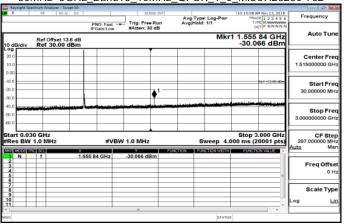
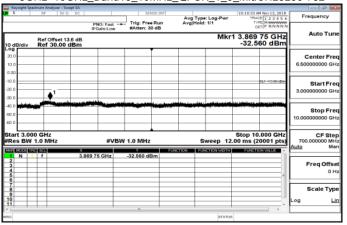




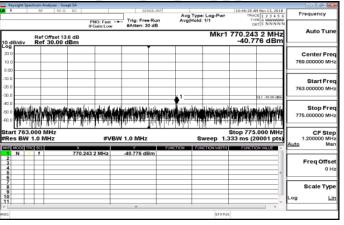
30MHz~3GHz\_Band13\_10MHz\_QPSK\_1\_0\_MidCH23230-782



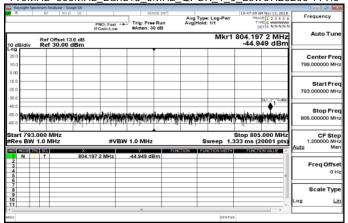
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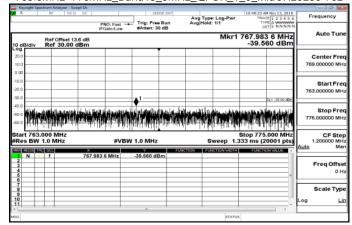
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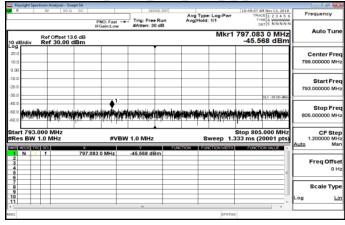
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763.3MHz~775MHz\_Band13\_5MHz\_QPSK\_1\_0\_MidCH23230-782



793MHz~805MHz\_Band13\_5MHz\_QPSK\_1\_0\_MidCH23230-782



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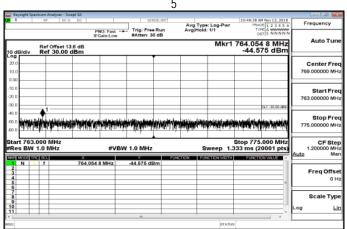
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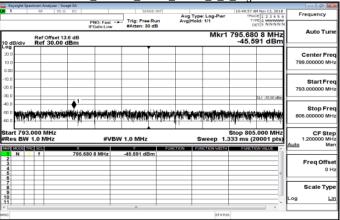


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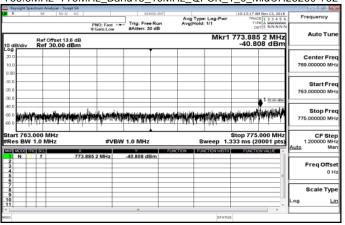
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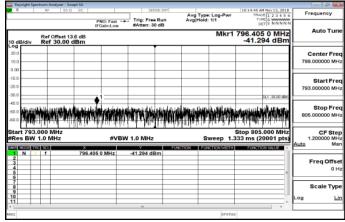
# 793MHz~805MHz\_Band13\_5MHz\_QPSK\_1\_0\_HighCH23255-784.5



# 763.3MHz~775MHz\_Band13\_10MHz\_QPSK\_1\_0\_MidCH23230-782



### 793MHz~805MHz\_Band13\_10MHz\_QPSK\_1\_0\_MidCH23230-782



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**大司** t (886-2) 2299-3279

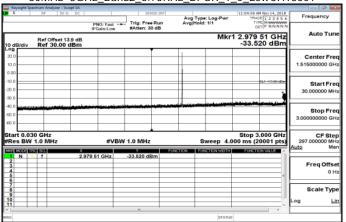
f (886-2) 2298-0488



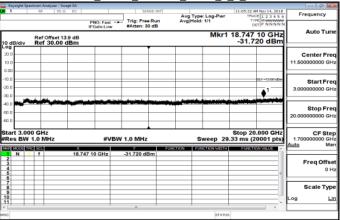
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### **NB-IOT Spurious Emission**

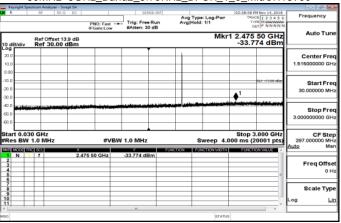
30MHz~3GHz\_Band2\_3.75KHz\_BPSK\_1\_0\_LowCH18601



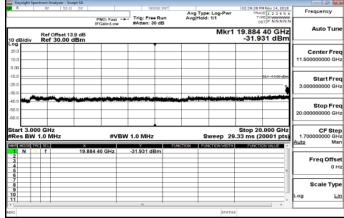
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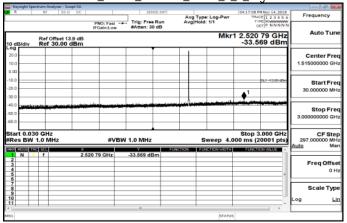
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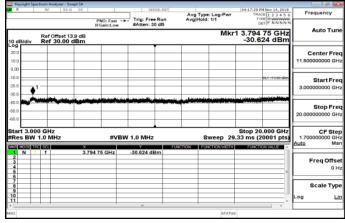
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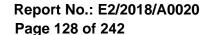
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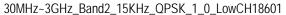
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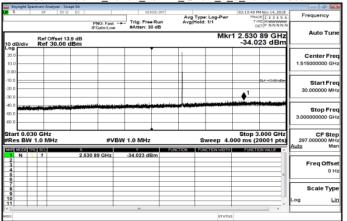
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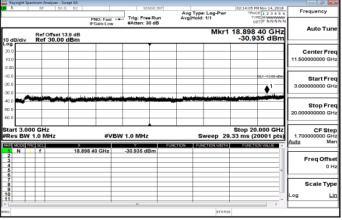




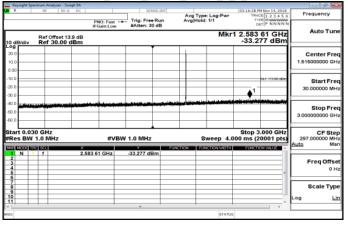




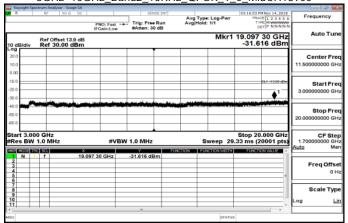
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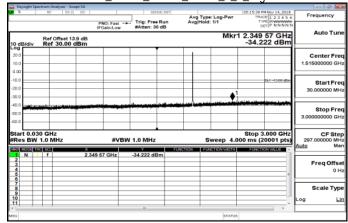
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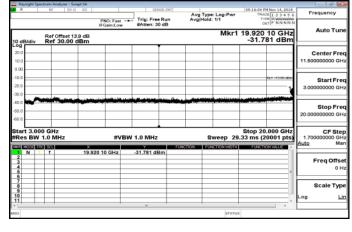
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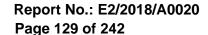
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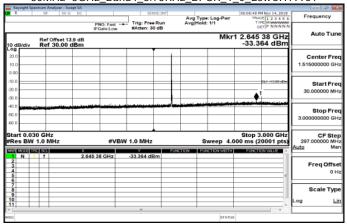
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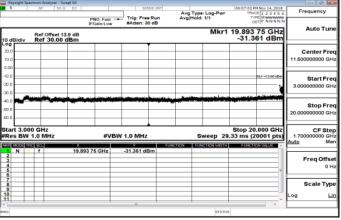




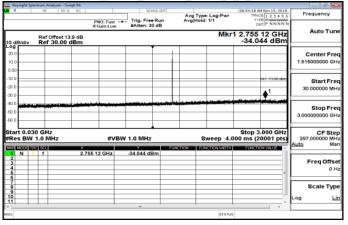
### 30MHz~3GHz\_Band4\_3.75KHz\_BPSK\_1\_0\_LowCH19951



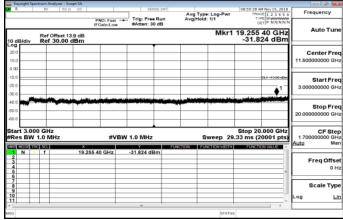
### 3GHz~10GHz\_Band4\_3.75KHz\_BPSK\_1\_0\_LowCH19951



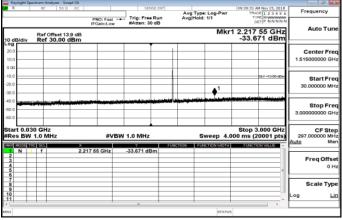
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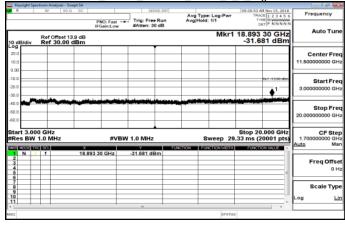
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30MHz~3GHz\_Band4\_3.75KHz\_BPSK\_1\_0\_HighCH20399

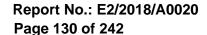


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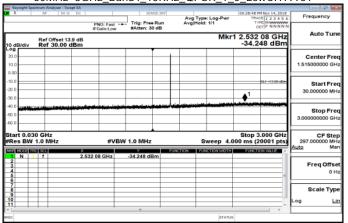
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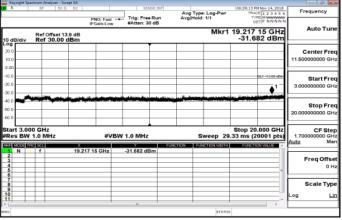




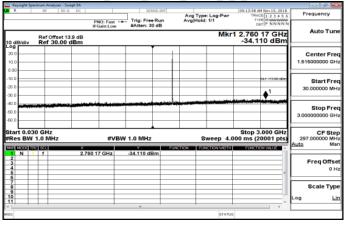
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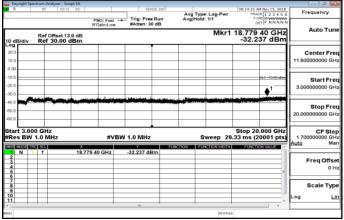
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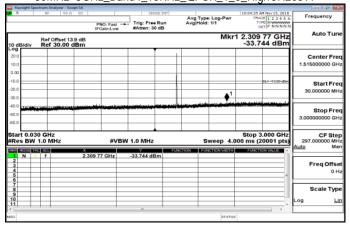
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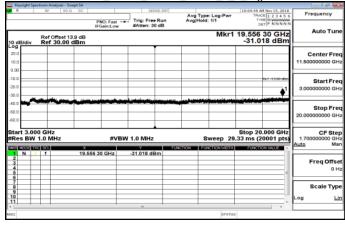
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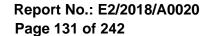


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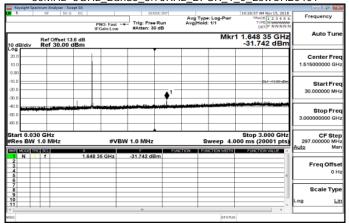
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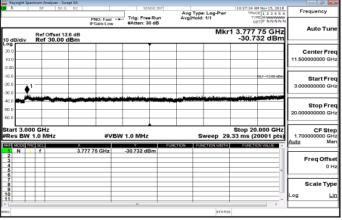




