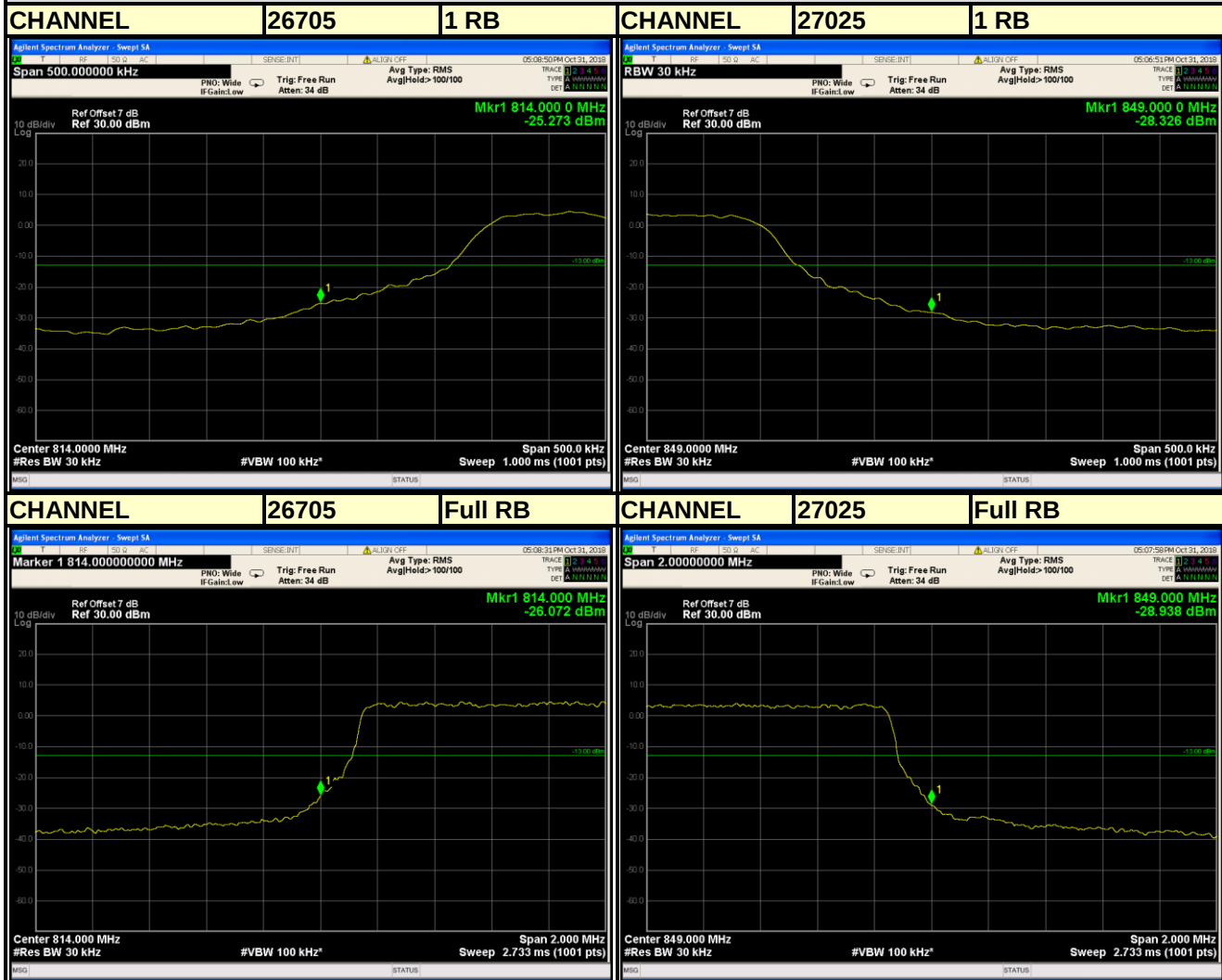
Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com



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Test Report No.: RF181011N013-7

Channel Bandwidth: 3MHz



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Houjie Town, Dongguan City, Guangdong 523942, China

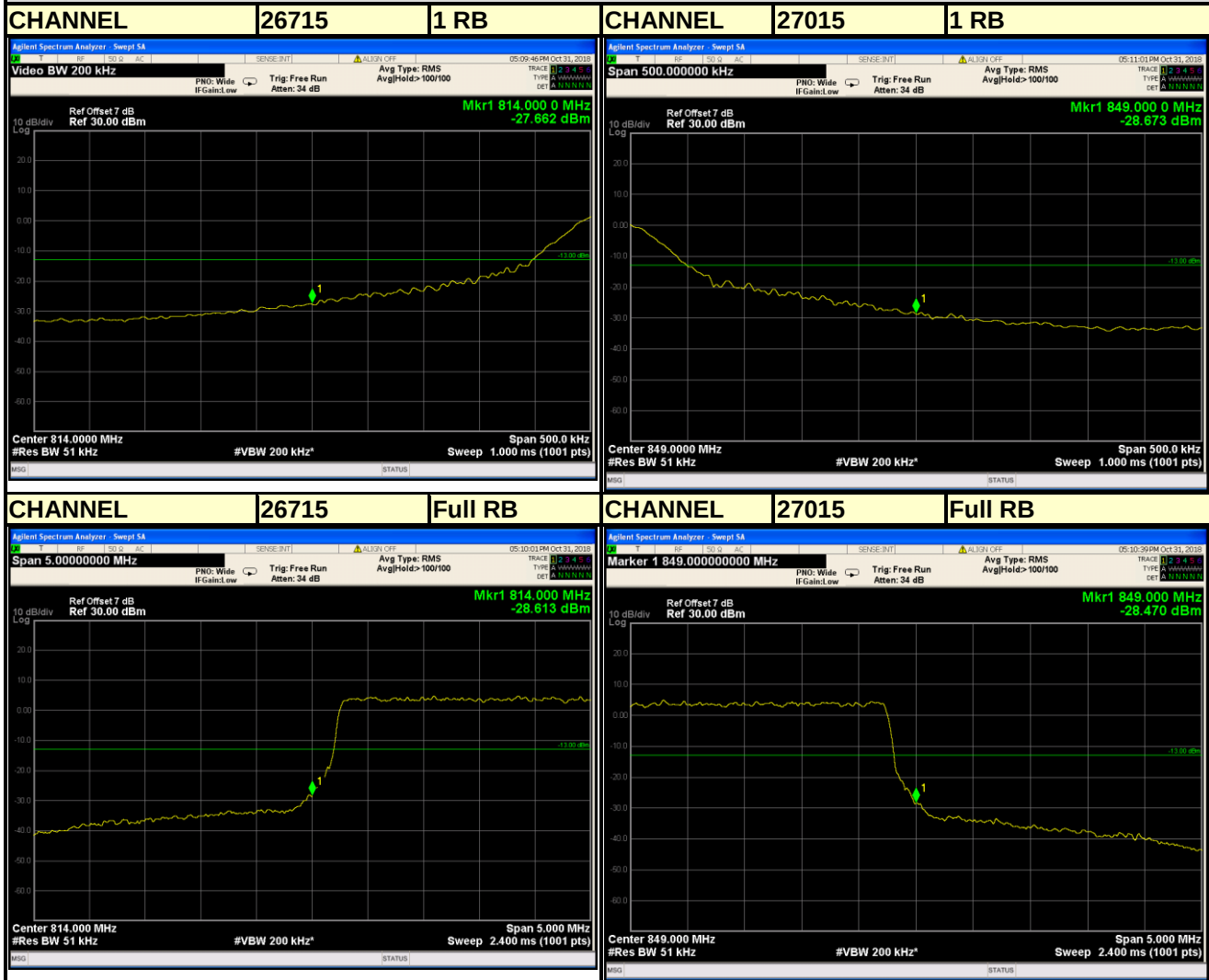
Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com



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Test Report No.: RF181011N013-7

