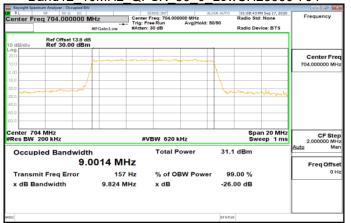
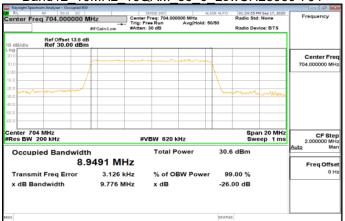




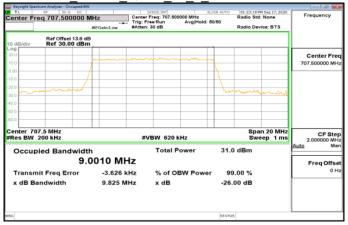
## Band12\_10MHz\_QPSK\_50\_0\_LowCH23060-704



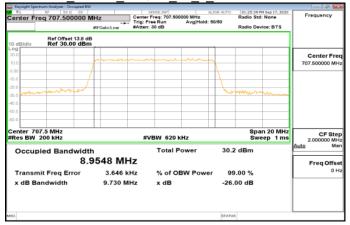
### Band12 10MHz 16QAM 50 0 LowCH23060-704



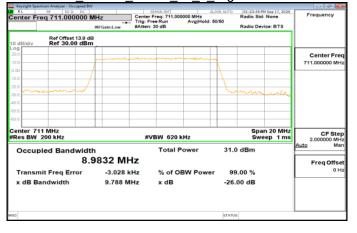
#### Band12 10MHz QPSK 50 0 MidCH23095-707.5



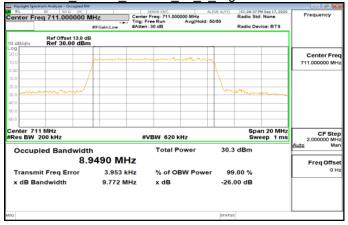
#### Band12 10MHz 16QAM 50 0 MidCH23095-707.5



## Band12\_10MHz\_QPSK\_50\_0\_HighCH23130-711



## Band12\_10MHz\_16QAM\_50\_0\_HighCH23130-711



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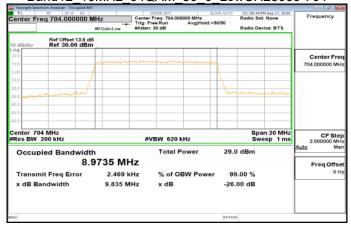
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f (886-2) 2298-0488

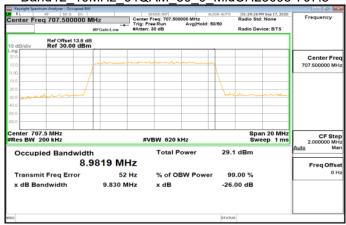




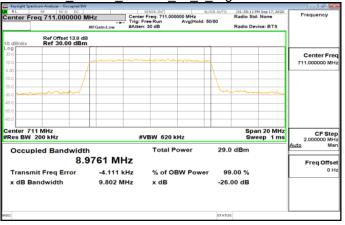
## Band12\_10MHz\_64QAM\_50\_0\_LowCH23060-704



## Band12 10MHz 64QAM 50 0 MidCH23095-707.5



## Band12\_10MHz\_64QAM\_50\_0\_HighCH23130-711



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## **OUT OF BAND EMISSION AT ANTENNA TERMINALS**

#### 8.1 Standard Applicable

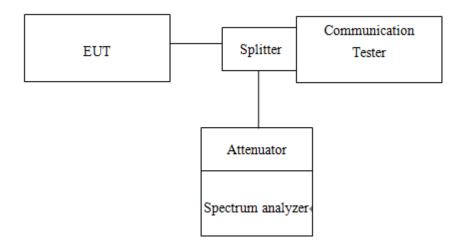
## FCC §22.917(a), §24.238(a)

Out of band emissions. 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.

## FCC §27.53(g)

Compliance for operations in the 600 MHz, 698-746 MHz, 746-758 MHz and the 776-788 MHz band with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

#### 8.2 **Test SET-UP**



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#### 8.3 **Measurement Procedure**

#### 8.3.1 **Conducted Emission**

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

- To connect Antenna Port of EUT to Spectrum.
- 2. Set RBW = 1MHz & VBW = 1MHz on Spectrum.
- 3. Allow trace to fully stabilize
- 4. Repeat above procedures until all default test channel measured were complete.

#### 8.3.2 **Band Edge**

- To connect Antenna Port of EUT to Spectrum.
- 2. The band edge of low and high channels for the highest RF powers was measured. Setting RBW ≥ 1% EBW.
- 3. Allow trace to fully stabilize
- 4. Repeat above procedures until all default test channel measured were complete.

#### 8.4 **Measurement Equipment Used**

Condu	Conducted Emission (measured at antenna port) Test Site								
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.				
PXA Spectrum Analyzer	Agilent	N9030A	MY53120760	Apr. 21st, 2020	Apr. 20th, 2021				
DC Power Supply	Agilent	E3640A	MY40000811	Dec. 23rd, 2019	Dec. 22nd, 2020				
Temperature Chamber	TERCHY	MHG-120L F	911009	May 20th, 2020	May 19th, 2021				
Radio Communication Analyer	Anritsu	MT8815B	6200711454	Apr. 1st, 2020	Mar. 31st, 2021				
Attenuator	Mini-Circuit	BW-S10W2 +	2	Jan. 2nd, 2020	Jan. 1st, 2021				
DC Block	Mini-Circuits	BLK-18-S+	1	Jan. 2nd, 2020	Jan. 1st, 2021				
Splitter	RF-LAMBAD	RFLT2W1G 18G	11-JSPF412- 018	Jan. 2nd, 2020	Jan. 1st, 2021				

#### 8.5 **Measurement Result:**

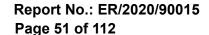
Refer to next pages.

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## GSM\_850MHz\_LowCH128-824.2



## GPRS\_850MHz\_HighCH251-848.8



## GSM 850MHz HighCH251-848.8



## GSM 1900MHz\_LowCH512-1850.2



## GPRS 850MHz LowCH128-824.2



## GSM\_1900MHz\_HighCH810-1909.8



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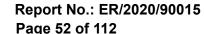
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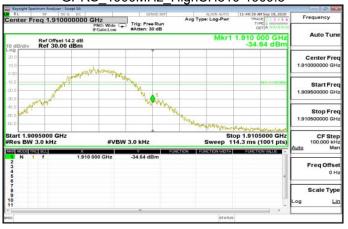
### GPRS 1900MHz LowCH512-1850.2



## WCDMA\_B5\_HighCH4233-846.6



## GPRS 1900MHz HighCH810-1909.8



## HSDPA\_B5\_LowCH4132-826.4



## WCDMA B5 LowCH4132-826.4

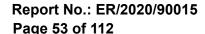


## HSDPA\_B5\_HighCH4233-846.6



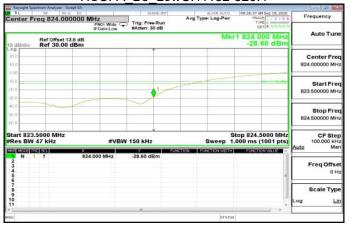
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## HSUPA\_B5\_LowCH4132-826.4



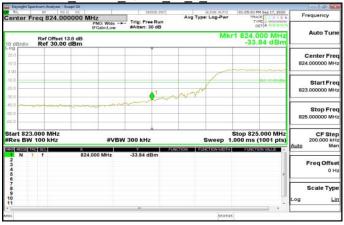
## Band5\_10MHz\_QPSK\_1\_49\_HighCH20600-844



## HSUPA B5 HighCH4233-846.6



Band5 10MHz QPSK 50 0 LowCH20450-829



## Band5 10MHz QPSK 1 0 LowCH20450-829



Band5\_10MHz\_QPSK\_50\_0\_HighCH20600-844



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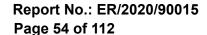
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## Band12\_10MHz\_QPSK\_1\_0\_LowCH23060-704



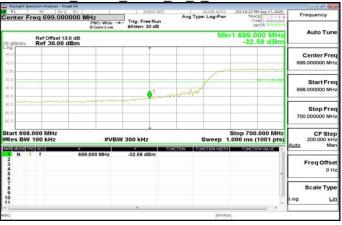
## Band12\_10MHz\_QPSK\_50\_0\_HighCH23130-711



### Band12 10MHz QPSK 1 49 HighCH23130-711



## Band12 10MHz QPSK 50 0 LowCH23060-704



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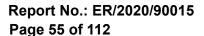
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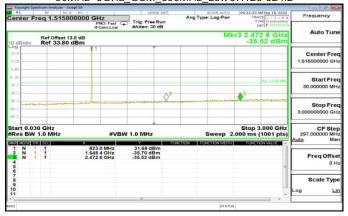
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#### **Out of Band Emission**

30MHz~3GHz\_GSM\_850MHz\_LowCH128-824.2



## 3GHz~10GHz\_GSM\_850MHz\_MidCH190-836.6



3GHz~10GHz\_GSM\_850MHz\_LowCH128-824.2



30MHz~3GHz\_GSM\_850MHz\_HighCH251-848.8



## 30MHz~3GHz\_GSM\_850MHz\_MidCH190-836.6



3GHz~10GHz\_GSM\_850MHz\_HighCH251-848.8



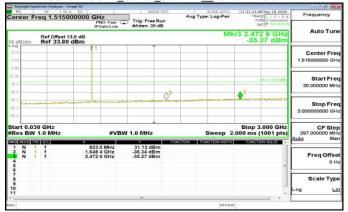
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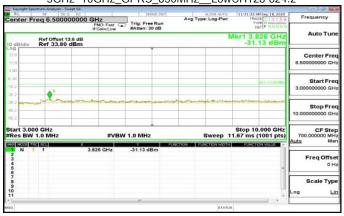




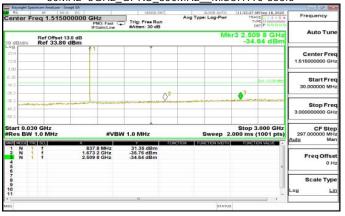
#### 30MHz~3GHz\_GPRS\_850MHz\_\_LowCH128-824.2



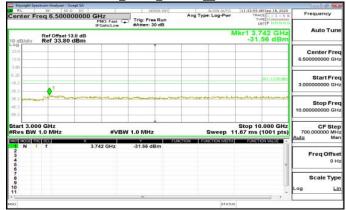
## 3GHz~10GHz\_GPRS\_850MHz\_\_LowCH128-824.2



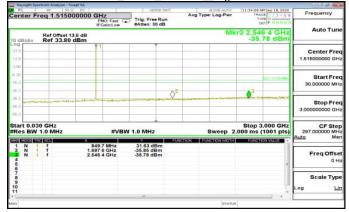
#### 30MHz~3GHz\_GPRS\_850MHz\_ MidCH190-836.6