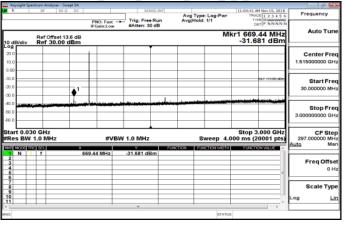
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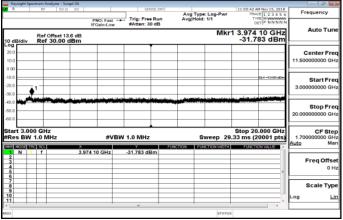
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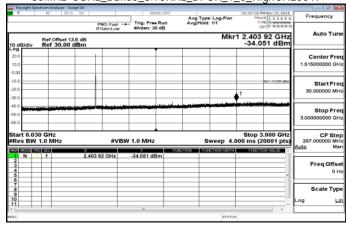
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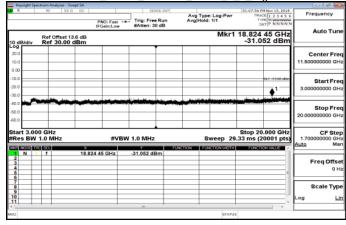
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30MHz~3GHz\_Band5\_3.75KHz\_BPSK\_1\_0\_HighCH20649



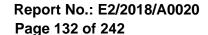
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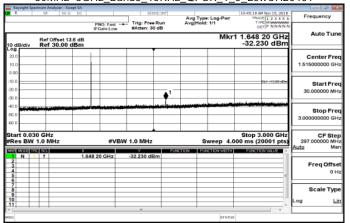
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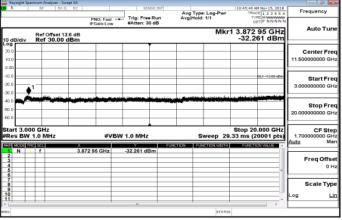




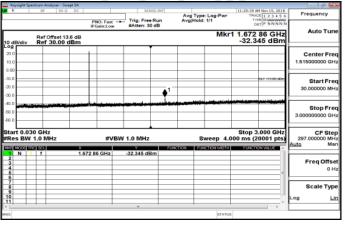
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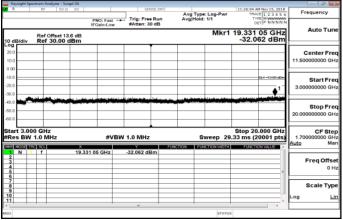
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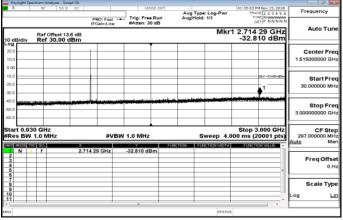
30MHz~3GHz\_Band5\_15KHz\_QPSK\_1\_0\_MidCH20525



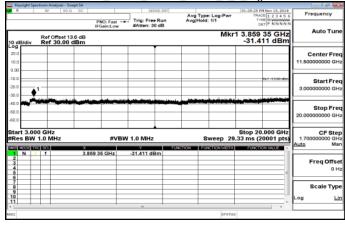
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30MHz~3GHz\_Band5\_15KHz\_QPSK\_1\_0\_HighCH20649



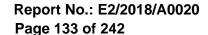
3GHz~10GHz\_Band5\_15KHz\_QPSK\_1\_0\_HighCH20649



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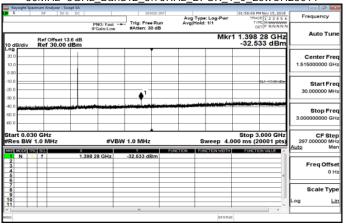
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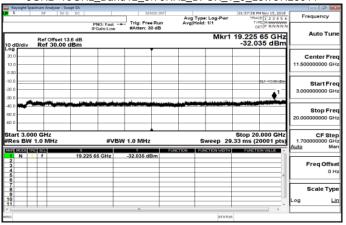




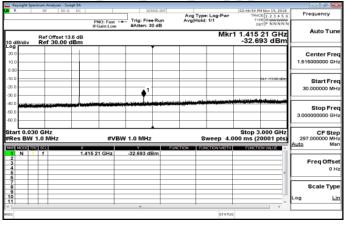
### 30MHz~3GHz\_Band12\_3.75KHz\_BPSK\_1\_0\_LowCH23011



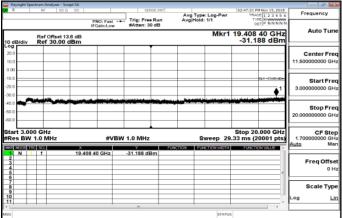
# 3GHz~10GHz\_Band12\_3.75KHz\_BPSK\_1\_0\_LowCH23011



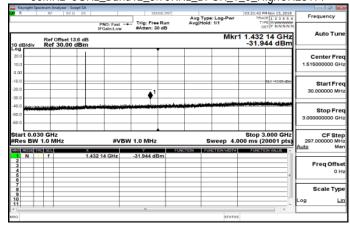
30MHz~3GHz\_Band12\_3.75KHz\_BPSK\_1\_0\_MidCH23095



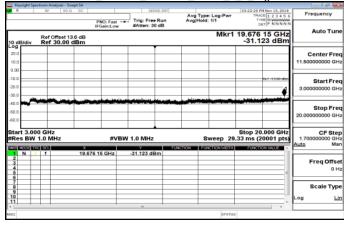
3GHz~10GHz\_Band12\_3.75KHz\_BPSK\_1\_0\_MidCH23095



30MHz~3GHz\_Band12\_3.75KHz\_BPSK\_1\_0\_HighCH23179

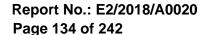


3GHz~10GHz\_Band12\_3.75KHz\_BPSK\_1\_0\_HighCH23179



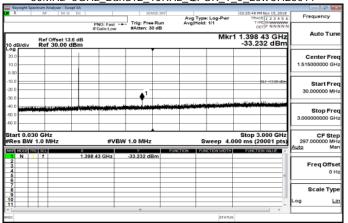
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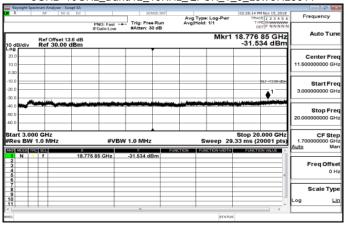




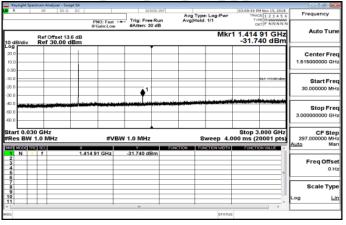
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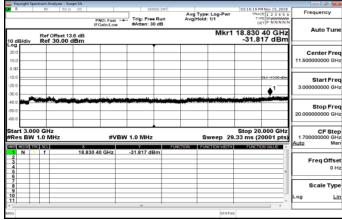
### 3GHz~10GHz\_Band12\_15KHz\_QPSK\_1\_0\_LowCH23011



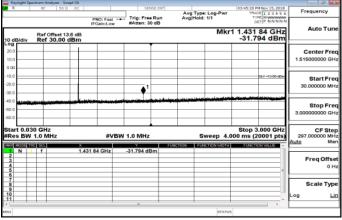
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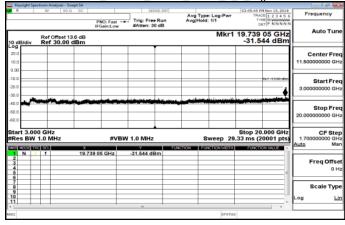
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30MHz~3GHz\_Band12\_15KHz\_QPSK\_1\_0\_HighCH23179

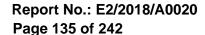


3GHz~10GHz\_Band12\_15KHz\_QPSK\_1\_0\_HighCH23179



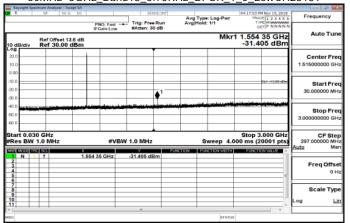
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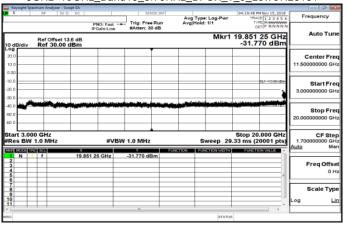




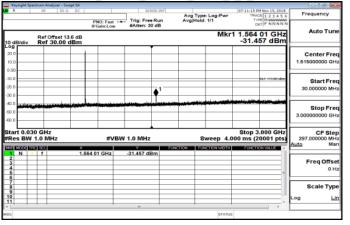
## 30MHz~3GHz\_Band13\_3.75KHz\_BPSK\_1\_0\_LowCH23181



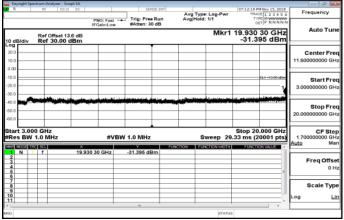
### 3GHz~10GHz\_Band13\_3.75KHz\_BPSK\_1\_0\_LowCH23181



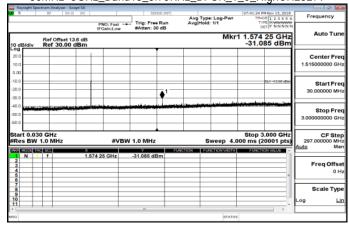
30MHz~3GHz\_Band13\_3.75KHz\_BPSK\_1\_0\_MidCH23230



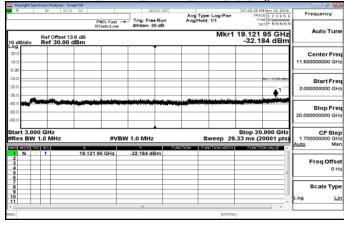
3GHz~10GHz\_Band13\_3.75KHz\_BPSK\_1\_0\_MidCH23230



30MHz~3GHz\_Band13\_3.75KHz\_BPSK\_1\_0\_HighCH23279



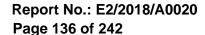
3GHz~10GHz\_Band13\_3.75KHz\_BPSK\_1\_0\_HighCH23279



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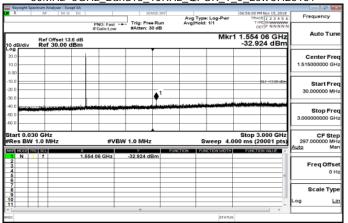
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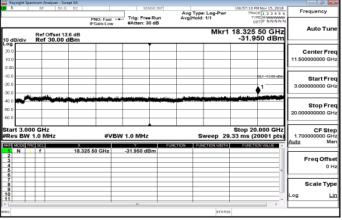




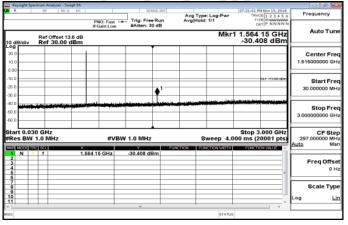
30MHz~3GHz\_Band13\_15KHz\_QPSK\_1\_0\_LowCH23181



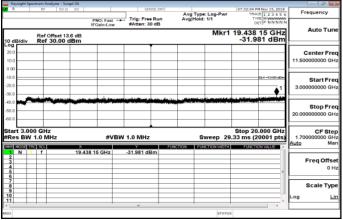
3GHz~10GHz\_Band13\_15KHz\_QPSK\_1\_0\_LowCH23181



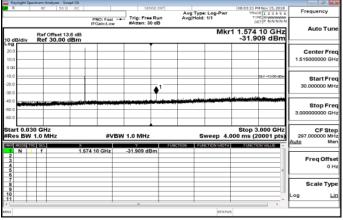
30MHz~3GHz\_Band13\_15KHz\_QPSK\_1\_0\_MidCH23230



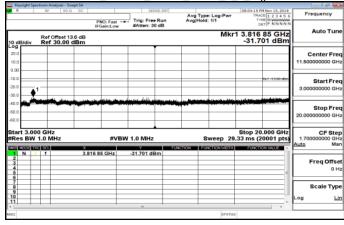
3GHz~10GHz\_Band13\_15KHz\_QPSK\_1\_0\_MidCH23230



