



REPORT No.: SZ19070119W06

# TEST REPORT

**APPLICANT** : Nubia Technology Co.,Ltd

**PRODUCT NAME** : LTE Digital Mobile Phone

**MODEL NAME** : NX627J

**BRAND NAME** : NUBIA

**FCC ID** : 2AHJO-NX627J

**STANDARD(S)** : 47 CFR Part 22 Subpart H  
47 CFR Part 24 Subpart E  
47 CFR Part 27 Subpart L

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Peng Huarui ( Supervisor )

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**Change History**

<b>Version</b>	<b>Date</b>	<b>Reason for change</b>
1.0	2019-09-18	First edition

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# 1. Technical Information

**Note:** Provide by applicant.

## 1.1. Applicant and Manufacturer Information

<b>Applicant:</b>	Nubia Technology Co.,Ltd
<b>Applicant Address:</b>	10/F, Tower A, Hans Innovation Mansion, North Ring Rd., No.9018, High-Tech Park, Nanshan District, Shenzhen, China
<b>Manufacturer:</b>	Nubia Technology Co.,Ltd
<b>Manufacturer Address:</b>	10/F, Tower A, Hans Innovation Mansion, North Ring Rd., No.9018, High-Tech Park, Nanshan District, Shenzhen, China

## 1.2. Equipment Under Test (EUT) Description

<b>Product Name:</b>	LTE Digital Mobile Phone
<b>Serial No:</b>	(N/A, marked #1 by test site)
<b>Hardware Version:</b>	NX627J_V1MB
<b>Software Version:</b>	NX627J_ENCommon_V1.00
<b>Modulation Type:</b>	GSM/GPRS Mode with GMSK Modulation EDGE Mode with 8PSK Modulation WCDMA Mode with QPSK Modulation HSDPA Mode with QPSK Modulation HSUPA Mode with QPSK Modulation HSPA+ Mode with QPSK Modulation
<b>Operating Frequency Range:</b>	<b>GSM 850MHz:</b> Tx: 824.20 - 848.80MHz Rx: 869.20 - 893.80MHz <b>GSM 1900MHz:</b> Tx: 1850.20 - 1909.80MHz Rx: 1930.20 - 1989.80MHz <b>WCDMA Band V</b> Tx: 826.4 - 846.6MHz Rx: 871.4 - 891.6MHz <b>WCDMA Band II</b> Tx: 1852.4 - 1907.6MHz Rx: 1932.4 - 1987.6MHz

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<b>Operating Frequency Range:</b>	<b>WCDMA Band IV</b> Tx: 1712.4 – 1752.6MHz Rx: 2112.4 - 2152.6MHz	
<b>Antenna Type:</b>	Fixed Internal	
<b>Antenna Gain:</b>	Top Antenna	
	GSM 850:	1.30 dBi
	GSM1900:	1.44 dBi
	WCDMA Band V:	1.30 dBi
	WCDMA Band II:	1.44 dBi
	WCDMA Band IV:	1.33 dBi
	Bottom Antenna	
	GSM 850:	1.30 dBi
	GSM1900:	1.44 dBi
	WCDMA Band V:	1.30 dBi
	WCDMA Band II:	1.44 dBi
	WCDMA Band IV:	1.33 dBi
<b>Accessory Information:</b>	Battery	
	Brand Name:	ATL
	Model No.:	Li3839T44P6h866443
	Serial No.:	(N/A, marked #1 by test site)
	Capacity:	3900mAh
	Rated Voltage:	3.82V
	Charge Limit:	4.40V
	AC Adapter 1	
	Brand Name:	N/A
	Model No.:	CYNBY090200-A00
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V ~ 50/60Hz 0.5A
	Rated Output:	12V=1.5A or 9V=2.0A or 5V=3.0A

**Note 1:** The transmitter (Tx) frequency arrangement of the Cellular 850MHz band used by the EUT can be represented with the formula  $F(n)=824.2+0.2*(n-128)$ ,  $128 \leq n \leq 251$ ; the lowest, middle, highest channel numbers (ARFCNs) used and tested in this report are separately 128 (824.2MHz), 190 (836.6MHz) and 251 (848.8MHz).

**Note 2:** The transmitter (Tx) frequency arrangement of the PCS 1900MHz band used by the EUT



can be represented with the formula  $F(n)=1850.2+0.2*(n-512)$ ,  $512 \leq n \leq 810$ ; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 512 (1850.2MHz), 661 (1880.0MHz) and 810 (1909.8MHz).

**Note 3:** The transmitter (Tx) frequency arrangement of the WCDMA Band V used by the EUT can be represented with the formula  $F(n)=826.4+0.2*(n-4132)$ ,  $4132 \leq n \leq 4233$ ; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 4132 (826.4MHz), 4182(836.4MHz) and 4233 (846.6MHz).

**Note 4:** The transmitter (Tx) frequency arrangement of the WCDMA Band II used by the EUT can be represented with the formula  $F(n)=1852.4+0.2*(n-9262)$ ,  $9262 \leq n \leq 9538$ ; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 9262 (1852.4MHz), 9400 (1880MHz) and 9538 (1907.6MHz).

**Note 5:** The transmitter (Tx) frequency arrangement of the WCDMA 1700MHz band used by the EUT can be represented with the formula  $F(n)=1712.4+0.2*(n-1312)$ ,  $1312 \leq n \leq 1513$ ; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 1312 (1712.4MHz), 1413 (1732.6MHz) and 1513 (1752.6MHz).

**Note 6:** All modes and data rates were considered and evaluated respectively by performing full test. Test modes are chosen to be reported as the worst case below:

GPRS mode and EDGE mode for GSM 850;  
GPRS mode and EDGE mode for GSM 1900;  
WCDMA mode for WCDMA band V;  
WCDMA mode for WCDMA band II;  
WCDMA mode for WCDMA band IV;

**Note 7:** For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.



### 1.3. Maximum ERP/EIRP and Emission Designator

System	Maximum ERP/EIRP (W)		Emission Designator
	Top Antenna	Bottom Antenna	
GSM850	1.035	1.766	247KGXW
EDGE850	0.320	0.458	245KG7W
GSM1900	0.453	0.832	242KGXW
EDGE1900	0.198	0.667	243KG7W
WCDMA Band V	0.127	0.160	4M14F9W
WCDMA Band II	0.056	0.135	4M18F9W
WCDMA Band IV	0.085	0.191	4M18F9W



## 1.4. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2, Part 22, Part 24 and Part 27 for the EUT FCC ID Certification:

No	Identity	Document Title
1	47 CFR Part 2 (10-1-12 Edition)	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22 (10-1-12 Edition)	Public Mobile Services
3	47 CFR Part 24 (10-1-12 Edition)	Personal Communications Services
4	47 CFR Part 27 (10-1-12 Edition)	Miscellaneous Wireless Communications Services

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Test Date	Test Engineer	Result
1	2.1046	Conducted RF Output Power	Sept 16&17, 2019	Gao Mingzhou	PASS
2	24.232(d), 27.50(d)	Peak - Average Ratio	Aug 26&28, 2019 Sept 07, 2019	Gao Mingzhou	PASS
3	2.1049	99% Occupied Bandwidth	Sept 18, 2019	Gao Mingzhou	PASS
4	2.1055, 22.355, 24.235, 27.54	Frequency Stability	Aug 26&28, 2019 Sept 07, 2019	Gao Mingzhou	PASS
5	2.1051, 22.917(a), 24.238(a), 27.53(h)	Conducted Out of Band Emissions	Aug 27&30, 2019 Sept 04, 2019	Gao Mingzhou	PASS
6	2.1051, 22.917(a), 24.238(a), 27.53(h)	Band Edge	Aug 26&28, 2019 Sept 07, 2019	Gao Mingzhou	PASS
7	22.913(a), 24.232(a)	Transmitter Radiated Power (EIPR/ERP)	Sept 10, 2019	Wang Dalong	PASS
8	2.1051, 22.917(a), 24.238(a), 27.53(h)	Radiated Out of Band Emissions	Sept 07, 2019	Wang Dalong	PASS

**Note 1:** The tests were performed according to the method of measurements prescribed in KDB971168 D01 v03 (Oct 27, 2017) and ANSI/TIA-603-E-2016.

**Note 2:** The path loss during the RF test is calibrated to correct the results by the offset setting in the test equipments. The ref offset 26.5dB contains two parts that cable loss 16.5dB and Attenuator 10dB.



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## 1.5. Environmental Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 -60
Atmospheric Pressure (kPa):	86-106

## 2.47 CFR Part 2, Part 22H , 24E&27L Requirements

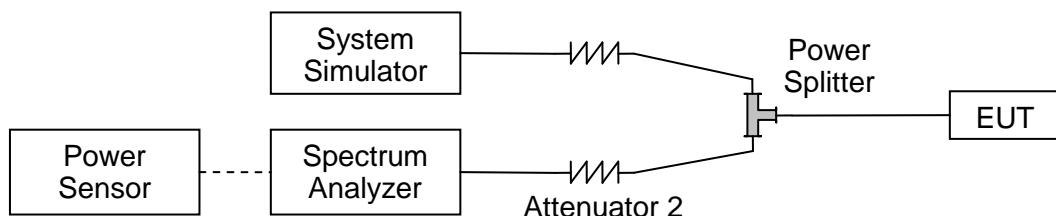
### 2.1. Conducted RF Output Power

#### 2.1.1. Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

#### 2.1.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.



### 2.1.3. Test Results

#### Top Antenna:

GSM850	Average Power (dBm)		
<b>TX Channel</b>	<b>128</b>	<b>190</b>	<b>251</b>
<b>Frequency (MHz)</b>	<b>824.2</b>	<b>836.6</b>	<b>848.8</b>
GSM 1 Tx slot	30.60	30.80	31.00
GPRS 1 Tx slot	30.70	30.70	30.90
GPRS 2 Tx slots	28.30	28.45	28.45
GPRS 3 Tx slots	26.90	26.70	26.60
GPRS 4 Tx slots	24.80	25.10	25.20
EDGE 1 Tx slot	25.80	25.90	25.90
EDGE 2 Tx slots	22.20	22.50	22.40
EDGE 3 Tx slots	20.10	20.40	20.30
EDGE 4 Tx slots	19.10	19.20	19.20

