



# Appendix B

## E-UTRA BAND 30



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# 1 Effective (Isotropic) Radiated Power Output Data

## 1.1. Conducted power Result

BAND	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)
BAND30	5MHz	QPSK	27685	1RB#0	22.86
BAND30	5MHz	QPSK	27685	1RB#12	22.69
BAND30	5MHz	QPSK	27685	1RB#24	22.73
BAND30	5MHz	QPSK	27685	12RB#0	21.77
BAND30	5MHz	QPSK	27685	12RB#6	21.56
BAND30	5MHz	QPSK	27685	12RB#13	21.59
BAND30	5MHz	QPSK	27685	25RB#0	21.60
BAND30	5MHz	QPSK	27710	1RB#0	22.79
BAND30	5MHz	QPSK	27710	1RB#12	22.85
BAND30	5MHz	QPSK	27710	1RB#24	22.65
BAND30	5MHz	QPSK	27710	12RB#0	21.67
BAND30	5MHz	QPSK	27710	12RB#6	21.66
BAND30	5MHz	QPSK	27710	12RB#13	21.81
BAND30	5MHz	QPSK	27710	25RB#0	21.75
BAND30	5MHz	QPSK	27735	1RB#0	22.89
BAND30	5MHz	QPSK	27735	1RB#12	22.73
BAND30	5MHz	QPSK	27735	1RB#24	22.82
BAND30	5MHz	QPSK	27735	12RB#0	21.87
BAND30	5MHz	QPSK	27735	12RB#6	21.63
BAND30	5MHz	QPSK	27735	12RB#13	21.73
BAND30	5MHz	QPSK	27735	25RB#0	21.63
BAND30	5MHz	16QAM	27685	1RB#0	22.22
BAND30	5MHz	16QAM	27685	1RB#12	21.97
BAND30	5MHz	16QAM	27685	1RB#24	21.95
BAND30	5MHz	16QAM	27685	12RB#0	20.74
BAND30	5MHz	16QAM	27685	12RB#6	20.53
BAND30	5MHz	16QAM	27685	12RB#13	20.59
BAND30	5MHz	16QAM	27685	25RB#0	20.57
BAND30	5MHz	16QAM	27710	1RB#0	21.87
BAND30	5MHz	16QAM	27710	1RB#12	22.17
BAND30	5MHz	16QAM	27710	1RB#24	21.83
BAND30	5MHz	16QAM	27710	12RB#0	20.68
BAND30	5MHz	16QAM	27710	12RB#6	20.65
BAND30	5MHz	16QAM	27710	12RB#13	20.81
BAND30	5MHz	16QAM	27710	25RB#0	20.71
BAND30	5MHz	16QAM	27735	1RB#0	22.04
BAND30	5MHz	16QAM	27735	1RB#12	22.03
BAND30	5MHz	16QAM	27735	1RB#24	22.16
BAND30	5MHz	16QAM	27735	12RB#0	20.85
BAND30	5MHz	16QAM	27735	12RB#6	20.60
BAND30	5MHz	16QAM	27735	12RB#13	20.71
BAND30	5MHz	16QAM	27735	25RB#0	20.57
BAND30	5MHz	64QAM	27685	1RB#0	21.12
BAND30	5MHz	64QAM	27685	1RB#12	20.98
BAND30	5MHz	64QAM	27685	1RB#24	21.04
BAND30	5MHz	64QAM	27685	12RB#0	19.77

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BAND30	5MHz	64QAM	27685	12RB#6	19.57
BAND30	5MHz	64QAM	27685	12RB#13	19.60
BAND30	5MHz	64QAM	27685	25RB#0	19.59
BAND30	5MHz	64QAM	27710	1RB#0	21.02
BAND30	5MHz	64QAM	27710	1RB#12	21.06
BAND30	5MHz	64QAM	27710	1RB#24	20.89
BAND30	5MHz	64QAM	27710	12RB#0	19.67
BAND30	5MHz	64QAM	27710	12RB#6	19.64
BAND30	5MHz	64QAM	27710	12RB#13	19.83
BAND30	5MHz	64QAM	27710	25RB#0	19.69
BAND30	5MHz	64QAM	27735	1RB#0	21.05
BAND30	5MHz	64QAM	27735	1RB#12	20.89
BAND30	5MHz	64QAM	27735	1RB#24	21.01
BAND30	5MHz	64QAM	27735	12RB#0	19.86
BAND30	5MHz	64QAM	27735	12RB#6	19.58
BAND30	5MHz	64QAM	27735	12RB#13	19.70
BAND30	5MHz	64QAM	27735	25RB#0	19.58
BAND30	10MHz	QPSK	27710	1RB#0	22.97
BAND30	10MHz	QPSK	27710	1RB#24	22.85
BAND30	10MHz	QPSK	27710	1RB#49	22.85
BAND30	10MHz	QPSK	27710	25RB#0	21.79
BAND30	10MHz	QPSK	27710	25RB#12	21.83
BAND30	10MHz	QPSK	27710	25RB#25	21.67
BAND30	10MHz	QPSK	27710	50RB#0	21.93
BAND30	10MHz	16QAM	27710	1RB#0	22.18
BAND30	10MHz	16QAM	27710	1RB#24	22.18
BAND30	10MHz	16QAM	27710	1RB#49	22.11
BAND30	10MHz	16QAM	27710	25RB#0	20.86
BAND30	10MHz	16QAM	27710	25RB#12	20.91
BAND30	10MHz	16QAM	27710	25RB#25	20.73
BAND30	10MHz	16QAM	27710	50RB#0	20.98
BAND30	10MHz	64QAM	27710	1RB#0	21.11
BAND30	10MHz	64QAM	27710	1RB#24	21.07
BAND30	10MHz	64QAM	27710	1RB#49	21.00
BAND30	10MHz	64QAM	27710	25RB#0	19.85
BAND30	10MHz	64QAM	27710	25RB#12	19.87
BAND30	10MHz	64QAM	27710	25RB#25	19.71
BAND30	10MHz	64QAM	27710	50RB#0	19.98



## 1.2. EIRP Density Result

BAND	Bandwidth	Modulation	Channel	RB Configuration	Conducted Power Density (dBm/MHz)	EIRP Density (dBm/MHz)	Limit (dBm/MHz)	Result
BAND30	5MHz	QPSK	27685	1RB#0	21.36	22.36	24	Pass
BAND30	5MHz	QPSK	27710	1RB#0	21.42	22.42	24	Pass
BAND30	5MHz	QPSK	27735	1RB#0	21.36	22.36	24	Pass
BAND30	5MHz	16QAM	27685	1RB#0	20.35	21.35	24	Pass
BAND30	5MHz	16QAM	27710	1RB#0	20.44	21.44	24	Pass
BAND30	5MHz	16QAM	27735	1RB#0	20.35	21.35	24	Pass
BAND30	5MHz	64QAM	27685	1RB#0	19.36	20.36	24	Pass
BAND30	5MHz	64QAM	27710	1RB#0	19.42	20.42	24	Pass
BAND30	5MHz	64QAM	27735	1RB#0	19.38	20.38	24	Pass
BAND30	10MHz	QPSK	27710	1RB#0	22.87	23.87	24	Pass
BAND30	10MHz	16QAM	27710	1RB#0	21.98	22.98	24	Pass
BAND30	10MHz	64QAM	27710	1RB#0	21.28	22.28	24	Pass

### 1.2.1. Test Plots

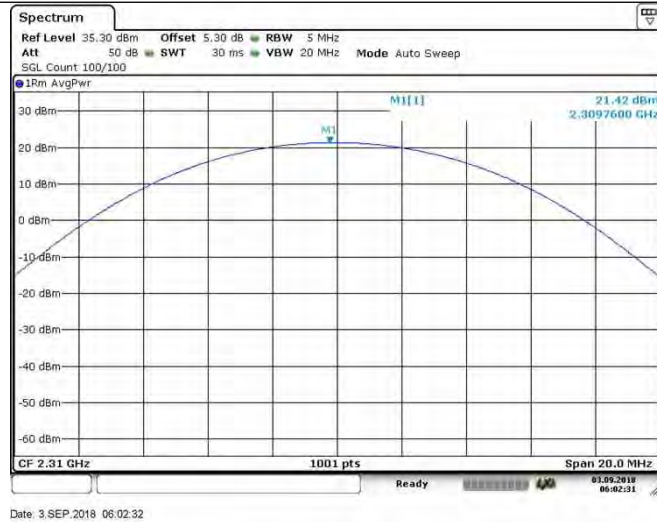




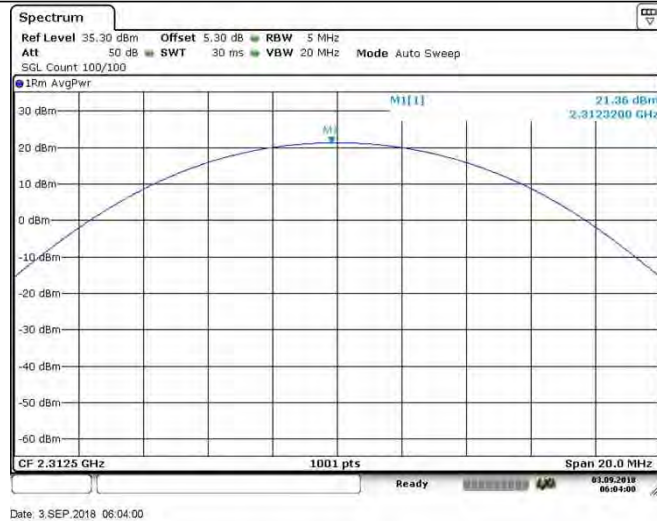
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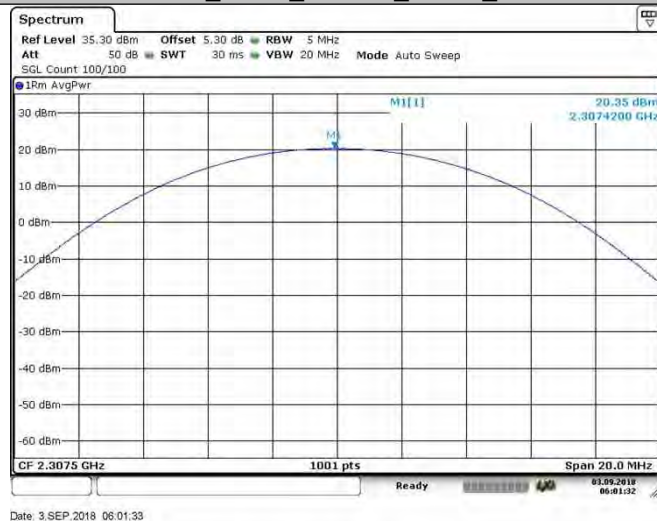
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## BAND 30\_5MHz\_QPSK\_27735\_1RB#0