30MHz~3GHz\_Band13\_15KHz\_QPSK\_1\_0\_HighCH23279

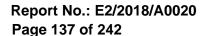


3GHz~10GHz\_Band13\_15KHz\_QPSK\_1\_0\_HighCH23279



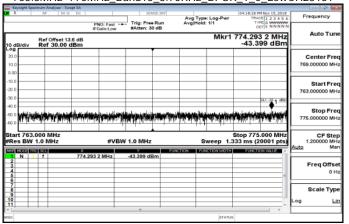
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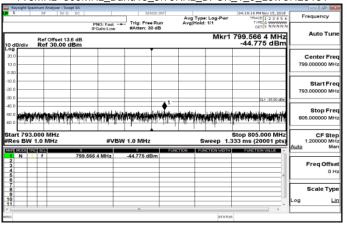




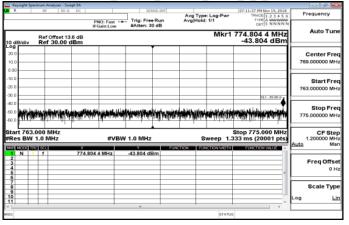
### 763.3MHz~775MHz\_Band13\_3.75KHz\_BPSK\_1\_0\_LowCH23181



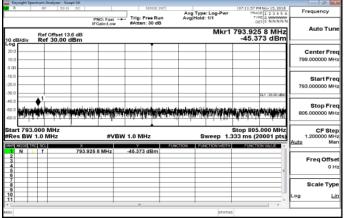
# 793MHz~805MHz\_Band13\_3.75KHz\_BPSK\_1\_0\_LowCH23181



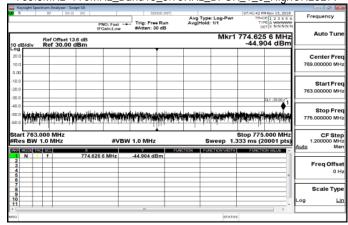
763.3MHz~775MHz\_Band13\_3.75KHz\_BPSK\_1\_0\_MidCH23230



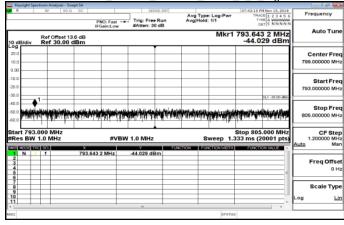
### 793MHz~805MHz\_Band13\_3.75KHz\_BPSK\_1\_0\_MidCH23230



763.3MHz~775MHz\_Band13\_3.75KHz\_BPSK\_1\_0\_HighCH23279



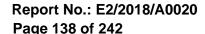
793MHz~805MHz\_Band13\_3.75KHz\_BPSK\_1\_0\_HighCH23279



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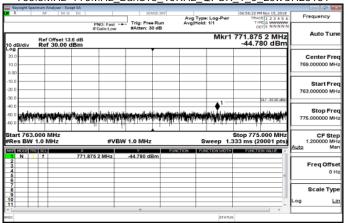
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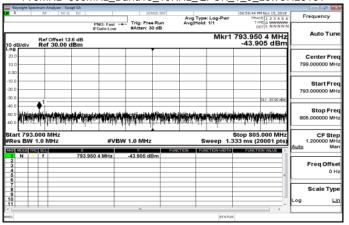




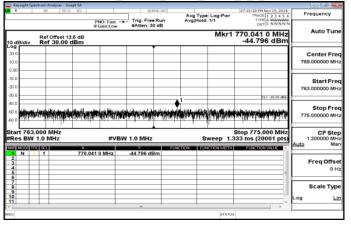
## 763.3MHz~775MHz\_Band13\_15KHz\_QPSK\_1\_0\_LowCH23181



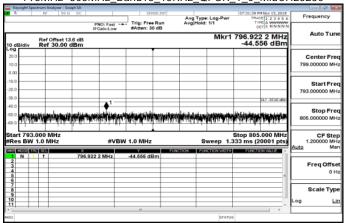
### 793MHz~805MHz\_Band13\_15KHz\_QPSK\_1\_0\_LowCH23181



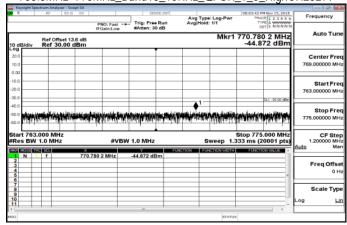
763.3MHz~775MHz\_Band13\_15KHz\_QPSK\_1\_0\_MidCH23230



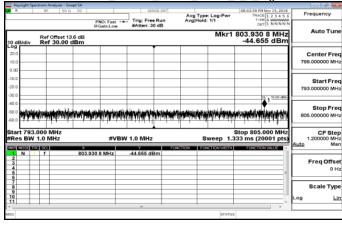
793MHz~805MHz\_Band13\_15KHz\_QPSK\_1\_0\_MidCH23230



763.3MHz~775MHz\_Band13\_15KHz\_QPSK\_1\_0\_HighCH23279



793MHz~805MHz\_Band13\_15KHz\_QPSK\_1\_0\_HighCH23279



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# FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

#### 9.3 Standard Applicable

According to FCC §2.1053,

FCC §22.917(a),§24.238(a), §27.53 (h), the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than 43 + 10 log (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm).

§27.53 (c)

- (2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB (-13dBm)
- (4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations;

§27.53 (f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

# FCC §27.53(c) (5) & FCC §27.53(g)

Compliance 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.

FCC §27.53(h) (3)

Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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# FCC §27.53(m) (4) (6)

For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge. where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

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# According to RSS-130 §4.6

The power of any unwanted emissions in any 100 kHz bandwidth on any frequency outside the frequency range(s) within which the equipment is designed to operate shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10 log10 p (watts), dB. However, in the 100 kHz band immediately outside the equipment's operating frequency range, a resolution bandwidth of 30 kHz may be employed.

In addition to the limit outlined in Section 4.6.1 above, equipment operating in the frequency bands 746-756 MHz and 777-787 MHz shall also comply with the following restrictions:

- (a) The power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least:
- (i) 76 + 10 log10 p(watts), dB, for base and fixed equipment, and
- (ii) 65 + 10 log10 p(watts), dB, for mobile and portable equipment.

# According to RSS-133 §6.5.1

Equipment shall comply with the limits in (i) and (ii) below.

- (i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10 p(watts).
- (ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10 p(watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

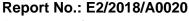
# According to RSS-139 §6.5

- (i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least 43 + 10 log10(P), dB.
- (ii) After the first 1.0 MHz outside the equipment's operating frequency block, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in watts) by at least 43 + 10 log10(P), dB.

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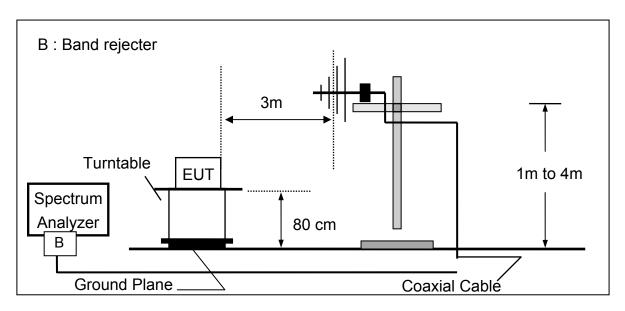




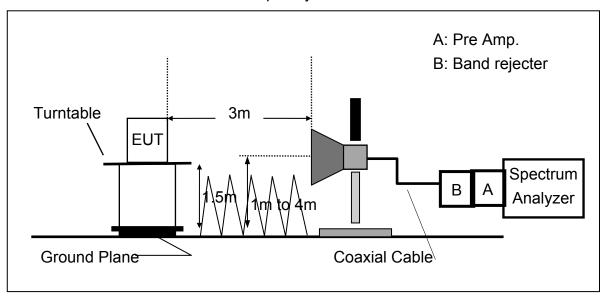
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#### **EUT Setup** 9.4

Radiated Emission Test Set-Up, Frequency Below 1000MHz



# Radiated Emission Test Set-UP Frequency Over 1 GHz



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#### **Measurement Procedure:** 9.5

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:** 9.6

Е	RP, EIRP MEASI	UREMENT EQUIPM	MENT List 966 Ch	namber	
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Broadband An- tenna	TESEQ	CBL 6112D	35243	2018/10/30	2019/10/29
Horn Antenna	Schwarzbeck	BBHA9120D	1341	2018/06/07	2019/06/06
Horn Antenna	SCHWAZBECK	BBHA9170	184	2017/12/12	2018/12/11
EMI Test Receiver	R&S	ESU 40	100363	2018/04/11	2019/04/10
Radio Communi- cation Analyer	Anritsu	MT8821C	6261786084	2018/01/03	2019/01/02
Pre-Amplifier	EMC Instru- ments	EMC330	980096	2017/12/26	2018/12/25
Pre-Amplifier	EMC Instru- ments	EMC0011830	980199	2017/12/26	2018/12/25
Pre-Amplifier	EMC Instru- ments	EMC184045B	980135	2018/10/02	2019/10/01
Attenuator	Marvelous	MVE2213-30	RF28	2017/12/26	2018/12/25
Notch Filter	Woken	EWT-54-0037	RF105	2017/12/26	2018/12/25
Notch Filter	Woken	EWT-54-0038	RF55	2017/12/26	2018/12/25
Coaxial Cable	Huber+Suhner	RG 214/U	W21.01	2017/12/26	2018/12/25
Coaxial Cable	Huber Suhner	EMC106-SM-SM- 7200	150703	2017/12/26	2018/12/25
Coaxial Cable	Huber Suhner	EMC106-SM-SM- 9100	150704	2017/12/26	2018/12/25
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17388/4	2017/12/26	2018/12/25
Coaxial Cable	Huber Suhner	RG 214/U	W22.03	2017/12/26	2018/12/25
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17413/4	2017/12/26	2018/12/25

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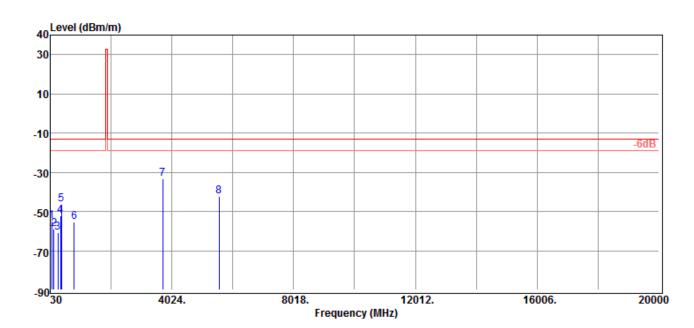


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#### 9.7 **Measurement Result:**

# Radiated Spurious Emission Measurement Result: LTE-Band 2 (The Worst Case)(Cat M1)

**Operation Mode** :LTEM1B2 5M 16QAM RB6,0 Test Date :2018-11-23 Test Mode :TX CH LOW Temp./Humi. :25/60 **EUT Pol** :E2 Plan Antenna Pol. :VERTICAL **Test Channel** :1857.5 MHz Engineer :Ashton



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
75.59	-54.93	-54.77	0.60	-0.76	-13.00	-41.93
159.98	-59.18	-61.40	3.27	-1.05	-13.00	-46.18
286.08	-60.63	-64.73	5.67	-1.57	-13.00	-47.63
375.32	-52.07	-55.73	5.66	-2.00	-13.00	-39.07
397.63	-46.58	-50.10	5.56	-2.04	-13.00	-33.58
823.46	-55.46	-60.60	7.54	-2.40	-13.00	-42.46
3715.00	-33.19	-38.89	12.43	-6.73	-13.00	-20.19
5572.50	-42.43	-49.00	13.01	-6.44	-13.00	-29.43