GSM1900	Average Power (dBm)		
<b>TX Channel</b>	<b>512</b>	<b>661</b>	<b>810</b>
<b>Frequency (MHz)</b>	<b>1850.2</b>	<b>1880</b>	<b>1909.8</b>
GSM 1 Tx slot	25.04	25.12	25.05
GPRS 1 Tx slot	24.98	25.15	25.08
GPRS 2 Tx slots	22.61	22.65	22.63
GPRS 3 Tx slots	17.59	17.53	17.56
GPRS 4 Tx slots	17.74	17.56	17.81
EDGE 1 Tx slot	21.49	21.52	21.47
EDGE 2 Tx slots	18.85	18.79	18.81
EDGE 3 Tx slots	15.07	15.09	15.14
EDGE 4 Tx slots	14.79	14.78	14.74



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WCDMA Band V	Average Power (dBm)		
<b>TX Channel</b>	<b>4132</b>	<b>4182</b>	<b>4233</b>
<b>Frequency (MHz)</b>	<b>826.4</b>	<b>836.4</b>	<b>846.6</b>
AMR 12.2Kbps	21.96	21.93	21.97
RMC 12.2Kbps	21.83	21.88	21.74
HSDPA Subtest-1	19.21	19.37	19.28
HSDPA Subtest-2	19.26	19.38	19.16
HSDPA Subtest-3	18.71	18.91	18.66
HSDPA Subtest-4	18.74	18.88	18.67
HSUPA Subtest-1	19.22	19.35	19.34
HSUPA Subtest-2	17.42	17.55	17.34
HSUPA Subtest-3	18.41	18.57	18.33
HSUPA Subtest-4	17.43	17.57	17.32
HSUPA Subtest-5	19.19	19.36	19.33
HSPA+ (16QAM) Subtest-1	18.02	18.29	18.26

WCDMA Band II	Average Power (dBm)		
<b>TX Channel</b>	<b>9262</b>	<b>9400</b>	<b>9538</b>
<b>Frequency (MHz)</b>	<b>1852.4</b>	<b>1880.0</b>	<b>1907.6</b>
AMR 12.2Kbps	16.76	16.73	16.62
RMC 12.2Kbps	16.02	16.04	16.01
HSDPA Subtest-1	13.69	13.85	13.75
HSDPA Subtest-2	13.73	13.82	13.69
HSDPA Subtest-3	13.21	13.39	13.13
HSDPA Subtest-4	13.23	13.29	13.11
HSUPA Subtest-1	13.79	13.81	13.88
HSUPA Subtest-2	11.89	12.01	11.89
HSUPA Subtest-3	12.92	13.03	12.82
HSUPA Subtest-4	11.91	12.04	11.81
HSUPA Subtest-5	13.73	13.83	13.86
HSPA+ (16QAM) Subtest-1	12.63	12.87	13.01

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WCDMA Band IV	Average Power (dBm)		
TX Channel	1312	1413	1513
Frequency (MHz)	1712.4	1732.6	1752.6
AMR 12.2Kbps	17.89	17.91	17.87
RMC 12.2Kbps	17.37	17.87	17.73
HSDPA Subtest-1	15.21	15.36	15.26
HSDPA Subtest-2	15.25	15.33	15.20
HSDPA Subtest-3	14.73	14.90	14.64
HSDPA Subtest-4	14.75	14.80	14.62
HSUPA Subtest-1	15.31	15.32	15.39
HSUPA Subtest-2	13.41	13.52	13.40
HSUPA Subtest-3	14.44	14.54	14.33
HSUPA Subtest-4	13.43	13.55	13.32
HSUPA Subtest-5	15.25	15.34	15.37
HSPA+ (16QAM) Subtest-1	14.15	14.39	14.48

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**Bottom Antenna:**

GSM850	Average Power (dBm)		
<b>TX Channel</b>	<b>128</b>	<b>190</b>	<b>251</b>
<b>Frequency (MHz)</b>	<b>824.2</b>	<b>836.6</b>	<b>848.8</b>
GSM 1 Tx slot	33.05	33.17	33.32
GPRS 1 Tx slot	33.07	33.15	33.32
GPRS 2 Tx slots	30.34	30.43	30.42
GPRS 3 Tx slots	28.59	28.53	28.56
GPRS 4 Tx slots	26.64	26.62	26.81
EDGE 1 Tx slot	27.39	27.40	27.46
EDGE 2 Tx slots	23.76	23.79	23.91
EDGE 3 Tx slots	21.58	21.68	21.72
EDGE 4 Tx slots	20.51	20.57	20.64

GSM1900	Average Power (dBm)		
<b>TX Channel</b>	<b>512</b>	<b>661</b>	<b>810</b>
<b>Frequency (MHz)</b>	<b>1850.2</b>	<b>1880</b>	<b>1909.8</b>
GSM 1 Tx slot	27.67	27.55	27.76
GPRS 1 Tx slot	27.53	27.64	27.79
GPRS 2 Tx slots	24.88	25.15	25.02
GPRS 3 Tx slots	22.29	22.48	22.41
GPRS 4 Tx slots	20.67	20.78	20.75
EDGE 1 Tx slot	26.49	26.60	26.80
EDGE 2 Tx slots	24.92	24.94	24.97
EDGE 3 Tx slots	22.22	22.43	22.17
EDGE 4 Tx slots	20.70	20.66	20.65



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WCDMA Band V	Average Power (dBm)		
<b>TX Channel</b>	<b>4132</b>	<b>4182</b>	<b>4233</b>
<b>Frequency (MHz)</b>	<b>826.4</b>	<b>836.4</b>	<b>846.6</b>
AMR 12.2Kbps	22.93	22.91	22.89
RMC 12.2Kbps	22.83	22.88	22.74
HSDPA Subtest-1	20.21	20.37	20.28
HSDPA Subtest-2	20.26	20.38	20.16
HSDPA Subtest-3	19.71	19.91	19.66
HSDPA Subtest-4	19.74	19.88	19.67
HSUPA Subtest-1	20.22	20.35	20.34
HSUPA Subtest-2	18.42	18.55	18.34
HSUPA Subtest-3	19.41	19.57	19.33
HSUPA Subtest-4	18.43	18.57	18.32
HSUPA Subtest-5	20.19	20.36	20.33
HSPA+ (16QAM) Subtest-1	19.02	19.29	19.26

WCDMA Band II	Average Power (dBm)		
<b>TX Channel</b>	<b>9262</b>	<b>9400</b>	<b>9538</b>
<b>Frequency (MHz)</b>	<b>1852.4</b>	<b>1880.0</b>	<b>1907.6</b>
AMR 12.2Kbps	20.11	19.89	20.03
RMC 12.2Kbps	19.84	19.86	19.83
HSDPA Subtest-1	17.19	17.35	17.25
HSDPA Subtest-2	17.23	17.32	17.19
HSDPA Subtest-3	16.71	16.89	16.63
HSDPA Subtest-4	16.73	16.79	16.61
HSUPA Subtest-1	17.29	17.31	17.38
HSUPA Subtest-2	15.39	15.51	15.39
HSUPA Subtest-3	16.42	16.53	16.32
HSUPA Subtest-4	15.41	15.54	15.31
HSUPA Subtest-5	17.23	17.33	17.36
HSPA+ (16QAM) Subtest-1	16.13	16.37	16.51

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WCDMA Band IV	Average Power (dBm)		
<b>TX Channel</b>	<b>1312</b>	<b>1413</b>	<b>1513</b>
<b>Frequency (MHz)</b>	<b>1712.4</b>	<b>1732.6</b>	<b>1752.6</b>
AMR 12.2Kbps	21.07	21.78	21.53
RMC 12.2Kbps	20.87	21.37	21.23
HSDPA Subtest-1	18.71	18.86	18.76
HSDPA Subtest-2	18.75	18.83	18.70
HSDPA Subtest-3	18.23	18.40	18.14
HSDPA Subtest-4	18.25	18.30	18.12
HSUPA Subtest-1	18.81	18.82	18.89
HSUPA Subtest-2	16.91	17.02	16.90
HSUPA Subtest-3	17.94	18.04	17.83
HSUPA Subtest-4	16.93	17.05	16.82
HSUPA Subtest-5	18.75	18.84	18.87
HSUPA+ (16QAM) Subtest-1	17.65	17.89	17.98

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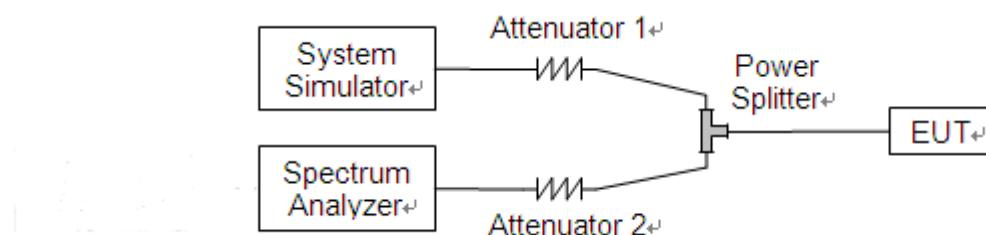
## 2.2. Peak to Average Ratio

### 2.2.1. Requirement

According to FCC 24.232(d) the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

### 2.2.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.

### 2.2.3. Test procedure

- 1 .For GSM/EDGE operating mode:
  - a. Set RBW=1MHz, VBW=3MHz, peak detector in spectrum analyzer.
  - b. Set EUT in maximum output power, and triggered the burst signal.
  - c. Measured respectively the peak level and mean level, and the deviation was recorded as Peak to Average ratio.
2. For UMTS operating mode:
  - a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
  - b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1%.



#### 2.2.4. Test Result

The lowest, middle and highest channels are selected to perform testing to verify the conducted RF output peak power of the Module.