## BAND 30\_5MHz\_16QAM\_27685\_1RB#0



## BAND 30\_5MHz\_16QAM\_27710\_1RB#0





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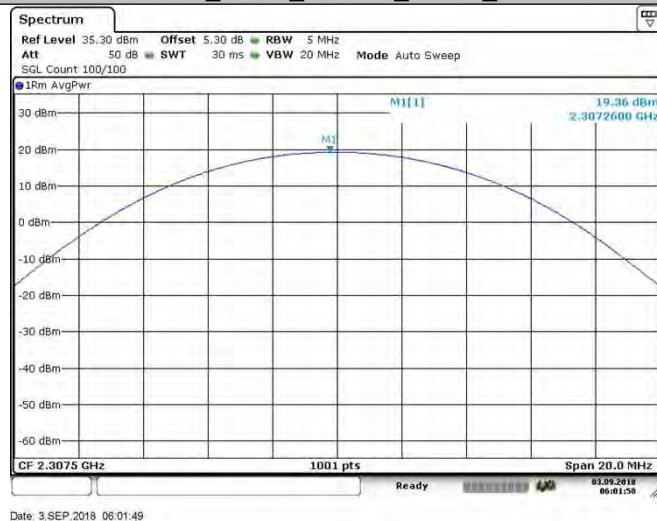
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## BAND 30\_5MHz\_16QAM\_27735\_1RB#0



## BAND 30\_5MHz\_64QAM\_27685\_1RB#0



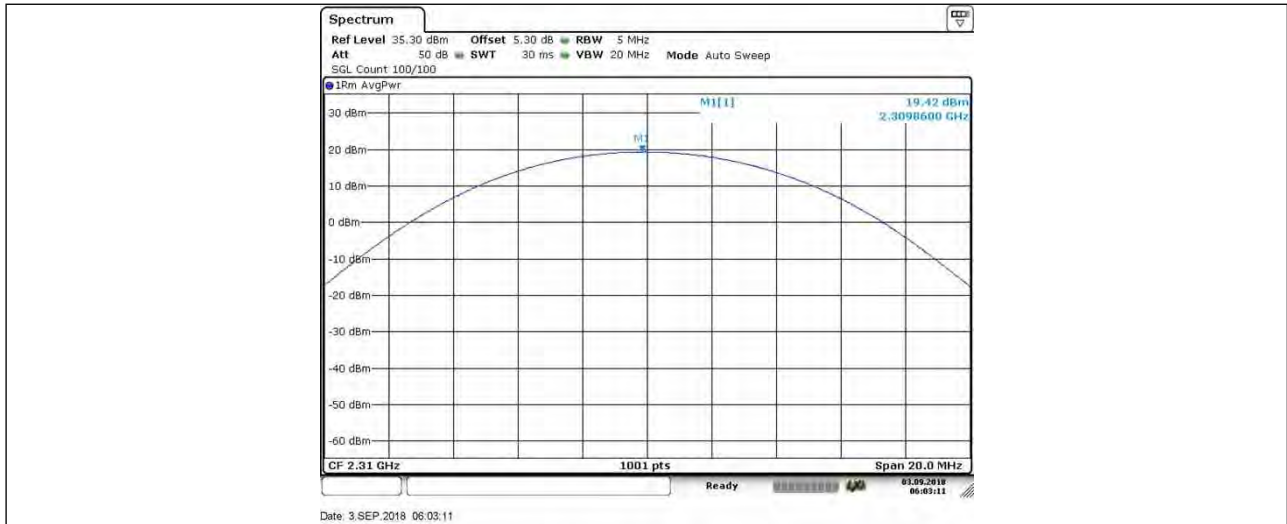
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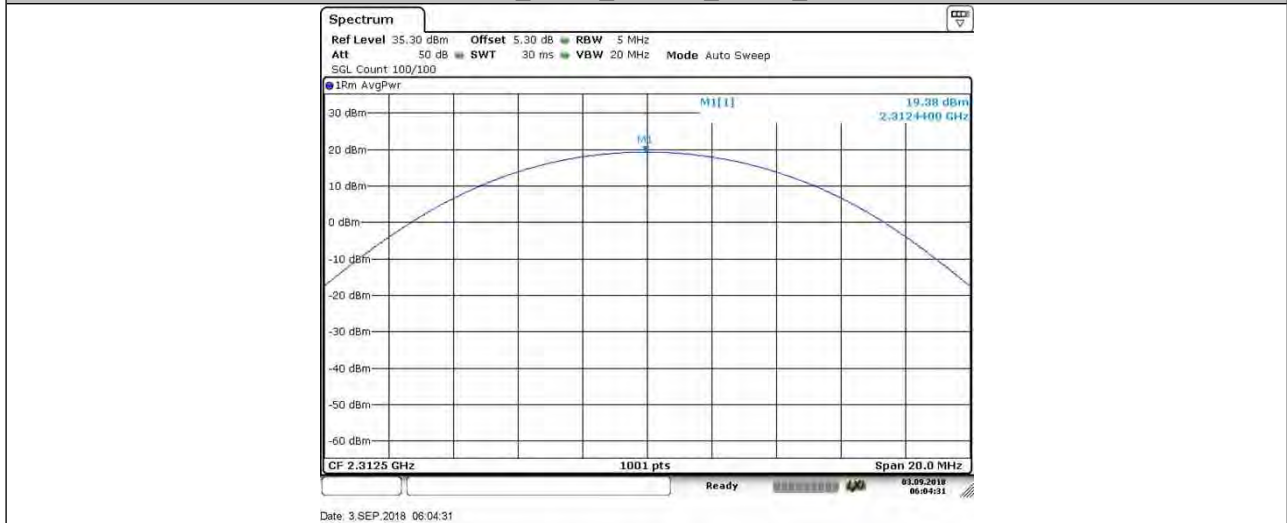
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## BAND 30\_5MHz\_64QAM\_27735\_1RB#0



## BAND 30\_10MHz\_QPSK\_27710\_1RB#0



## BAND 30\_10MHz\_16QAM\_27710\_1RB#0





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## BAND 30\_10MHz\_64QAM\_27710\_1RB#0



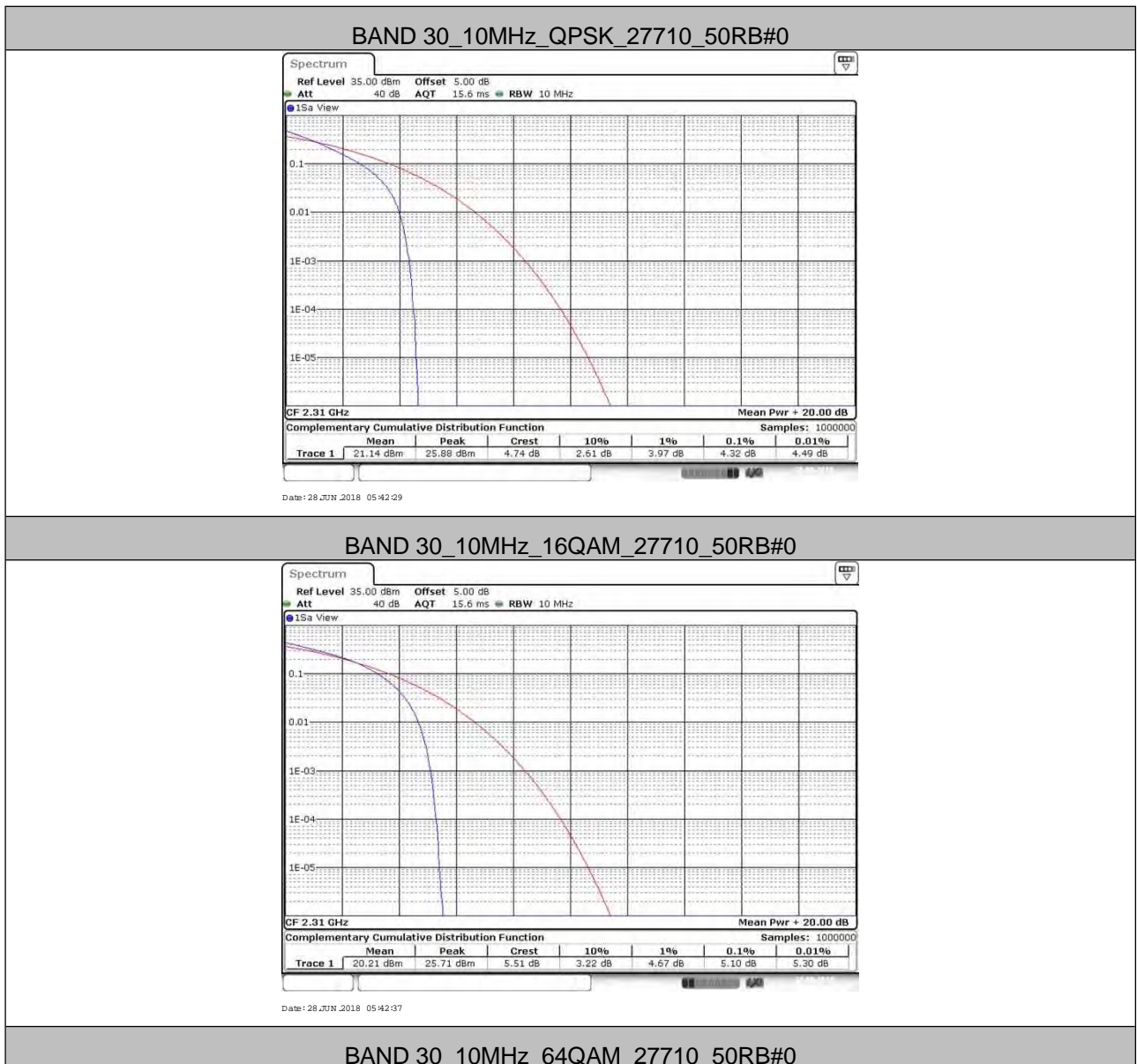


## 2 Peak-to-Average Ratio

### 2.1. Test Result

BAND	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
BAND 30	10MHz	QPSK	27710	50RB#0	4.32	13	PASS
		16QAM	27710	50RB#0	5.10	13	PASS
		64QAM	27710	50RB#0	5.68	13	PASS