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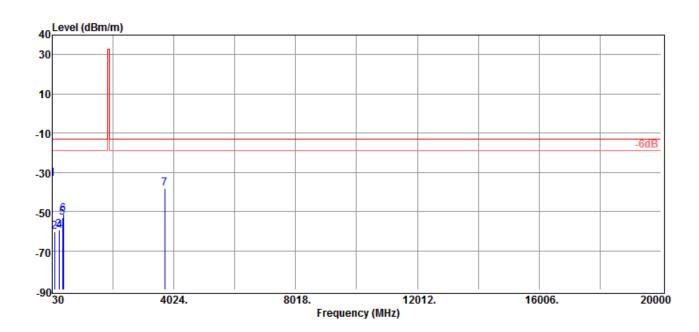
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**Operation Mode** :LTEM1B2 5M 16QAM RB6,0 Test Date :2018-11-23 Test Mode :TX CH LOW Temp./Humi. :25/60

**EUT Pol** :E2 Plan :HORIZONTAL Antenna Pol. **Test Channel** :1857.5 MHz Engineer :Ashton



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin	
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB	
							_
42.61	-33.52	-23.01	-9.90	-0.61	-13.00	-20.52	
108.57	-60.19	-59.10	-0.20	-0.89	-13.00	-47.19	
250.19	-59.55	-63.28	5.17	-1.44	-13.00	-46.55	
264.74	-59.89	-63.78	5.38	-1.49	-13.00	-46.89	
375.32	-53.11	-56.77	5.66	-2.00	-13.00	-40.11	
404.42	-51.11	-54.67	5.60	-2.04	-13.00	-38.11	
3715.00	-38.28	-43.98	12.43	-6.73	-13.00	-25.28	

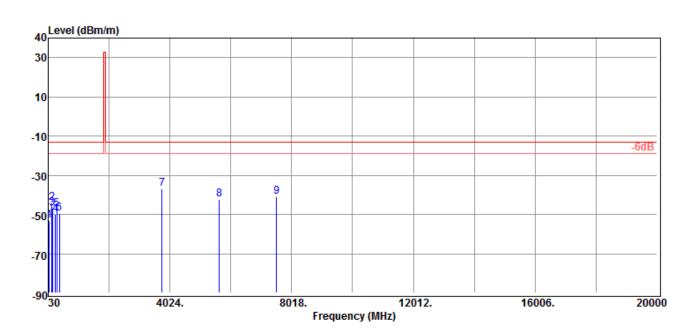
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**Operation Mode** :LTEM1B2 5M 16QAM RB6,0 Test Date :2018-11-23 Test Mode :TX CH MID Temp./Humi. :25/60 **EUT Pol** :E2 Plan Antenna Pol. :VERTICAL **Test Channel** :1880 MHz Engineer :Ashton



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin	
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB	_
64.92	-52.91	-52.08	-0.14	-0.69	-13.00	-39.91	
156.10	-44.12	-46.08	2.99	-1.03	-13.00	-31.12	
166.77	-46.79	-49.46	3.75	-1.08	-13.00	-33.79	
264.74	-50.08	-53.97	5.38	-1.49	-13.00	-37.08	
316.15	-47.42	-51.52	5.83	-1.73	-13.00	-34.42	
402.48	-49.32	-52.86	5.58	-2.04	-13.00	-36.32	
3760.00	-37.07	-42.86	12.46	-6.67	-13.00	-24.07	
5640.00	-42.41	-48.84	13.03	-6.60	-13.00	-29.41	
7520.00	-40.83	-44.81	11.30	-7.32	-13.00	-27.83	

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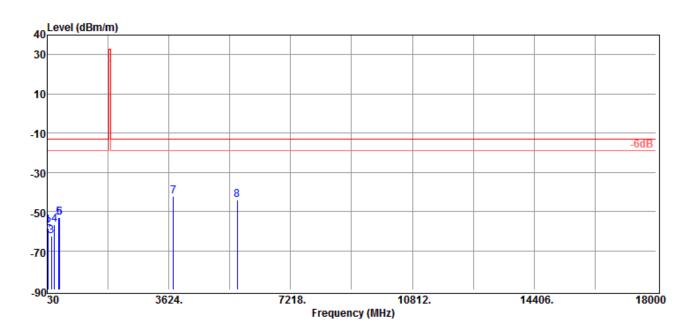
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**Operation Mode** :LTEM1B2 5M 16QAM RB6,0 Test Date :2018-11-23 Test Mode :TX CH MID Temp./Humi. :25/60

**EUT Pol** :E2 Plan :HORIZONTAL Antenna Pol. **Test Channel** :1880 MHz Engineer :Ashton



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
30.00	-57.05	-36.56	-20.05	-0.44	-13.00	-44.05
63.95	-58.49	-57.53	-0.28	-0.68	-13.00	-45.49
156.10	-62.64	-64.60	2.99	-1.03	-13.00	-49.64
250.19	-56.84	-60.57	5.17	-1.44	-13.00	-43.84
375.32	-53.33	-56.99	5.66	-2.00	-13.00	-40.33
399.57	-53.01	-56.52	5.55	-2.04	-13.00	-40.01
3760.00	-42.42	-48.21	12.46	-6.67	-13.00	-29.42
5640.00	-44.31	-50.74	13.03	-6.60	-13.00	-31.31

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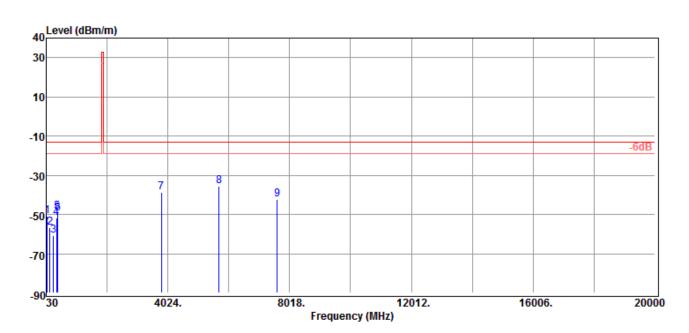
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**Operation Mode** :LTEM1B2 5M 16QAM RB6,0 Test Date Test Mode :TX CH HIGH **EUT Pol** :E2 Plan **Test Channel** :1902.5 MHz

:2018-11-23 Temp./Humi. :25/60 Antenna Pol. :VERTICAL Engineer :Ashton



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin	
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB	
69.77	-51.01	-50.76	0.48	-0.73	-13.00	-38.01	
155.13	-56.62	-58.52	2.92	-1.02	-13.00	-43.62	
263.77	-60.91	-64.79	5.37	-1.49	-13.00	-47.91	
374.35	-51.83	-55.51	5.67	-1.99	-13.00	-38.83	
398.60	-48.62	-52.14	5.56	-2.04	-13.00	-35.62	
408.30	-49.30	-52.90	5.64	-2.04	-13.00	-36.30	
3805.00	-38.82	-44.70	12.49	-6.61	-13.00	-25.82	
5707.50	-35.47	-41.78	13.04	-6.73	-13.00	-22.47	
7610.00	-42.31	-46.20	11.30	-7.41	-13.00	-29.31	

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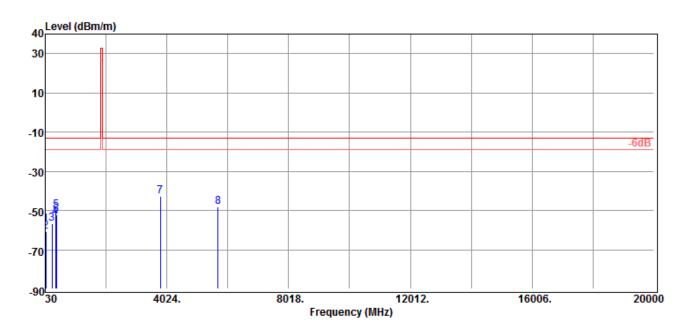


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**Operation Mode** :LTEM1B2 5M 16QAM RB6,0 Test Date :2018-11-23 Test Mode :TX CH HIGH Temp./Humi. :25/60

**EUT Pol** :E2 Plan :HORIZONTAL Antenna Pol.

**Test Channel** :1902.5 MHz Engineer :Ashton



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
30.00	-57.07	-36.58	-20.05	-0.44	-13.00	-44.07
58.13	-60.64	-58.49	-1.50	-0.65	-13.00	-47.64
250.19	-56.90	-60.63	5.17	-1.44	-13.00	-43.90
375.32	-53.56	-57.22	5.66	-2.00	-13.00	-40.56
390.84	-49.92	-53.49	5.59	-2.02	-13.00	-36.92
402.48	-52.04	-55.58	5.58	-2.04	-13.00	-39.04
3805.00	-42.88	-48.76	12.49	-6.61	-13.00	-29.88
5707.50	-48.15	-54.46	13.04	-6.73	-13.00	-35.15

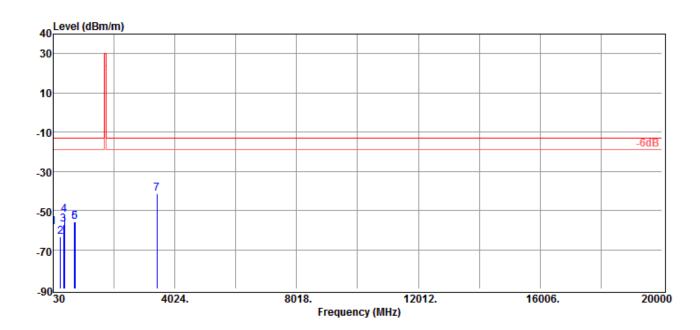
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# Radiated Spurious Emission Measurement Result: LTE-Band 4 (The Worst Case)

:LTEM1B4 20M 16QAM RB1,0 Test Date **Operation Mode** :2018-11-23 Test Mode :TX CH LOW Temp./Humi. :25/60 **EUT Pol** :E2 Plan :VERTICAL Antenna Pol. **Test Channel** :1720 MHz Engineer :Ashton



Limit	Margin
dBm	dB
-13.00	-45.59
-13.00	-50.32
-13.00	-43.97
-13.00	-39.03
-13.00	-42.68
-13.00	-42.71
-13.00	-28.33
	-13.00 -13.00 -13.00 -13.00 -13.00 -13.00

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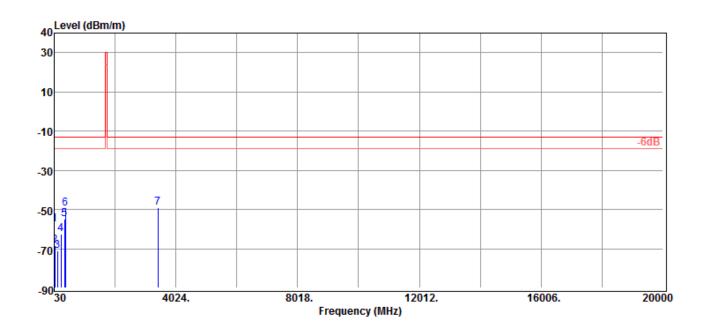


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**Operation Mode** :LTEM1B4 20M 16QAM RB1,0 Test Date :2018-11-23 Test Mode :TX CH LOW Temp./Humi. :25/60