##### A. Test Verdict:

Band	Channel	Frequency (MHz)	Peak to Average ratio	Limit dB	Verdict
			dB		
GSM 850MHz	128	824.2	0.117	13	PASS
	190	836.6	0.229		PASS
	251	848.8	0.117		PASS
GSM 1900MHz	512	1850.2	0.067	13	PASS
	661	1880.0	0.035		PASS
	810	1909.8	0.026		PASS
EDGE 850MHz	128	824.2	0.323	13	PASS
	190	836.6	0.303		PASS
	251	848.8	0.069		PASS
EDGE 1900MHz	512	1850.2	0.066	13	PASS
	661	1880.0	0.035		PASS
	810	1909.8	0.007		PASS

Band	Channel	Frequency (MHz)	Peak to Average ratio	Limit dB	Verdict
			dB		
WCDMA Band V	4132	826.4	3.15	13	PASS
	4182	836.4	3.14		PASS
	4233	846.6	3.13		PASS
WCDMA Band II	9262	1852.4	3.05	13	PASS
	9400	1880.0	2.98		PASS
	9538	1907.6	3.01		PASS
WCDMA Band IV	1312	1712.4	3.10	13	PASS
	1413	1732.6	3.03		PASS
	1513	1752.6	3.03		PASS



REPORT No.: SZ19070119W06

## GSM 850MHz CH128 824.2MHz



## GSM 850MHz CH190 836.6MHz



## GSM 850MHz CH251 848.8MHz

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REPORT No.: SZ19070119W06

## GSM 850MHz CH128 824.2MHz



## GSM 1900MHz CH512 1850.2MHz



## GSM 1900MHz CH661 1880.0MHz



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REPORT No.: SZ19070119W06

## GSM 850MHz CH128 824.2MHz GSM 1900MHz CH810 1909.8MHz



## EDGE 850MHz CH128 824.2MHz



## EDGE 850MHz CH190 836.6MHz

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REPORT No.: SZ19070119W06

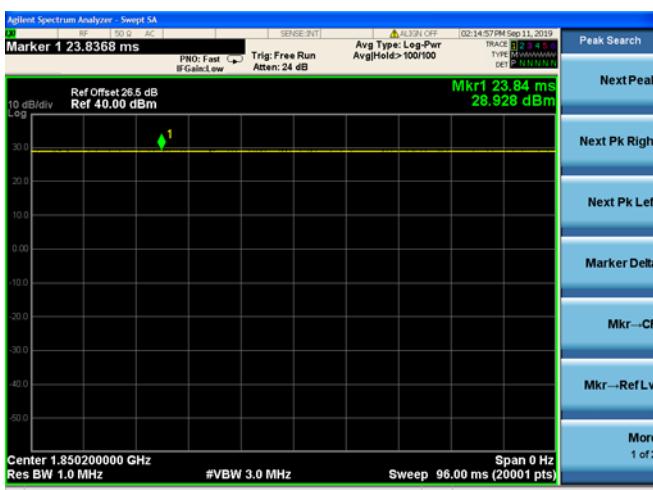
## GSM 850MHz CH128 824.2MHz



## EDGE 850MHz CH251 848.8MHz



## EDGE 1900MHz CH512 1850.2MHz



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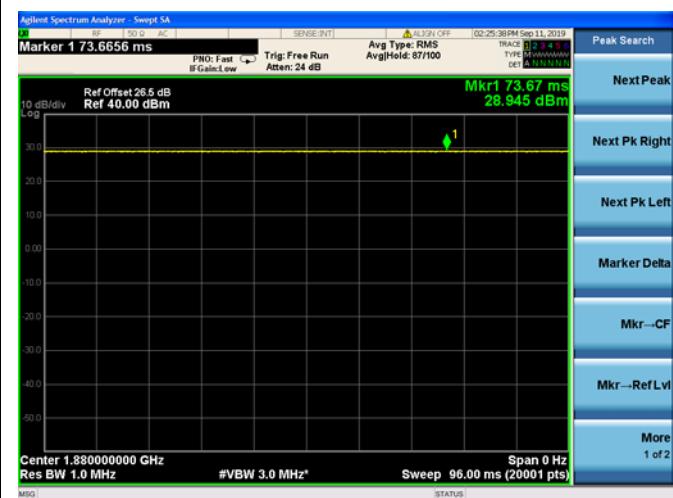
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REPORT No.: SZ19070119W06

### GSM 850MHz CH128 824.2MHz EDGE 1900MHz CH661 1880.0MHz



### EDGE 1900MHz CH810 1909.8MHz



WCDMA Band V CH4132 826.4MHz

WCDMA Band V CH4183 836.4MHz

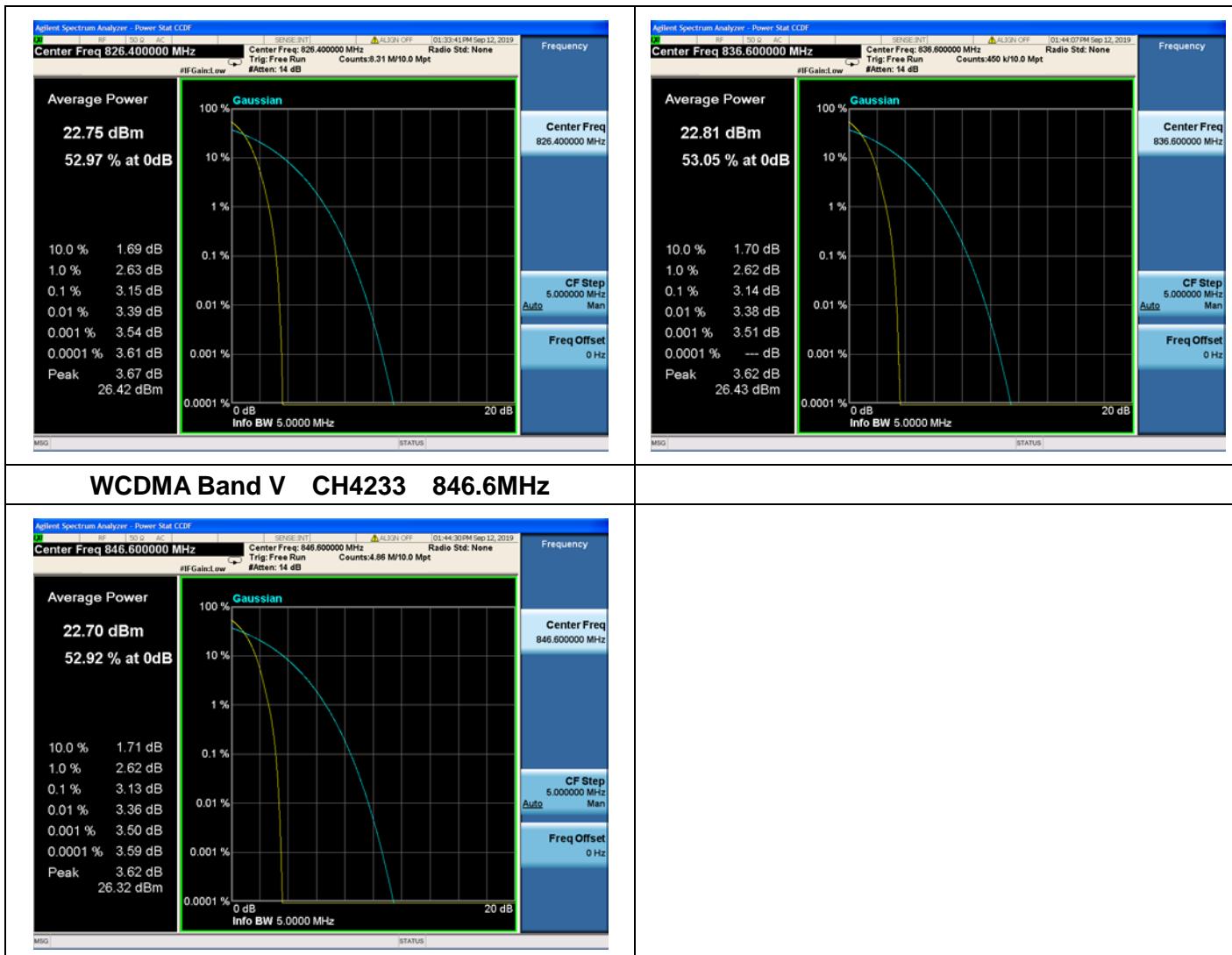
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REPORT No.: SZ19070119W06