Channel Bandwidth: 5MHz

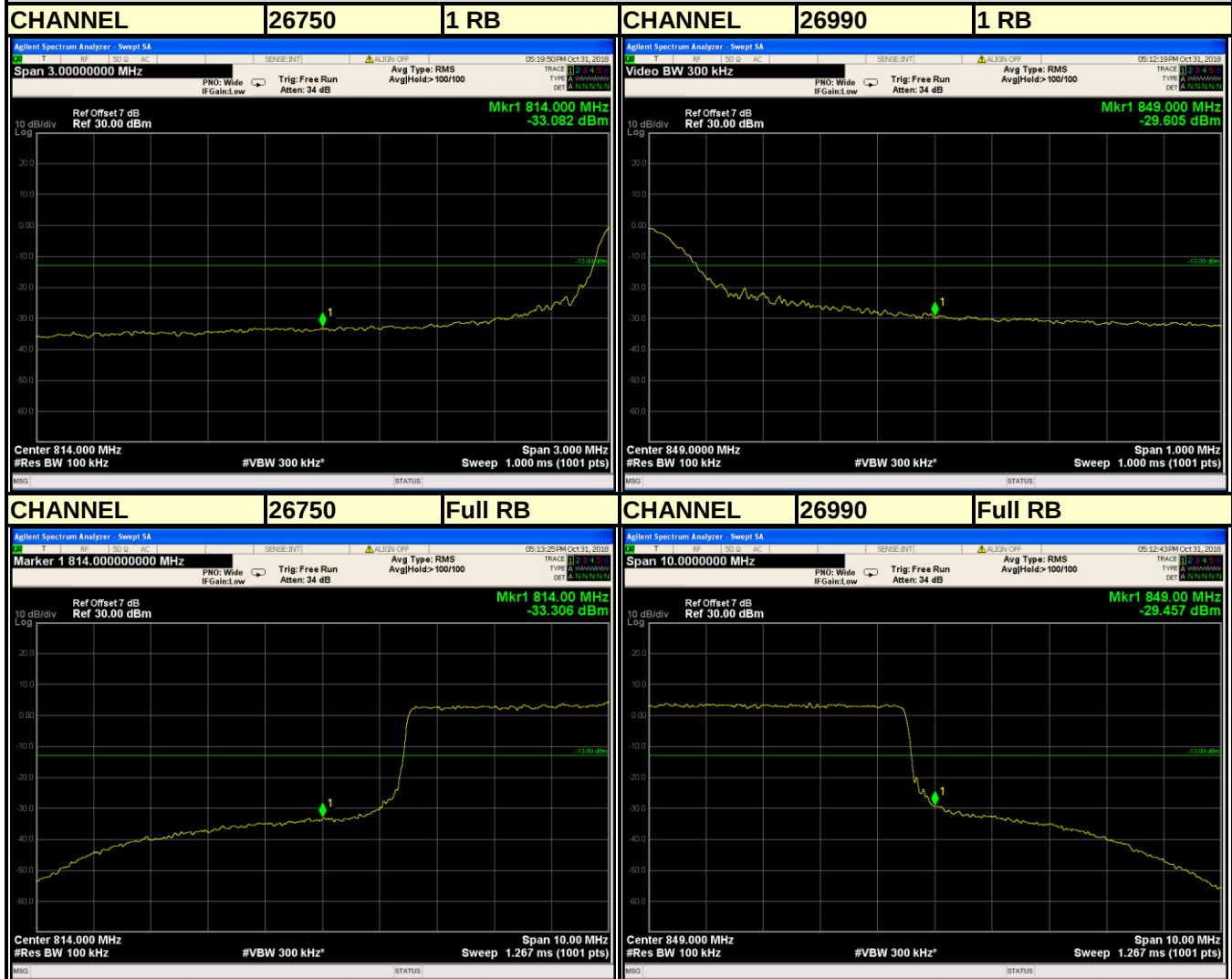




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Test Report No.: RF181011N013-7

Channel Bandwidth: 10MHz



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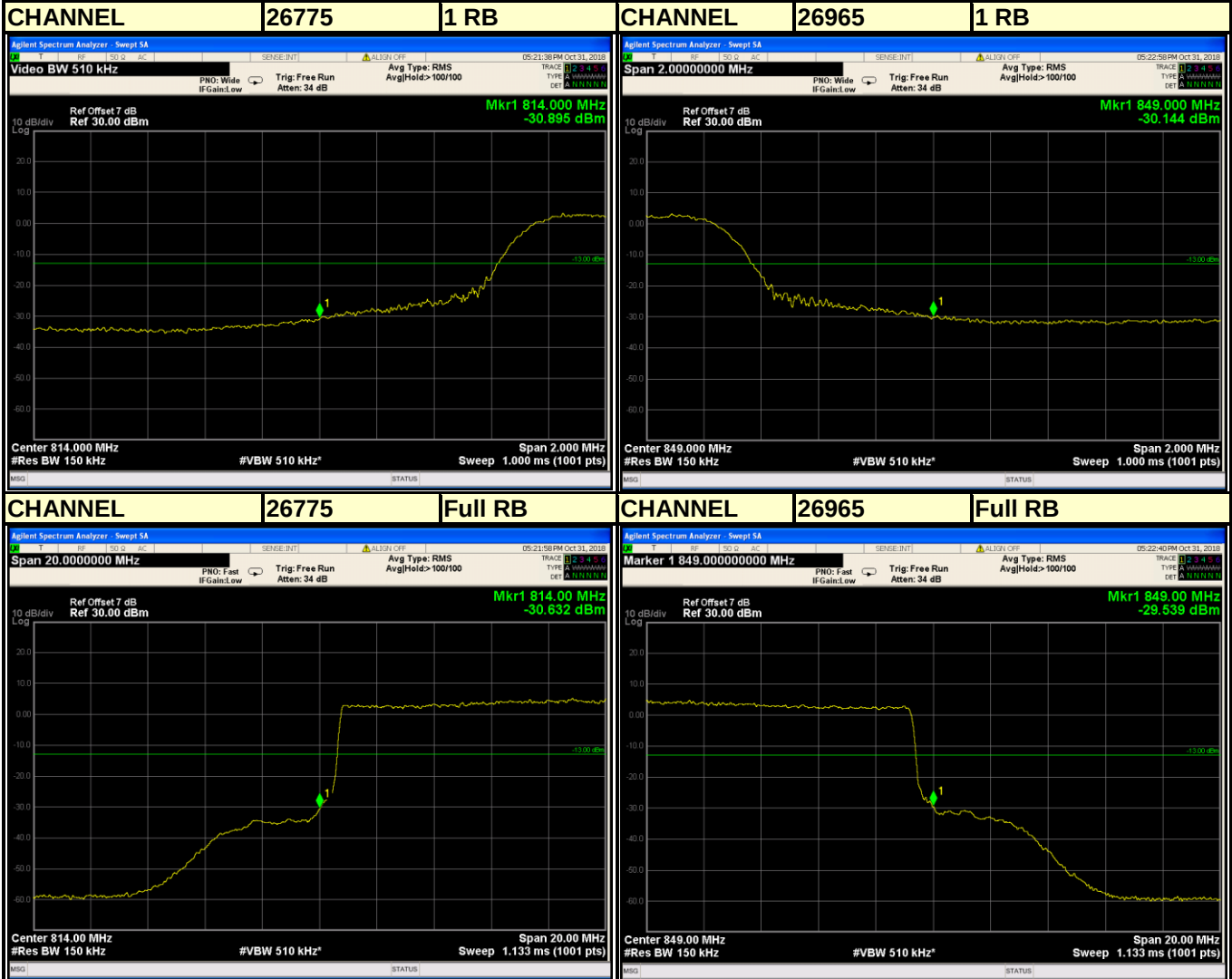
Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com



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Test Report No.: RF181011N013-7

Channel Bandwidth: 15MHz



4.5 CONDUCTED SPURIOUS EMISSIONS

4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dB

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 9GHz. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