**EUT Pol** :E2 Plan :HORIZONTAL Antenna Pol.

**Test Channel** :1720 MHz Engineer :Ashton



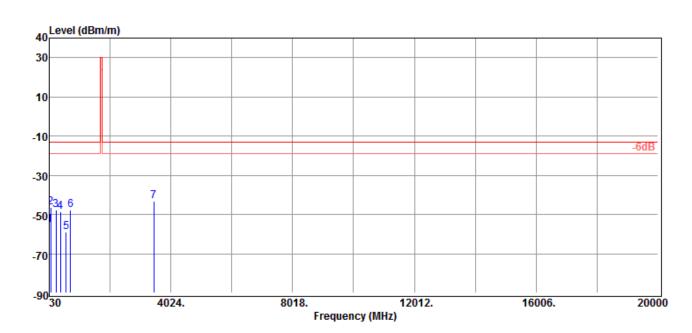
EIRP/ERP	SG	Antenna	Cable	Limit	Margin	
	•		Loss			
dBm	dBm	dBi/dBd	<u>dB</u>	dBm	<u>dB</u>	
-57.57	-37.08	-20.05	-0.44	-13.00	-44.57	
-68.38	-63.57	-4.15	-0.66	-13.00	-55.38	
-71.09	-72.37	2.27	-0.99	-13.00	-58.09	
-62.67	-66.40	5.17	-1.44	-13.00	-49.67	
-54.94	-58.60	5.66	-2.00	-13.00	-41.94	
-49.42	-52.96	5.57	-2.03	-13.00	-36.42	
-48.87	-54.34	12.19	-6.72	-13.00	-35.87	
	-57.57 -68.38 -71.09 -62.67 -54.94 -49.42	Output Level dBm  -57.57 -37.08 -68.38 -63.57 -71.09 -72.37 -62.67 -66.40 -54.94 -58.60 -49.42 -52.96	Output Level Gain dBi/dBd  -57.57 -37.08 -20.05 -68.38 -63.57 -4.15 -71.09 -72.37 2.27 -62.67 -66.40 5.17 -54.94 -58.60 5.66 -49.42 -52.96 5.57	dBm         Output Level dBm         Gain dBi/dBd         Loss dB           -57.57         -37.08         -20.05         -0.44           -68.38         -63.57         -4.15         -0.66           -71.09         -72.37         2.27         -0.99           -62.67         -66.40         5.17         -1.44           -54.94         -58.60         5.66         -2.00           -49.42         -52.96         5.57         -2.03	dBm         Output Level dBm         Gain dBi/dBd         Loss dB           -57.57         -37.08         -20.05         -0.44         -13.00           -68.38         -63.57         -4.15         -0.66         -13.00           -71.09         -72.37         2.27         -0.99         -13.00           -62.67         -66.40         5.17         -1.44         -13.00           -54.94         -58.60         5.66         -2.00         -13.00           -49.42         -52.96         5.57         -2.03         -13.00	dBm         Output Level dBm         Gain dBi/dBd         Loss dB         dBm         dB           -57.57         -37.08         -20.05         -0.44         -13.00         -44.57           -68.38         -63.57         -4.15         -0.66         -13.00         -55.38           -71.09         -72.37         2.27         -0.99         -13.00         -58.09           -62.67         -66.40         5.17         -1.44         -13.00         -49.67           -54.94         -58.60         5.66         -2.00         -13.00         -41.94           -49.42         -52.96         5.57         -2.03         -13.00         -36.42

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**Operation Mode** :LTEM1B4 20M 16QAM RB1,0 Test Date :2018-11-23 Test Mode :TX CH MID Temp./Humi. :25/60 **EUT Pol** :E2 Plan Antenna Pol. :VERTICAL **Test Channel** :1732.5 MHz Engineer :Ashton



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin	
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB	
37.76	-55.21	-41.08	-13.57	-0.56	-13.00	-42.21	
75.59	-46.19	-46.03	0.60	-0.76	-13.00	-33.19	
248.25	-47.92	-51.68	5.19	-1.43	-13.00	-34.92	
403.45	-48.42	-51.97	5.59	-2.04	-13.00	-35.42	
585.81	-58.84	-63.20	6.55	-2.19	-13.00	-45.84	
730.34	-47.78	-53.01	7.37	-2.14	-13.00	-34.78	
3465.00	-43.00	-48.39	12.23	-6.84	-13.00	-30.00	

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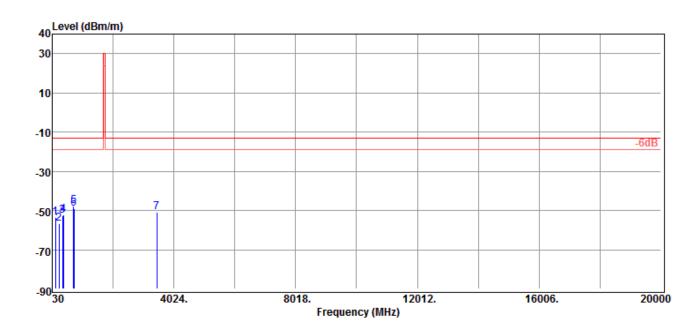


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**Operation Mode** :LTEM1B4 20M 16QAM RB1,0 Test Date :2018-11-23 Test Mode :TX CH MID Temp./Humi. :25/60

**EUT Pol** :E2 Plan :HORIZONTAL Antenna Pol.

**Test Channel** :1732.5 MHz Engineer :Ashton



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin	
		Output Level	Gain	Loss			
 MHz	dBm	dBm	dBi/dBd	dB	dBm	dB	_
143.49	-53.66	-54.84	2.16	-0.98	-13.00	-40.66	
250.19	-56.87	-60.60	5.17	-1.44	-13.00	-43.87	
375.32	-52.88	-56.54	5.66	-2.00	-13.00	-39.88	
396.66	-52.07	-55.61	5.57	-2.03	-13.00	-39.07	
732.28	-47.54	-52.78	7.38	-2.14	-13.00	-34.54	
746.83	-49.05	-54.38	7.40	-2.07	-13.00	-36.05	
3465.00	-51.00	-56.39	12.23	-6.84	-13.00	-38.00	

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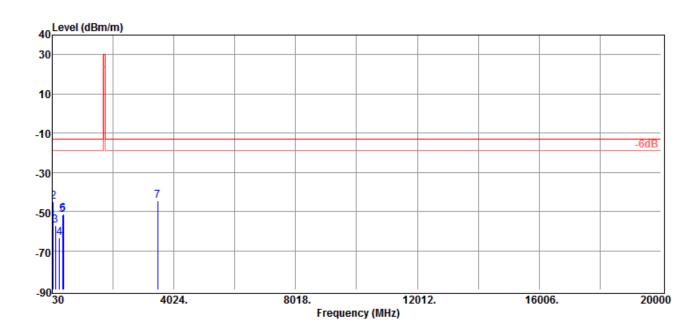
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**Operation Mode** :LTEM1B4 20M 16QAM RB1,0 Test Date :2018-11-23 Test Mode :TX CH HIGH Temp./Humi. :25/60 **EUT Pol** :E2 Plan Antenna Pol. :VERTICAL :1745 MHz **Test Channel** Engineer :Ashton



	Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin	
			Output Level	Gain	Loss			
_	MHz	dBm	dBm	dBi/dBd	dB	dBm	dB	_
	30.97	-54.31	-34.70	-19.15	-0.46	-13.00	-41.31	
	62.98	-45.14	-44.06	-0.41	-0.67	-13.00	-32.14	
	133.79	-57.01	-57.62	1.57	-0.96	-13.00	-44.01	
	264.74	-63.31	-67.20	5.38	-1.49	-13.00	-50.31	
	375.32	-51.63	-55.29	5.66	-2.00	-13.00	-38.63	
	402.48	-51.13	-54.67	5.58	-2.04	-13.00	-38.13	
	3490.00	-44.37	-49.69	12.28	-6.96	-13.00	-31.37	

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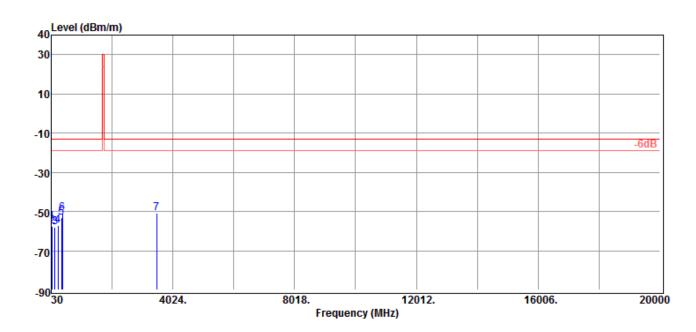


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**Operation Mode** :LTEM1B4 20M 16QAM RB1,0 Test Date :2018-11-23 Test Mode :TX CH HIGH Temp./Humi. :25/60

**EUT Pol** :E2 Plan :HORIZONTAL Antenna Pol.

**Test Channel** :1745 MHz Engineer :Ashton



	Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin	
			Output Level	Gain	Loss			
_	MHz	dBm	dBm	dBi/dBd	dB	dBm	dB	
	33.88	-55.35	-38.22	-16.63	-0.50	-13.00	-42.35	
	70.74	-57.48	-57.27	0.52	-0.73	-13.00	-44.48	
	158.04	-57.86	-59.95	3.13	-1.04	-13.00	-44.86	
	250.19	-56.98	-60.71	5.17	-1.44	-13.00	-43.98	
	375.32	-53.27	-56.93	5.66	-2.00	-13.00	-40.27	
	395.69	-50.65	-54.19	5.57	-2.03	-13.00	-37.65	
	3490.00	-50.93	-56.25	12.28	-6.96	-13.00	-37.93	

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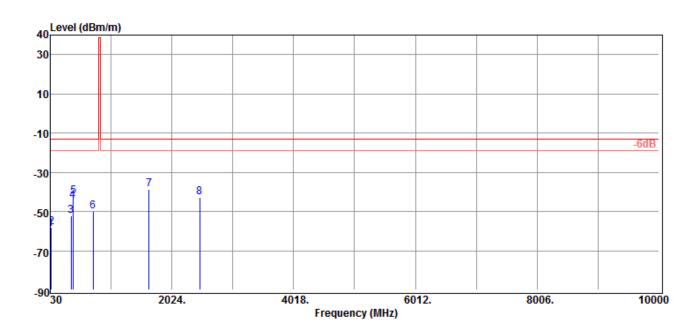


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# Radiated Spurious Emission Measurement Result: LTE-Band 5 (The Worst Case)

:LTEM1B5 3M QPSK RB1,0 :2018-11-23 **Operation Mode Test Date** 

**Test Mode** :TX CH LOW Temp./Humi. :25/60 **EUT Pol** :E2 Plan Antenna Pol. :VERTICAL :825.5 MHz :Ashton **Test Channel** Engineer



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output	Gain	Loss		
		Level				
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
30.00	-58.83	-38.34	-20.05	-0.44	-13.00	-45.83
51.34	-57.91	-53.10	-4.15	-0.66	-13.00	-44.91
375.32	-52.01	-55.67	5.66	-2.00	-13.00	-39.01
403.45	-44.69	-48.24	5.59	-2.04	-13.00	-31.69
407.33	-42.40	-45.99	5.63	-2.04	-13.00	-29.40
736.16	-49.82	-55.08	7.38	-2.12	-13.00	-36.82
1651.00	-38.90	-43.87	8.80	-3.83	-13.00	-25.90
2476.50	-42.81	-49.11	10.68	-4.38	-13.00	-29.81

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:HORIZONTAL

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**Operation Mode Test Mode EUT Pol Test Channel** 

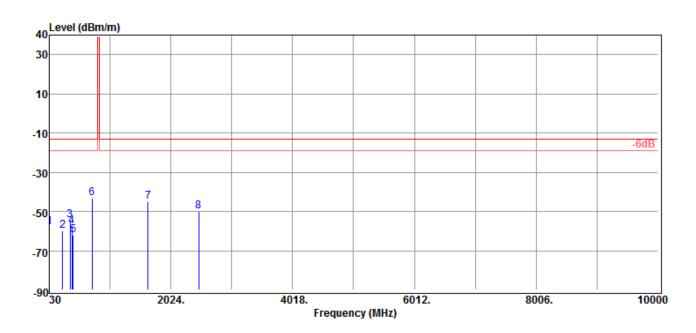
:LTEM1B5 3M QPSK RB1,0

:TX CH LOW

:E2 Plan :825.5 MHz Temp./Humi. Antenna Pol.