WCDMA Band II CH9262 1852.4MHz

WCDMA Band II CH9400 1880.0MHz

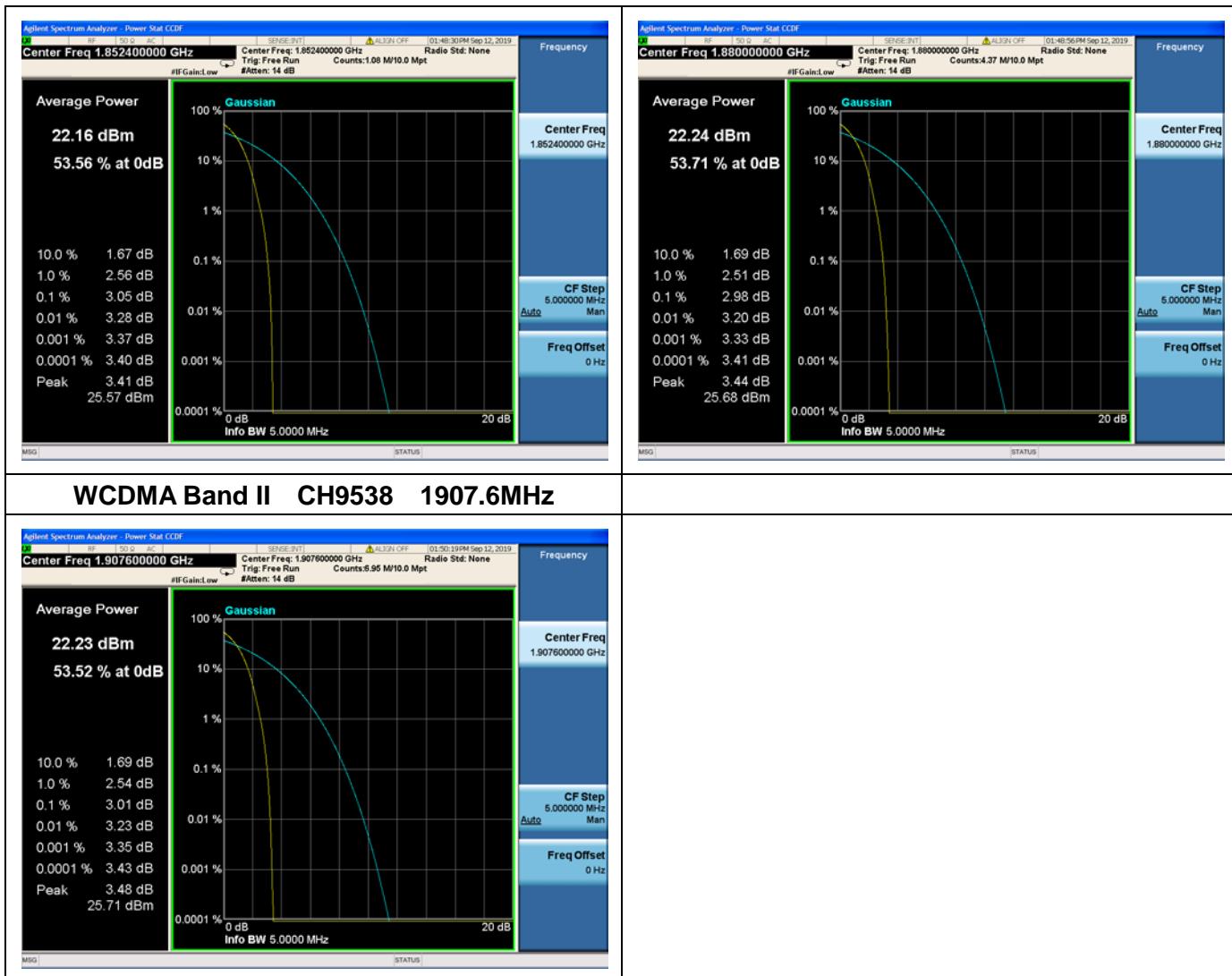
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<b>WCDMA Band IV CH1312 1712.4MHz</b>	<b>WCDMA Band IV CH1413 1732.6MHz</b>
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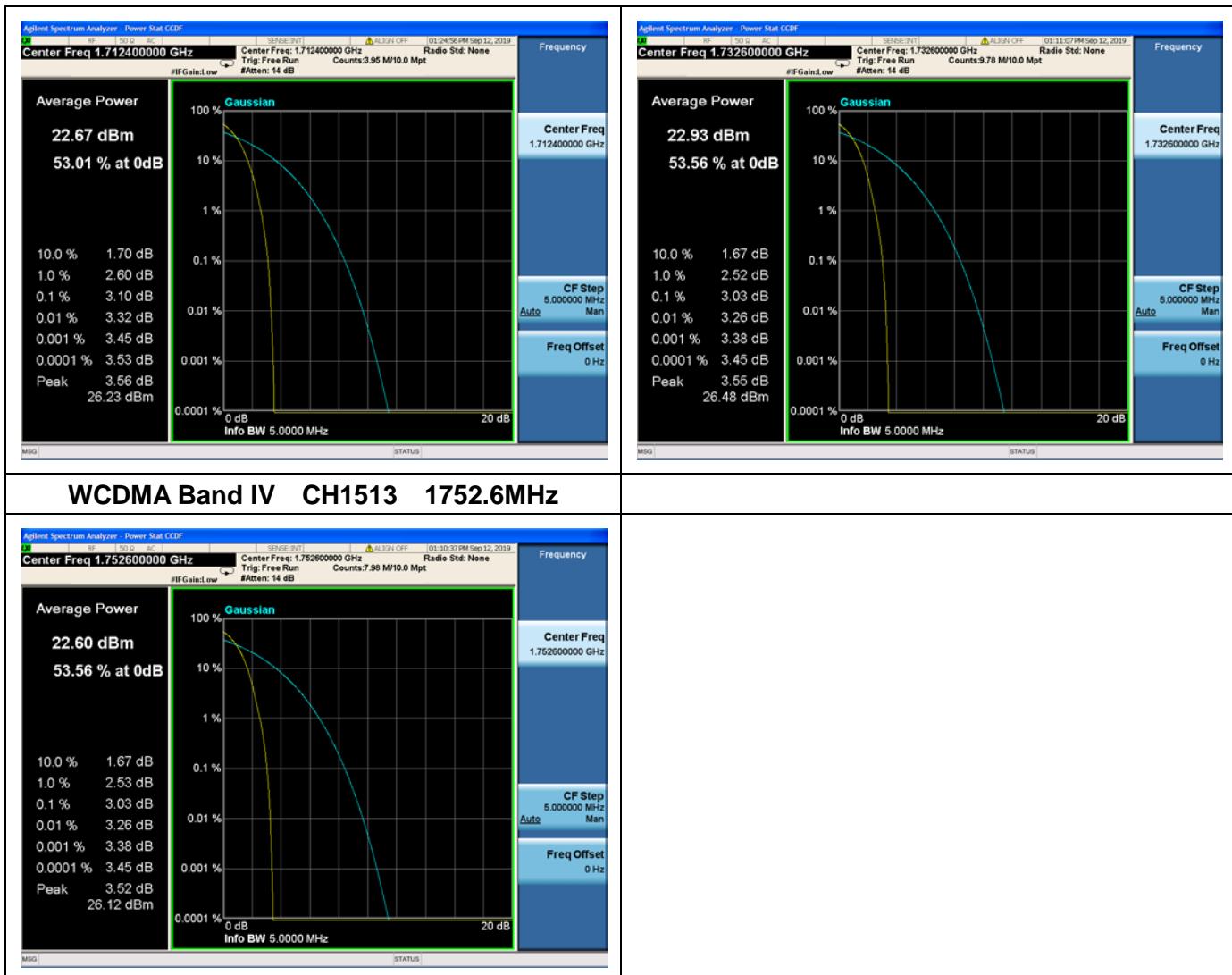
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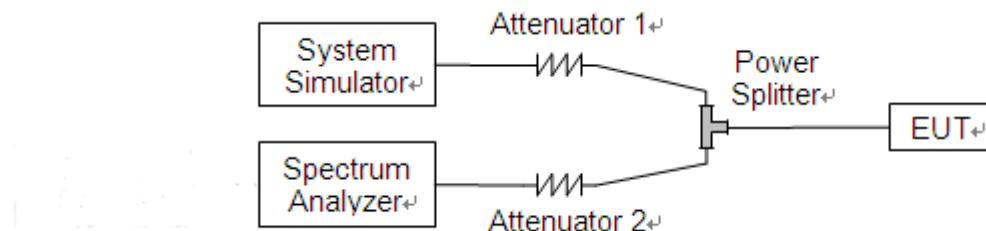
## 2.3.99% Occupied Bandwidth

### 2.3.1. Requirement

According to FCC section 2.1049, the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission. Occupied bandwidth is also known as the 99% emission bandwidth.

### 2.3.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.



### 2.3.3. Test Result

The lowest, middle and highest channels are selected to perform testing to record the 99% occupied bandwidth.

#### GSM Test Verdict:

Band	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)
GSM 850MHz	128	824.2	239.91	310.9
	190	836.6	241.29	313.5
	251	848.8	247.69	302.4
GSM 1900MHz	512	1850.2	242.33	314.1
	661	1880.0	242.64	310.9
	810	1909.8	242.17	311.3
EDGE 850MHz	128	824.2	243.32	308.3
	190	836.6	242.96	311.0
	251	848.8	245.95	314.8
EDGE 1900MHz	512	1850.2	239.95	311.9
	661	1880.0	243.13	313.6
	810	1909.8	238.80	308.9

#### WCDMA Test Verdict:

Band	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
WCDMA Band V	4132	826.4	4.145	4.705
	4183	836.4	4.137	4.707
	4233	846.6	4.131	4.714
WCDMA Band II	9262	1852.4	4.185	4.703
	9400	1880.0	4.153	4.727
	9538	1907.6	4.161	4.728
WCDMA Band IV	1312	1712.4	4.186	4.730
	1413	1732.6	4.147	4.727
	1513	1752.6	4.161	4.720



REPORT No.: SZ19070119W06

GSM 850MHz CH128 824.2MHz	GSM 850MHz CH190 836.6MHz
<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 824.200000 MHz Trig: Free Run Avg Hold&gt;10/10 Radio Std: None Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 824.2 MHz #Res BW 10 kHz #VBW 30 kHz Span 2 MHz Sweep 24.73 ms Occupied Bandwidth Total Power 38.6 dBm 239.91 kHz Transmit Freq Error 1.069 kHz OBW Power 99.00 % x dB Bandwidth 310.9 kHz x dB -26.00 dB</p>	<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 836.600000 MHz Trig: Free Run Avg Hold&gt;10/10 Radio Std: None Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 836.6 MHz #Res BW 10 kHz #VBW 30 kHz Span 2 MHz Sweep 24.73 ms Occupied Bandwidth Total Power 38.0 dBm 241.29 kHz Transmit Freq Error -1.244 kHz OBW Power 99.00 % x dB Bandwidth 313.5 kHz x dB -26.00 dB</p>
GSM 850MHz CH251 848.8MHz	GSM 1900MHz CH512 1850.2MHz
<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 848.800000 MHz Trig: Free Run Avg Hold&gt;10/10 Radio Std: None Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 848.8 MHz #Res BW 10 kHz #VBW 30 kHz Span 2 MHz Sweep 24.73 ms Occupied Bandwidth Total Power 36.7 dBm 247.69 kHz Transmit Freq Error -617 Hz OBW Power 99.00 % x dB Bandwidth 302.4 kHz x dB -26.00 dB</p>	<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 1.850200000 GHz Trig: Free Run Avg Hold&gt;10/10 Radio Std: None Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 1.85 GHz #Res BW 10 kHz #VBW 30 kHz Span 2 MHz Sweep 24.73 ms Occupied Bandwidth Total Power 34.5 dBm 242.33 kHz Transmit Freq Error 342 Hz OBW Power 99.00 % x dB Bandwidth 314.1 kHz x dB -26.00 dB</p>
GSM 1900MHz CH661 1880.0MHz	GSM 1900MHz CH810 1909.8MHz
<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 1.880000000 GHz Trig: Free Run Avg Hold&gt;10/10 Radio Std: None Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 1.88 GHz #Res BW 10 kHz #VBW 30 kHz Span 2 MHz Sweep 24.73 ms Occupied Bandwidth Total Power 33.7 dBm 242.64 kHz Transmit Freq Error -127 Hz OBW Power 99.00 % x dB Bandwidth 310.9 kHz x dB -26.00 dB</p>	<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 1.909800000 GHz Trig: Free Run Avg Hold&gt;10/10 Radio Std: None Radio Device: BTS 10 dB/div Ref 40.00 dBm Log Center 1.91 GHz #Res BW 10 kHz #VBW 30 kHz Span 2 MHz Sweep 24.73 ms Occupied Bandwidth Total Power 34.7 dBm 242.17 kHz Transmit Freq Error 972 Hz OBW Power 99.00 % x dB Bandwidth 311.3 kHz x dB -26.00 dB</p>