### 3GHz~10GHz\_GPRS\_850MHz\_\_MidCH190-836.6



#### 30MHz~3GHz\_GPRS\_850MHz\_ HighCH251-848.8



## 3GHz~10GHz\_GPRS\_850MHz\_\_HighCH251-848.8



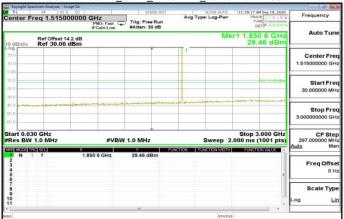
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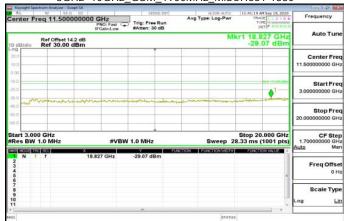


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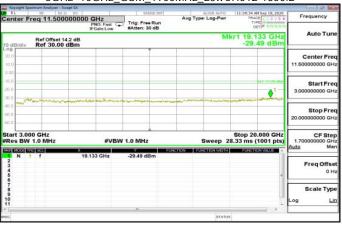
30MHz~3GHz\_GSM\_1900MHz\_LowCH512-1850.2



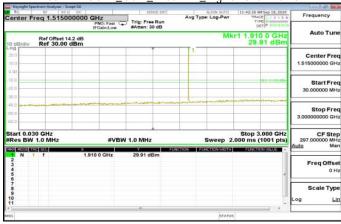
## 3GHz~10GHz\_GSM\_1900MHz\_MidCH661-1880



## 3GHz~10GHz\_GSM\_1900MHz\_LowCH512-1850.2



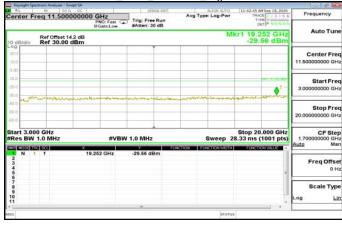
## 30MHz~3GHz\_GSM\_1900MHz\_HighCH810-1909.8



## 30MHz~3GHz\_GSM\_1900MHz\_MidCH661-1880



## 3GHz~10GHz\_GSM\_1900MHz\_HighCH810-1909.8



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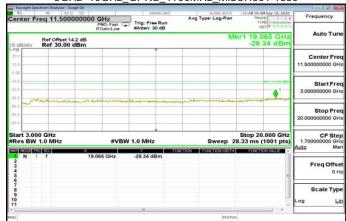


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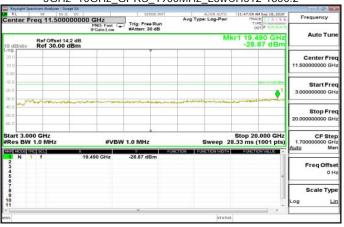
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## 3GHz~10GHz\_GPRS\_1900MHz\_MidCH661-1880



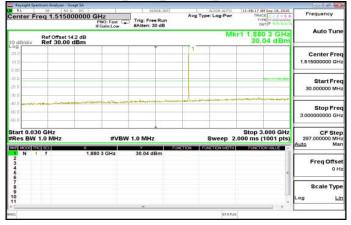
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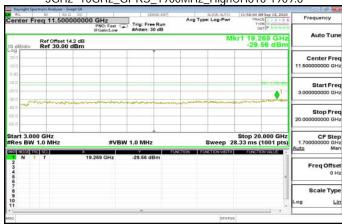
30MHz~3GHz\_GPRS\_1900MHz\_HighCH810-1909.8



## 30MHz~3GHz\_GPRS\_1900MHz\_MidCH661-1880



3GHz~10GHz\_GPRS\_1900MHz\_HighCH810-1909.8



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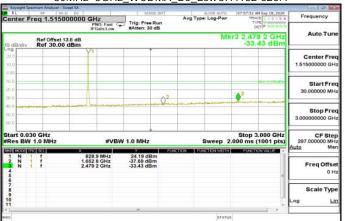
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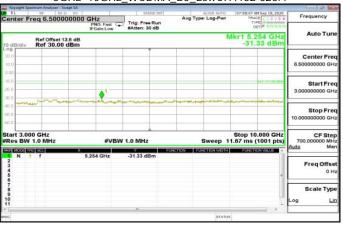
### 30MHz~3GHz\_WCDMA\_B5\_LowCH4132-826.4



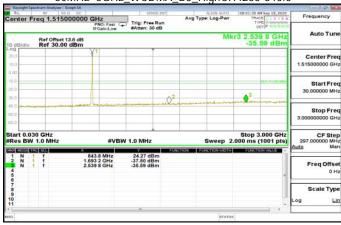
## 3GHz~10GHz\_WCDMA\_B5\_MidCH4183-836.6



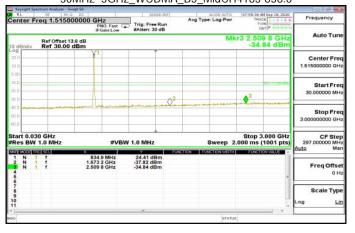
## 3GHz~10GHz\_WCDMA\_B5\_LowCH4132-826.4



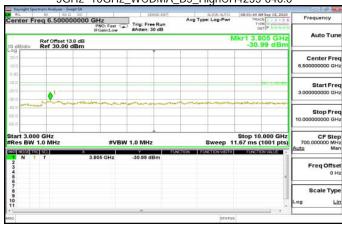
## 30MHz~3GHz\_WCDMA\_B5\_HighCH4233-846.6



## 30MHz~3GHz\_WCDMA\_B5\_MidCH4183-836.6



## 3GHz~10GHz\_WCDMA\_B5\_HighCH4233-846.6



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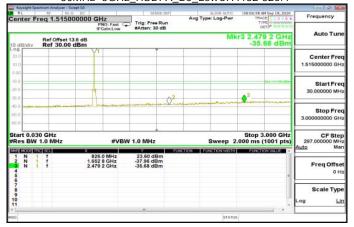
t (886-2) 2299-3279

f (886-2) 2298-0488

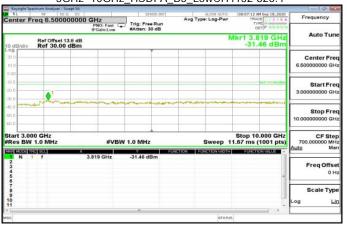


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### 30MHz~3GHz\_HSDPA\_B5\_LowCH4132-826.4



## 3GHz~10GHz\_HSDPA\_B5\_LowCH4132-826.4



## 30MHz~3GHz\_HSDPA\_B5\_MidCH4183-836.6



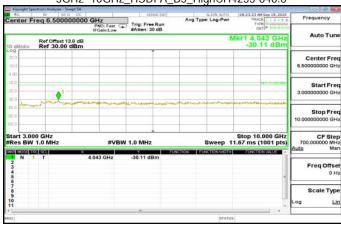
## 3GHz~10GHz\_HSDPA\_B5\_MidCH4183-836.6



#### 30MHz~3GHz\_HSDPA\_B5\_HighCH4233-846.6



#### 3GHz~10GHz HSDPA B5 HighCH4233-846.6



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

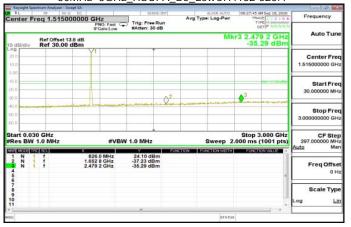
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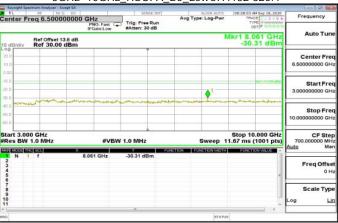
Report No.: ER/2020/90015 Page 61 of 112



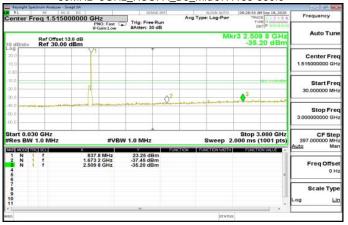
30MHz~3GHz\_HSUPA\_B5\_LowCH4132-826.4



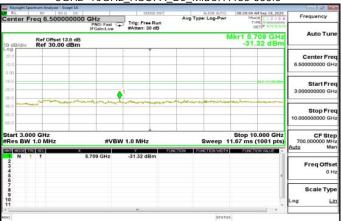
3GHz~10GHz\_HSUPA\_B5\_LowCH4132-826.4



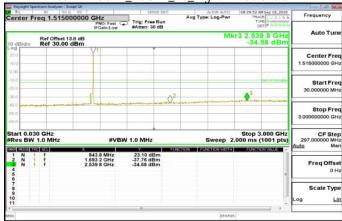
30MHz~3GHz\_HSUPA\_B5\_MidCH4183-836.6



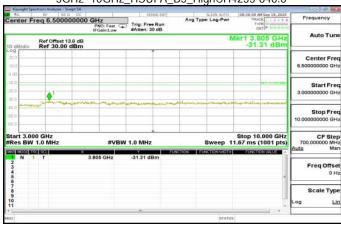
3GHz~10GHz\_HSUPA\_B5\_MidCH4183-836.6



30MHz~3GHz\_HSUPA\_B5\_HighCH4233-846.6

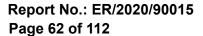


3GHz~10GHz HSUPA B5 HighCH4233-846.6



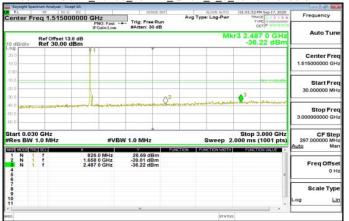
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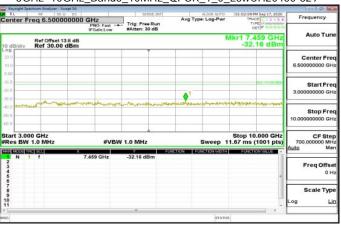




## 30MHz~3GHz\_Band5\_10MHz\_QPSK\_1\_0\_LowCH20450-829



### 3GHz~10GHz\_Band5\_10MHz\_QPSK\_1\_0\_LowCH20450-829



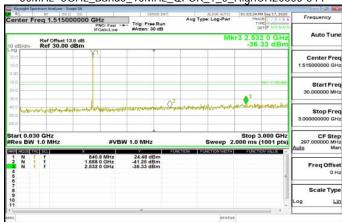
## 30MHz~3GHz\_Band5\_10MHz\_QPSK\_1\_0\_MidCH20525-836.5



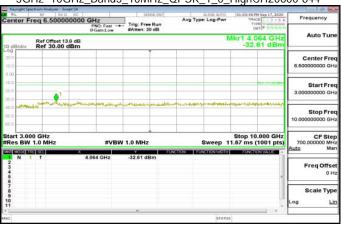
## 3GHz~10GHz\_Band5\_10MHz\_QPSK\_1\_0\_MidCH20525-836.5



#### 30MHz~3GHz\_Band5\_10MHz\_QPSK\_1\_0\_HighCH20600-844



## 3GHz~10GHz\_Band5\_10MHz\_QPSK\_1\_0\_HighCH20600-844



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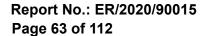
Unless otherwise stated the results shown in this step of trefer only to the sample(s) tested and such as an pieck) are retained for 90 days only. Fig. 17. A state of the sample of 18. A state of 18. and offenders may be prosecuted to the fullest extent of the law.