**Test Date** :2018-11-23 :25/60

:Ashton Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
30.00	-58.20	-37.71	-20.05	-0.44	-13.00	-45.20
250.19	-59.86	-63.59	5.17	-1.44	-13.00	-46.86
375.32	-54.26	-57.92	5.66	-2.00	-13.00	-41.26
404.42	-57.49	-61.05	5.60	-2.04	-13.00	-44.49
425.76	-62.03	-65.81	5.83	-2.05	-13.00	-49.03
730.34	-43.23	-48.46	7.37	-2.14	-13.00	-30.23
1651.00	-45.04	-50.01	8.80	-3.83	-13.00	-32.04
2476.50	-49.89	-56.19	10.68	-4.38	-13.00	-36.89

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**Operation Mode Test Mode EUT Pol Test Channel** 

:LTEM1B5 3M QPSK RB1,0

:TX CH MID

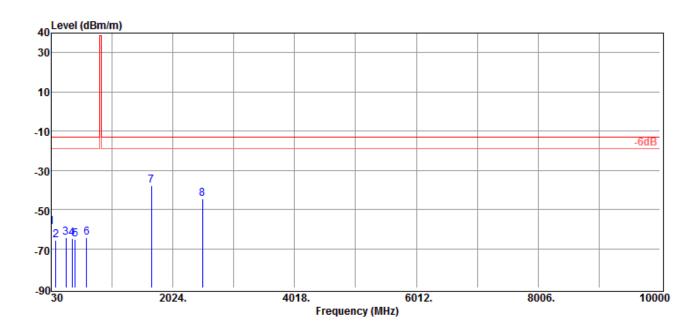
:E2 Plan

:836.5 MHz

**Test Date** :2018-11-23

Temp./Humi. :25/60

Antenna Pol. :VERTICAL :Ashton Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
30.00	-58.82	-38.33	-20.05	-0.44	-13.00	-45.82
102.75	-65.71	-64.18	-0.66	-0.87	-13.00	-52.71
268.62	-64.21	-68.14	5.44	-1.51	-13.00	-51.21
375.32	-64.70	-68.36	5.66	-2.00	-13.00	-51.70
425.76	-65.48	-69.26	5.83	-2.05	-13.00	-52.48
610.06	-64.23	-68.74	6.71	-2.20	-13.00	-51.23
1673.00	-37.91	-42.95	8.90	-3.86	-13.00	-24.91
2509.50	-44.44	-50.76	10.71	-4.39	-13.00	-31.44

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**Operation Mode Test Mode EUT Pol** 

**Test Channel** 

:LTEM1B5 3M QPSK RB1,0

:TX CH MID

:E2 Plan

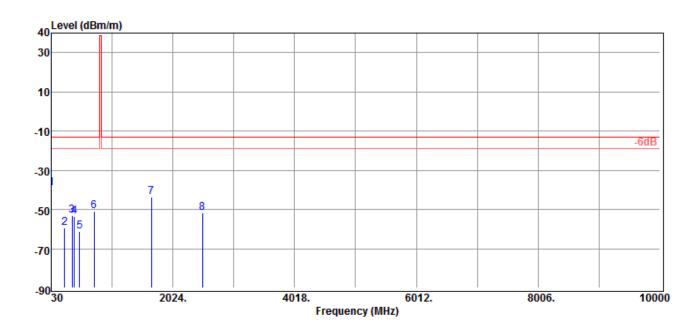
:836.5 MHz

**Test Date** :2018-11-23

Temp./Humi. :25/60

Antenna Pol. :HORIZONTAL

:Ashton Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
33.88	-39.05	-21.92	-16.63	-0.50	-13.00	-26.05
249.22	-59.52	-63.26	5.18	-1.44	-13.00	-46.52
375.32	-53.10	-56.76	5.66	-2.00	-13.00	-40.10
405.39	-53.64	-57.21	5.61	-2.04	-13.00	-40.64
491.72	-61.17	-64.90	6.26	-2.53	-13.00	-48.17
730.34	-50.77	-56.00	7.37	-2.14	-13.00	-37.77
1673.00	-43.83	-48.87	8.90	-3.86	-13.00	-30.83
2509.50	-51.81	-58.13	10.71	-4.39	-13.00	-38.81

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**Operation Mode Test Mode EUT Pol Test Channel** 

:LTEM1B5 3M QPSK RB1,0

:TX CH HIGH

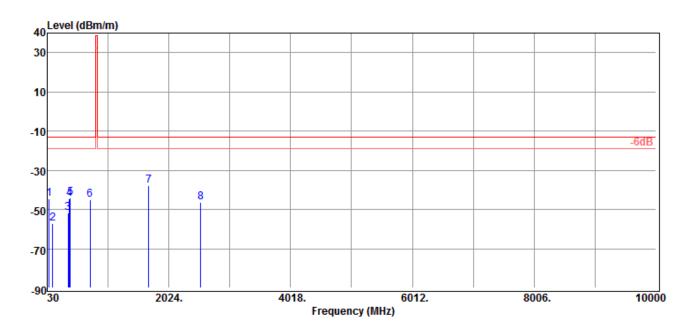
:E2 Plan

:847.5 MHz

**Test Date** :2018-11-23

Temp./Humi. :25/60

Antenna Pol. :VERTICAL :Ashton Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
64.92	-44.50	-43.67	-0.14	-0.69	-13.00	-31.50
117.30	-57.05	-56.60	0.46	-0.91	-13.00	-44.05
375.32	-51.76	-55.42	5.66	-2.00	-13.00	-38.76
394.72	-44.56	-48.10	5.57	-2.03	-13.00	-31.56
405.39	-43.98	-47.55	5.61	-2.04	-13.00	-30.98
730.34	-44.81	-50.04	7.37	-2.14	-13.00	-31.81
1695.00	-37.87	-42.97	8.99	-3.89	-13.00	-24.87
2542.50	-46.22	-52.58	10.76	-4.40	-13.00	-33.22

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**Operation Mode Test Mode EUT Pol** 

**Test Channel** 

:LTEM1B5 3M QPSK RB1,0

:TX CH HIGH

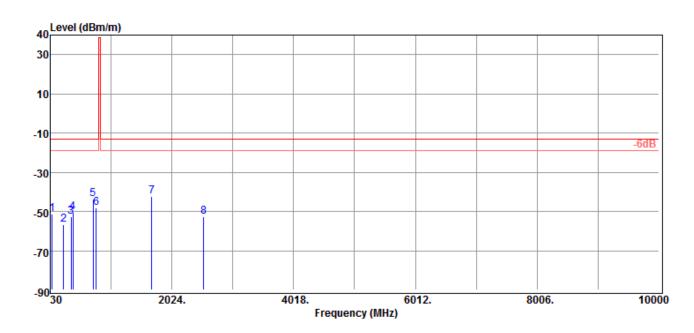
:E2 Plan

:847.5 MHz

**Test Date** :2018-11-23

Temp./Humi. :25/60

Antenna Pol. :HORIZONTAL :Ashton Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
64.92	-51.43	-50.60	-0.14	-0.69	-13.00	-38.43
250.19	-56.75	-60.48	5.17	-1.44	-13.00	-43.75
375.32	-52.75	-56.41	5.66	-2.00	-13.00	-39.75
400.54	-50.58	-54.10	5.56	-2.04	-13.00	-37.58
730.34	-43.79	-49.02	7.37	-2.14	-13.00	-30.79
784.66	-47.97	-53.17	7.52	-2.32	-13.00	-34.97
1695.00	-42.16	-47.26	8.99	-3.89	-13.00	-29.16
2542.50	-52.67	-59.03	10.76	-4.40	-13.00	-39.67

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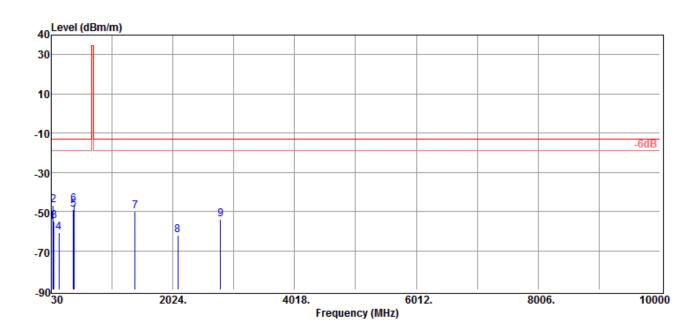


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## Radiated Spurious Emission Measurement Result: LTE-Band 12 (The Worst Case)

:LTEM1B12 5M QPSK RB1,5 Test Date :2018-11-23 **Operation Mode** 

**Test Mode** :TX CH LOW Temp./Humi. :25/60 **EUT Pol** :E2 Plan Antenna Pol. :VERTICAL :701.5 MHz :Ashton **Test Channel** Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
30.97	-55.37	-35.76	-19.15	-0.46	-13.00	-42.37
60.07	-47.01	-45.54	-0.82	-0.65	-13.00	-34.01
78.50	-54.91	-54.79	0.65	-0.77	-13.00	-41.91
156.10	-60.87	-62.83	2.99	-1.03	-13.00	-47.87
393.75	-49.16	-52.71	5.58	-2.03	-13.00	-36.16
401.51	-46.44	-49.97	5.57	-2.04	-13.00	-33.44
1403.00	-49.75	-53.97	7.70	-3.48	-13.00	-36.75
2104.50	-61.98	-67.99	10.31	-4.30	-13.00	-48.98
2806.00	-54.20	-60.79	11.08	-4.49	-13.00	-41.20

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**Operation Mode Test Mode EUT Pol** 

**Test Channel** 

:LTEM1B12 5M QPSK RB1,5 Test Date

:TX CH LOW

:E2 Plan

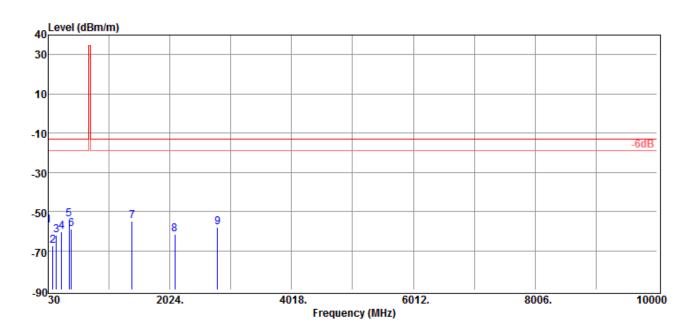
:701.5 MHz

:2018-11-23

Temp./Humi. :25/60

Antenna Pol. :HORIZONTAL

:Ashton Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
30.00	-57.14	-36.65	-20.05	-0.44	-13.00	-44.14
104.69	-67.69	-66.31	-0.50	-0.88	-13.00	-54.69
160.95	-61.96	-64.25	3.34	-1.05	-13.00	-48.96
250.19	-60.53	-64.26	5.17	-1.44	-13.00	-47.53
375.32	-54.21	-57.87	5.66	-2.00	-13.00	-41.21
407.33	-58.94	-62.53	5.63	-2.04	-13.00	-45.94
1403.00	-54.74	-58.96	7.70	-3.48	-13.00	-41.74
2104.50	-61.49	-67.50	10.31	-4.30	-13.00	-48.49
2806.00	-58.25	-64.84	11.08	-4.49	-13.00	-45.25

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**Operation Mode Test Mode EUT Pol Test Channel** 

:LTEM1B12 5M QPSK RB1,5 Test Date

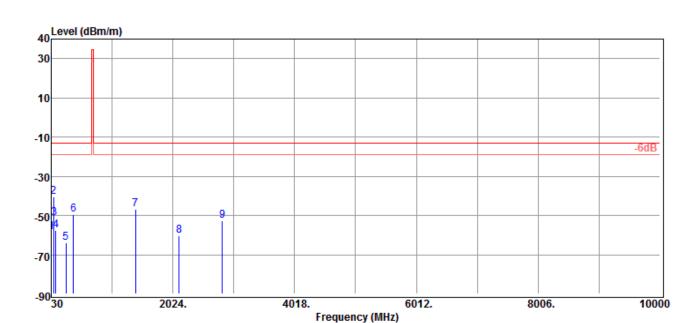
:TX CH MID

:E2 Plan :707.5 MHz Temp./Humi.