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REPORT No.: SZ19070119W06

EDGE 850MHz CH128 824.2MHz	EDGE 850MHz CH190 836.6MHz
<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 824.200000 MHz Center Freq: 824.200000 MHz SENSE:INTI ALIGN OFF 01:37:02PM Sep 11, 2019 Trig: Free Run Avg Hold&gt;10/10 Radio Std: None #IFGainLow #Atten: 24 dB Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 824.2 MHz #Res BW 10 kHz #VBW 30 kHz Span 2 MHz Sweep 24.73 ms Occupied Bandwidth Total Power 37.4 dBm 243.32 kHz Transmit Freq Error -137 Hz OBW Power 99.00 % x dB Bandwidth 308.3 kHz x dB -26.00 dB</p>	<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 836.600000 MHz Center Freq: 836.600000 MHz SENSE:INTI ALIGN OFF 01:42:59PM Sep 11, 2019 Trig: Free Run Avg Hold&gt;10/10 Radio Std: None #IFGainLow #Atten: 24 dB Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 836.6 MHz #Res BW 10 kHz #VBW 30 kHz Span 2 MHz Sweep 24.73 ms Occupied Bandwidth Total Power 36.3 dBm 242.96 kHz Transmit Freq Error -752 Hz OBW Power 99.00 % x dB Bandwidth 311.0 kHz x dB -26.00 dB</p>
EDGE 850MHz CH251 848.8MHz	EDGE 1900MHz CH512 1850.2MHz
<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 848.800000 MHz Center Freq: 848.800000 MHz SENSE:INTI ALIGN OFF 01:43:28PM Sep 11, 2019 Trig: Free Run Avg Hold&gt;10/10 Radio Std: None #IFGainLow #Atten: 24 dB Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 848.8 MHz #Res BW 10 kHz #VBW 30 kHz Span 2 MHz Sweep 24.73 ms Occupied Bandwidth Total Power 37.7 dBm 245.95 kHz Transmit Freq Error 199 Hz OBW Power 99.00 % x dB Bandwidth 314.8 kHz x dB -26.00 dB</p>	<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 1.850200000 GHz Center Freq: 1.850200000 GHz SENSE:INTI ALIGN OFF 01:26:26PM Sep 11, 2019 Trig: Free Run Avg Hold&gt;10/10 Radio Std: None #IFGainLow #Atten: 14 dB Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 1.85 GHz #Res BW 10 kHz #VBW 30 kHz Span 2 MHz Sweep 24.73 ms Occupied Bandwidth Total Power 33.6 dBm 239.95 kHz Transmit Freq Error 1.396 kHz OBW Power 99.00 % x dB Bandwidth 311.9 kHz x dB -26.00 dB</p>
EDGE 1900MHz CH661 1880.0MHz	EDGE 1900MHz CH810 1909.8MHz
<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 1.880000000 GHz Center Freq: 1.880000000 GHz SENSE:INTI ALIGN OFF 01:22:13PM Sep 11, 2019 Trig: Free Run Avg Hold&gt;10/10 Radio Std: None #IFGainLow #Atten: 14 dB Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 1.88 GHz #Res BW 10 kHz #VBW 30 kHz Span 2 MHz Sweep 24.73 ms Occupied Bandwidth Total Power 34.4 dBm 243.13 kHz Transmit Freq Error -703 Hz OBW Power 99.00 % x dB Bandwidth 313.6 kHz x dB -26.00 dB</p>	<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 1.909800000 GHz Center Freq: 1.909800000 GHz SENSE:INTI ALIGN OFF 01:05:10PM Sep 11, 2019 Trig: Free Run Avg Hold&gt;10/10 Radio Std: None #IFGainLow #Atten: 14 dB Radio Device: BTS 10 dB/div Ref 40.00 dBm Log Center 1.91 GHz #Res BW 10 kHz #VBW 30 kHz Span 2 MHz Sweep 24.73 ms Occupied Bandwidth Total Power 34.7 dBm 238.80 kHz Transmit Freq Error 509 Hz OBW Power 99.00 % x dB Bandwidth 308.9 kHz x dB -26.00 dB</p>

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REPORT No.: SZ19070119W06

WCDMA Band V CH4132 826.4MHz	WCDMA Band V CH4183 836.4MHz
<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 826.400000 MHz SENSE INTL RF 150 Q AC 10/05 01 AM Sep 12, 2019 ALIGN OFF #IFGain:Low #Attenuator: 14 dB Radio Std: None Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 826.4 MHz #Res BW 100 kHz #VBW 300 kHz Span 10 MHz Sweep 1.267 ms Occupied Bandwidth Total Power 22.8 dBm 4.1448 MHz Transmit Freq Error -6.147 kHz OBW Power 99.00 % x dB Bandwidth 4.705 MHz x dB -26.00 dB</p>	<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 836.600000 MHz SENSE INTL RF 150 Q AC 10/22 31 AM Sep 12, 2019 ALIGN OFF #IFGain:Low #Attenuator: 14 dB Radio Std: None Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 836.6 MHz #Res BW 100 kHz #VBW 300 kHz Span 10 MHz Sweep 1.267 ms Occupied Bandwidth Total Power 22.6 dBm 4.1372 MHz Transmit Freq Error 14.810 kHz OBW Power 99.00 % x dB Bandwidth 4.707 MHz x dB -26.00 dB</p>
WCDMA Band V CH4233 846.6MHz	WCDMA Band II CH9262 1852.4MHz
<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 846.600000 MHz SENSE INTL RF 10/24 17 AM Sep 12, 2019 ALIGN OFF #IFGain:Low #Attenuator: 14 dB Radio Std: None Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 846.6 MHz #Res BW 100 kHz #VBW 300 kHz Span 10 MHz Sweep 1.267 ms Occupied Bandwidth Total Power 22.5 dBm 4.1314 MHz Transmit Freq Error -3.168 kHz OBW Power 99.00 % x dB Bandwidth 4.714 MHz x dB -26.00 dB</p>	<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 1.852400000 GHz SENSE INTL RF 09/29 25 AM Sep 12, 2019 ALIGN OFF #IFGain:Low #Attenuator: 14 dB Radio Std: None Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 1.852 GHz #Res BW 100 kHz #VBW 300 kHz Span 10 MHz Sweep 1.267 ms Occupied Bandwidth Total Power 22.1 dBm 4.1854 MHz Transmit Freq Error 17.148 kHz OBW Power 99.00 % x dB Bandwidth 4.703 MHz x dB -26.00 dB</p>
WCDMA Band II CH9400 1880.0MHz	WCDMA Band II CH9538 1907.6MHz
<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 1.880000000 GHz SENSE INTL RF 09/29 10 AM Sep 12, 2019 ALIGN OFF #IFGain:Low #Attenuator: 14 dB Radio Std: None Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 1.88 GHz #Res BW 100 kHz #VBW 300 kHz Span 10 MHz Sweep 1.267 ms Occupied Bandwidth Total Power 22.1 dBm 4.1532 MHz Transmit Freq Error 20.900 kHz OBW Power 99.00 % x dB Bandwidth 4.727 MHz x dB -26.00 dB</p>	<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 1.907600000 GHz SENSE INTL RF 09/29 25 AM Sep 12, 2019 ALIGN OFF #IFGain:Low #Attenuator: 14 dB Radio Std: None Radio Device: BTS 10 dB/div Ref 30.00 dBm Log Center 1.908 GHz #Res BW 100 kHz #VBW 300 kHz Span 10 MHz Sweep 1.267 ms Occupied Bandwidth Total Power 22.2 dBm 4.1613 MHz Transmit Freq Error -59 Hz OBW Power 99.00 % x dB Bandwidth 4.728 MHz x dB -26.00 dB</p>

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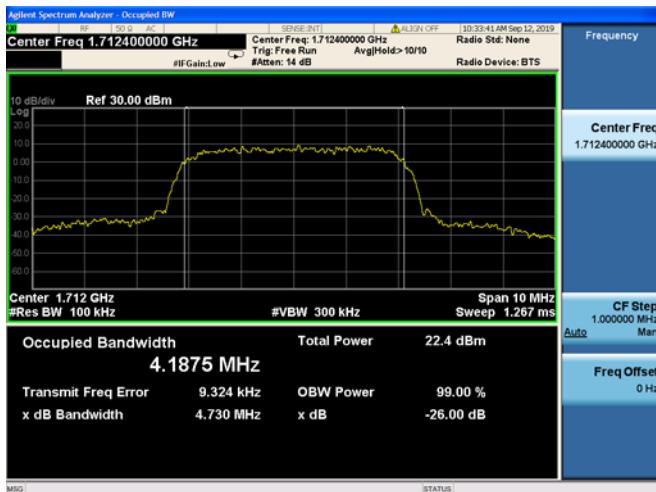
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## WCDMA Band IV CH1312 1712.4MHz



## WCDMA Band IV CH1413 1732.6MHz



## WCDMA Band IV CH1513 1752.6MHz



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## 2.4. Frequency Stability

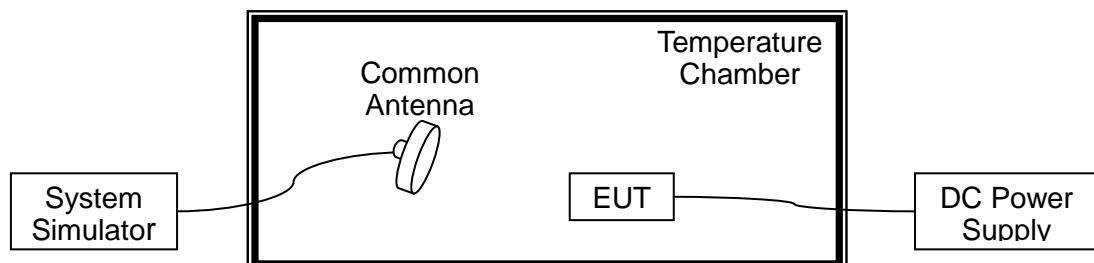
### 2.4.1. Requirement

According to FCC section 22.355, 24.235 and 27.54 the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

- (a) The temperature is varied from -30°C to +50°C at intervals of not more than 10°C.
- (b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

### 2.4.2. Test Description

Test Setup:



The EUT, which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS via a Common Antenna.