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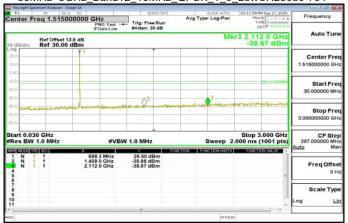
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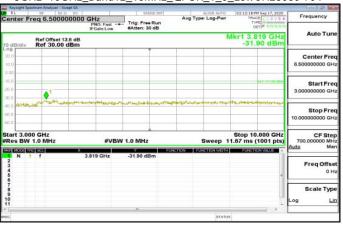




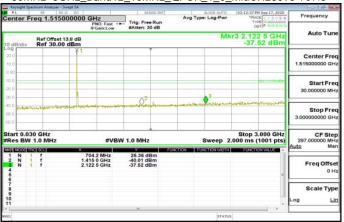
## 30MHz~3GHz\_Band12\_10MHz\_QPSK\_1\_0\_LowCH23060-704



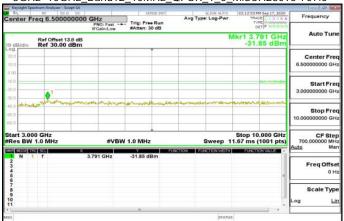
## 3GHz~10GHz\_Band12\_10MHz\_QPSK\_1\_0\_LowCH23060-704



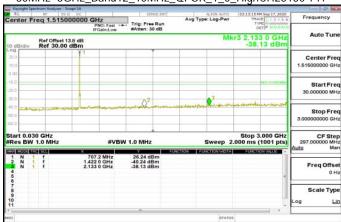
## 30MHz~3GHz\_Band12\_10MHz\_QPSK\_1\_0\_MidCH23095-707.5



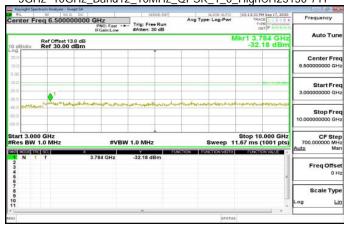
## 3GHz~10GHz\_Band12\_10MHz\_QPSK\_1\_0\_MidCH23095-707.5



#### 30MHz~3GHz\_Band12\_10MHz\_QPSK\_1\_0\_HighCH23130-711



## 3GHz~10GHz\_Band12\_10MHz\_QPSK\_1\_0\_HighCH23130-711



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## FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

#### 9.1 Standard Applicable

According to FCC §2.1053,

FCC §22.917(a), §24.238(a)

Out of band emissions. 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.

## FCC §27.53(g)

Compliance for operations in the 600 MHz, 698-746 MHz, 746-758 MHz and the 776-788 MHz band with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

Table 2 — Unwanted Emissions for Mobile, Portable and Low-Power Fixed Subscriber **Equipment** 

Frequency (MHz)	Attenuation (dB)
<2200	$43 + 10 \log_{10}(p)$
2200 - 2288	$70 + 10 \log_{10}(p)$
2288 - 2292	$67 + 10 \log_{10}(p)$
2292 - 2296	$61 + 10 \log_{10}(p)$
2296 - 2300	$55 + 10 \log_{10}(p)$
2300 - 2305	$43 + 10 \log_{10}(p)$
2305 - 2320	$43 + 10 \log_{10}(p)^{\text{Note}}$
2320 - 2324	$55 + 10 \log_{10}(p)$
2324 - 2328	$61 + 10 \log_{10}(p)$
2328 - 2337	$67 + 10 \log_{10}(p)$
2337 - 2341	$61 + 10 \log_{10}(p)$
2341 - 2345	$55 + 10 \log_{10}(p)$
2345 - 2360	$43 + 10 \log_{10}(p)^{\text{Note}}$
2360 - 2365	$43 + 10 \log_{10}(p)$
2365 - 2395	$70 + 10 \log_{10}(p)$
>2395	$43 + 10 \log_{10}(p)$

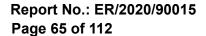
**Note:** Measured at the edges of the highest and lowest frequency range(s) in which the equipment is designed to operate. See Section 1.2 for the permitted frequency ranges for various equipment types.

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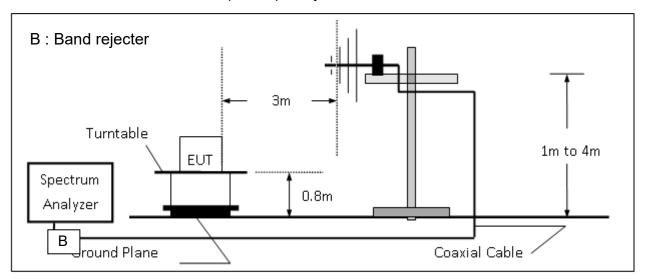
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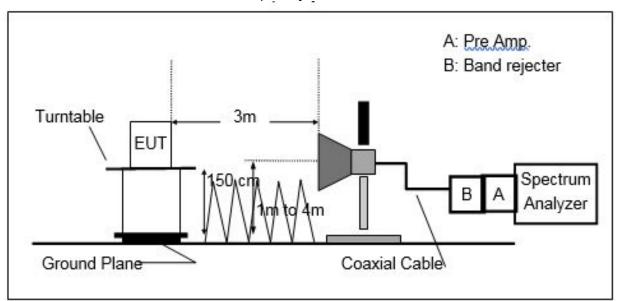


#### 9.2 **EUT Setup**

Radiated Emission Test Set-Up, Frequency Below 1000MHz



Radiated Emission Test Set-UP Frequency Over 1 GHz



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#### 9.3 **Measurement Procedure:**

The EUT was placed on a non-conductive; the measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequencies (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

ERP (dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

EIRP (dBm) = SG Level(dBm) + Antenna Gain(dBi) + Cable Loss(dB)

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## **Measurement Equipment Used:**

E	ERP, EIRP MEASUREMENT EQUIPMENT List 966 Chamber							
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.			
Bi-log Antenna	SCHWAZBECK	VULB9168	378	Aug. 6th, 2020	Aug. 5th, 2021			
Horn Antenna	Schwarzbeck	BBHA9120D	603	Apr. 29th, 2020	Apr. 28th, 2021			
Horn Antenna	Schwarzbeck	BBHA9170	184	Dec. 25th, 2019	Dec. 24th, 2020			
Horn Antenna	Schwarzbeck	BBHA9170	185	Jul. 30th, 2020	Jul. 29th, 2021			
Horn Antenna	Schwarzbeck	BBHA9120D	D803	Dec. 20th, 2019	Dec. 19th, 2020			
Bi-log Antenna	TESEO	CBL 6112D	35242 & AT-N0555	Jan. 13th, 2020	Jan. 12th, 2021			
3m Site NSA	SGS	966 chamber	N/A	Jan. 2nd, 2020	Jan. 1st, 2021			
PXA Spectrum Ana- lyzer	Agilent	N9030A	MY53120760	Apr. 21st, 2020	Apr. 20th, 2021			
Signal Generator	Agilent	N5183A	MY50140591	Dec. 20th, 2019	Dec. 19th, 2020			
Pre-Amplifier	HP	8449B	3008A00578	Jan. 2nd, 2020	Jan. 1st, 2021			
Pre-Amplifier	HP	8447D	2944A07676	Jan. 2nd, 2020	Jan. 1st, 2021			
Pre-Amplifier	EMC Instruments	EMC184045B	980135	Jan. 2nd, 2020	Jan. 1st, 2021			
Filter 635-920	Micro-Tronics	WI	4	Jan. 2nd, 2020	Jan. 1st, 2021			
Filter 800-1000	Micro-Tronics	EWT	M1	Jan. 2nd, 2020	Jan. 1st, 2021			
Filter 1700-2000	Micro-Tronics	EWT	M3	Jan. 2nd, 2020	Jan. 1st, 2021			
1GHz High Pass Filter	Micro-Tronics	HPM50108	32	Jan. 2nd, 2020	Jan. 1st, 2021			
2GHz High Pass Filter	Micro-Tronics	HPM50110	36	Jan. 2nd, 2020	Jan. 1st, 2021			
Low Loss Cable	Huber Suhner	966_RX	9	Jan. 2nd, 2020	Jan. 1st, 2021			
Low Loss Cable	Huber Suhner	966 TX	1	Jan. 2nd, 2020	Jan. 1st, 2021			
Radio Communication Analyer	Anritsu	MT8820C	6200995019	Apr. 1st, 2020	May. 31st, 2021			
Radio Communication Analyer	Anritsu	MT8815B	6200711454	Apr. 1st, 2020	May. 31st, 2021			
Test Software	audix	e3	Ver. 6.11-20180413	N.C.R	N.C.R			

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#### 9.5 **Measurement Result:**

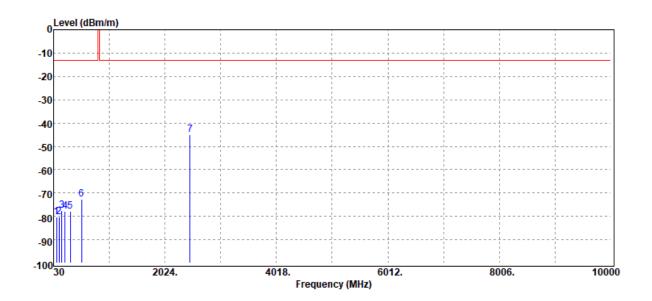
Report Number :ER-2020-90015 Test Site :SAC III Chamber

**Operation Mode** :GSM 850 Test Date :2020-09-14

Temp./Humi. Test Mode :Tx CH Low :25.5/63

**EUT Pol** :H Plane :VERTICAL Antenna Pol.

**Test Frequency** :824.2 MHz Engineer :Nick



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
MHz	dBm	Output Level dBm	Gain dBi/dBd	Loss dB	dBm	dB
86.26	-80.12	-72.58	-6.66	-0.88	-13.00	-67.12
127.00	-80.27	-72.01	-7.25	-1.01	-13.00	-67.27
180.35	-77.54	-74.61	-1.70	-1.23	-13.00	-64.54
233.70	-77.89	-74.89	-1.55	-1.45	-13.00	-64.89
327.79	-77.72	-74.86	-1.17	-1.69	-13.00	-64.72
529.55	-72.71	-70.03	-0.84	-1.84	-13.00	-59.71
2472.60	-44.98	-50.80	10.59	-4.77	-13.00	-31.98

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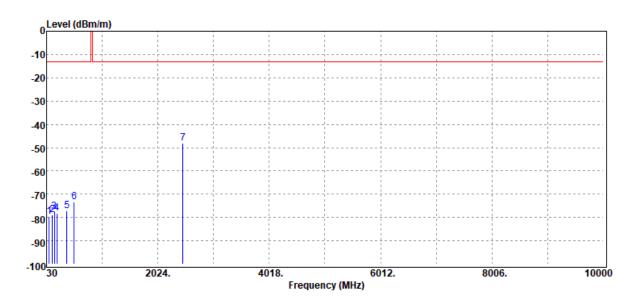
Report Number :ER-2020-90015 Test Site :SAC III Chamber