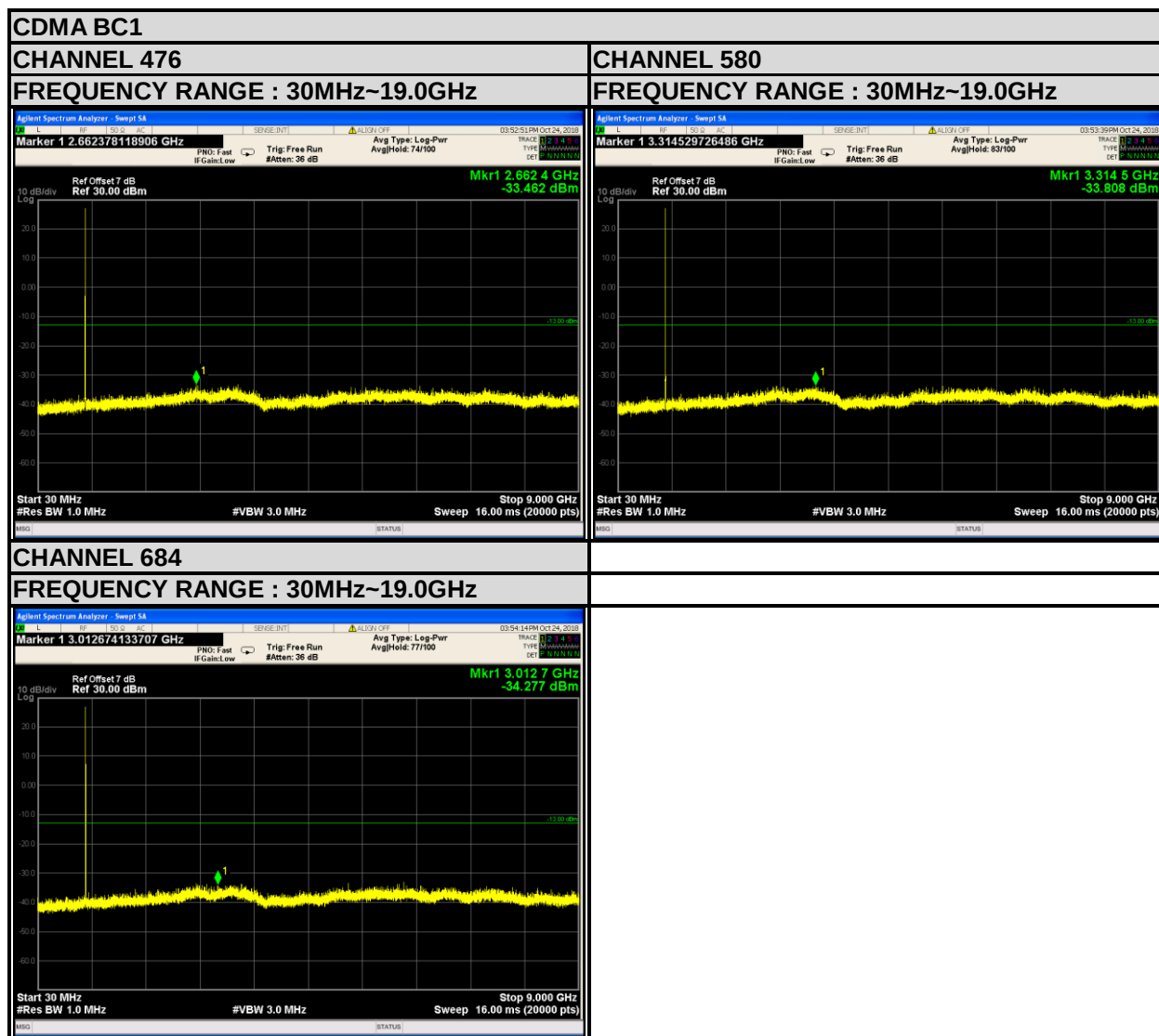
4.5.3 TEST SETUP

Same as 4.3.3

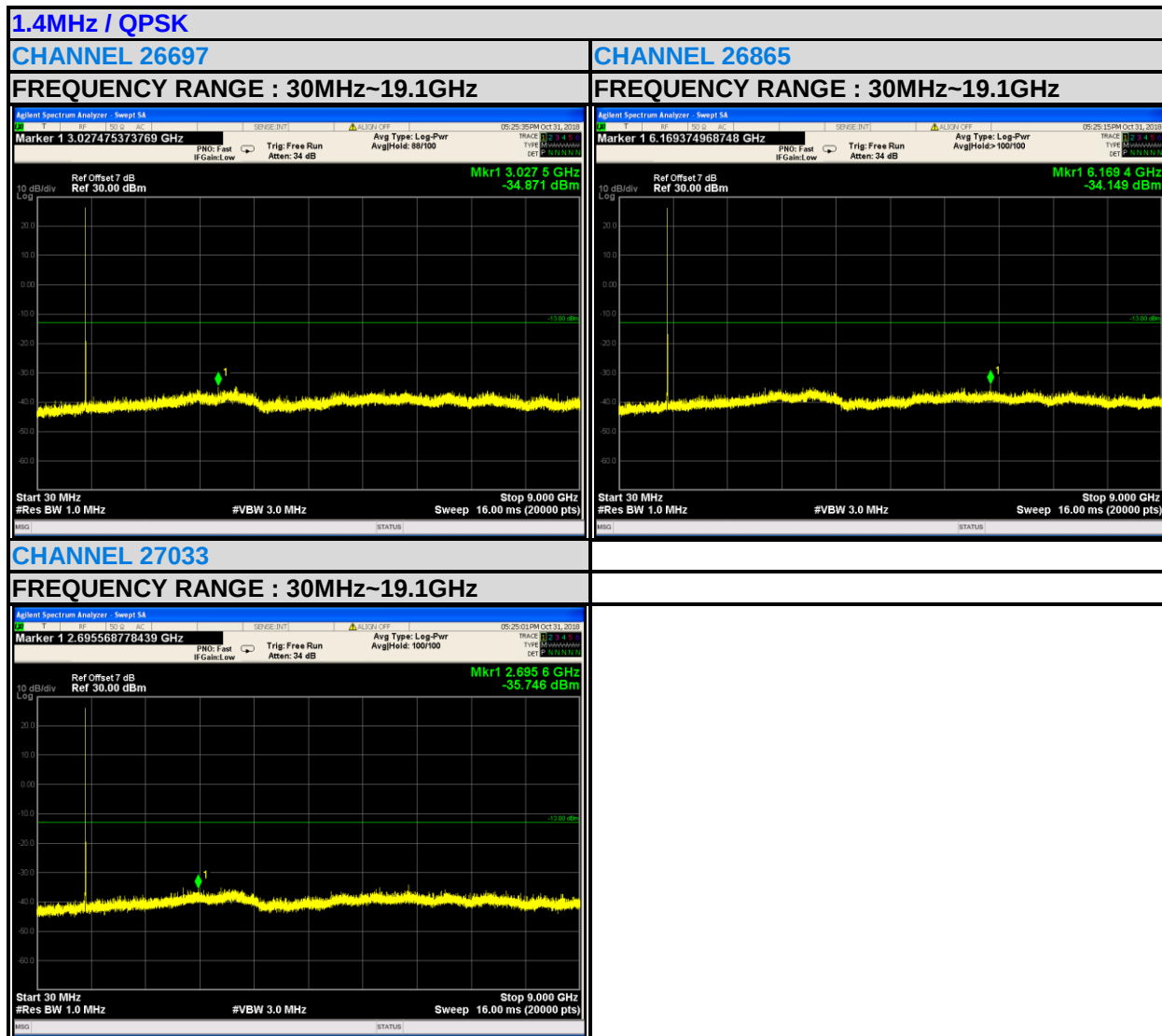
4.5.4 EUT OPERATING CONDITIONS

Same as 4.1.4.