### 2.4.3. Test Result

#### A. Test Verdict:

GSM 850MHz, Channel 190, Frequency 836.6MHz					
Limit =±2.5ppm					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.82	+20(Ref)	23	0.027	PASS
100		-10	-49	-0.059	
100		0	-27	-0.032	
100		+10	15	0.018	
100		+20	25	0.030	
100		+30	75	0.090	
100		+40	64	0.077	
100		+45	84	0.100	
115	4.40	+20	-6	-0.007	
85	3.30	+20	-71	-0.085	

GSM 1900MHz, Channel 661, Frequency 1880.0MHz					
Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.82	+20(Ref)	97	0.052	PASS
100		-10	-26	-0.014	
100		0	-29	-0.015	
100		+10	-53	-0.028	
100		+20	42	0.022	
100		+30	73	0.039	
100		+40	31	0.016	
100		+45	82	0.044	
115	4.40	+20	16	0.009	
85	3.30	+20	-58	-0.031	

EDGE 850MHz, Channel 190, Frequency 836.6MHz					
Limit =±2.5ppm					
Voltage (%)	Power	Temp (°C)	Fre. Dev.	Deviation	Result



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	(VDC)		(Hz)	(ppm)	
100	3.82	+20(Ref)	25	0.030	PASS
100		-10	-74	-0.088	
100		0	-25	-0.030	
100		+10	54	0.065	
100		+20	15	0.018	
100		+30	26	0.031	
100		+40	25	0.030	
100		+45	74	0.088	
115	4.40	+20	-36	-0.043	
85	3.30	+20	-47	-0.056	

EDGE 1900MHz, Channel 661, Frequency 1880.0MHz					
Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.82	+20(Ref)	42	0.022	PASS
100		-10	-26	-0.014	
100		0	-85	-0.045	
100		+10	-84	-0.045	
100		+20	27	0.014	
100		+30	84	0.045	
100		+40	16	0.009	
100		+45	15	0.008	
115	4.40	+20	16	0.009	
85	3.30	+20	-25	-0.013	

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REPORT No.: SZ19070119W06

WCDMA Band V, Channel 4182, Frequency 836.4MHz					
Limit =±2.5ppm					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.82	+20(Ref)	31	0.037	PASS
100		-10	-28	-0.034	
100		0	-35	-0.042	
100		+10	32	0.038	
100		+20	16	0.019	
100		+30	26	0.031	
100		+40	47	0.056	
100		+45	62	0.074	
115	4.40	+20	-65	-0.078	
85	3.30	+20	-35	-0.042	

WCDMA Band II, Channel 9400, Frequency 1880.0MHz					
Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.82	+20(Ref)	25	0.013	PASS
100		-10	-85	-0.045	
100		0	-37	-0.020	
100		+10	-26	-0.014	
100		+20	86	0.046	
100		+30	83	0.044	
100		+40	52	0.028	
100		+45	15	0.008	
115	4.40	+20	43	0.023	
85	3.30	+20	-86	-0.046	

WCDMA Band IV, Channel 1413, Frequency 1732.6MHz					
Limit =Within Authorized Band					

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Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.82	+20(Ref)	-54	-0.031	PASS
100		-10	-68	-0.039	
100		0	-53	-0.031	
100		+10	-39	-0.023	
100		+20	-64	-0.037	
100		+30	-37	-0.021	
100		+40	67	0.039	
100		+45	15	0.009	
100		+20	67	0.039	
115	4.40	+20	15	0.009	
85	3.30	+20(Ref)	-54	-0.031	

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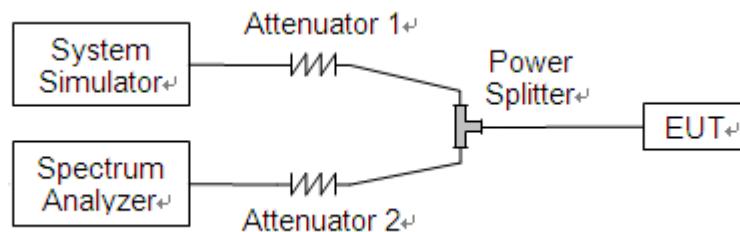
## 2.5. Conducted Out of Band Emissions

### 2.5.1. Requirement

According to FCC section 22.917(a), 24.238(a) and 27.53(h) 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. This calculated to be -13dBm.

### 2.5.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ω; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.

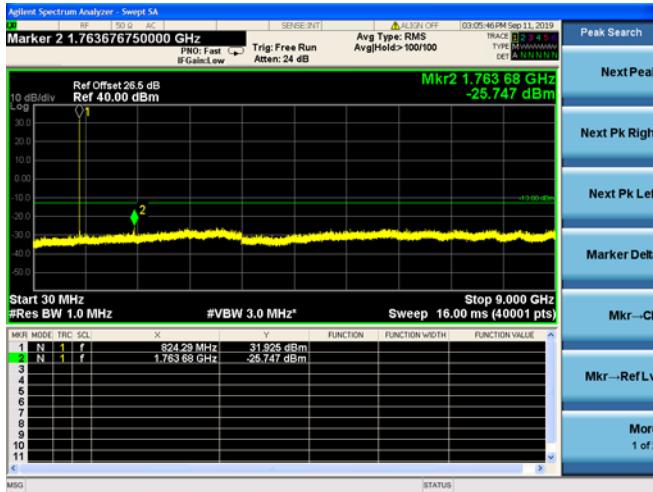
### 2.5.3. Test Result

The measurement frequency range is from 30MHz to the 10<sup>th</sup> harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the out of band emissions.

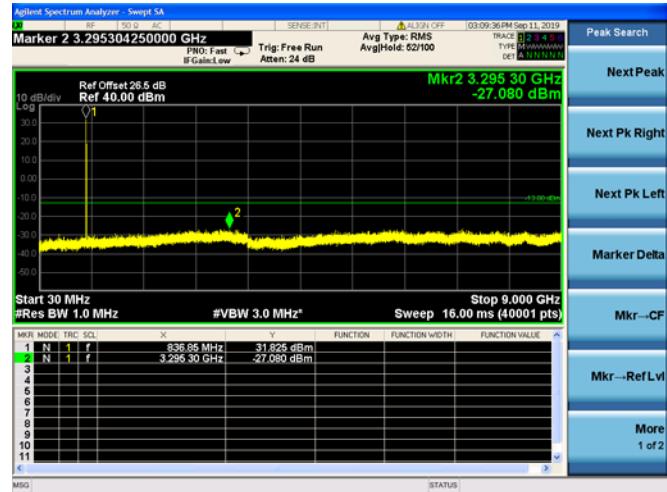


REPORT No.: SZ19070119W06

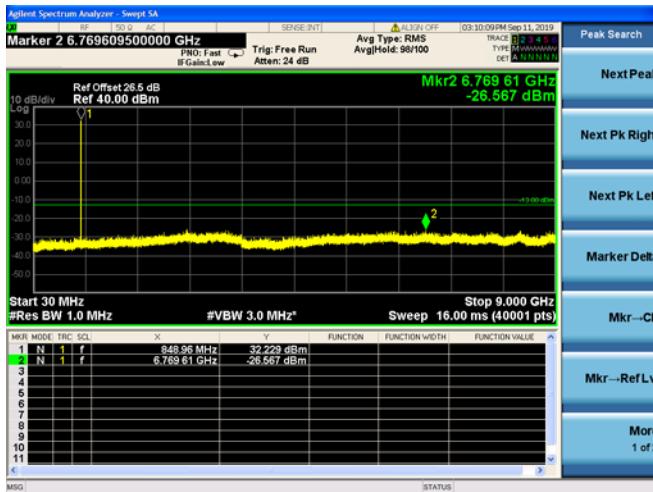
GSM 850MHz CH128 824.2MHz



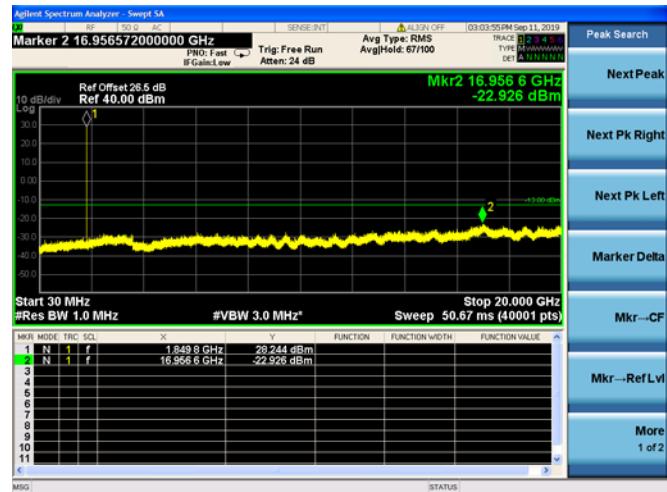
**GSM 850MHz CH190 836.6MHz**



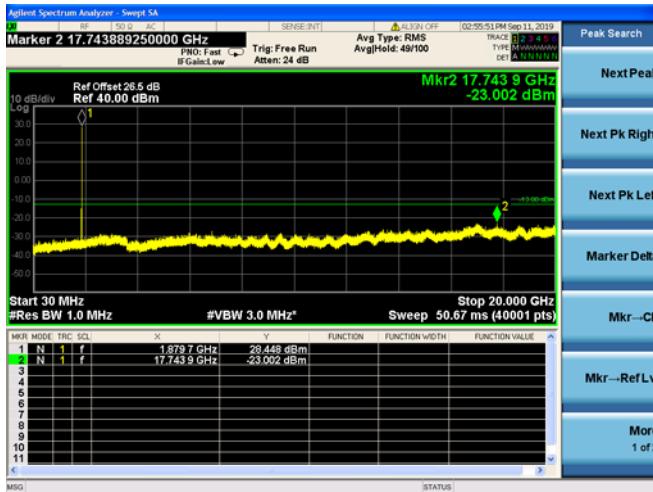
**GSM 850MHz CH251 848.8MHz**



**GSM 1900MHz CH521 1850.2MHz**



**GSM 1900MHz CH661 1880.0MHz**



**GSM 1900MHz CH810 1909.8MHz**



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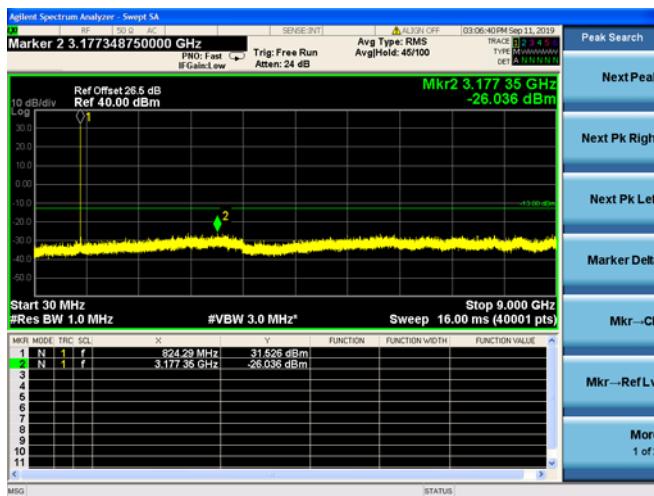
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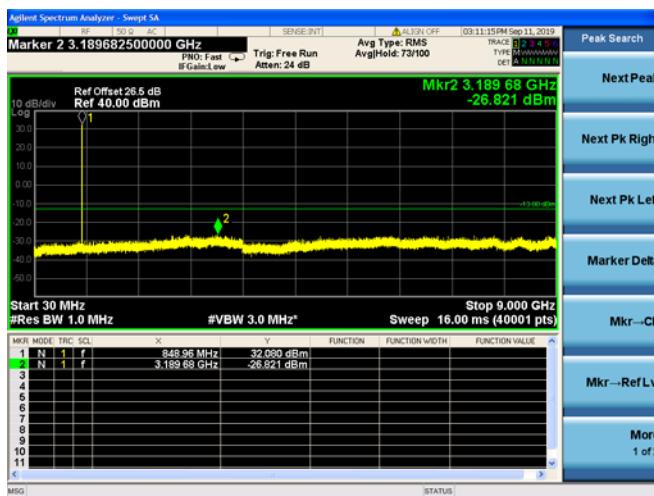
## EDGE 850MHz CH128 824.2MHz