### 2.2. Test Plots

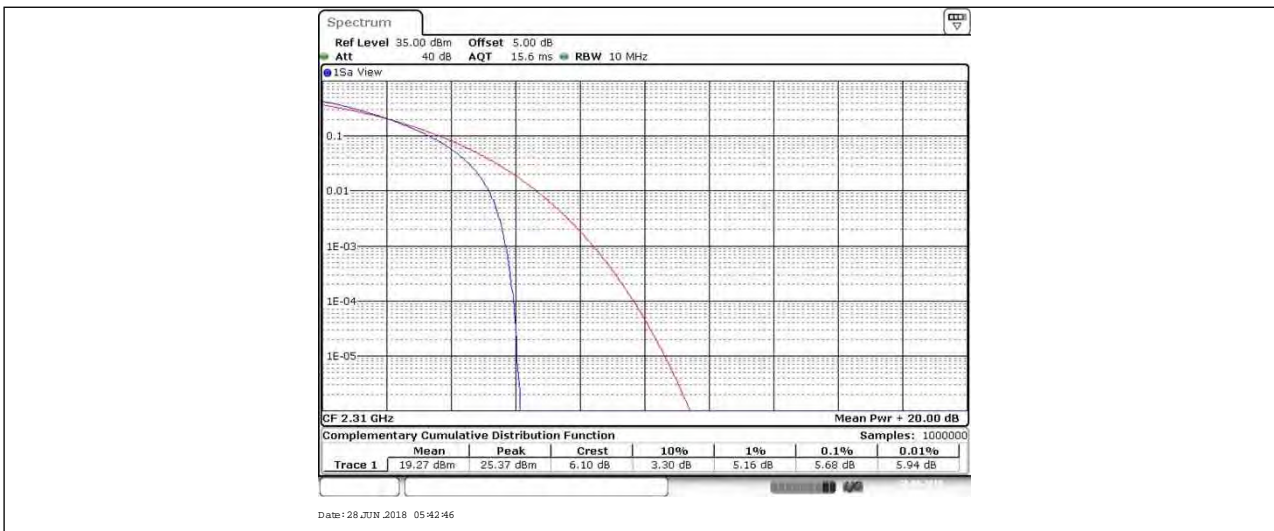




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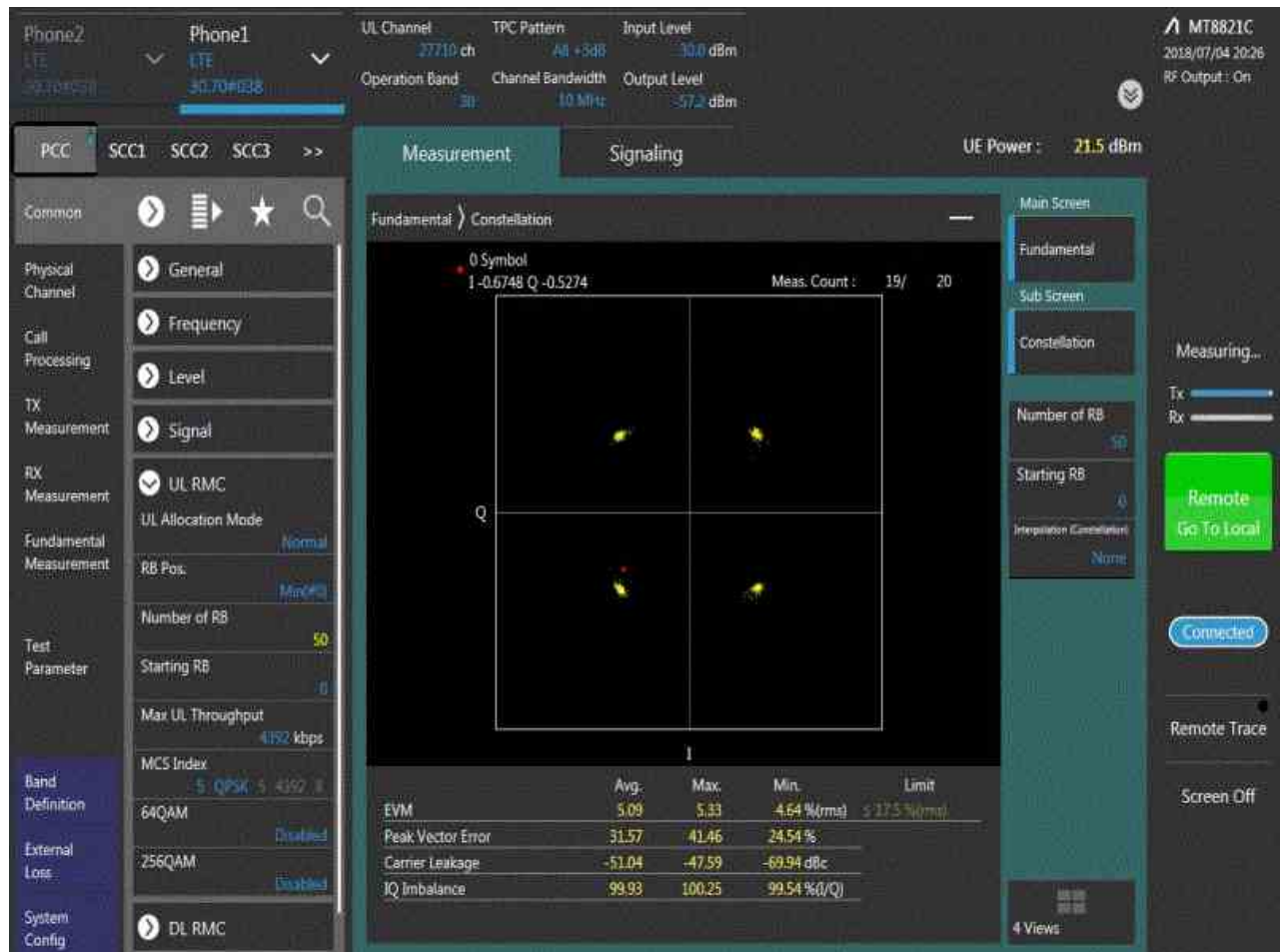
## 3 Modulation Characteristics