4.5.5 TEST RESULTS



LTE BAND 26





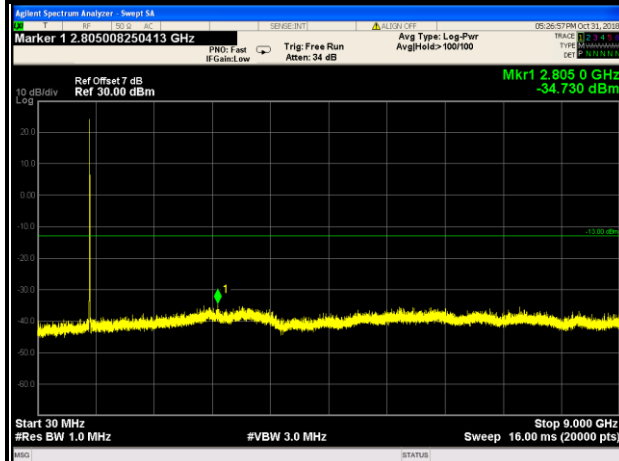
Test Report No.: RF181011N013-7

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3MHz / QPSK

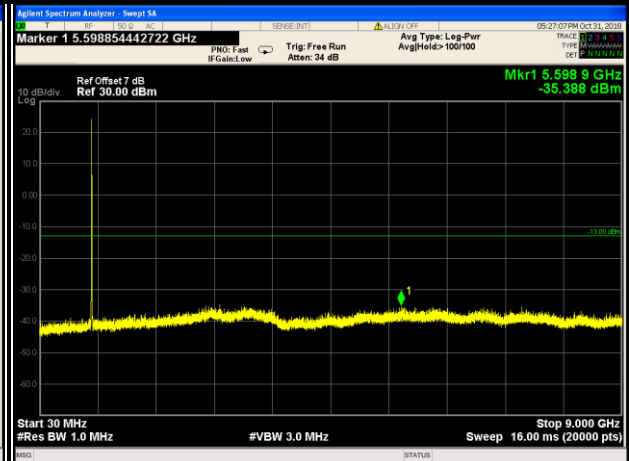
CHANNEL 26705

FREQUENCY RANGE : 30MHz~19.1GHz



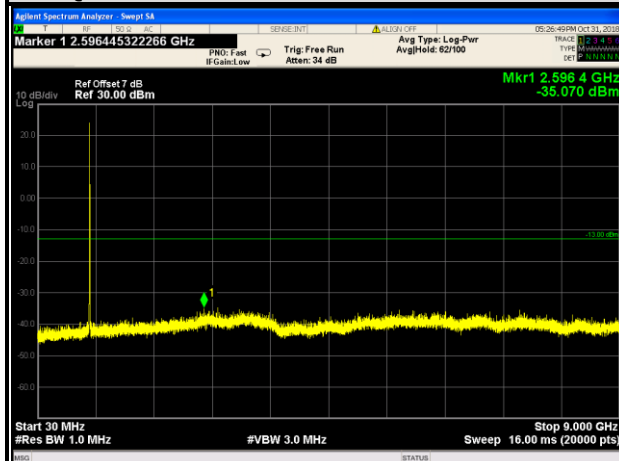
CHANNEL 26865

FREQUENCY RANGE : 30MHz~19.1GHz



CHANNEL 27025

FREQUENCY RANGE : 30MHz~19.1GHz



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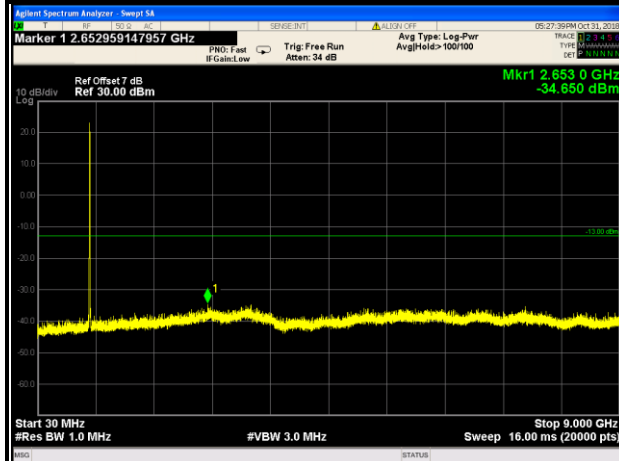
Test Report No.: RF181011N013-7

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5MHz / QPSK

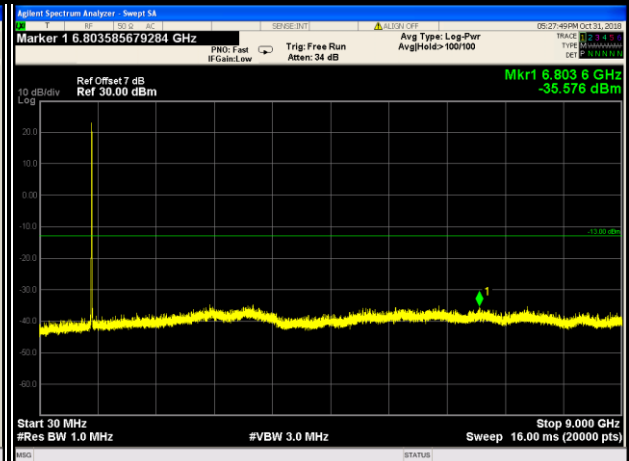
CHANNEL 26715

FREQUENCY RANGE : 30MHz~19.1GHz



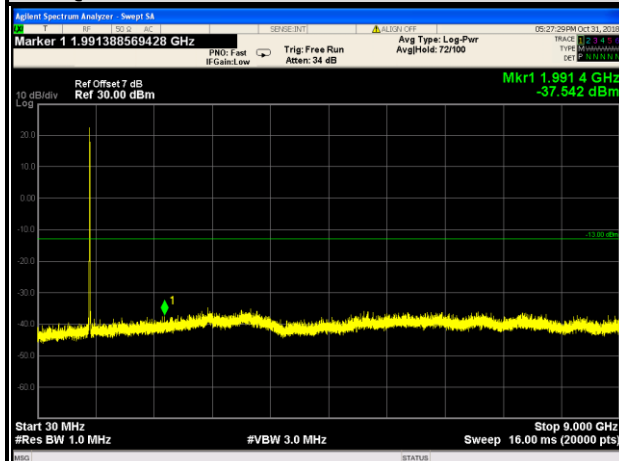
CHANNEL 26865

FREQUENCY RANGE : 30MHz~19.1GHz



CHANNEL 27015

FREQUENCY RANGE : 30MHz~19.1GHz



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Ltd. Dongguan Branch

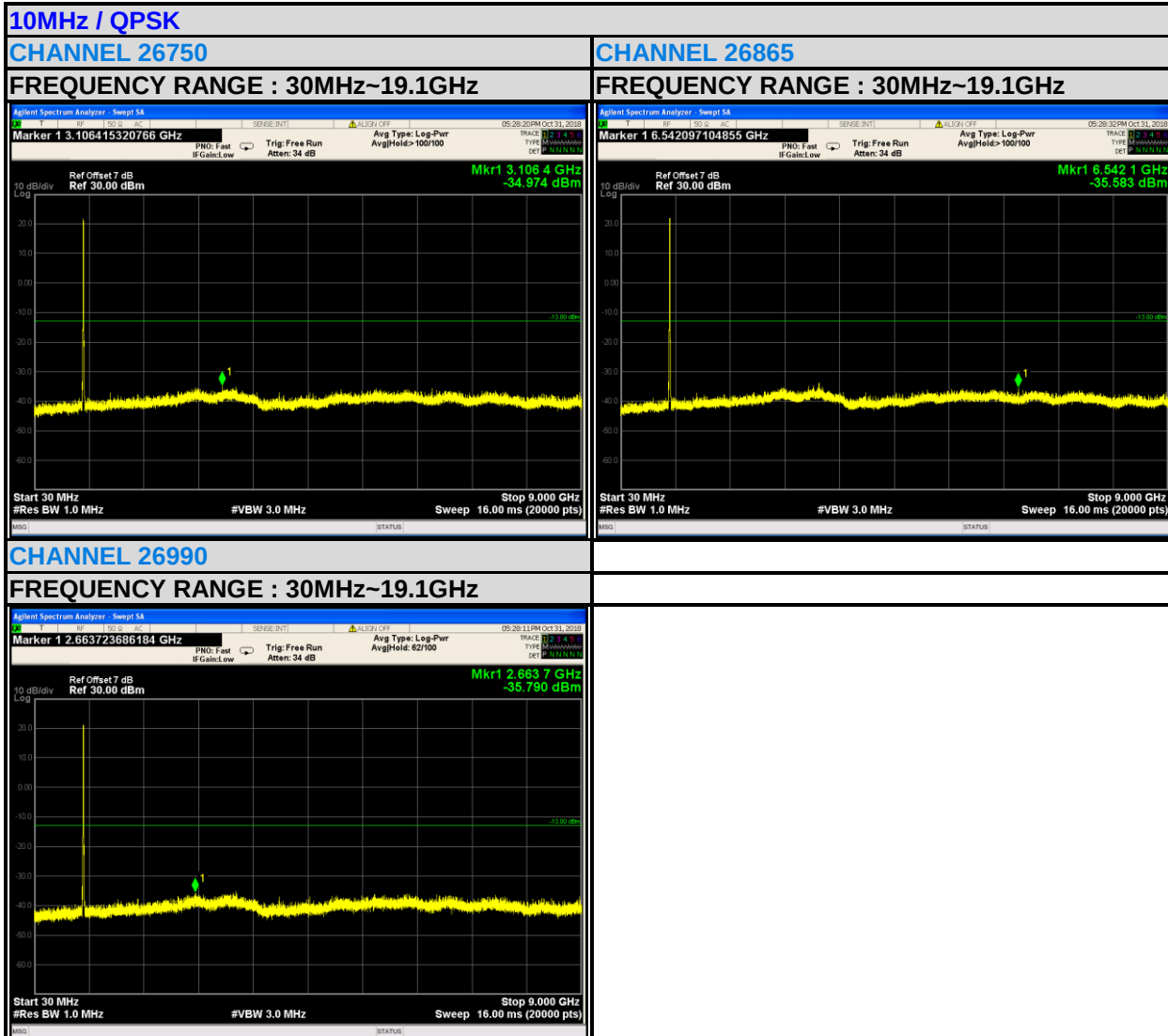
No. 34, Chenwulu Section, Guantai Rd.,
Houjie Town, Dongguan City, Guangdong 523942, China

Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
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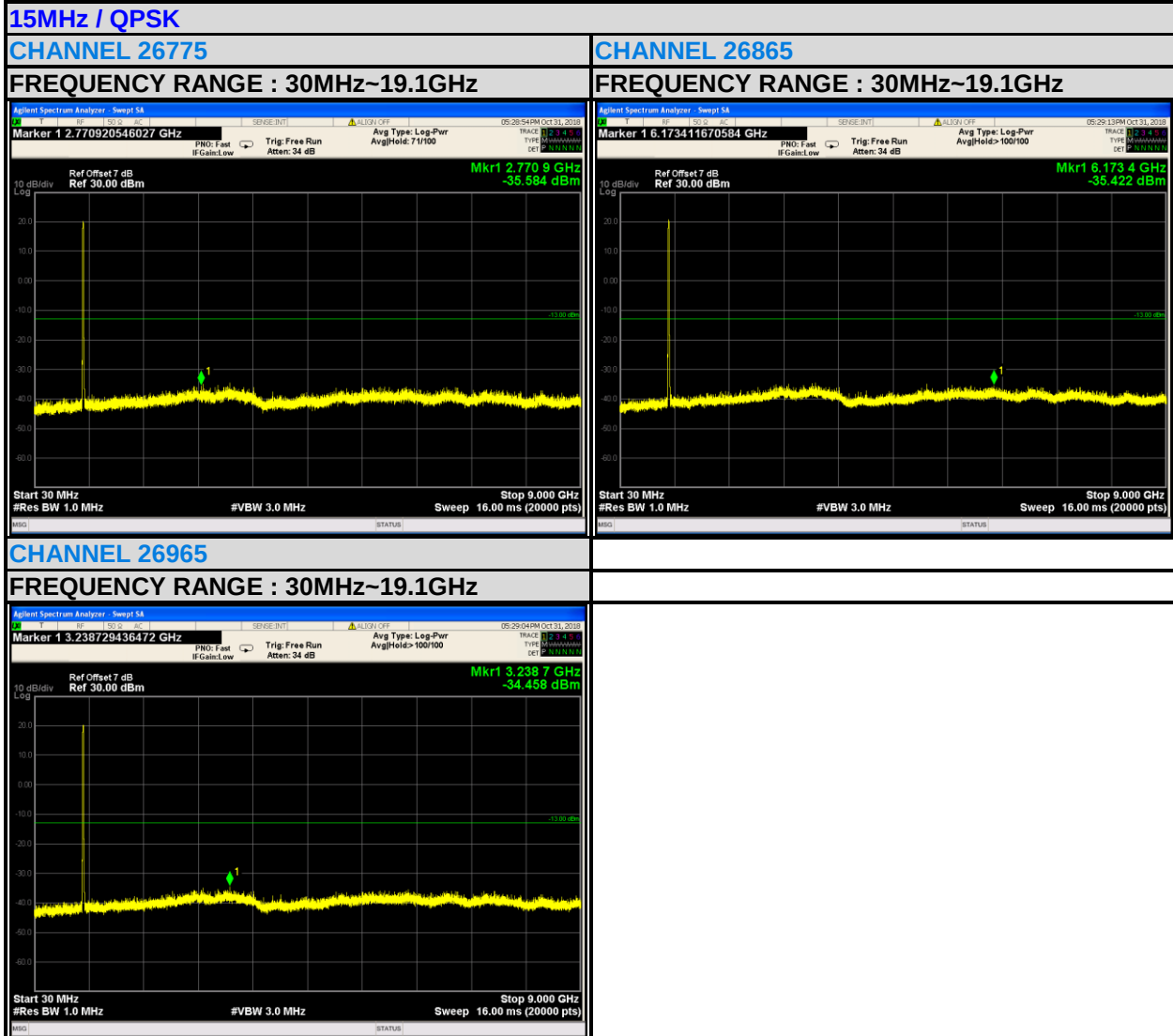
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Test Report No.: RF181011N013-7

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4.6 RADIATED EMISSION MEASUREMENT

4.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

(2) For operations in the 763–775 MHz and 793–805 MHz bands, all emissions including harmonics in the band 1559–1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

4.6.2 TEST INSTRUMENTS

Same as 4.1.2.

4.6.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the receiving antenna, which was mounted on antenna tower and its position at 0.8 m above the ground.
- c. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading and recorded the value.
- d. Repeat step a ~ c for horizontal polarization.

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

4.6.4 DEVIATION FROM TEST STANDARD

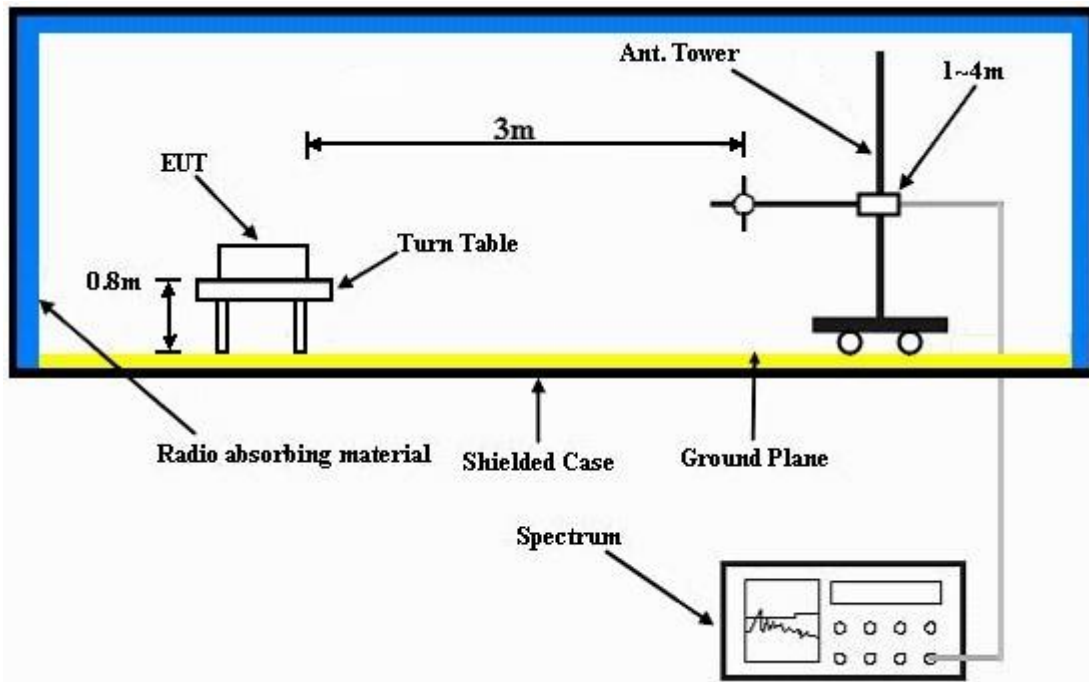
No deviation



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Test Report No.: RF181011N013-7

4.6.5 TEST SETUP



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

4.6.6 EUT OPERATING CONDITIONS

Same as 4.1.4.