**Operation Mode** :GSM 850 **Test Date** :2020-09-14

Test Mode Temp./Humi. :25.5/63 :Tx CH Low

**EUT Pol** Antenna Pol. :HORIZONTAL :H Plane

**Test Frequency** :824.2 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
76.56	-79.50	-72.06	-6.60	-0.84	-13.00	-66.50
131.85	-78.85	-71.01	-6.84	-1.00	-13.00	-65.85
172.59	-77.65	-74.06	-2.33	-1.26	-13.00	-64.65
217.21	-78.04	-75.69	-0.98	-1.37	-13.00	-65.04
395.69	-77.18	-73.83	-1.51	-1.84	-13.00	-64.18
526.64	-73.20	-70.43	-0.83	-1.94	-13.00	-60.20
2472.60	-48.17	-53.99	10.59	-4.77	-13.00	-35.17

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**EUT Pol** 

**Test Frequency** 

Report No.: ER/2020/90015

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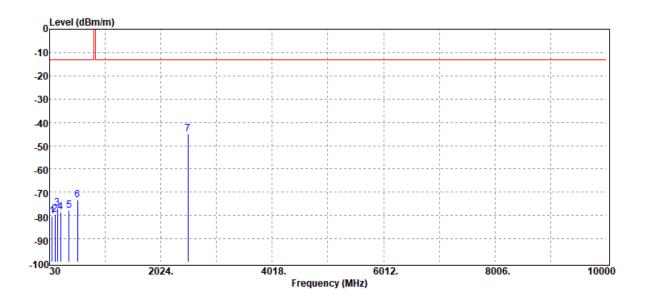
Report Number :ER-2020-90015 Test Site :SAC III Chamber

**Operation Mode** :GSM 850 **Test Date** :2020-09-14

Test Mode :Tx CH Mid Temp./Humi. :25.5/63

> :H Plane Antenna Pol. :VERTICAL

:836.6 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
76.56	-80.26	-72.82	-6.60	-0.84	-13.00	-67.26
128.94	-79.49	-71.38	-7.12	-0.99	-13.00	-66.49
170.65	-76.83	-72.98	-2.58	-1.27	-13.00	-63.83
226.91	-78.50	-75.89	-1.20	-1.41	-13.00	-65.50
381.14	-77.77	-74.73	-1.23	-1.81	-13.00	-64.77
532.46	-73.28	-70.53	-0.90	-1.85	-13.00	-60.28
2509.80	-45.07	-50.99	10.74	-4.82	-13.00	-32.07

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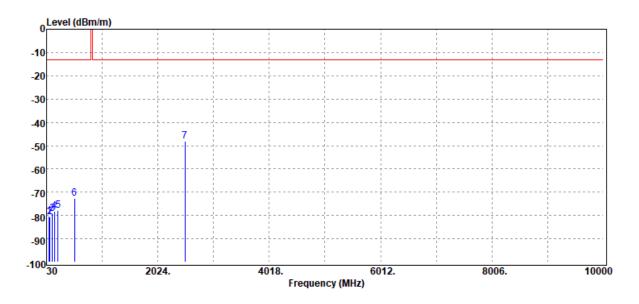
Report Number :ER-2020-90015 Test Site :SAC III Chamber

**Operation Mode** :GSM 850 **Test Date** :2020-09-14

Test Mode :Tx CH Mid Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :HORIZONTAL

**Test Frequency** :836.6 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	, dBm	dBi/dBd	dB	dBm	dB
75.59	-80.17	-72.76	-6.58	-0.83	-13.00	-67.17
88.20	-80.65	-72.82	-6.94	-0.89	-13.00	-67.65
131.85	-79.29	-71.45	-6.84	-1.00	-13.00	-66.29
172.59	-78.04	-74.45	-2.33	-1.26	-13.00	-65.04
233.70	-77.79	-74.79	-1.55	-1.45	-13.00	-64.79
532.46	-72.61	-69.86	-0.90	-1.85	-13.00	-59.61
2509.80	-48.01	-53.93	10.74	-4.82	-13.00	-35.01

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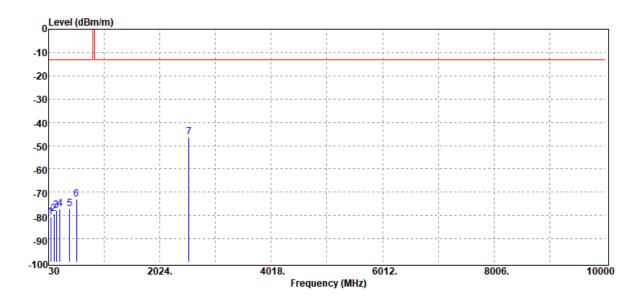
Report Number :ER-2020-90015 Test Site :SAC III Chamber

**Operation Mode** :GSM 850 **Test Date** :2020-09-14

Test Mode :Tx CH High Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :VERTICAL

**Test Frequency** :848.8 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
66.86	-80.71	-72.78	-7.14	-0.79	-13.00	-67.71
127.00	-79.32	-71.06	-7.25	-1.01	-13.00	-66.32
173.56	-77.79	-74.30	-2.24	-1.25	-13.00	-64.79
233.70	-77.03	-74.03	-1.55	-1.45	-13.00	-64.03
411.21	-77.07	-73.18	-1.99	-1.90	-13.00	-64.07
534.40	-72.96	-70.14	-0.95	-1.87	-13.00	-59.96
2546.40	-46.24	-52.27	10.89	-4.86	-13.00	-33.24

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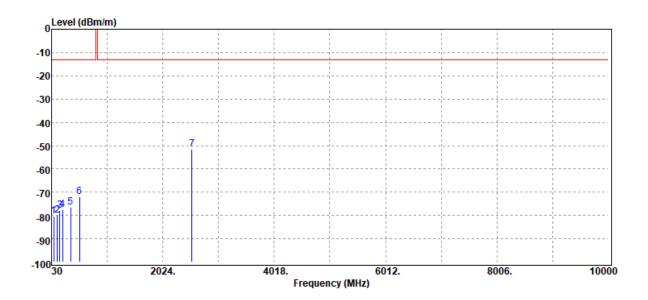
Report Number :ER-2020-90015 Test Site :SAC III Chamber

**Operation Mode** :GSM 850 **Test Date** :2020-09-14

Test Mode :Tx CH High Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :HORIZONTAL

**Test Frequency** :848.8 MHz Engineer :Nick



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
•		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
69.77	-80.19	-72.58	-6.80	-0.81	-13.00	-67.19
131.85	-79.93	-72.09	-6.84	-1.00	-13.00	-66.93
175.50	-77.97	-74.69	-2.04	-1.24	-13.00	-64.97
230.79	-77.66	-74.80	-1.43	-1.43	-13.00	-64.66
369.50	-76.43	-73.31	-1.38	-1.74	-13.00	-63.43
534.40	-71.97	-69.15	-0.95	-1.87	-13.00	-58.97
2546.40	-51.56	-57.59	10.89	-4.86	-13.00	-38.56

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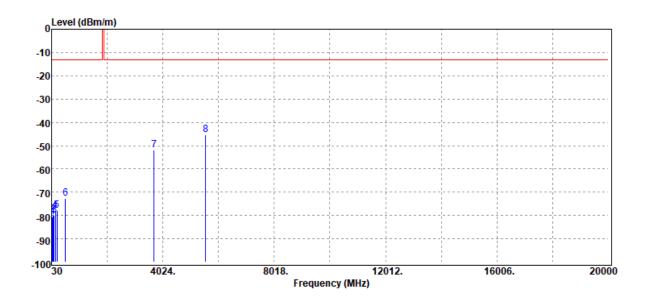
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :GSM 1900 **Test Date** :2020-09-14

Test Mode Temp./Humi. :25.5/63 :Tx CH Low

**EUT Pol** Antenna Pol. :VERTICAL :H Plane

**Test Frequency** :1850.2 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
68.80	-80.52	-72.64	-7.07	-0.81	-13.00	-67.52
85.29	-79.56	-72.04	-6.64	-0.88	-13.00	-66.56
128.94	-80.00	-71.89	-7.12	-0.99	-13.00	-67.00
173.56	-77.88	-74.39	-2.24	-1.25	-13.00	-64.88
228.85	-77.99	-75.25	-1.32	-1.42	-13.00	-64.99
529.55	-72.59	-69.91	-0.84	-1.84	-13.00	-59.59
3700.40	-51.87	-58.41	12.40	-5.86	-13.00	-38.87
5550.00	-45.45	-51.31	13.20	-7.34	-13.00	-32.45

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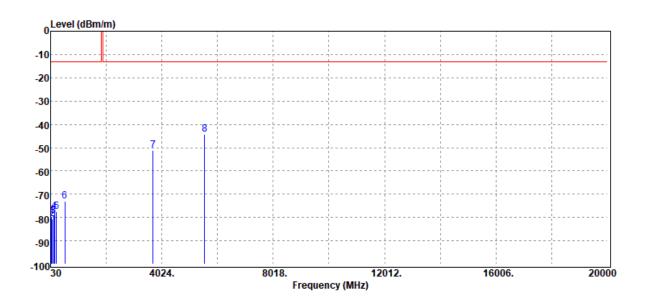
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :GSM 1900 **Test Date** :2020-09-14

Test Mode Temp./Humi. :25.5/63 :Tx CH Low

**EUT Pol** Antenna Pol. :HORIZONTAL :H Plane

**Test Frequency** :1850.2 MHz Engineer :Nick



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		_
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
66.86	-79.58	-71.65	-7.14	-0.79	-13.00	-66.58
90.14	-80.79	-72.65	-7.24	-0.90	-13.00	-67.79
131.85	-79.33	-71.49	-6.84	-1.00	-13.00	-66.33
167.74	-77.67	-73.55	-2.86	-1.26	-13.00	-64.67
233.70	-77.57	-74.57	-1.55	-1.45	-13.00	-64.57
537.31	-72.90	-69.99	-1.01	-1.90	-13.00	-59.90
3700.40	-51.38	-57.92	12.40	-5.86	-13.00	-38.38
5550.00	-44.38	-50.24	13.20	-7.34	-13.00	-31.38

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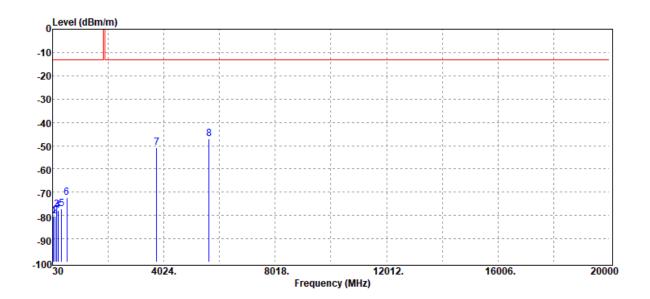
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :GSM 1900 **Test Date** :2020-09-14

Test Mode :Tx CH Mid Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :VERTICAL

**Test Frequency** :1880.0 MHz Engineer :Nick



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
66.86	-80.38	-72.45	-7.14	-0.79	-13.00	-67.38
125.06	-80.31	-72.00	-7.29	-1.02	-13.00	-67.31
178.41	-77.36	-74.33	-1.80	-1.23	-13.00	-64.36
231.76	-77.97	-75.06	-1.47	-1.44	-13.00	-64.97
361.74	-77.24	-73.87	-1.66	-1.71	-13.00	-64.24
548.95	-72.46	-69.25	-1.04	-2.17	-13.00	-59.46
3760.00	-50.74	-57.40	12.40	-5.74	-13.00	-37.74
5640.00	-47.08	-53.11	13.26	-7.23	-13.00	-34.08