### 3.1 For LTE

#### 3.1.1 Test BAND = LTE BAND30

##### 3.1.1.1 Test Mode = LTE /TM1 10MHz

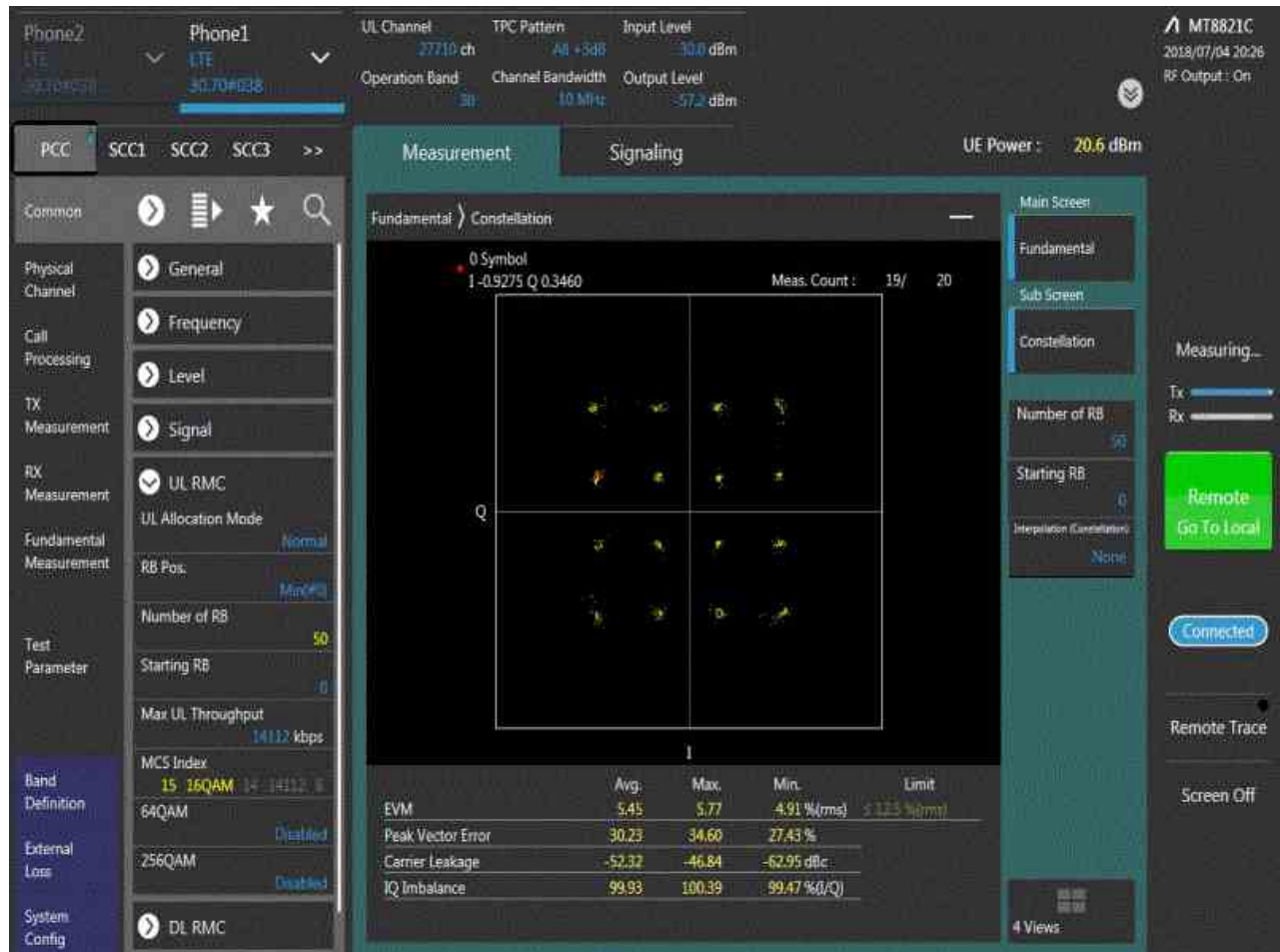
##### 3.1.1.1.1 Test Channel = MCH





3.1.1.2 Test Mode = LTE /TM2 10MHz

3.1.1.2.1 Test Channel = MCH

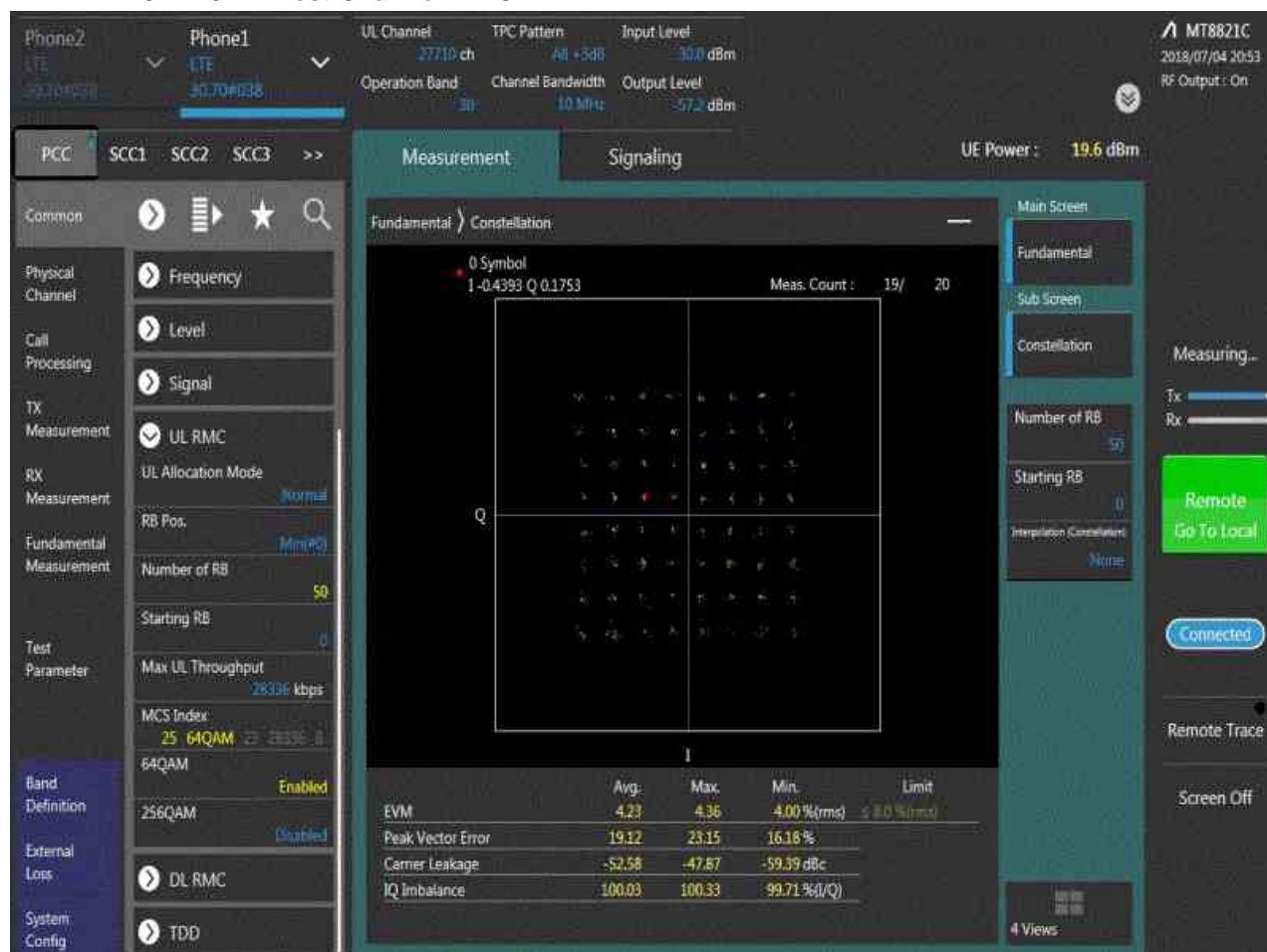






### 3.1.1.3 Test Mode = LTE /TM3 10MHz

#### 3.1.1.3.1 Test Channel = MCH





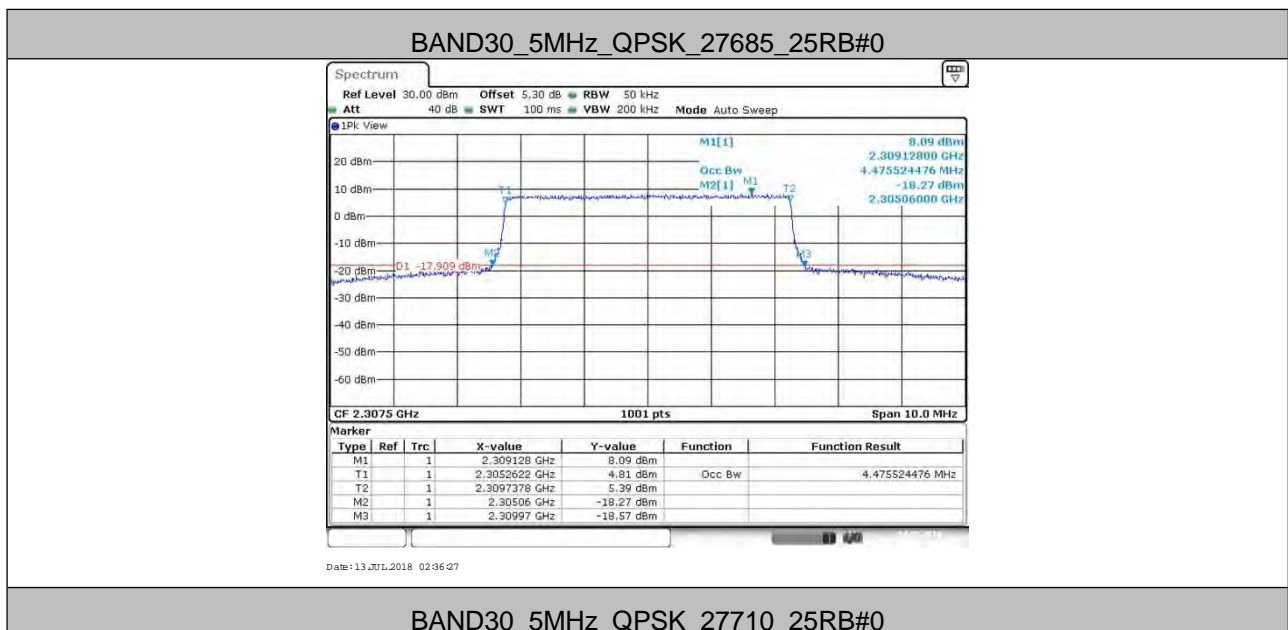


## 4 26dB Bandwidth and Occupied Bandwidth

### 4.1. Test Result

BAND	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
BAND30	5MHz	QPSK	27685	25RB#0	4.476	4.910	PASS
			27710	25RB#0	4.456	4.900	PASS
			27735	25RB#0	4.466	4.860	PASS
		64QAM	27685	25RB#0	4.476	5.090	PASS
			27710	25RB#0	4.466	4.890	PASS
			27735	25RB#0	4.456	4.880	PASS
		16QAM	27685	25RB#0	4.476	5.070	PASS
			27710	25RB#0	4.476	4.930	PASS
			27735	25RB#0	4.466	4.920	PASS
	10MHz	QPSK	27710	50RB#0	8.931	10.380	PASS
		64QAM	27710	50RB#0	8.951	10.300	PASS
		16QAM	27710	50RB#0	8.951	10.600	PASS

### 4.2. Test Plots

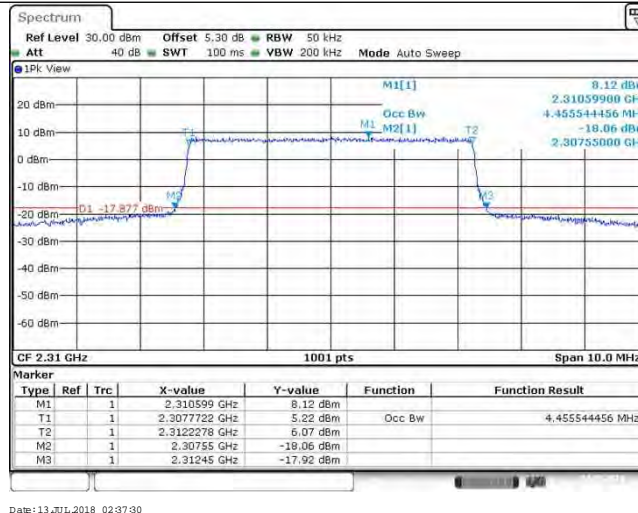




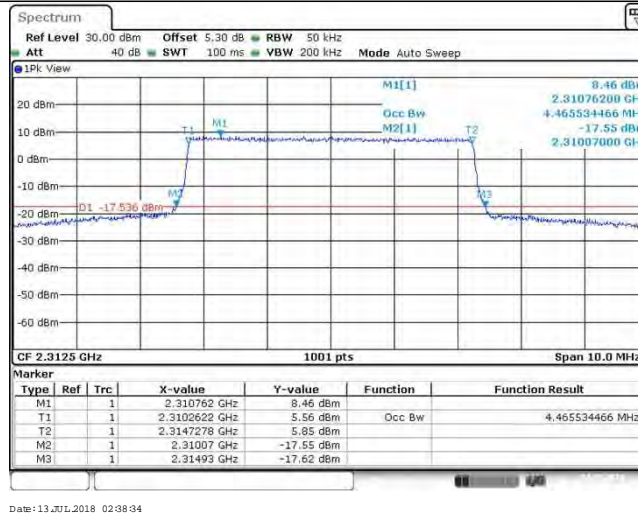
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## BAND30\_5MHz\_QPSK\_27735\_25RB#0