:2018-11-23

:25/60

Antenna Pol. :VERTICAL :Ashton Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
30.00	-58.38	-37.89	-20.05	-0.44	-13.00	-45.38
66.86	-40.46	-39.87	0.11	-0.70	-13.00	-27.46
76.56	-51.34	-51.20	0.62	-0.76	-13.00	-38.34
102.75	-57.84	-56.31	-0.66	-0.87	-13.00	-44.84
271.53	-63.77	-67.73	5.48	-1.52	-13.00	-50.77
395.69	-49.49	-53.03	5.57	-2.03	-13.00	-36.49
1415.00	-47.01	-51.26	7.75	-3.50	-13.00	-34.01
2122.50	-60.20	-66.22	10.33	-4.31	-13.00	-47.20
2830.00	-52.70	-59.31	11.11	-4.50	-13.00	-39.70

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**Operation Mode Test Mode EUT Pol** 

**Test Channel** 

:LTEM1B12 5M QPSK RB1,5 Test Date

:TX CH MID

:E2 Plan

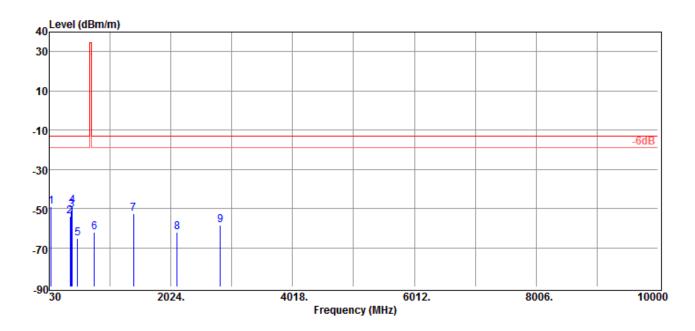
:707.5 MHz

:2018-11-23

Temp./Humi. :25/60

Antenna Pol. :HORIZONTAL

:Ashton Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
62.98	-48.91	-47.83	-0.41	-0.67	-13.00	-35.91
375.32	-54.12	-57.78	5.66	-2.00	-13.00	-41.12
395.69	-50.81	-54.35	5.57	-2.03	-13.00	-37.81
409.27	-48.54	-52.15	5.65	-2.04	-13.00	-35.54
496.57	-65.07	-68.77	6.28	-2.58	-13.00	-52.07
772.05	-61.99	-67.25	7.48	-2.22	-13.00	-48.99
1415.00	-52.63	-56.88	7.75	-3.50	-13.00	-39.63
2122.50	-62.12	-68.14	10.33	-4.31	-13.00	-49.12
2830.00	-58.65	-65.26	11.11	-4.50	-13.00	-45.65

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**Operation Mode Test Mode EUT Pol Test Channel** 

:LTEM1B12 5M QPSK RB1,5 Test Date

:TX CH HIGH

:E2 Plan

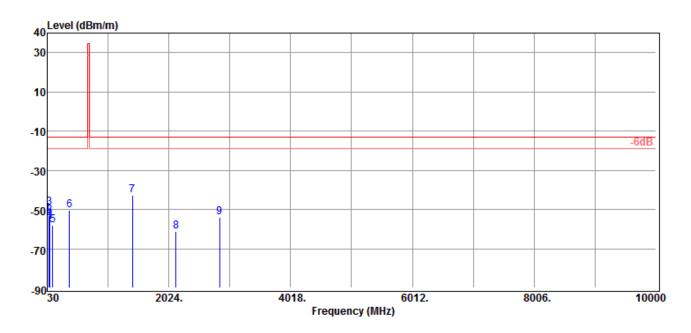
:713.5 MHz

:2018-11-23

Temp./Humi. :25/60

Antenna Pol. :VERTICAL

:Ashton Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
30.97	-52.19	-32.58	-19.15	-0.46	-13.00	-39.19
62.01	-53.14	-51.94	-0.54	-0.66	-13.00	-40.14
68.80	-48.97	-48.61	0.36	-0.72	-13.00	-35.97
74.62	-55.51	-55.35	0.59	-0.75	-13.00	-42.51
122.15	-58.08	-57.95	0.80	-0.93	-13.00	-45.08
396.66	-50.30	-53.84	5.57	-2.03	-13.00	-37.30
1427.00	-42.67	-46.95	7.80	-3.52	-13.00	-29.67
2140.50	-61.28	-67.32	10.35	-4.31	-13.00	-48.28
2854.00	-53.93	-60.56	11.14	-4.51	-13.00	-40.93

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**Operation Mode Test Mode EUT Pol** 

**Test Channel** 

:LTEM1B12 5M QPSK RB1,5 Test Date

:TX CH HIGH

:E2 Plan

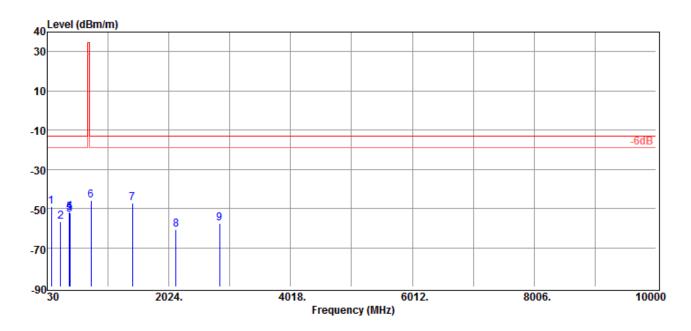
:713.5 MHz

:2018-11-23

Temp./Humi. :25/60

Antenna Pol. :HORIZONTAL

:Ashton Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
94.99	-49.02	-47.72	-0.46	-0.84	-13.00	-36.02
249.22	-56.78	-60.52	5.18	-1.44	-13.00	-43.78
390.84	-53.22	-56.79	5.59	-2.02	-13.00	-40.22
395.69	-51.79	-55.33	5.57	-2.03	-13.00	-38.79
403.45	-52.06	-55.61	5.59	-2.04	-13.00	-39.06
746.83	-45.73	-51.06	7.40	-2.07	-13.00	-32.73
1427.00	-47.11	-51.39	7.80	-3.52	-13.00	-34.11
2140.50	-60.81	-66.85	10.35	-4.31	-13.00	-47.81
2854.00	-57.64	-64.27	11.14	-4.51	-13.00	-44.64

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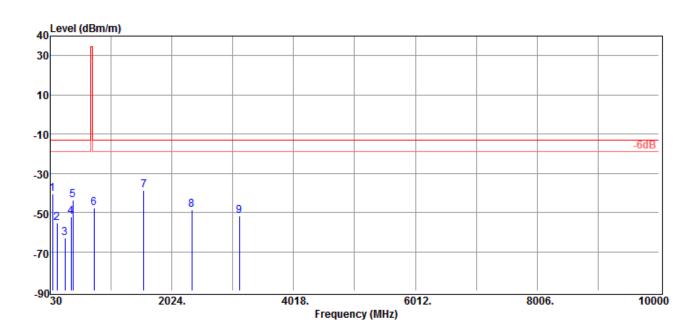


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## Radiated Spurious Emission Measurement Result: LTE-Band 13 (The Worst Case)

Operation Mode :LTEM1B13 10M 16QAM Test Date :2018-11-23 **RB1,0** 

:TX CH MID :25/60 Test Mode Temp./Humi. **EUT Pol** :E2 Plan Antenna Pol. :VERTICAL **Test Channel** :782 MHz Engineer :Ashton



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
68.80	-40.74	-40.38	0.36	-0.72	-13.00	-27.74
140.58	-55.38	-56.39	1.98	-0.97	-13.00	-42.38
274.44	-63.19	-67.18	5.52	-1.53	-13.00	-50.19
375.32	-52.16	-55.82	5.66	-2.00	-13.00	-39.16
404.42	-43.79	-47.35	5.60	-2.04	-13.00	-30.79
746.83	-47.86	-53.19	7.40	-2.07	-13.00	-34.86
1564.00	-38.78	-43.41	8.33	-3.70	-13.00	-25.78
2346.00	-48.47	-54.67	10.56	-4.36	-13.00	-35.47
3128.00	-51.91	-58.29	11.57	-5.19	-13.00	-38.91

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**Operation Mode** :LTEM1B13 10M 16QAM

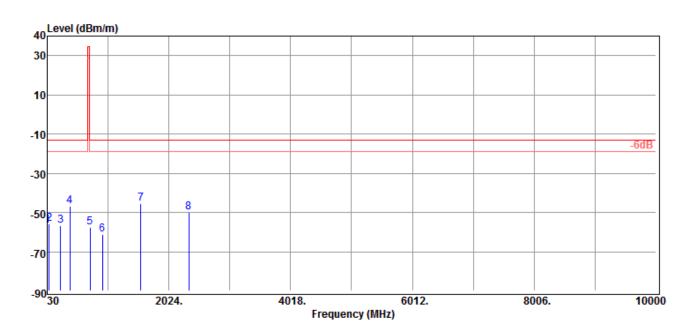
**RB1,0** 

Test Mode :TX CH MID **EUT Pol** :E2 Plan **Test Channel** :782 MHz

**Test Date** :2018-11-23

Temp./Humi. :25/60 Antenna Pol. :HORIZONTAL

Engineer :Ashton



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
MHz	dBm	Output Level dBm	Gain dBi/dBd	Loss dB	dBm	dB
30.00	-56.75	-36.26	-20.05	-0.44	-13.00	-43.75
62.98	-55.76	-54.68	-0.41	-0.67	-13.00	-42.76
250.19	-56.80	-60.53	5.17	-1.44	-13.00	-43.80
400.54	-46.91	-50.43	5.56	-2.04	-13.00	-33.91
730.34	-57.50	-62.73	7.37	-2.14	-13.00	-44.50
935.98	-61.07	-66.06	7.64	-2.65	-13.00	-48.07
1564.00	-45.26	-49.89	8.33	-3.70	-13.00	-32.26
2346.00	-50.15	-56.35	10.56	-4.36	-13.00	-37.15

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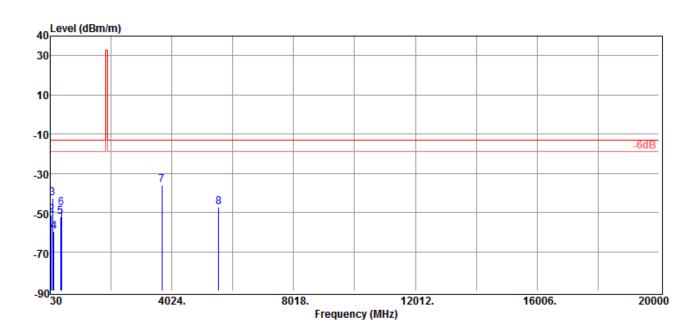


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## Radiated Spurious Emission Measurement Result: LTE-Band 2 (The Worst Case)(NBIoT)

:NB lot B2 BPSK 15 RB 1,11 :2018-11-22 **Operation Mode Test Date** 

**Test Mode** :TX CH LOW Temp./Humi. :25/59 **EUT Pol** :E2 Plan Antenna Pol. :VERTICAL :1850.1 MHz :Ashton **Test Channel** Engineer



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output	Gain	Loss		
		Level				
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
30.00	-58.28	-37.79	-20.05	-0.44	-13.00	-45.28
62.98	-51.23	-50.15	-0.41	-0.67	-13.00	-38.23
102.75	-42.63	-41.10	-0.66	-0.87	-13.00	-29.63
155.13	-60.08	-61.98	2.92	-1.02	-13.00	-47.08
375.32	-52.16	-55.82	5.66	-2.00	-13.00	-39.16
405.39	-47.78	-51.35	5.61	-2.04	-13.00	-34.78
3700.20	-35.90	-41.57	12.42	-6.75	-13.00	-22.90
5550.30	-47.32	-53.90	13.01	-6.43	-13.00	-34.32

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**Operation Mode Test Mode EUT Pol** 