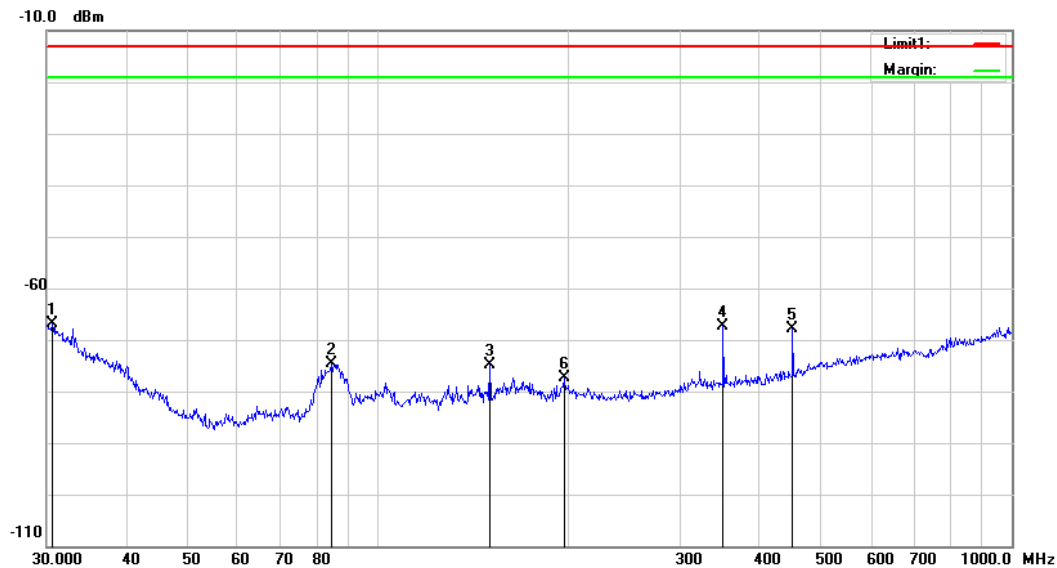
Test Report No.: RF181011N013-7



4.6.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA : LTE BAND 26

SPURIOUS EMISSION FREQUENCY RANGE	Below 1000MHz	OPERATING CHANNEL	Channel 26740
--------------------------------------	---------------	----------------------	---------------



ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M					
No.	Frequency	Reading	Result	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
1	30.6379	-80.47	-66.93	-13.00	-53.93
2	84.4054	-71.45	-74.64	-13.00	-61.64
3	150.0108	-75.56	-74.92	-13.00	-61.92
4	350.4768	-69.80	-67.44	-13.00	-54.44
5	451.1350	-72.25	-67.87	-13.00	-54.87
6	196.5098	-77.61	-77.38	-13.00	-64.38

SPURIOUS EMISSION FREQUENCY RANGE	Below 1000MHz	OPERATING CHANNEL	Channel 26740
--	---------------	------------------------------	---------------



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M					
No.	Frequency	Reading	Result	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
1	141.8262	-76.63	-71.64	-13.00	-58.64
2	85.8984	-75.56	-73.47	-13.00	-60.47
3	57.9993	-73.52	-77.11	-13.00	-64.11
4	30.1054	-75.38	-68.63	-13.00	-55.63
5	36.1272	-75.67	-73.36	-13.00	-60.36
6	196.5098	-77.77	-74.31	-13.00	-61.31

ABOVE 1GHz DATA

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

CDMA2000 BC10:

Low channel

Frequency (MHz)	Antenna Polarization (H/V)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1635.8	V	-34.9	-13	-21.9
1635.8	H	-39.23	-13	-26.23

Middle channel

Frequency (MHz)	Antenna Polarization (H/V)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1641	V	-37.09	-13	-24.09
1641	H	-30.95	-13	-17.95

High channel

Frequency (MHz)	Antenna Polarization (H/V)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1646.2	V	-35.05	-13	-22.05
1646.2	H	-39.35	-13	-26.35

Note:

- 1, The testing has been conformed to $10 \times 823.1 \text{ MHz} = 8,231 \text{ MHz}$
- 2, All other emissions more than 30 dB below the limit
- 3, X-Axis, Y-Axis and Z-Axis were investigated. The results above show only the worst case.

LTE Band 26:

Low channel

Frequency (MHz)	Antenna Polarization (H/V)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1645	V	-31.2	-13	-18.2
1645	H	-35.25	-13	-22.25

Middle channel

Frequency (MHz)	Antenna Polarization (H/V)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1663	V	-32.82	-13	-19.82
1663	H	-32.38	-13	-19.38

High channel

Frequency (MHz)	Antenna Polarization (H/V)	Corrected Reading (dBm)	Limit (dBm)	Margin (dB)
1683	V	-34.87	-13	-21.87
1683	H	-35.58	-13	-22.58

Note:

- 1, The testing has been conformed to $10 \times 848.3 \text{ MHz} = 8,483 \text{ MHz}$
- 2, All other emissions more than 30 dB below the limit
- 3, X-Axis, Y-Axis and Z-Axis were investigated. The results above show only the worst case.

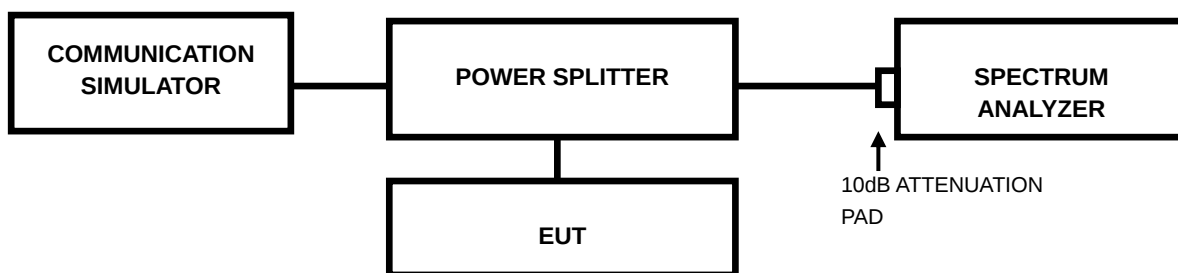


4.7 PEAK TO AVERAGE RATIO

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%.