## BAND30\_5MHz\_64QAM\_27685\_25RB#0



## BAND30\_5MHz\_64QAM\_27710\_25RB#0



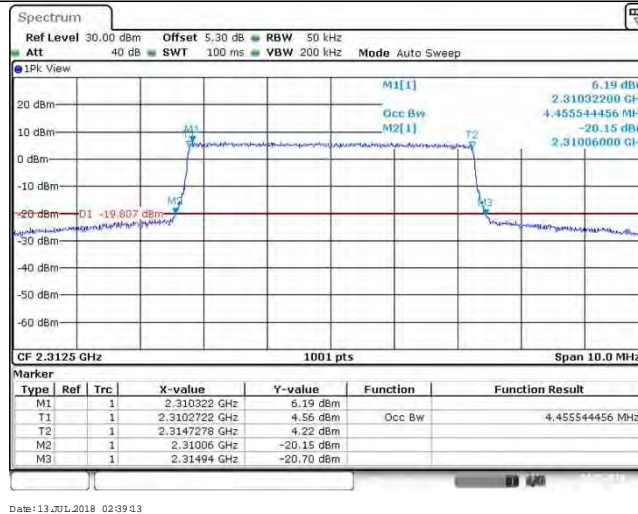
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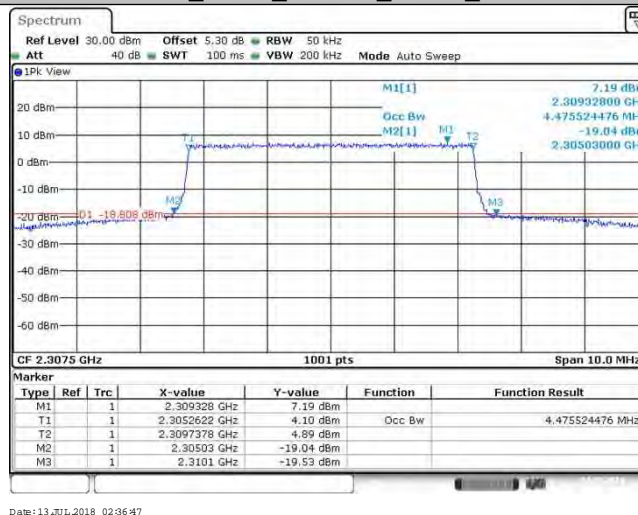
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## BAND30\_5MHz\_64QAM\_27735\_25RB#0



## BAND30\_5MHz\_16QAM\_27685\_25RB#0



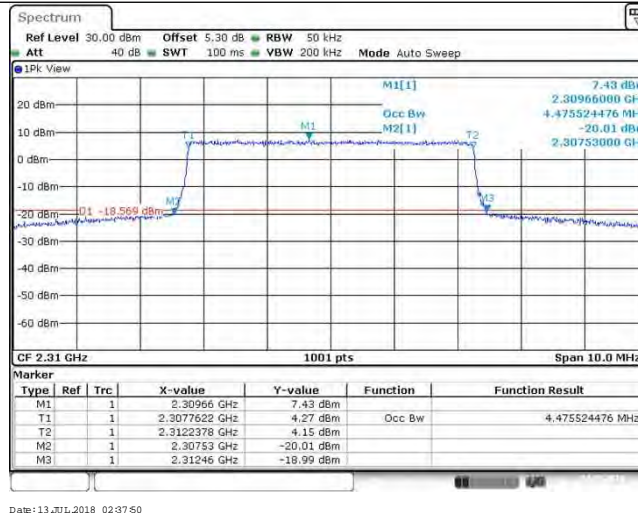
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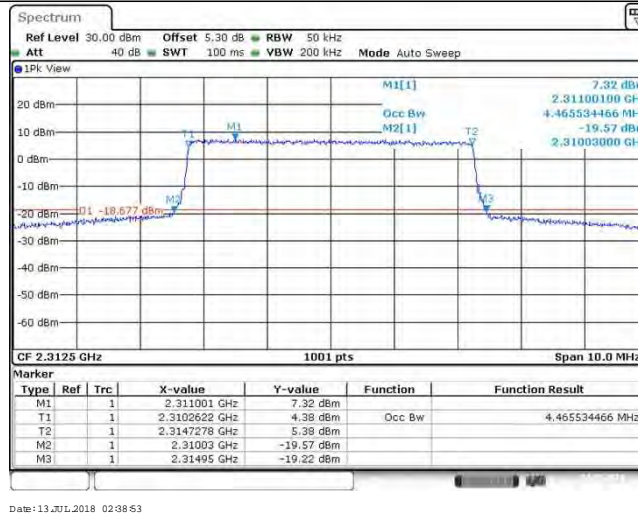
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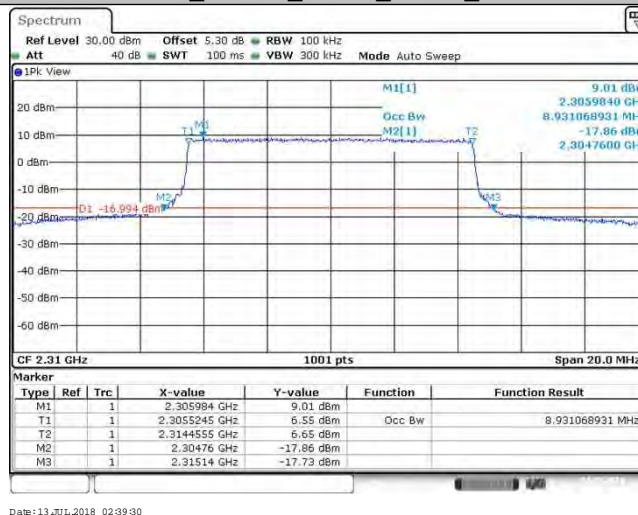
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## BAND30\_5MHz\_16QAM\_27735\_25RB#0



## BAND30\_10MHz\_QPSK\_27710\_50RB#0



## BAND30\_10MHz\_64QAM\_27710\_50RB#0

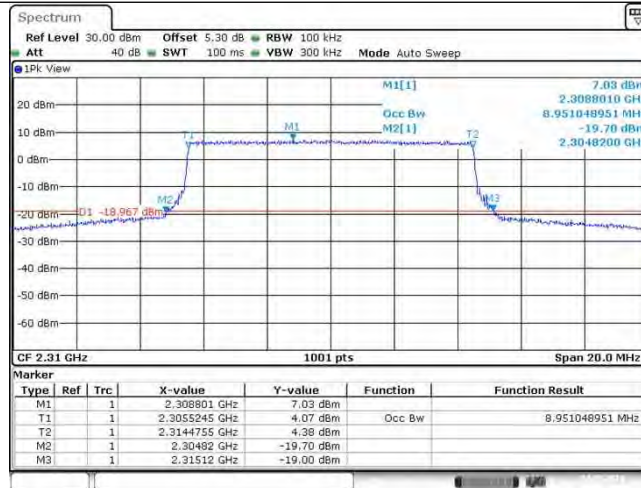




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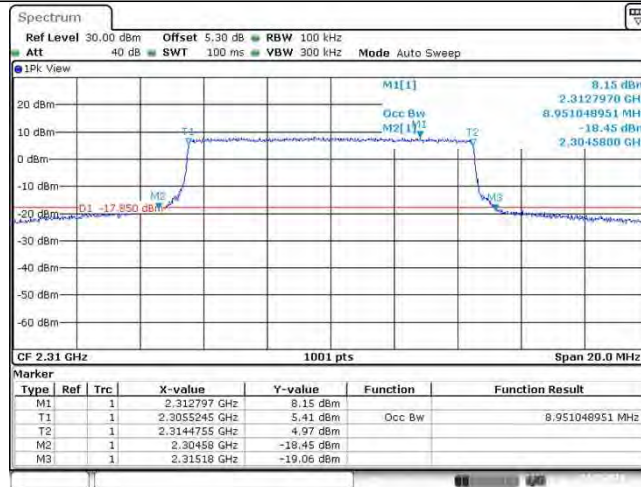
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## BAND30\_10MHz\_16QAM\_27710\_50RB#0



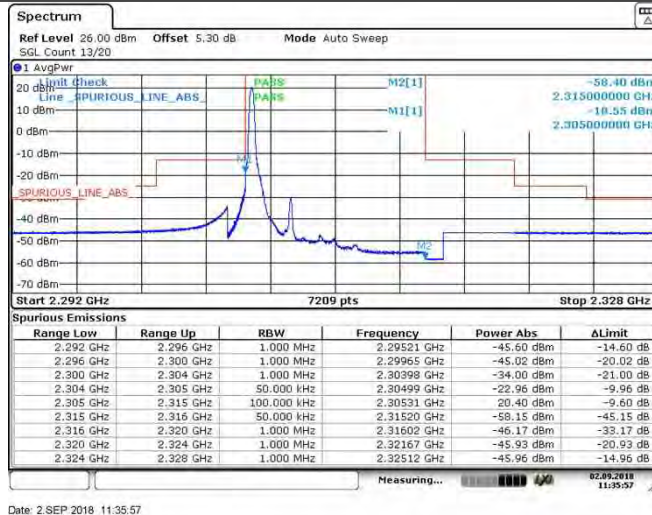
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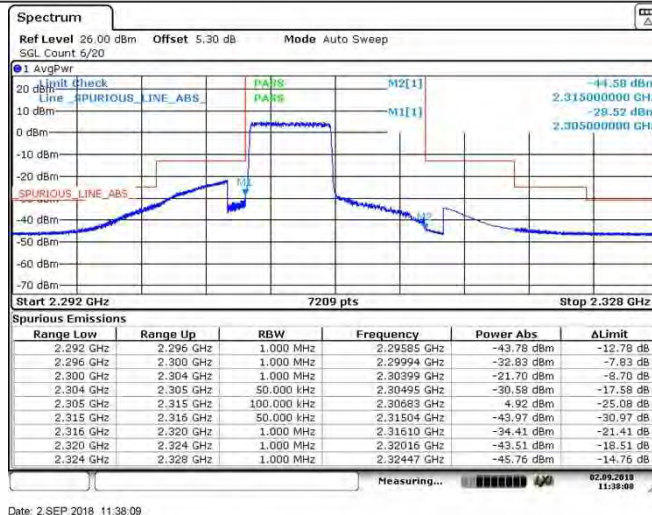
## 5 Band Edges Compliance