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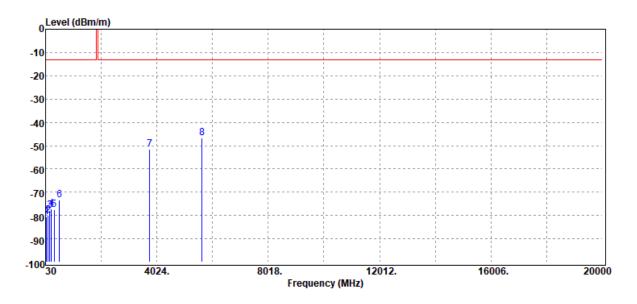
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :GSM 1900 **Test Date** :2020-09-14

Test Mode :Tx CH Mid Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :HORIZONTAL

**Test Frequency** :1880.0 MHz Engineer :Nick



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
•		Output Level	Gain	Loss		_
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
68.80	-80.59	-72.71	-7.07	-0.81	-13.00	-67.59
128.94	-80.08	-71.97	-7.12	-0.99	-13.00	-67.08
175.50	-77.85	-74.57	-2.04	-1.24	-13.00	-64.85
233.70	-77.21	-74.21	-1.55	-1.45	-13.00	-64.21
338.46	-77.49	-74.37	-1.28	-1.84	-13.00	-64.49
531.49	-73.31	-70.59	-0.88	-1.84	-13.00	-60.31
3760.00	-51.47	-58.13	12.40	-5.74	-13.00	-38.47
5640.00	-46.57	-52.60	13.26	-7.23	-13.00	-33.57

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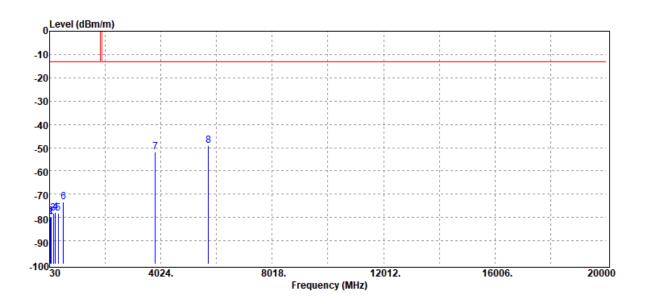
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :GSM 1900 **Test Date** :2020-09-14

Test Mode :Tx CH High Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :VERTICAL

**Test Frequency** :1909.8 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
66.86	-79.89	-71.96	-7.14	-0.79	-13.00	-66.89
73.65	-79.66	-72.12	-6.71	-0.83	-13.00	-66.66
170.65	-78.14	-74.29	-2.58	-1.27	-13.00	-65.14
233.70	-77.95	-74.95	-1.55	-1.45	-13.00	-64.95
337.49	-78.07	-74.99	-1.26	-1.82	-13.00	-65.07
527.61	-73.38	-70.64	-0.83	-1.91	-13.00	-60.38
3819.60	-52.08	-58.69	12.40	-5.79	-13.00	-39.08
5729.40	-49.12	-54.79	13.10	-7.43	-13.00	-36.12

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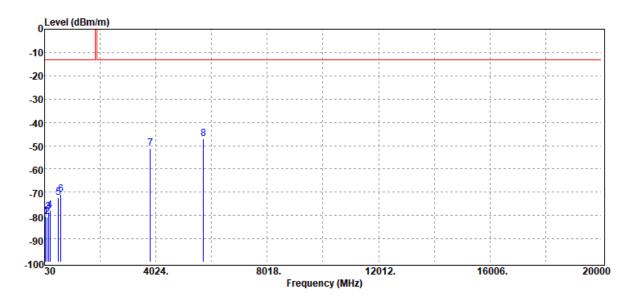
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :GSM 1900 **Test Date** :2020-09-14

Test Mode :Tx CH High Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :HORIZONTAL

**Test Frequency** :1909.8 MHz Engineer :Nick



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
·		Output Level	Gain	Loss		•
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
66.86	-80.12	-72.19	-7.14	-0.79	-13.00	-67.12
127.00	-80.60	-72.34	-7.25	-1.01	-13.00	-67.60
173.56	-78.52	-75.03	-2.24	-1.25	-13.00	-65.52
231.76	-77.82	-74.91	-1.47	-1.44	-13.00	-64.82
531.49	-72.37	-69.65	-0.88	-1.84	-13.00	-59.37
621.70	-70.99	-68.27	-0.62	-2.10	-13.00	-57.99
3819.60	-51.20	-57.81	12.40	-5.79	-13.00	-38.20
5729.40	-46.97	-52.64	13.10	-7.43	-13.00	-33.97

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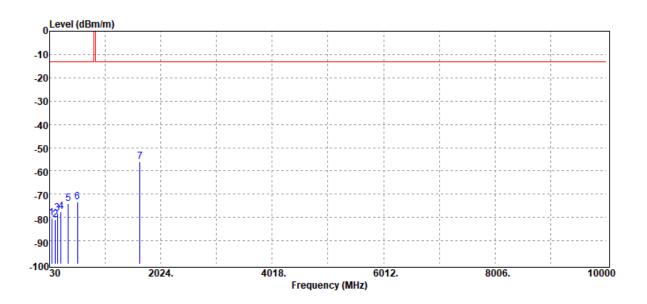
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :WCDMA B5 **Test Date** :2020-09-14

Test Mode Temp./Humi. :25.5/63 :Tx CH Low

**EUT Pol** :H Plane Antenna Pol. :VERTICAL

**Test Frequency** :826.4 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
71.71	-80.23	-72.57	-6.84	-0.82	-13.00	-67.23
131.85	-81.14	-73.30	-6.84	-1.00	-13.00	-68.14
167.74	-78.16	-74.04	-2.86	-1.26	-13.00	-65.16
235.64	-77.58	-74.49	-1.63	-1.46	-13.00	-64.58
367.56	-74.12	-70.92	-1.47	-1.73	-13.00	-61.12
529.55	-73.47	-70.79	-0.84	-1.84	-13.00	-60.47
1652.80	-56.18	-62.22	9.91	-3.87	-13.00	-43.18

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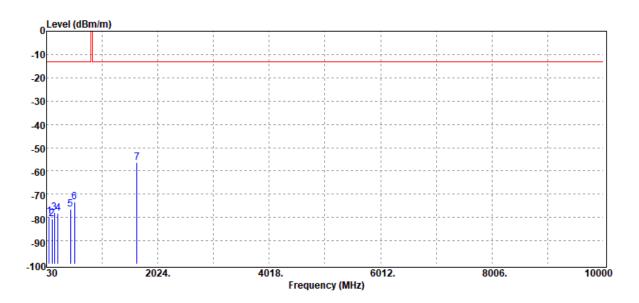
Report Number :ER-2020-90015 Test Site :SAC III Chamber

**Operation Mode** :WCDMA B5 **Test Date** :2020-09-14

Test Mode Temp./Humi. :25.5/63 :Tx CH Low

**EUT Pol** :H Plane Antenna Pol. :HORIZONTAL

**Test Frequency** :826.4 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
75.59	-79.66	-72.25	-6.58	-0.83	-13.00	-66.66
128.94	-80.51	-72.40	-7.12	-0.99	-13.00	-67.51
173.56	-77.82	-74.33	-2.24	-1.25	-13.00	-64.82
233.70	-78.10	-75.10	-1.55	-1.45	-13.00	-65.10
456.80	-76.47	-73.52	-1.10	-1.85	-13.00	-63.47
532.46	-73.33	-70.58	-0.90	-1.85	-13.00	-60.33
1652.80	-56.54	-62.58	9.91	-3.87	-13.00	-43.54

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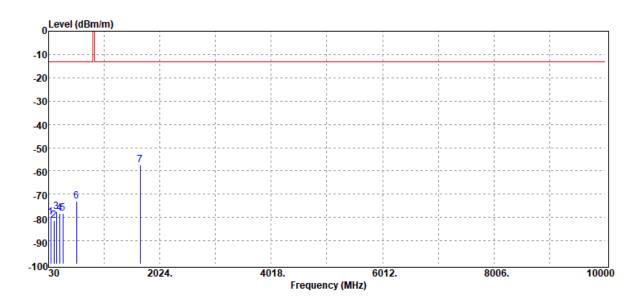
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :WCDMA B5 **Test Date** :2020-09-14

Test Mode Temp./Humi. :25.5/63 :Tx CH Mid

**EUT Pol** :H Plane Antenna Pol. :VERTICAL

**Test Frequency** :836.6 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
71.71	-80.04	-72.38	-6.84	-0.82	-13.00	-67.04
129.91	-81.46	-73.43	-7.05	-0.98	-13.00	-68.46
168.71	-77.52	-73.48	-2.78	-1.26	-13.00	-64.52
231.76	-78.15	-75.24	-1.47	-1.44	-13.00	-65.15
287.05	-78.35	-75.24	-1.51	-1.60	-13.00	-65.35
530.52	-73.02	-70.34	-0.85	-1.83	-13.00	-60.02
1673.20	-57.47	-63.52	9.95	-3.90	-13.00	-44.47

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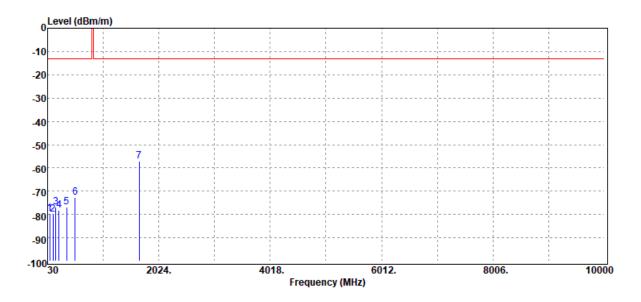
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :WCDMA B5 **Test Date** :2020-09-14

Test Mode Temp./Humi. :25.5/63 :Tx CH Mid

**EUT Pol** :H Plane Antenna Pol. :HORIZONTAL

**Test Frequency** :836.6 MHz Engineer :Nick



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
66.86	-79.47	-71.54	-7.14	-0.79	-13.00	-66.47
127.00	-80.04	-71.78	-7.25	-1.01	-13.00	-67.04
177.44	-76.90	-73.76	-1.90	-1.24	-13.00	-63.90
235.64	-78.07	-74.98	-1.63	-1.46	-13.00	-65.07
374.35	-76.94	-73.91	-1.26	-1.77	-13.00	-63.94
522.76	-72.80	-69.87	-0.86	-2.07	-13.00	-59.80
1673.20	-57.05	-63.10	9.95	-3.90	-13.00	-44.05

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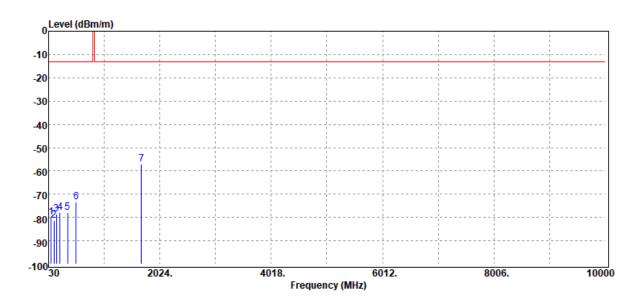
Report Number :ER-2020-90015 Test Site :SAC III Chamber