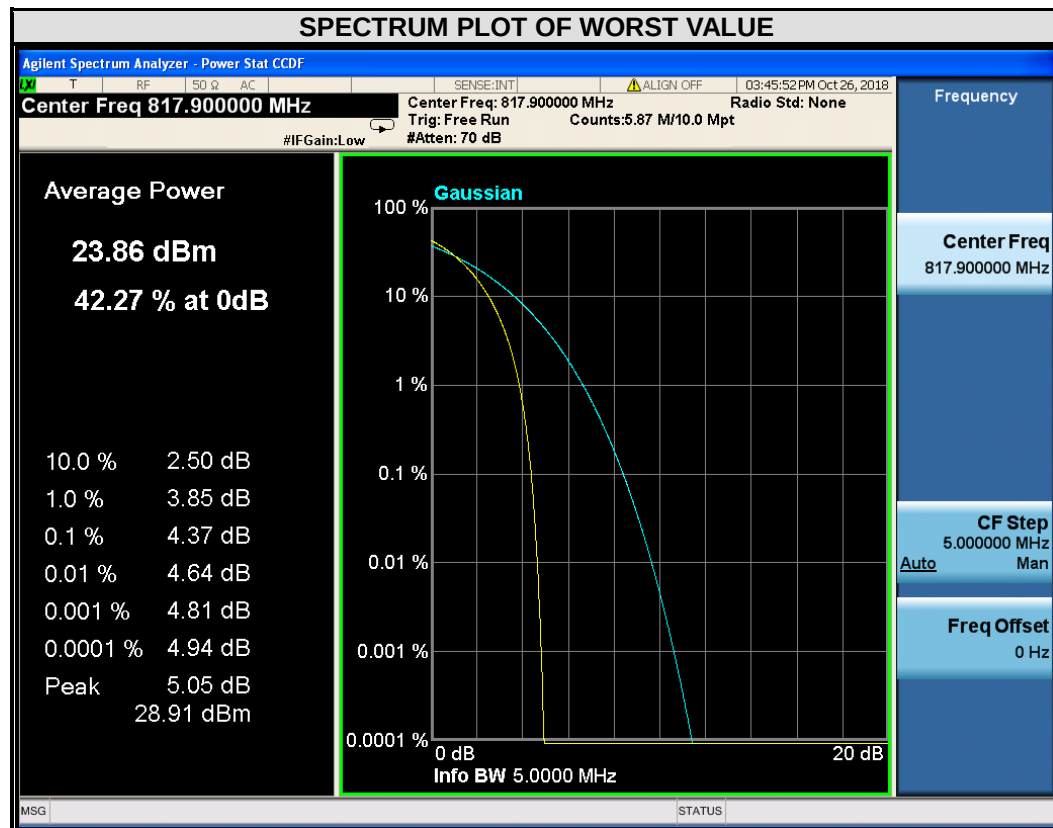


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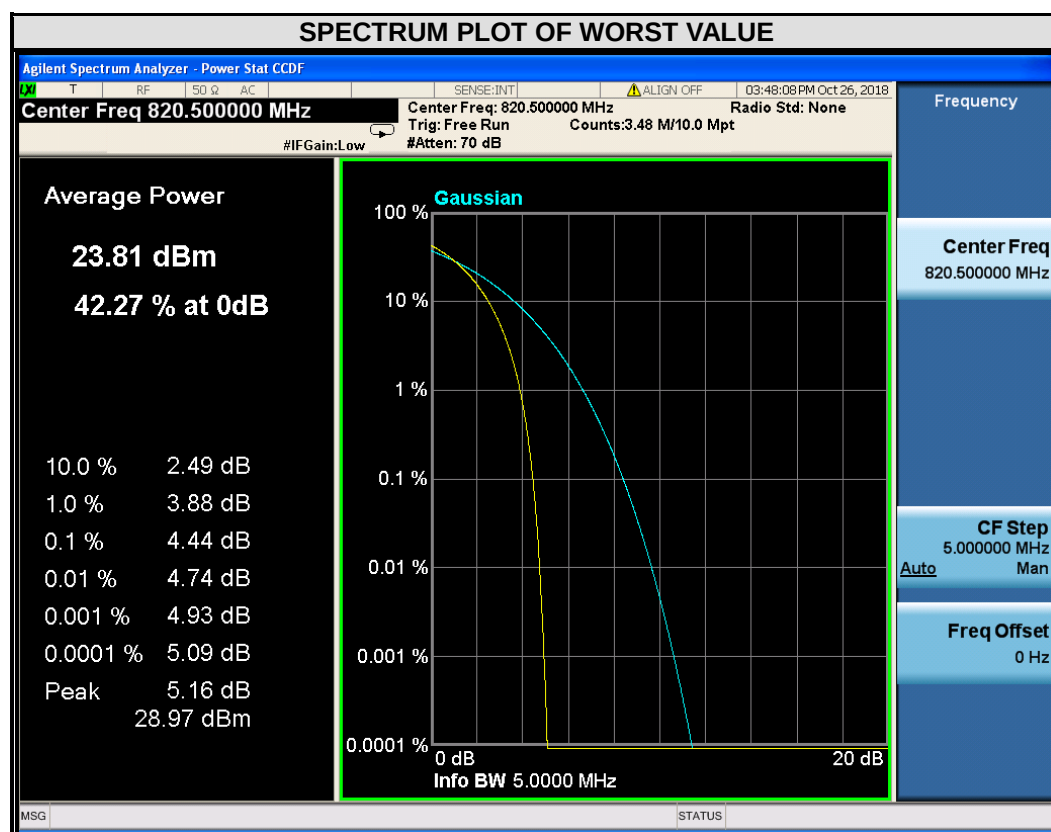
Test Report No.: RF181011N013-7

CDMA BC10

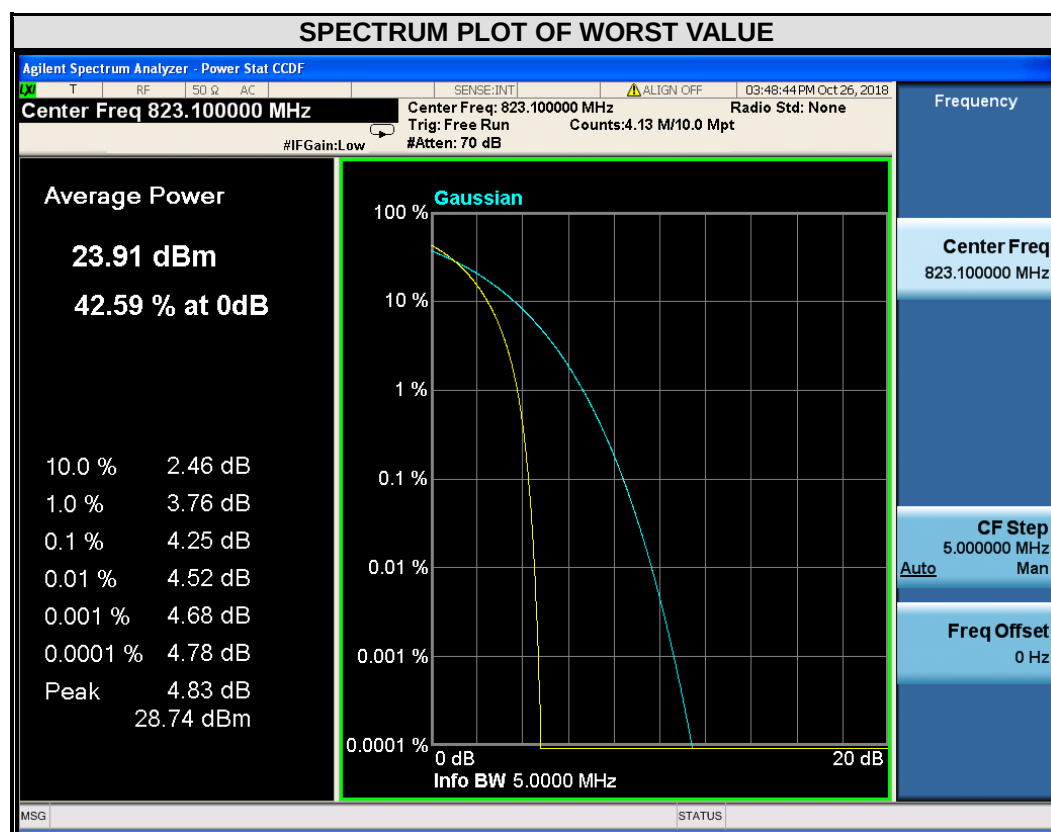
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
476	817.9	4.37



CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
580	820.5	4.44

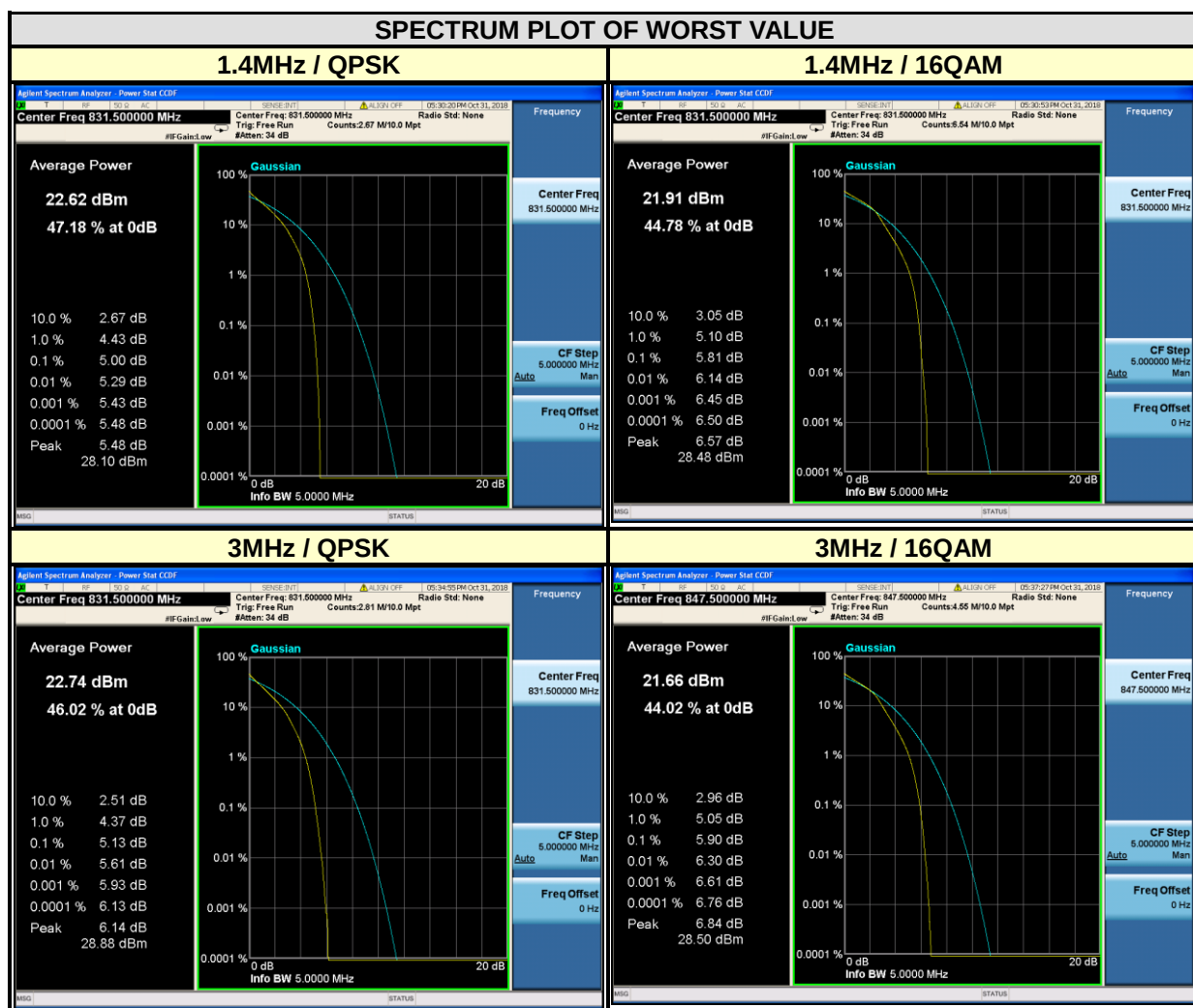


CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
684	823.1	4.25



LTE BAND 26

CHANNEL BANDWIDTH: 1.4MHz				CHANNEL BANDWIDTH: 3MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
26697	814.7	4.38	5.24	26705	815.5	4.76	5.57
26865	831.5	5.00	5.81	26865	831.5	5.13	5.33
27033	848.3	4.81	5.24	27025	847.5	5.08	5.90





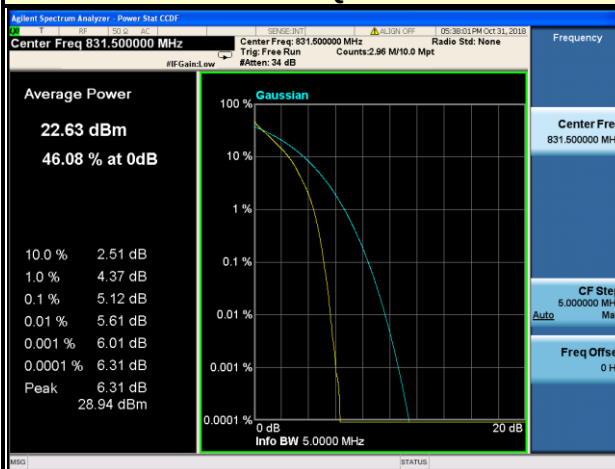
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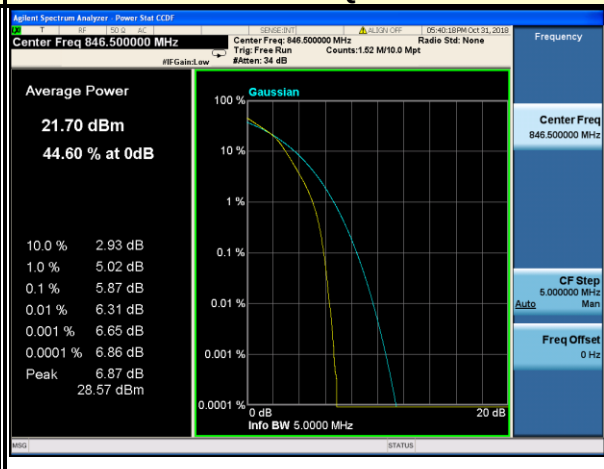
CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
26715	816.5	4.96	5.11	26750	820	4.64	6.04
26865	831.5	5.12	5.32	26865	831.5	4.63	6.07
27015	846.5	5.06	5.87	26990	844	4.67	4.95

SPECTRUM PLOT OF WORST VALUE

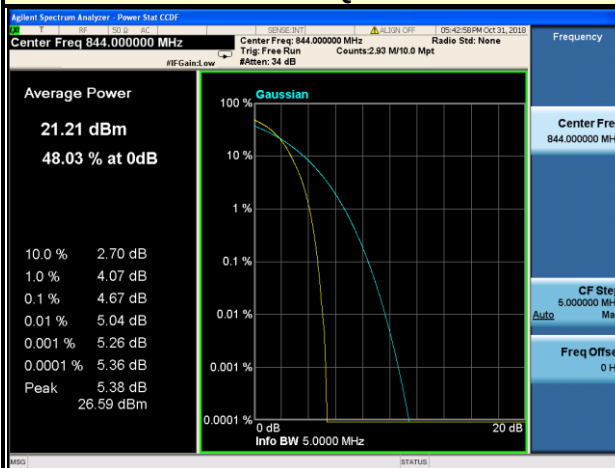
5MHz / QPSK



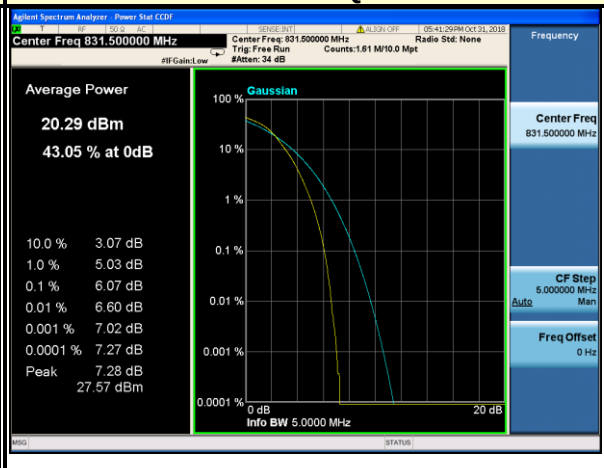
5MHz / 16QAM



10MHz / QPSK



10MHz / 16QAM





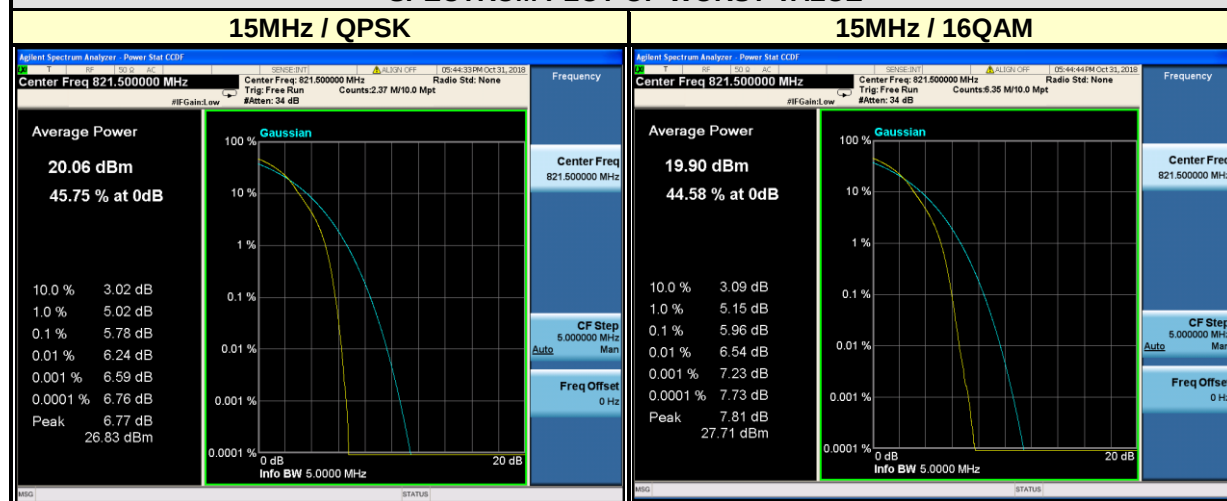
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Test Report No.: RF181011N013-7

CHANNEL BANDWIDTH: 15MHz

CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM
26775	822.5	5.78	5.96
26865	831.5	5.77	5.95
26965	841.5	5.75	5.91

SPECTRUM PLOT OF WORST VALUE





Test Report No.: RF181011N013-7



5 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:

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Fax: +86 755 8869 6577

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.



Test Report No.: RF181011N013-7



6 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---