### 5.1. Test Plots

BAND 30\_5MHz\_QPSK\_27685\_1RB#0



BAND 30\_5MHz\_QPSK\_27685\_25RB#0



BAND 30\_5MHz\_QPSK\_27735\_1RB#24





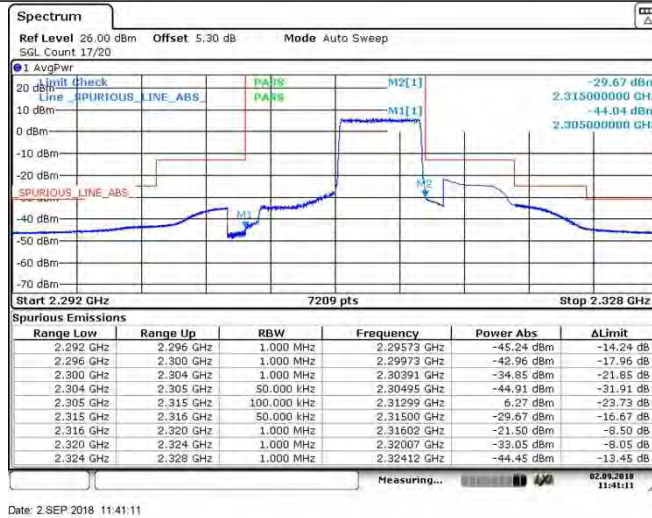
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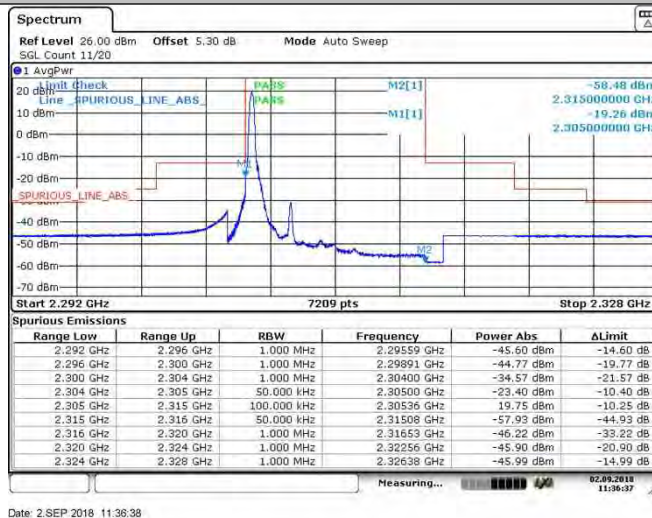
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## BAND 30\_5MHz\_QPSK\_27735\_25RB#0



## BAND 30\_5MHz\_16QAM\_27685\_1RB#0



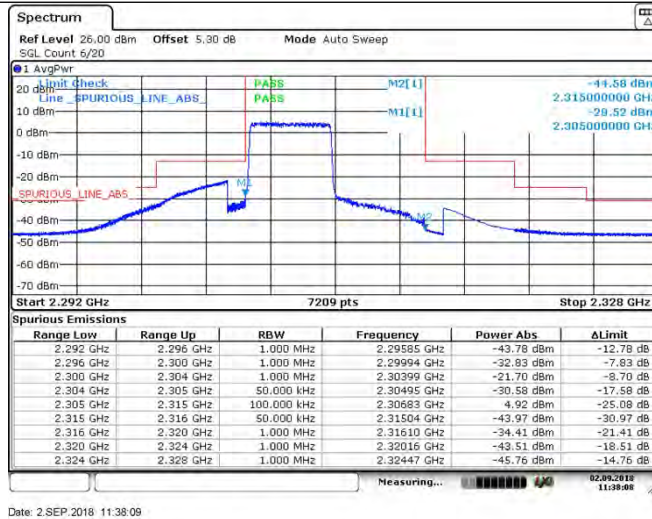
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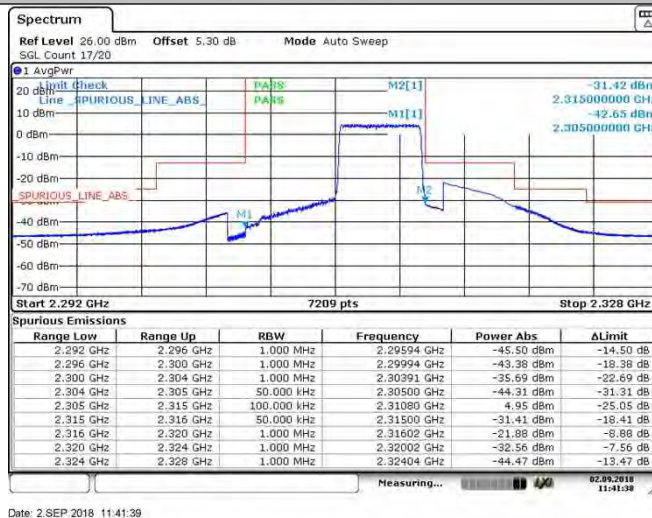
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## BAND 30\_5MHz\_16QAM\_27735\_1RB#24



## BAND 30\_5MHz\_16QAM\_27735\_25RB#0



## BAND 30\_5MHz\_64QAM\_27685\_1RB#0

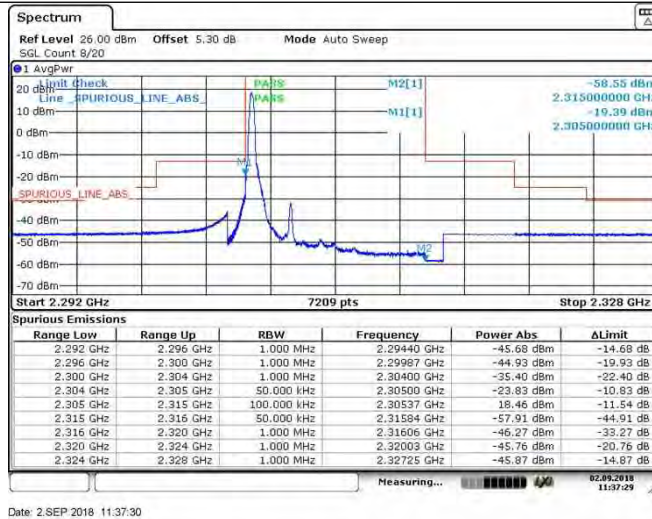




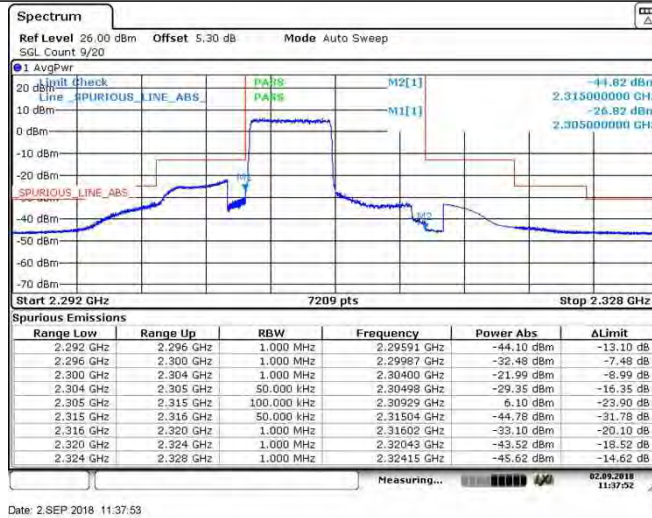
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## BAND 30\_5MHz\_64QAM\_27685\_25RB#0



## BAND 30\_5MHz\_64QAM\_27735\_1RB#24



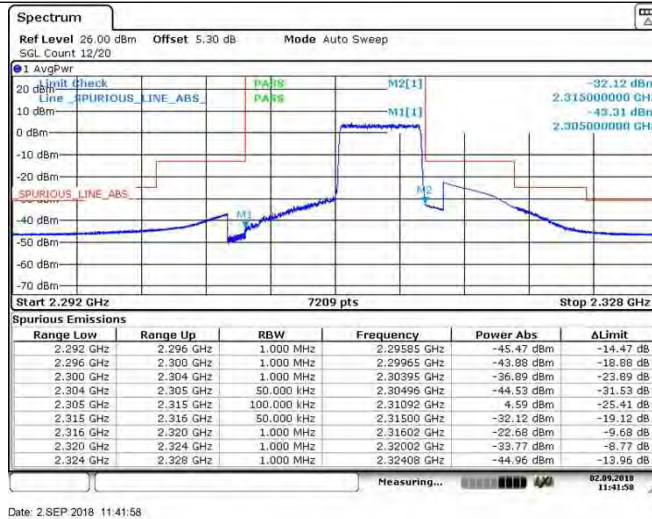
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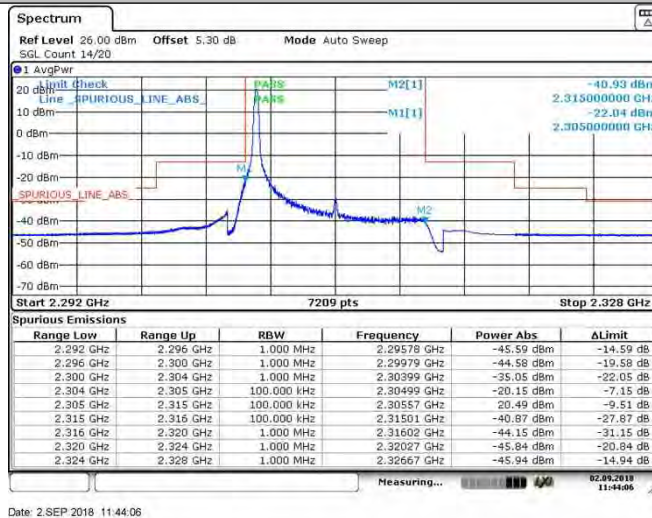
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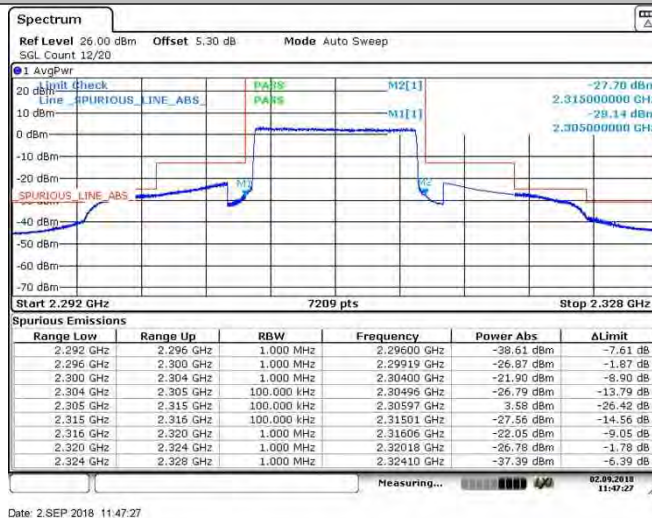
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## BAND 30\_10MHz\_QPSK\_27710\_1RB#0