**Operation Mode** :WCDMA B5 **Test Date** :2020-09-14

Test Mode Temp./Humi. :25.5/63 :Tx CH High

**EUT Pol** :H Plane Antenna Pol. :VERTICAL

**Test Frequency** :846.6 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
73.65	-79.83	-72.29	-6.71	-0.83	-13.00	-66.83
129.91	-81.20	-73.17	-7.05	-0.98	-13.00	-68.20
170.65	-78.56	-74.71	-2.58	-1.27	-13.00	-65.56
233.70	-77.81	-74.81	-1.55	-1.45	-13.00	-64.81
369.50	-77.90	-74.78	-1.38	-1.74	-13.00	-64.90
527.61	-73.22	-70.48	-0.83	-1.91	-13.00	-60.22
1693.20	-56.97	-63.04	9.99	-3.92	-13.00	-43.97

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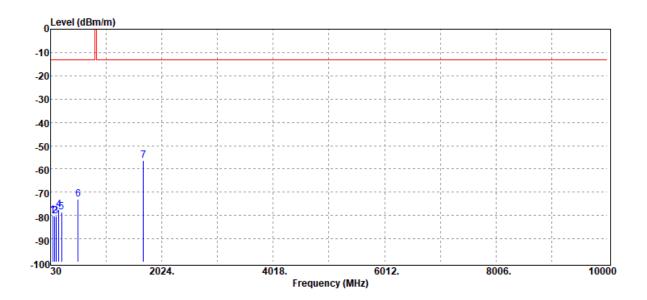
Report Number :ER-2020-90015 Test Site :SAC III Chamber

**Operation Mode** :WCDMA B5 **Test Date** :2020-09-14

Test Mode Temp./Humi. :25.5/63 :Tx CH High

**EUT Pol** :H Plane Antenna Pol. :HORIZONTAL

**Test Frequency** :846.6 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
68.80	-79.98	-72.10	-7.07	-0.81	-13.00	-66.98
104.69	-80.26	-70.99	-8.30	-0.97	-13.00	-67.26
127.00	-80.22	-71.96	-7.25	-1.01	-13.00	-67.22
175.50	-77.36	-74.08	-2.04	-1.24	-13.00	-64.36
230.79	-78.61	-75.75	-1.43	-1.43	-13.00	-65.61
526.64	-73.04	-70.27	-0.83	-1.94	-13.00	-60.04
1693.20	-56.45	-62.52	9.99	-3.92	-13.00	-43.45

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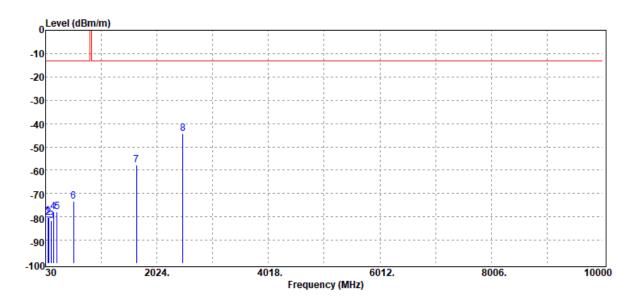
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :LTE B5 **Test Date** :2020-09-14

Test Mode :Tx CH Low Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :VERTICAL

**Test Frequency** :829 MHz Engineer :Nick



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
MHz	dBm	Output Level dBm	Gain dBi/dBd	Loss dB	dBm	dB
IVII IZ	<u>ubili</u>	чын	dDi/dDd	<u>ub</u>	<u>ubili</u>	<u>ub</u>
66.86	-79.71	-71.78	-7.14	-0.79	-13.00	-66.71
83.35	-80.11	-72.76	-6.48	-0.87	-13.00	-67.11
131.85	-81.74	-73.90	-6.84	-1.00	-13.00	-68.74
173.56	-78.02	-74.53	-2.24	-1.25	-13.00	-65.02
233.70	-77.92	-74.92	-1.55	-1.45	-13.00	-64.92
531.49	-73.43	-70.71	-0.88	-1.84	-13.00	-60.43
1658.00	-57.96	-64.00	9.92	-3.88	-13.00	-44.96
2487.00	-44.17	-50.03	10.65	-4.79	-13.00	-31.17

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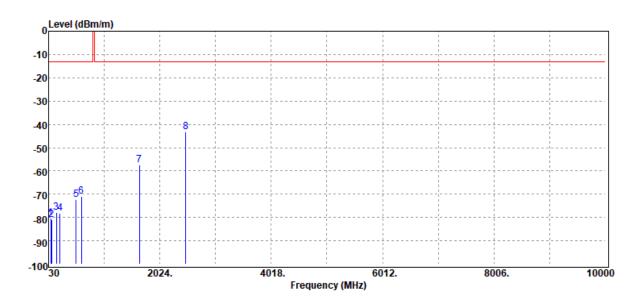
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :LTE B5 **Test Date** :2020-09-14

Test Mode :Tx CH Low Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :HORIZONTAL

**Test Frequency** :829 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
70.74	00.22	70 57	6.03	0.00	12.00	67.22
70.74	-80.32	-72.57	-6.93	-0.82	-13.00	-67.32
86.26	-80.92	-73.38	-6.66	-0.88	-13.00	-67.92
173.56	-77.77	-74.28	-2.24	-1.25	-13.00	-64.77
233.70	-78.07	-75.07	-1.55	-1.45	-13.00	-65.07
524.70	-72.39	-69.56	-0.83	-2.00	-13.00	-59.39
618.79	-70.84	-68.13	-0.67	-2.04	-13.00	-57.84
1658.00	-57.40	-63.44	9.92	-3.88	-13.00	-44.40
2487.00	-43.11	-48.97	10.65	-4.79	-13.00	-30.11

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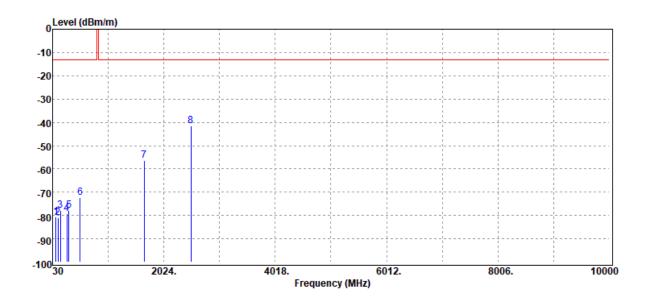
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :LTE B5 **Test Date** :2020-09-14

Test Mode :Tx CH Mid Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :VERTICAL

**Test Frequency** :836.5 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
88.20	-80.55	-72.72	-6.94	-0.89	-13.00	-67.55
125.06	-80.89	-72.72 -72.58	-7.29	-1.02	-13.00	-67.89
173.56	-77.97	-74.48	-2.24	-1.25	-13.00	-64.97
284.14	-79.35	-76.23	-1.54	-1.58	-13.00	-66.35
323.91	-77.76	-74.89	-1.20	-1.67	-13.00	-64.76
526.64	-72.27	-69.50	-0.83	-1.94	-13.00	-59.27
1673.00	-56.33	-62.38	9.95	-3.90	-13.00	-43.33
2509.50	-41.58	-47.50	10.74	-4.82	-13.00	-28.58

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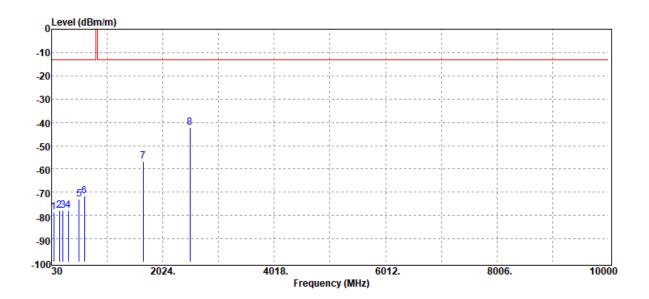
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :LTE B5 **Test Date** :2020-09-14

Test Mode :Tx CH Mid Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :HORIZONTAL

**Test Frequency** :836.5 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
68.80	-78.71	-70.83	-7.07	-0.81	-13.00	-65.71
170.65	-77.95	-74.10	-2.58	-1.27	-13.00	-64.95
235.64	-77.85	-74.76	-1.63	-1.46	-13.00	-64.85
328.76	-77.73	-74.88	-1.16	-1.69	-13.00	-64.73
526.64	-73.12	-70.35	-0.83	-1.94	-13.00	-60.12
619.76	-71.58	-68.85	-0.68	-2.05	-13.00	-58.58
1673.00	-56.91	-62.96	9.95	-3.90	-13.00	-43.91
2509.50	-42.14	-48.06	10.74	-4.82	-13.00	-29.14

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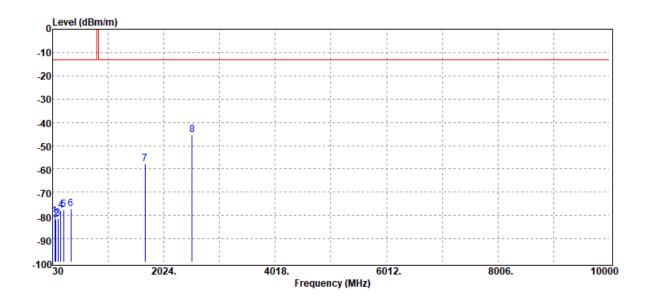
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :LTE B5 **Test Date** :2020-09-14

Test Mode :Tx CH High Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :VERTICAL

**Test Frequency** :844 MHz Engineer :Nick



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
•		Output Level	Gain	Loss		J
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
66.86	-80.39	-72.46	-7.14	-0.79	-13.00	-67.39
91.11	-81.81	-73.63	-7.27	-0.91	-13.00	-68.81
125.06	-81.42	-73.11	-7.29	-1.02	-13.00	-68.42
180.35	-77.88	-74.95	-1.70	-1.23	-13.00	-64.88
231.76	-77.62	-74.71	-1.47	-1.44	-13.00	-64.62
359.80	-77.05	-73.64	-1.70	-1.71	-13.00	-64.05
1688.00	-57.66	-63.72	9.98	-3.92	-13.00	-44.66
2532.00	-45.40	-51.39	10.83	-4.84	-13.00	-32.40

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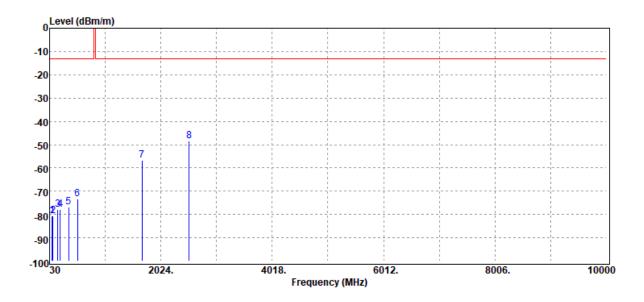
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :LTE B5 **Test Date** :2020-09-14

Test Mode :Tx CH High Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :HORIZONTAL