**Test Channel** 

:NB lot B2 BPSK 15 RB 1,11

:TX CH LOW

:E2 Plan

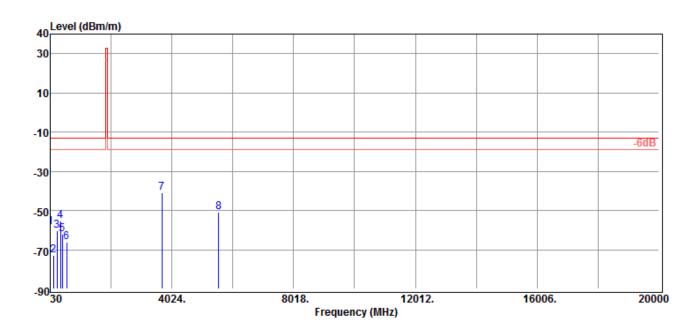
:1850.1 MHz

**Test Date** :2018-11-22

Temp./Humi. :25/59

Antenna Pol. :HORIZONTAL

:Ashton Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
30.00	-58.60	-38.11	-20.05	-0.44	-13.00	-45.60
141.55	-72.85	-73.91	2.04	-0.98	-13.00	-59.85
250.19	-60.18	-63.91	5.17	-1.44	-13.00	-47.18
375.32	-55.28	-58.94	5.66	-2.00	-13.00	-42.28
424.79	-61.93	-65.70	5.82	-2.05	-13.00	-48.93
576.11	-66.03	-70.26	6.46	-2.23	-13.00	-53.03
3700.20	-41.12	-46.79	12.42	-6.75	-13.00	-28.12
5550.30	-50.93	-57.51	13.01	-6.43	-13.00	-37.93

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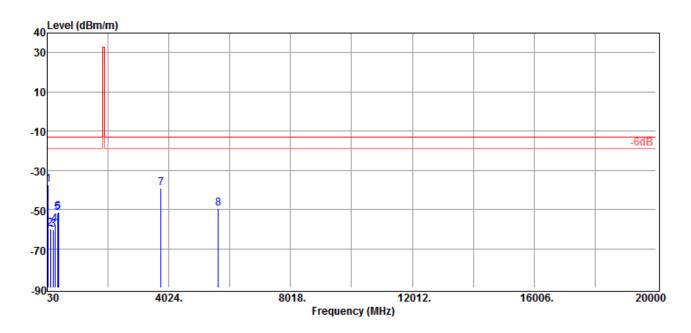
**Operation Mode Test Mode EUT Pol Test Channel** 

:NB lot B2 BPSK 15 RB 1,11

:TX CH MID

:E2 Plan :1880 MHz **Test Date** :2018-11-22 :25/59

Temp./Humi. Antenna Pol. :VERTICAL :Ashton Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
66.86	-37.25	-36.66	0.11	-0.70	-13.00	-24.25
141.55	-59.75	-60.81	2.04	-0.98	-13.00	-46.75
230.79	-60.26	-64.31	5.41	-1.36	-13.00	-47.26
281.23	-57.44	-61.50	5.61	-1.55	-13.00	-44.44
375.32	-51.88	-55.54	5.66	-2.00	-13.00	-38.88
403.45	-51.41	-54.96	5.59	-2.04	-13.00	-38.41
3760.00	-39.29	-45.08	12.46	-6.67	-13.00	-26.29
5640.00	-49.69	-56.12	13.03	-6.60	-13.00	-36.69

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**Operation Mode Test Mode EUT Pol** 

**Test Channel** 

:NB lot B2 BPSK 15 RB 1,11

:TX CH MID

:E2 Plan

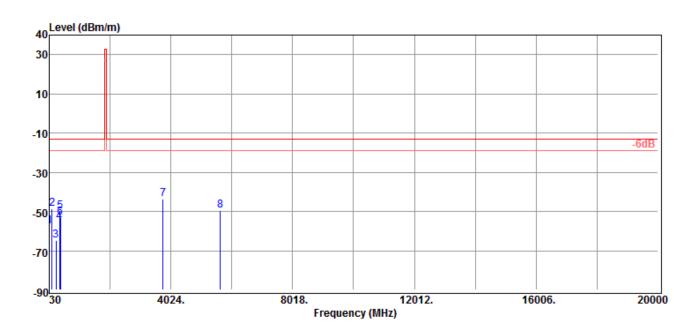
:1880 MHz

**Test Date** :2018-11-22

Temp./Humi. :25/59

Antenna Pol. :HORIZONTAL

:Ashton Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
30.00	-57.64	-37.15	-20.05	-0.44	-13.00	-44.64
127.97	-48.83	-49.08	1.19	-0.94	-13.00	-35.83
250.19	-64.65	-68.38	5.17	-1.44	-13.00	-51.65
375.32	-55.50	-59.16	5.66	-2.00	-13.00	-42.50
390.84	-50.02	-53.59	5.59	-2.02	-13.00	-37.02
399.57	-53.18	-56.69	5.55	-2.04	-13.00	-40.18
3760.00	-43.57	-49.36	12.46	-6.67	-13.00	-30.57
5640.00	-49.74	-56.17	13.03	-6.60	-13.00	-36.74

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**Operation Mode Test Mode EUT Pol Test Channel** 

:NB lot B2 BPSK 15 RB 1,11

:TX CH HIGH

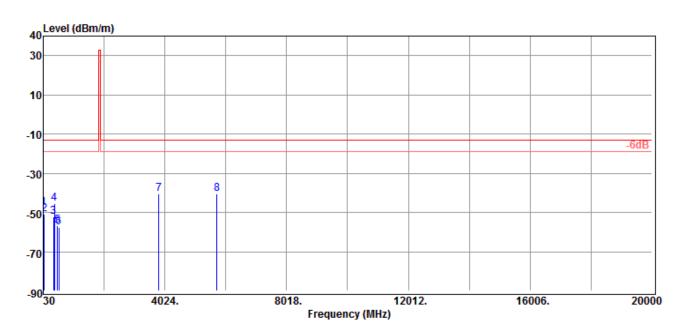
:E2 Plan

:1909.1 MHz

**Test Date** :2018-11-22

Temp./Humi. :25/59

Antenna Pol. :VERTICAL :Ashton Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
30.97	-47.71	-28.10	-19.15	-0.46	-13.00	-34.71
64.92	-51.07	-50.24	-0.14	-0.69	-13.00	-38.07
375.32	-52.32	-55.98	5.66	-2.00	-13.00	-39.32
394.72	-45.57	-49.11	5.57	-2.03	-13.00	-32.57
495.60	-56.82	-60.52	6.27	-2.57	-13.00	-43.82
549.92	-57.58	-61.45	6.22	-2.35	-13.00	-44.58
3818.20	-40.54	-46.45	12.50	-6.59	-13.00	-27.54
5727.30	-40.31	-46.59	13.05	-6.77	-13.00	-27.31

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**Operation Mode Test Mode EUT Pol** 

**Test Channel** 

:NB lot B2 BPSK 15 RB 1,11

:TX CH HIGH

:E2 Plan

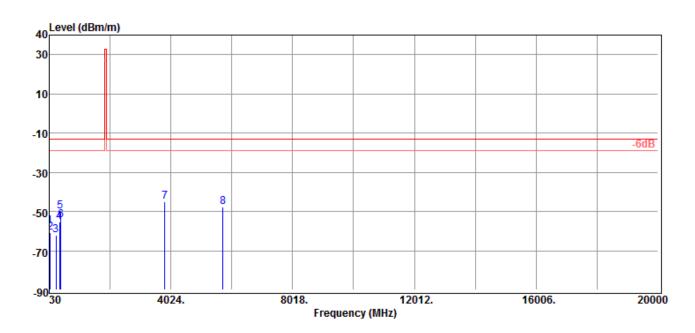
:1909.1 MHz

**Test Date** :2018-11-22

Temp./Humi. :25/59

Antenna Pol. :HORIZONTAL

:Ashton Engineer



Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
30.97	-57.47	-37.86	-19.15	-0.46	-13.00	-44.47
64.92	-60.71	-59.88	-0.14	-0.69	-13.00	-47.71
250.19	-62.02	-65.75	5.17	-1.44	-13.00	-49.02
374.35	-55.51	-59.19	5.67	-1.99	-13.00	-42.51
395.69	-49.90	-53.44	5.57	-2.03	-13.00	-36.90
407.33	-54.59	-58.18	5.63	-2.04	-13.00	-41.59
3818.20	-44.86	-50.77	12.50	-6.59	-13.00	-31.86
5727.30	-47.89	-54.17	13.05	-6.77	-13.00	-34.89

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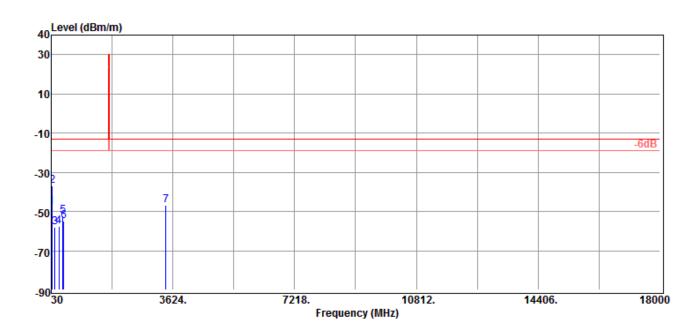


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## Radiated Spurious Emission Measurement Result: LTE-Band 4 (The Worst Case)

:NB lot B4 BPSK 15 RB 1,11 :2018-11-22 **Operation Mode Test Date** 

**Test Mode** :TX CH LOW Temp./Humi. :25/59 **EUT Pol** :E2 Plan Antenna Pol. :VERTICAL :1710.1 MHz :Ashton **Test Channel** Engineer



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output	Gain	Loss		
		Level				
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
36.79	-47.55	-32.69	-14.31	-0.55	-13.00	-34.55
63.95	-36.94	-35.98	-0.28	-0.68	-13.00	-23.94
146.40	-58.16	-59.50	2.33	-0.99	-13.00	-45.16
262.80	-57.62	-61.49	5.36	-1.49	-13.00	-44.62
375.32	-52.13	-55.79	5.66	-2.00	-13.00	-39.13
402.48	-54.80	-58.34	5.58	-2.04	-13.00	-41.80
3420.20	-46.89	-52.42	12.15	-6.62	-13.00	-33.89

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**Operation Mode Test Mode EUT Pol** 

**Test Channel** 

:NB lot B4 BPSK 15 RB 1,11

:TX CH LOW

:E2 Plan

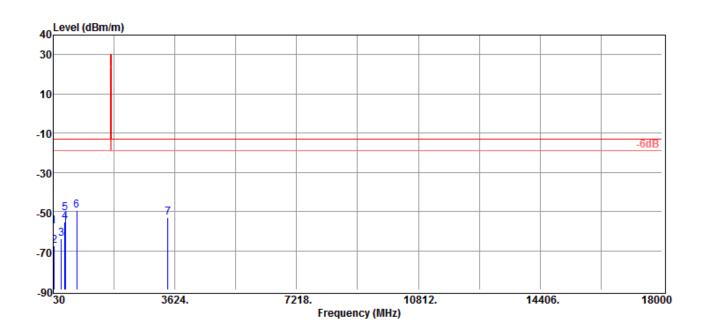
:1710.1 MHz

**Test Date** :2018-11-22

Temp./Humi. :25/59

Antenna Pol. :HORIZONTAL

:Ashton Engineer



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output	Gain	Loss		
		Level				
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
30.97	-57.53	-37.92	-19.15	-0.46	-13.00	-44.53
58.13	-67.61	-65.46	-1.50	-0.65	-13.00	-54.61
269.59	-64.04	-67.98	5.45	-1.51	-13.00	-51.04
375.32	-55.32	-58.98	5.66	-2.00	-13.00	-42.32
391.81	-50.79	-54.35	5.59	-2.03	-13.00	-37.79
730.34	-49.44	-54.67	7.37	-2.14	-13.00	-36.44
3420.20	-53.02	-58.55	12.15	-6.62	-13.00	-40.02

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