## BAND 30\_10MHz\_QPSK\_27710\_50RB#0



## BAND 30\_10MHz\_QPSK\_27710\_1RB#49



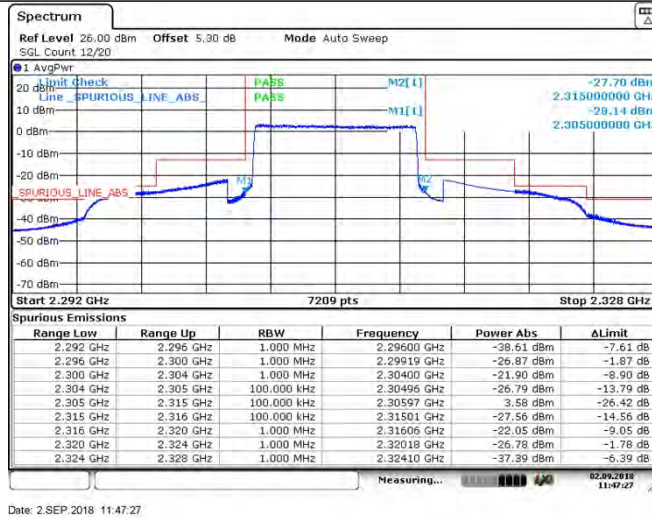
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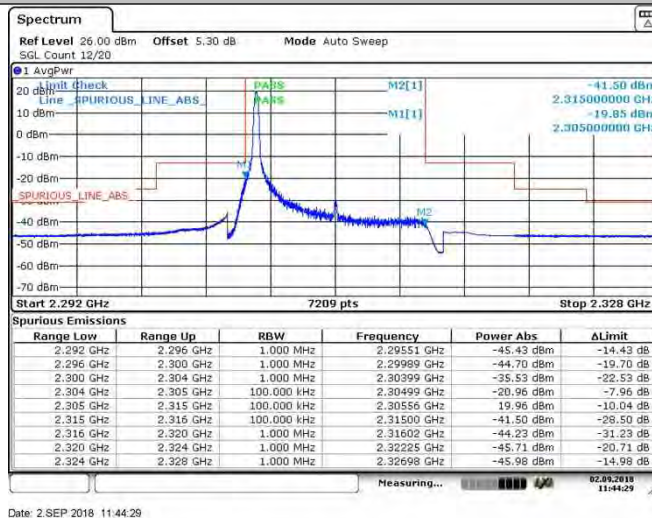
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## BAND 30\_10MHz\_QPSK\_27710\_50RB#0



## BAND 30\_10MHz\_16QAM\_27710\_1RB#0



## BAND 30\_10MHz\_16QAM\_27710\_50RB#0

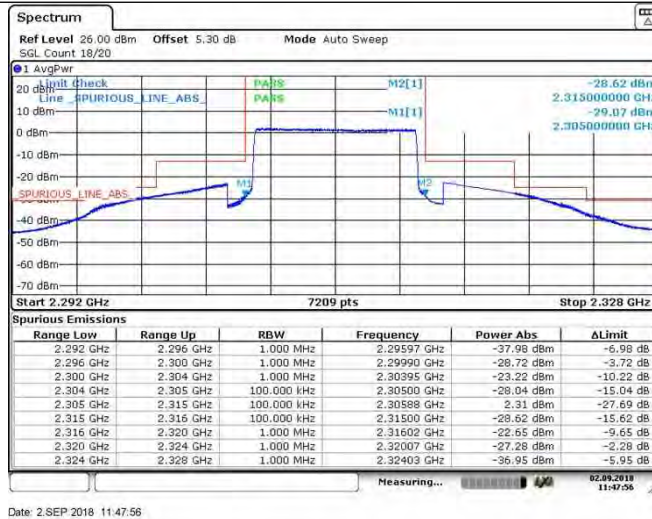




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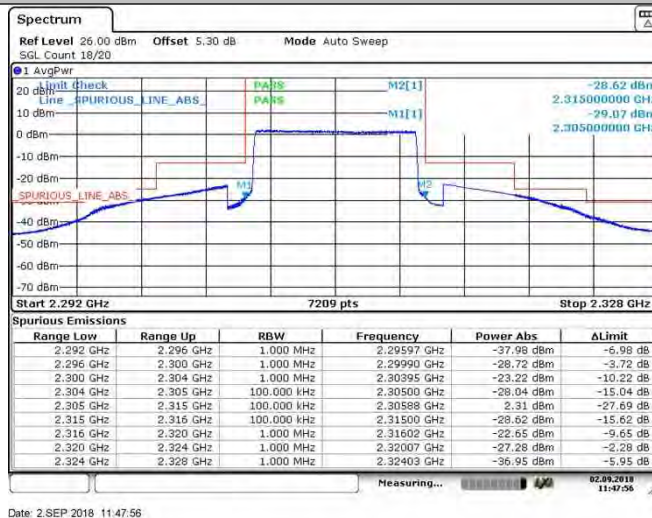
Date: 2,SEP 2018 11:47:56

## BAND 30\_10MHz\_16QAM\_27710\_1RB#49



Date: 2,SEP 2018 11:47:02

## BAND 30\_10MHz\_16QAM\_27710\_50RB#0



Date: 2,SEP 2018 11:47:56

## BAND 30\_10MHz\_64QAM\_27710\_1RB#0

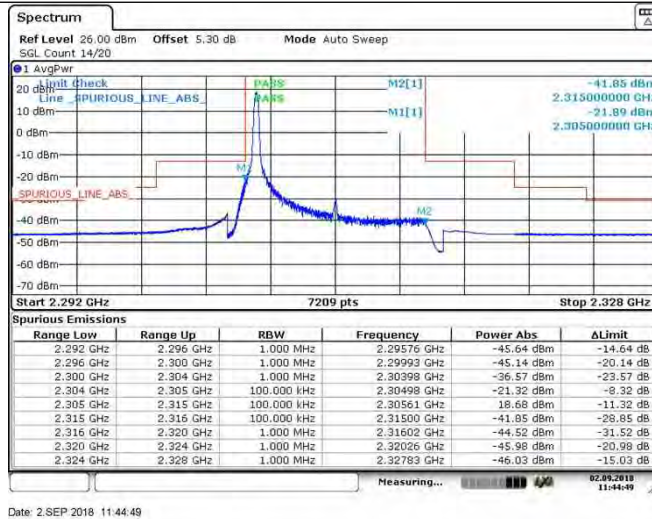




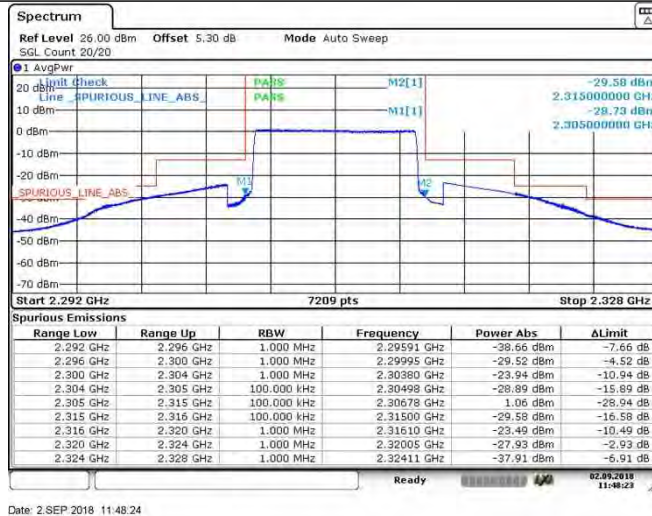
# SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

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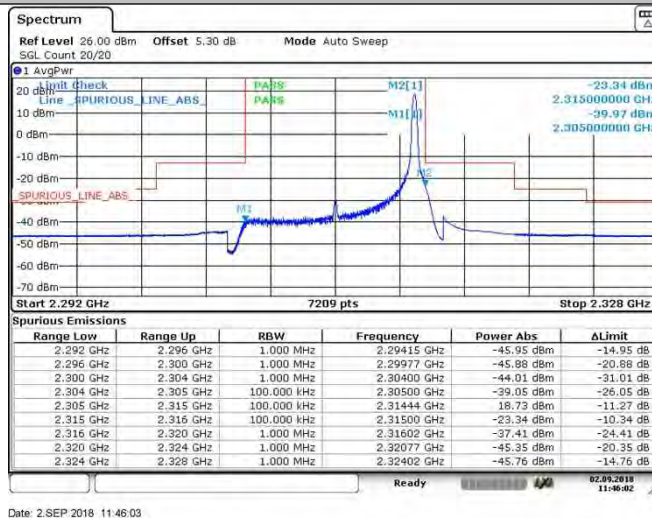
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## BAND 30\_10MHz\_64QAM\_27710\_50RB#0