## EDGE 850MHz CH190 836.6MHz



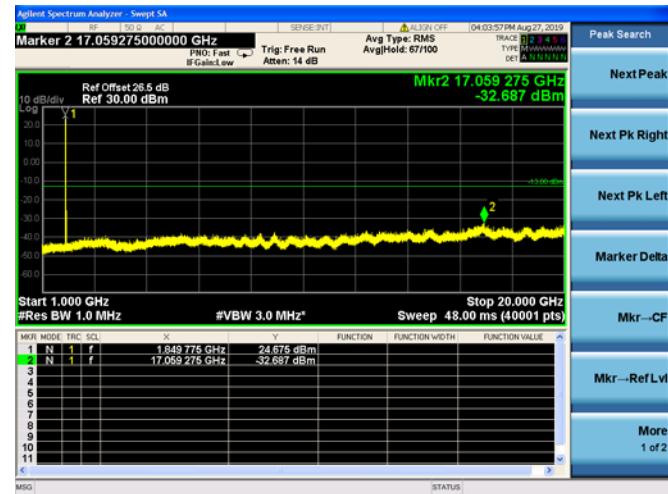
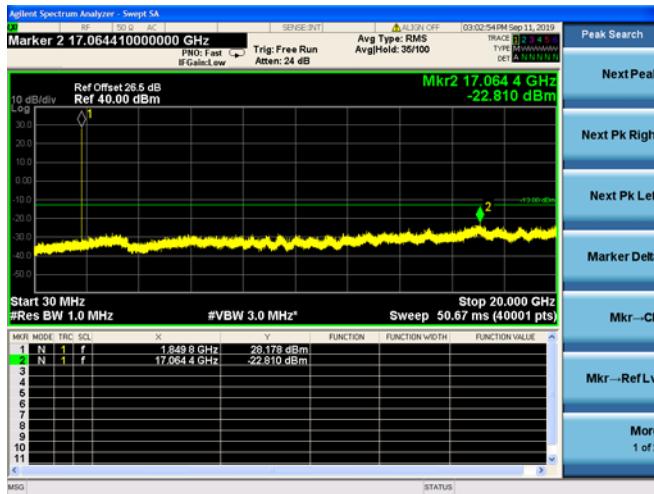
## EDGE 850MHz CH251 848.8MHz



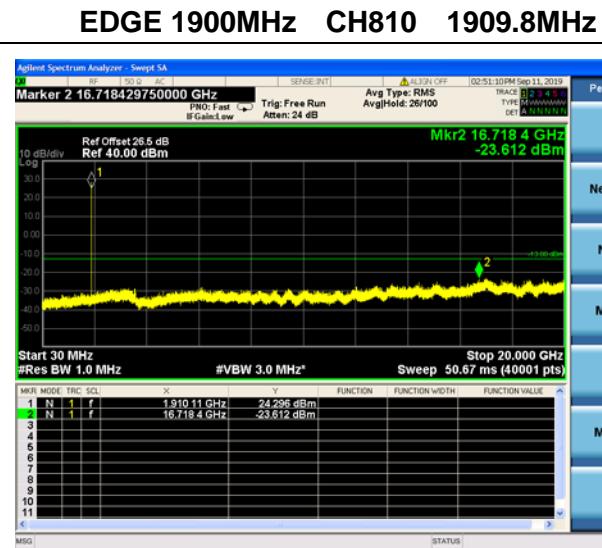
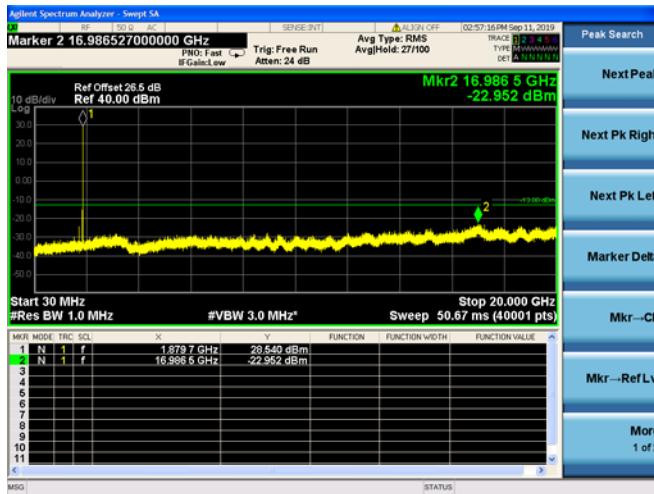


REPORT No.: SZ19070119W06

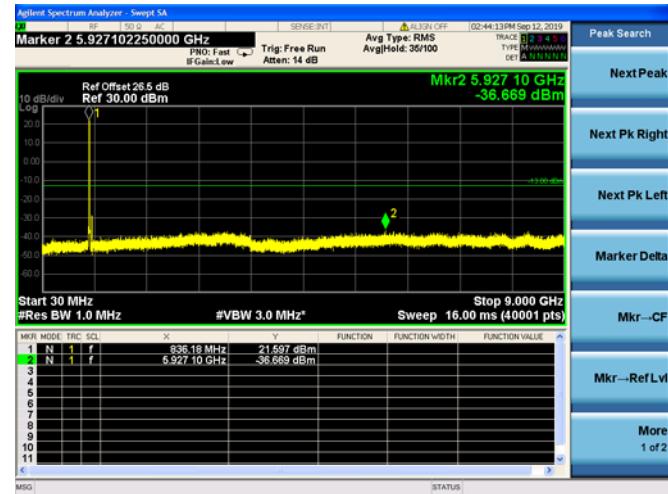
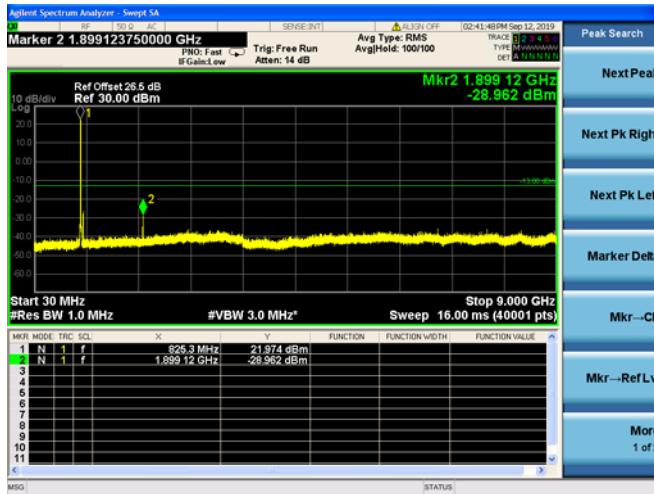
## EDGE 1900MHz CH521 1850.2MHz



## EDGE 1900MHz CH661 1880.0MHz



## WCDMA Band V CH4132 826.4MHz



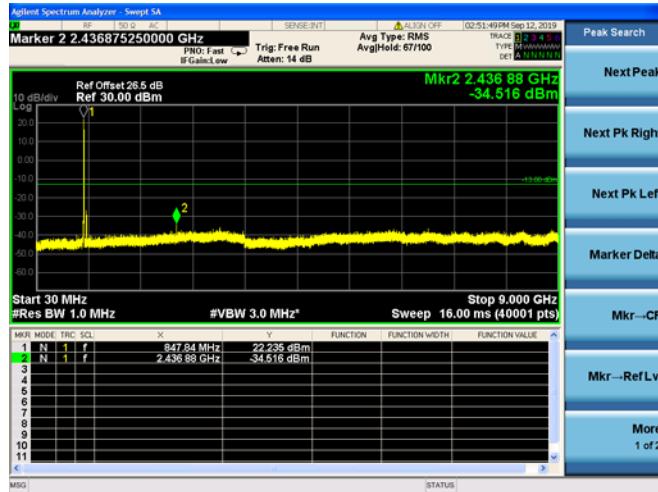
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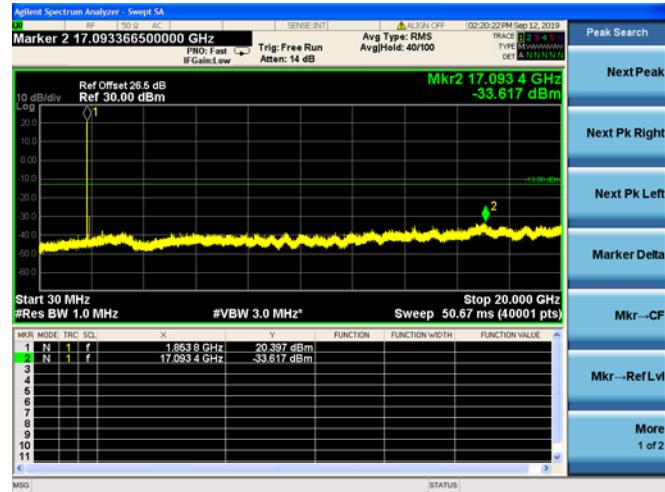