**Test Frequency** :844 MHz Engineer :Nick



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
•		Output Level	Gain	Loss		G
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
75.59	-80.53	-73.12	-6.58	-0.83	-13.00	-67.53
88.20	-80.56	-72.73	-6.94	-0.89	-13.00	-67.56
175.50	-77.92	-74.64	-2.04	-1.24	-13.00	-64.92
224.00	-77.82	-75.37	-1.06	-1.39	-13.00	-64.82
374.35	-76.76	-73.73	-1.26	-1.77	-13.00	-63.76
534.40	-73.39	-70.57	-0.95	-1.87	-13.00	-60.39
1688.00	-56.59	-62.65	9.98	-3.92	-13.00	-43.59
2532.00	-48.40	-54.39	10.83	-4.84	-13.00	-35.40

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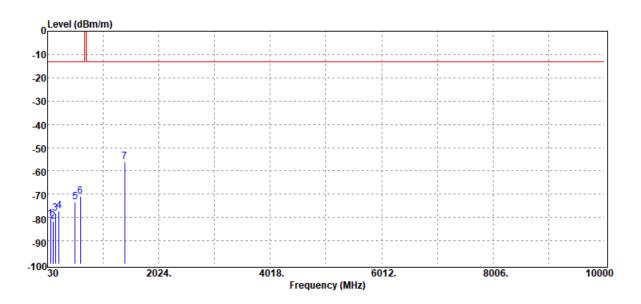
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :LTE B12 **Test Date** :2020-09-14

Test Mode :Tx CH Low Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :VERTICAL

**Test Frequency** :704 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
86.26	-80.80	-73.26	-6.66	-0.88	-13.00	-67.80
125.06	-81.50	-73.19	-7.29	-1.02	-13.00	-68.50
173.56	-78.33	-74.84	-2.24	-1.25	-13.00	-65.33
233.70	-77.31	-74.31	-1.55	-1.45	-13.00	-64.31
527.61	-73.22	-70.48	-0.83	-1.91	-13.00	-60.22
616.85	-71.07	-68.38	-0.66	-2.03	-13.00	-58.07
1408.00	-56.09	-60.46	7.95	-3.58	-13.00	-43.09

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:704 MHz

**Test Frequency** 

Report No.: ER/2020/90015

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:Nick

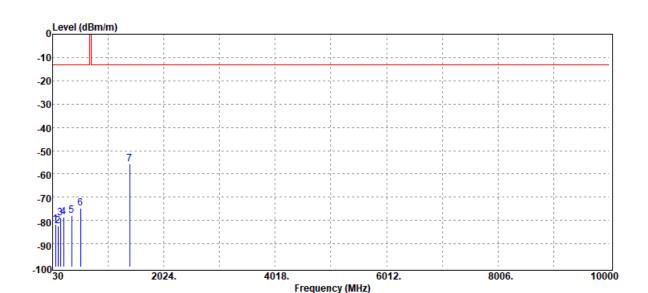
Engineer

Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :LTE B12 **Test Date** :2020-09-14

Test Mode :Tx CH Low Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :HORIZONTAL



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
86.26	-81.60	-74.06	-6.66	-0.88	-13.00	-68.60
125.06	-82.23	-73.92	-7.29	-1.02	-13.00	-69.23
170.65	-78.92	-75.07	-2.58	-1.27	-13.00	-65.92
230.79	-78.50	-75.64	-1.43	-1.43	-13.00	-65.50
371.44	-77.83	-74.75	-1.33	-1.75	-13.00	-64.83
530.52	-74.60	-71.92	-0.85	-1.83	-13.00	-61.60
1408.00	-55.55	-59.92	7.95	-3.58	-13.00	-42.55

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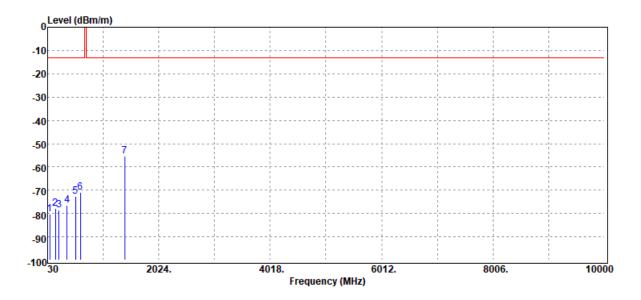
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :LTE B12 **Test Date** :2020-09-14

Test Mode :Tx CH Mid Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :VERTICAL

**Test Frequency** :707.5 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
66.86	-80.30	-72.37	-7.14	-0.79	-13.00	-67.30
172.59	-77.88	-74.29	-2.33	-1.26	-13.00	-64.88
233.70	-78.64	-75.64	-1.55	-1.45	-13.00	-65.64
377.26	-76.40	-73.37	-1.24	-1.79	-13.00	-63.40
532.46	-72.75	-70.00	-0.90	-1.85	-13.00	-59.75
619.76	-70.97	-68.24	-0.68	-2.05	-13.00	-57.97
1415.00	-55.29	-59.69	7.99	-3.59	-13.00	-42.29

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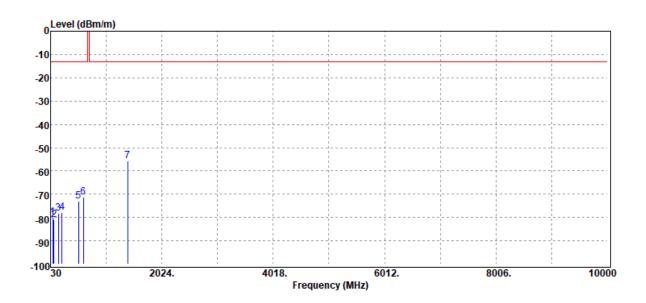
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :LTE B12 **Test Date** :2020-09-14

Test Mode :Tx CH Mid Temp./Humi. :25.5/63

**EUT Pol** :H Plane Antenna Pol. :HORIZONTAL

**Test Frequency** :707.5 MHz Engineer :Nick



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
•		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
71.71	-80.10	-72.44	-6.84	-0.82	-13.00	-67.10
88.20	-80.80	-72.97	-6.94	-0.89	-13.00	-67.80
173.56	-78.19	-74.70	-2.24	-1.25	-13.00	-65.19
233.70	-77.69	-74.69	-1.55	-1.45	-13.00	-64.69
534.40	-72.93	-70.11	-0.95	-1.87	-13.00	-59.93
616.85	-71.33	-68.64	-0.66	-2.03	-13.00	-58.33
1415.00	-55.63	-60.03	7.99	-3.59	-13.00	-42.63

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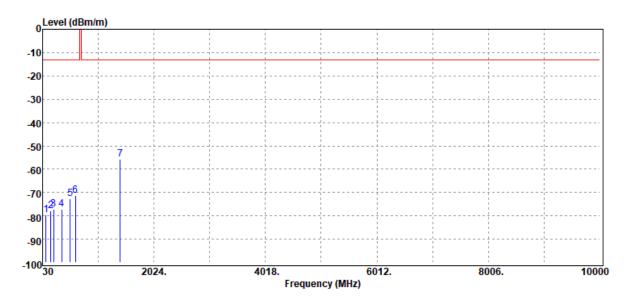
Report Number Test Site :SAC III Chamber :ER-2020-90015

**Operation Mode** :LTE B12 **Test Date** :2020-09-14

Test Mode Temp./Humi. :25.5/63 :Tx CH High

**EUT Pol** :H Plane Antenna Pol. :VERTICAL

**Test Frequency** :711 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
88.20	-79.47	-71.64	-6.94	-0.89	-13.00	-66.47
175.50	-77.84	-74.56	-2.04	-1.24	-13.00	-64.84
231.76	-77.17	-74.26	-1.47	-1.44	-13.00	-64.17
374.35	-77.32	-74.29	-1.26	-1.77	-13.00	-64.32
527.61	-72.67	-69.93	-0.83	-1.91	-13.00	-59.67
614.91	-71.27	-68.61	-0.65	-2.01	-13.00	-58.27
1422.00	-55.84	-60.28	8.03	-3.59	-13.00	-42.84

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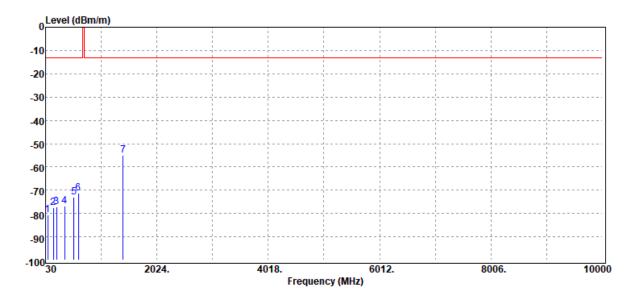
Report Number :ER-2020-90015 Test Site :SAC III Chamber

**Operation Mode** :LTE B12 **Test Date** :2020-09-14

Test Mode Temp./Humi. :25.5/63 :Tx CH High

**EUT Pol** :H Plane Antenna Pol. :HORIZONTAL

**Test Frequency** :711 MHz Engineer :Nick



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
71.71	-80.65	-72.99	-6.84	-0.82	-13.00	-67.65
170.65	-77.45	-73.60	-2.58	-1.27	-13.00	-64.45
231.76	-77.09	-74.18	-1.47	-1.44	-13.00	-64.09
369.50	-76.82	-73.70	-1.38	-1.74	-13.00	-63.82
536.34	-72.85	-69.97	-0.99	-1.89	-13.00	-59.85
618.79	-71.25	-68.54	-0.67	-2.04	-13.00	-58.25
1422.00	-55.03	-59.47	8.03	-3.59	-13.00	-42.03

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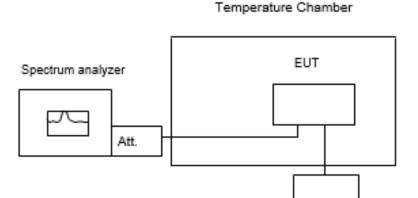
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### 10 FREQUENCY STABILITY MEASUREMENT

## 10.1 Standard Applicabl

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

### 10.2 Test Set-up



Variable DC Power Supply

**Note:** Measurement setup for testing on Antenna connector

#### 10.3 **Measurement Procedure**

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

Set chamber temperature to 25°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint as declared by the manufacturer, record the maximum frequency change.

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# Measurement Equipment Used

Conducted Emission (measured at antenna port) Test Site							
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.		
TYPE		NUMBER	NUMBER	CAL.			
PXA Spectrum Analyzer	Agilent	N9030A	MY53120760	Apr. 21st, 2020	Apr. 20th, 2021		
DC Power Supply	Agilent	E3640A	MY40000811	Dec. 23rd, 2019	Dec. 22nd, 2020		
Temperature Chamber	TERCHY	MHG-120L F	911009	May 20th, 2020	May 19th, 2021		
Radio Communication Analyer	Anritsu	MT8815B	6200711454	Apr. 1st, 2020	Mar. 31st, 2021		
Attenuator	Mini-Circuit	BW-S10W2 +	2	Jan. 2nd, 2020	Jan. 1st, 2021		
DC Block	Mini-Circuits	BLK-18-S+	1	Jan. 2nd, 2020	Jan. 1st, 2021		
Splitter	RF-LAMBAD	RFLT2W1G 18G	11-JSPF412- 018	Jan. 2nd, 2020	Jan. 1st, 2021		

#### 10.5 **Measurement Result**

Note: The battery is rated 3.85Vdc.

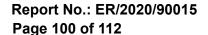
GPRS 850 Mid Channel 836.6 MHz							
	Limit: +/- 2.5 ppm						
Vdc	Temp. ( $^{\circ}$ C)	Freq. (MHz)	Delta (Hz)	Limit (Hz)			
	FREQUE	ICY ERROR vs. '	VOLTAGE				
4.29	20	836.600009	9	2091			
3.85	20	836.600006	6	2091			
3.51	20	836.599995	-5	2091			
3.4 (End point)	20	836.599992	-8	2091			
FREQUENCY ERROR vs. Temp.							
3.85	50	836.599993	-7	2091			
3.85	40	836.600004	4	2091			
3.85	30	836.600009	9	2091			
3.85	20	836.600002	2	2091			
3.85	10	836.599994	-6	2091			
3.85	0	836.59999	-10	2091			
3.85	-10	836.600004	4	2091			
3.85	-20	836.600005	5	2091			
3.85	-30	836.599997	-3	2091			

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GPRS 1900 Mid Channel 1880 MHz Limit: +/- 2.5 ppm Vdc Temp. (°C) Freq. (MHz) Delta (Hz) Limit (Hz) FREQUENCY ERROR vs. VOLTAGE 4.29 20 1880.000008 4700 8 20 3.85 1879.999991 -9 4700 20 3.51 1880.000007 4700 5 20 1880.000005 4700 3.4 (End point) FREQUENCY ERROR vs. Temp. 50 1879.999994 4700 3.85 -6 5 4700 3.85 40 1880.000005

1880.000003

1879.999993

1879.99999

1880.000008

1880.000006

1879.999998

1880.000008

3

-7

-10

8

6

-2

8

	WCDM	A V Mid Channel	836.6	MHz		
Limit: +/- 2.5 ppm						
Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Limit (Hz)		
	FREQUEN	ICY ERROR vs. '	VOLTAGE			
4.29	20	836.600006	6	2091		
3.85	20	836.59999	-10	2091		
3.51	20	836.599992	-8	2091		
3.4 (End point)	20	836.600002	2	2091		
	FREQUENCY ERROR vs. Temp.					
3.85	50	836.600007	7	2091		
3.85	40	836.599992	-8	2091		
3.85	30	836.600006	6	2091		
3.85	20	836.599997	-3	2091		
3.85	10	836.599992	-8	2091		
3.85	0	836.600002	2	2091		
3.85	-10	836.59999	-10	2091		
3.85	-20	836.599995	-5	2091		
3.85	-30	836.600003	3	2091		

30

20

10

0

-10

-20

-30

3.85

3.85

3.85

3.85

3.85

3.85

3.85

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Reference Freq.:		E B5 Mid nannel	836.5	MHz 10M QPSK CH 20525
Power Supply Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)
	Freq	ı. ERROR vs. VC	DLTAGE	
4.29	25	836.500009	9	2091
3.85	25	836.500006	6	2091
3.51	25	836.499993	-7	2091
3.4 (End Point)	25	836.500003	3	2091
	Fr	eq. ERROR vs. '	Temp.	
3.85	-30	836.499994	-6	2091
3.85	-20	836.499991	-9	2091
3.85	-10	836.499992	-8	2091
3.85	0	836.500003	3	2091
3.85	10	836.500009	9	2091
3.85	20	836.500005	5	2091
3.85	30	836.499993	-7	2091
3.85	40	836.499996	-4	2091
3.85	50	836.499990	-10	2091

Reference Freq.:	LTE B12 Mid Channel		707.5	MHz 10M QPSK CH 23095			
Power Supply Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Limit = $\pm$ 2.5 ppm (Hz)			
Freq. ERROR vs. VOLTAGE							
4.29	25	707.500007	7	1769			
3.85	25	707.499990	-10	1769			
3.51	25	707.499994	-6	1769			
3.4 (End Point)	25	707.500005	5	1769			
	Freq. ERROR vs. Temp.						
3.85	-30	707.499990	-10	1769			
3.85	-20	707.499996	-4	1769			
3.85	-10	707.500007	7	1769			
3.85	0	707.500005	5	1769			
3.85	10	707.499997	-3	1769			
3.85	20	707.500002	2	1769			
3.85	30	707.499992	-8	1769			
3.85	40	707.500004	4	1769			
3.85	50	707.500007	7	1769			

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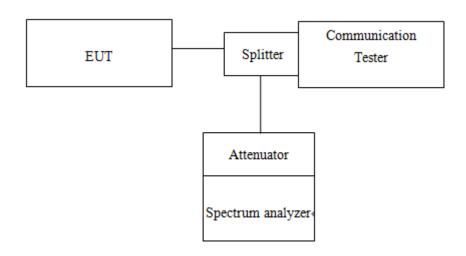
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### **PEAK TO AVERAGE RATIO** 11

## 11.1 Standard Applicable

The peak-to-average ratio (PAR) of the transmission may not exceed 13dB.

### 11.2 Test SET-UP



#### 11.3 **Measurement Procedure**

- 1. KDB 971168 D01 is employed as the following procedure is proper adjusted accordingly:
- 2. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth; & internal =1ms
- 3. Set the number of counts to a value that stabilizes the measured CCDF curve.

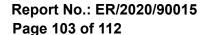
### **Measurement Equipment Used**

Conducted Emission (measured at antenna port) Test Site							
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.		
PXA Spectrum Analyzer	Agilent	N9030A	MY53120760	Apr. 21st, 2020	Apr. 20th, 2021		
DC Power Supply	Agilent	E3640A	MY40000811	Dec. 23rd, 2019	Dec. 22nd, 2020		
Temperature Chamber	TERCHY	MHG-120L F	911009	May 20th, 2020	May 19th, 2021		
Radio Communication Analyer	Anritsu	MT8815B	6200711454	Apr. 1st, 2020	Mar. 31st, 2021		
Attenuator	Mini-Circuit	BW-S10W2 +	2	Jan. 2nd, 2020	Jan. 1st, 2021		
DC Block	Mini-Circuits	BLK-18-S+	1	Jan. 2nd, 2020	Jan. 1st, 2021		
Splitter	RF-LAMBAD	RFLT2W1G 18G	11-JSPF412- 018	Jan. 2nd, 2020	Jan. 1st, 2021		

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### **Measurement Result**

Erog		Peak-to-Average		
Freq. (MHz)	CH	GSM	GPRS	
(IVII IZ)		850	850	
824.2	128	10.08	9.67	
836.6	190	9.75	9.52	
848.8	251	9.88	10.38	

Freq.		Peak-to-Average		
(MHz)	CH	GSM	GPRS	
(IVIHZ)		1900	1900	
1850.2	512	10.04	10.04	
1880	661	9.39	9.44	
1909.8	810	10.03	9.69	

Erog		Peak-to-Average Ratio (dB)				
Freq. (MHz)	CH	WCDMA	HSDPA	HSUPA		
(IVII IZ)		V	V	V		
826.4	4132	2.91	3.96	4.10		
836.6	4183	2.86	3.81	4.03		
846.6	4233	2.85	3.79	3.94		

LTE BAND 5									
Channel bandwidth: 1.4MHz				Channel bandwidth: 3MHz					
Freq. (MHz)	СН	PAPR (dB)		Freq.	СН	PAPR (dB)			
		64QAM	Limit	(MHz)	СП	64QAM	Limit		
824.7	20407	6.83	13	825.5	20415	6.11	13		
836.5	20525	6.70	13	836.5	20525	5.76	13		
848.3	20643	6.72	13	847.5	20635	6.05	13		

LTE BAND 5									
Channel bandwidth: 5MHz				Channel bandwidth: 10MHz					
Freq. (MHz)	СН	PAPR (dB)		Freq.	СН	PAPR (dB)			
		64QAM	Limit	(MHz)	СП	64QAM	Limit		
826.5	20425	6.13	13	829.0	20450	5.87	13		
836.5	20525	5.68	13	836.5	20525	5.81	13		
846.5	20625	6.08	13	844.0	20600	6.11	13		

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LTE BAND 12									
Channel bandwidth: 1.4MHz				Channel bandwidth: 3MHz					
Freq. (MHz)	СН	PAPR (dB)		Freq.	СН	PAPR (dB)			
		64QAM	Limit	(MHz)	СП	64QAM	Limit		
699.7	23017	6.76	13	700.5	23025	6.54	13		
707.5	23095	6.67	13	707.5	23095	6.55	13		
715.3	23173	6.66	13	714.5	23165	6.51	13		

LTE BAND 12									
Channel bandwidth: 5MHz				Channel bandwidth: 10MHz					
Freq. CH	СП	PAPR	(dB)	Freq.	СН	PAPR (dB)			
	Сп	64QAM	Limit	(MHz)		64QAM	Limit		
701.5	23035	6.60	13	704.0	23060	6.62	13		
707.5	23095	6.68	13	707.5	23095	6.64	13		
713.5	23155	6.54	13	711.0	23130	6.48	13		

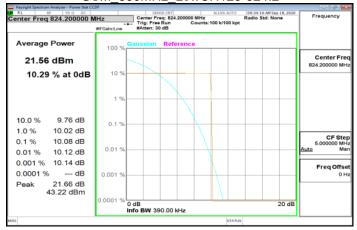
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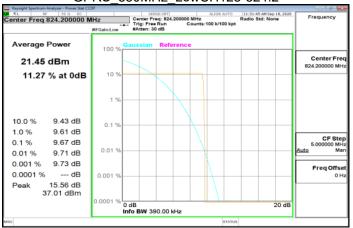


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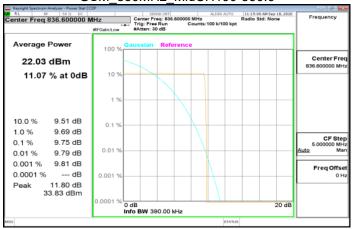
### GSM 850MHz LowCH128-824.2



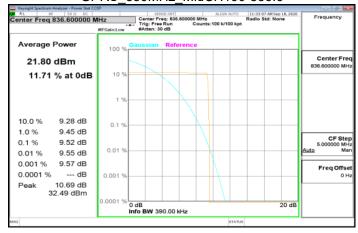
### GPRS 850MHz\_LowCH128-824.2



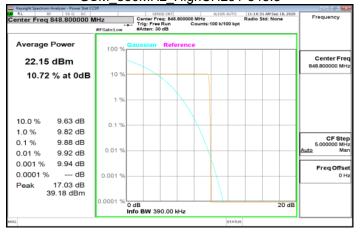
### GSM\_850MHz\_MidCH190-836.6



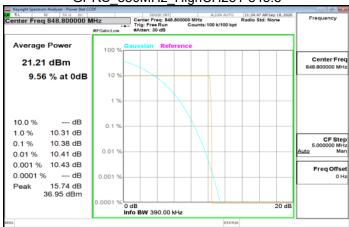
### GPRS\_850MHz\_MidCH190-836.6



# GSM\_850MHz\_HighCH251-848.8



GPRS\_850MHz\_HighCH251-848.8



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only

Unless otherwise stated the results shown in this text report tere only to the sample(s) tested and such a sample(s) tested and such as the performance of the sample(s) tested and such as the sample(s) tested of the sample(s) tested and such as the sample(s) test prosecuted to the fullest extent of the law.