REPORT No.: SZ19070119W06

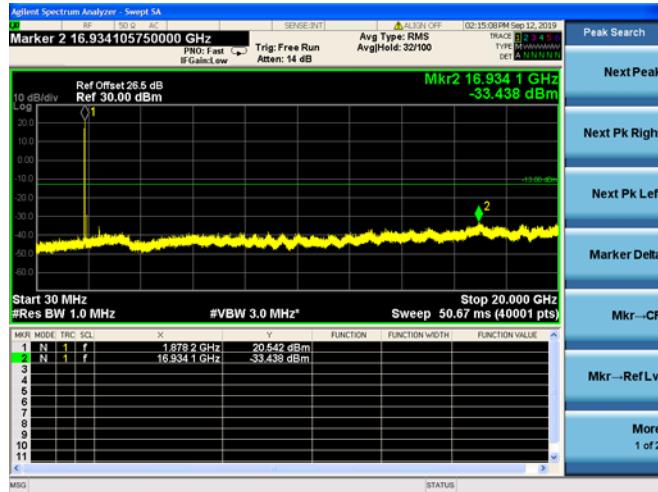
## WCDMA Band V CH4233 846.6MHz



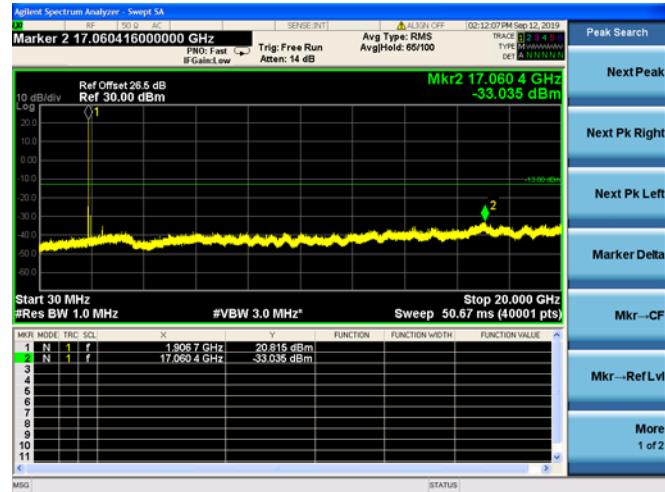
## WCDMA Band II CH9262 1852.4MHz



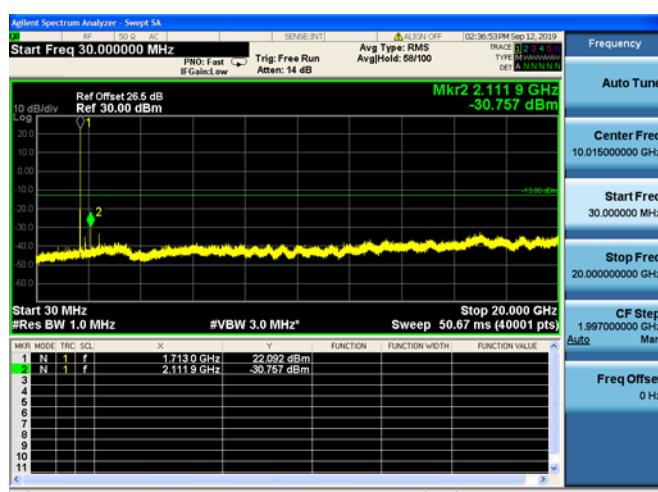
## WCDMA Band II CH9400 1880.0MHz



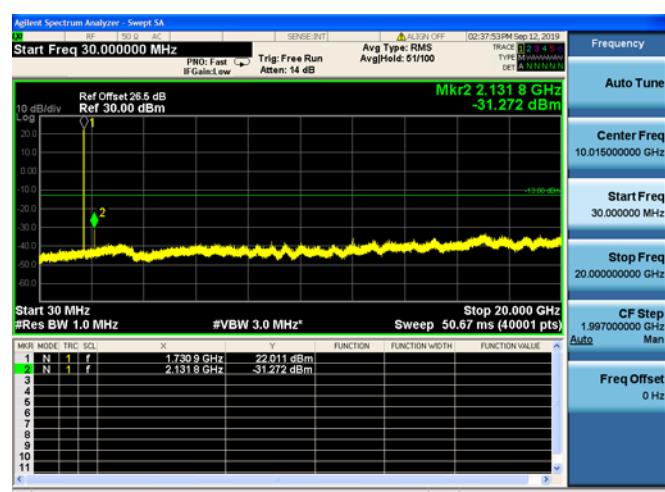
## WCDMA Band II CH9538 1907.6MHz



## WCDMA Band IV CH1312 1712.4MHz



## WCDMA Band IV CH1413 1732.6MHz



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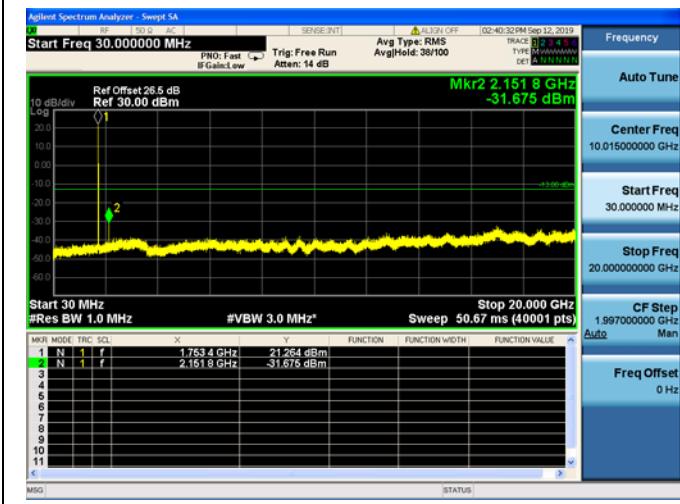
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WCDMA Band IV CH1513 1752.6MHz



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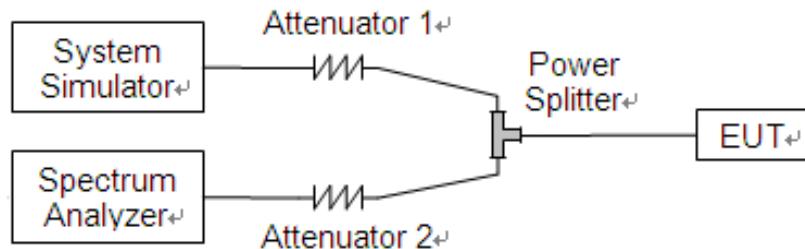
## 2.6. Band Edge

### 2.6.1. Requirement

According to FCC section 22.917(b), 24.238(b) and 27.53(h) in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth (26dB emission bandwidth) of the fundamental emission of the transmitter may be employed.

### 2.6.2. Test Description

Test Setup:



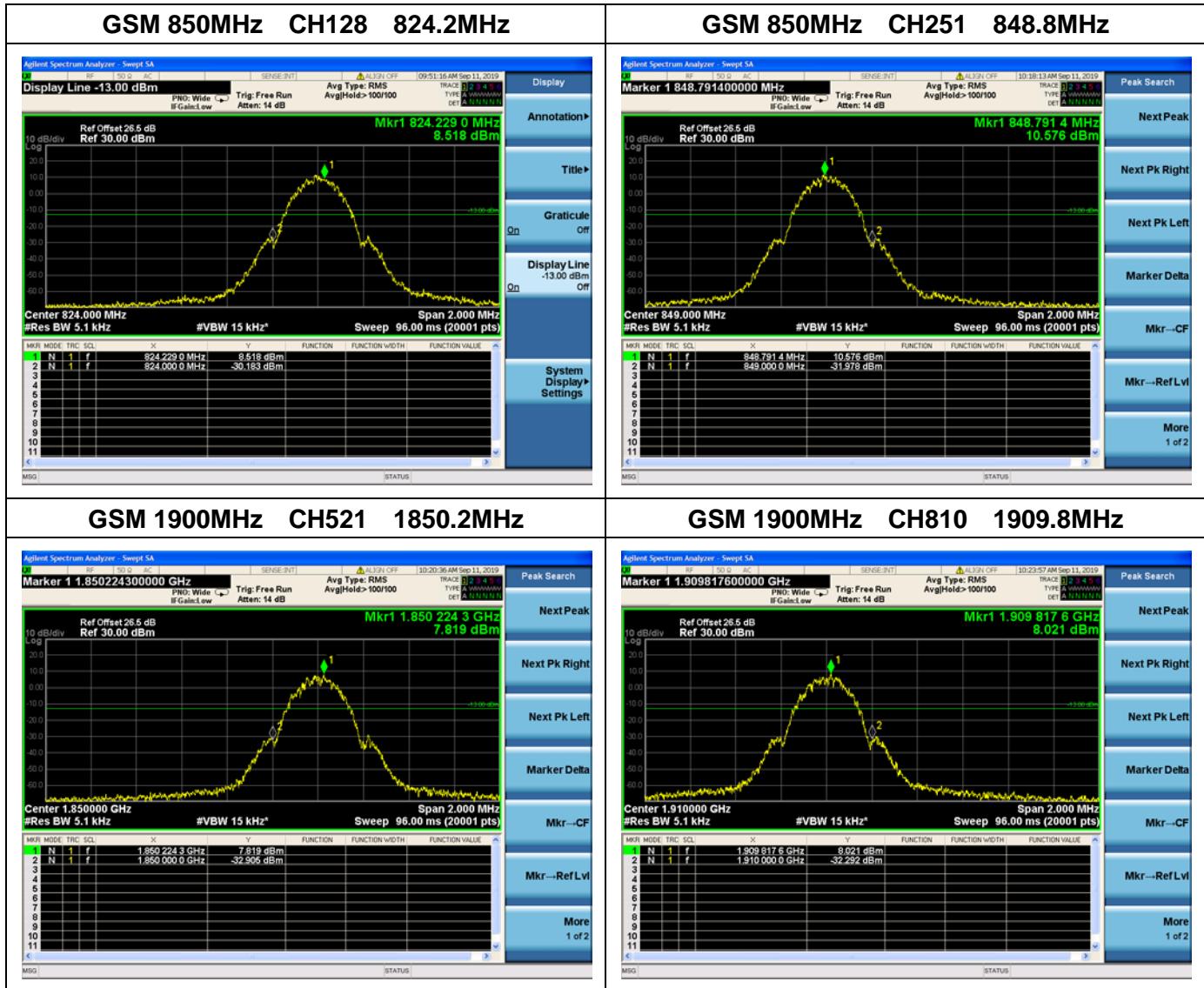
The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.



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### 2.6.3. Test Result

The lowest and highest channels are tested to verify the band edge emissions.



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