## BAND 30\_10MHz\_64QAM\_27710\_1RB#49



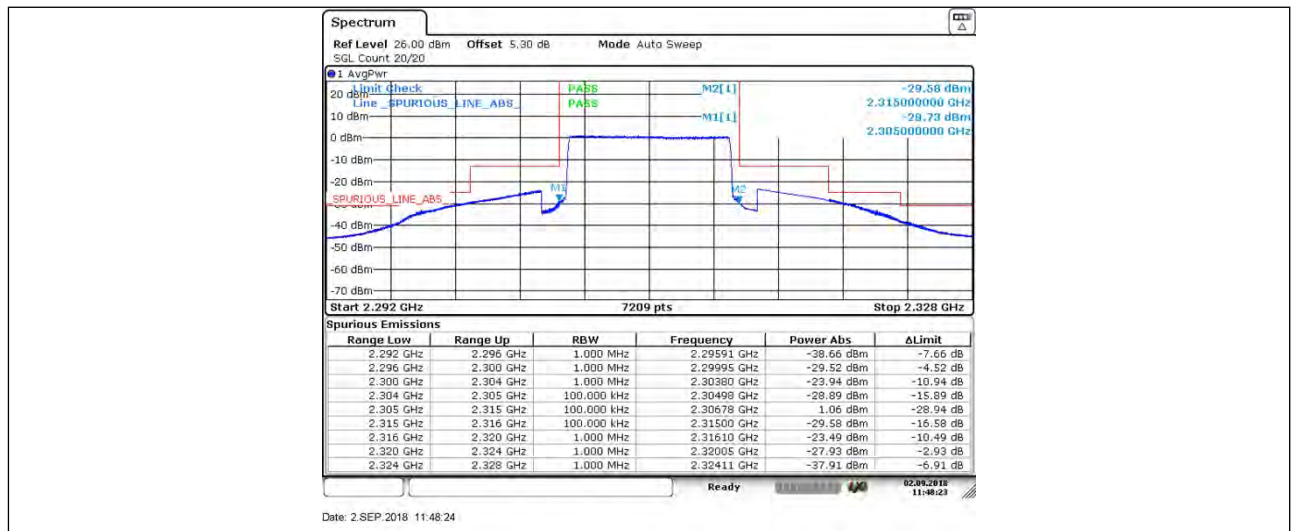
## BAND 30\_10MHz\_64QAM\_27710\_50RB#0



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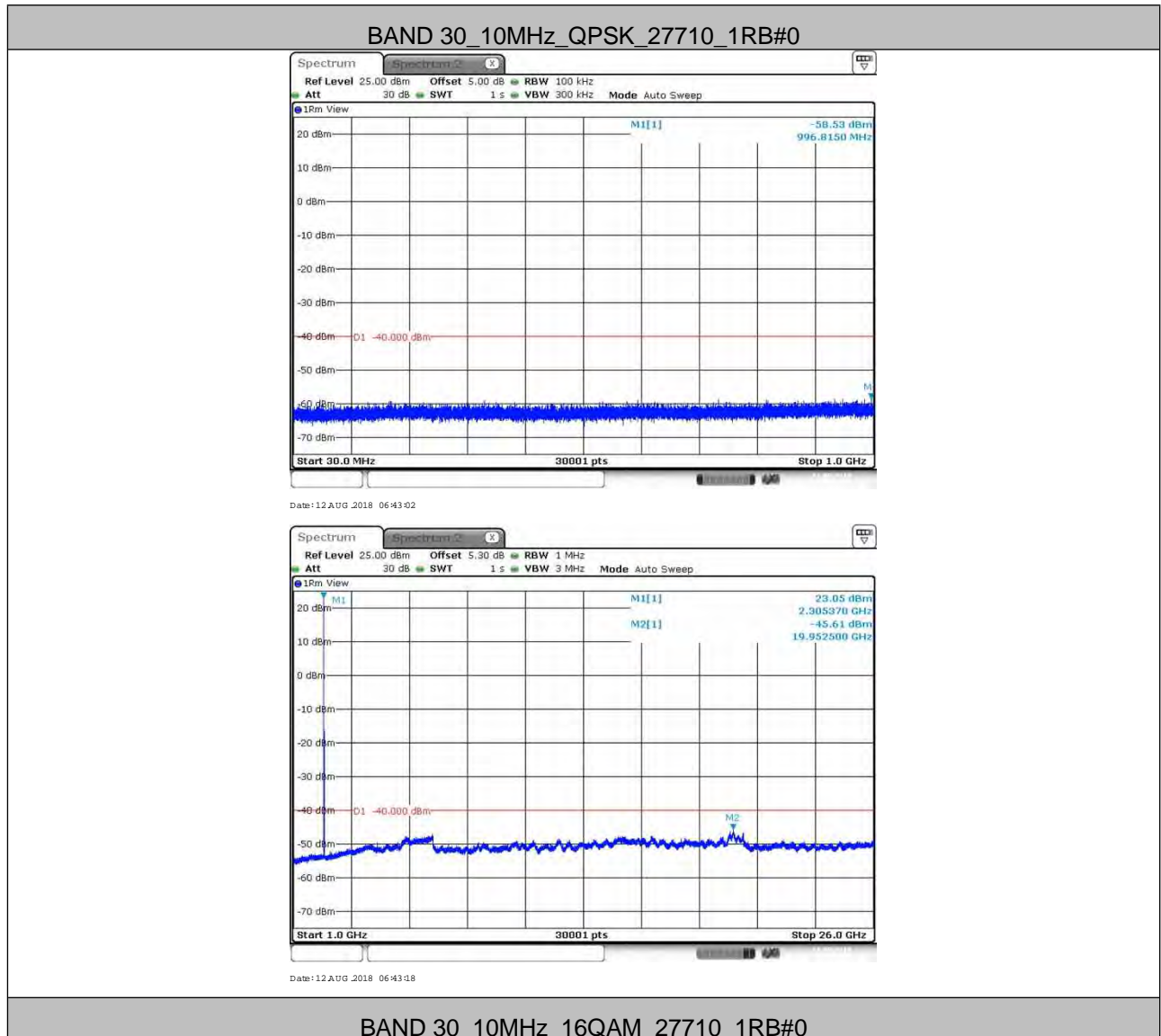


## 6 Spurious Emission at Antenna Terminal

NOTE1: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of  $< RBW/2$  so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points =  $k * (Span / RBW)$ " with  $k$  between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

NOTE2: only the worst case data displayed in this report.

### 6.1. Test Plots

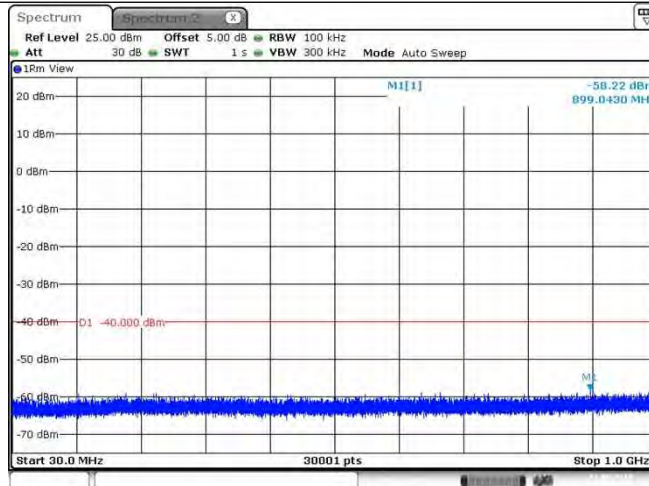




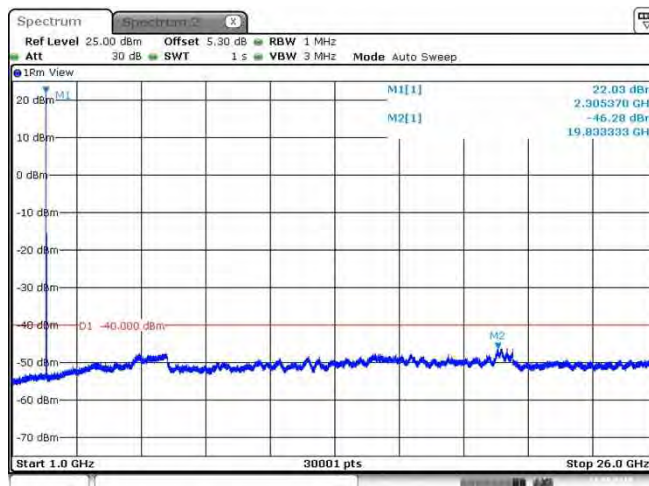
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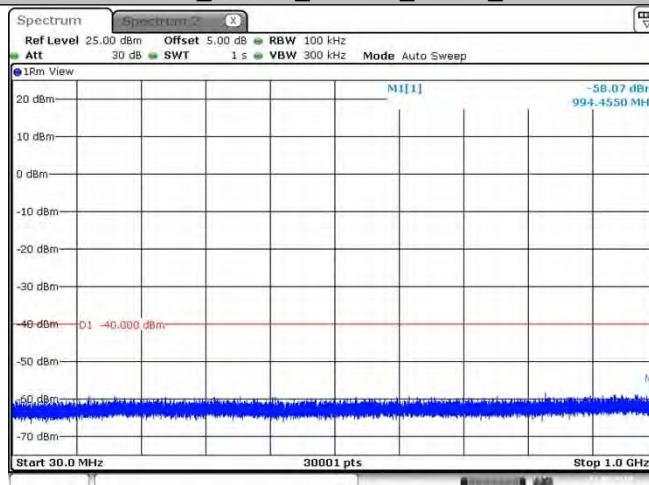


Date: 12 AUG 2018 06:43:35



Date: 12 AUG 2018 06:43:51

## BAND 30\_10MHz\_64QAM\_27710\_1RB#0



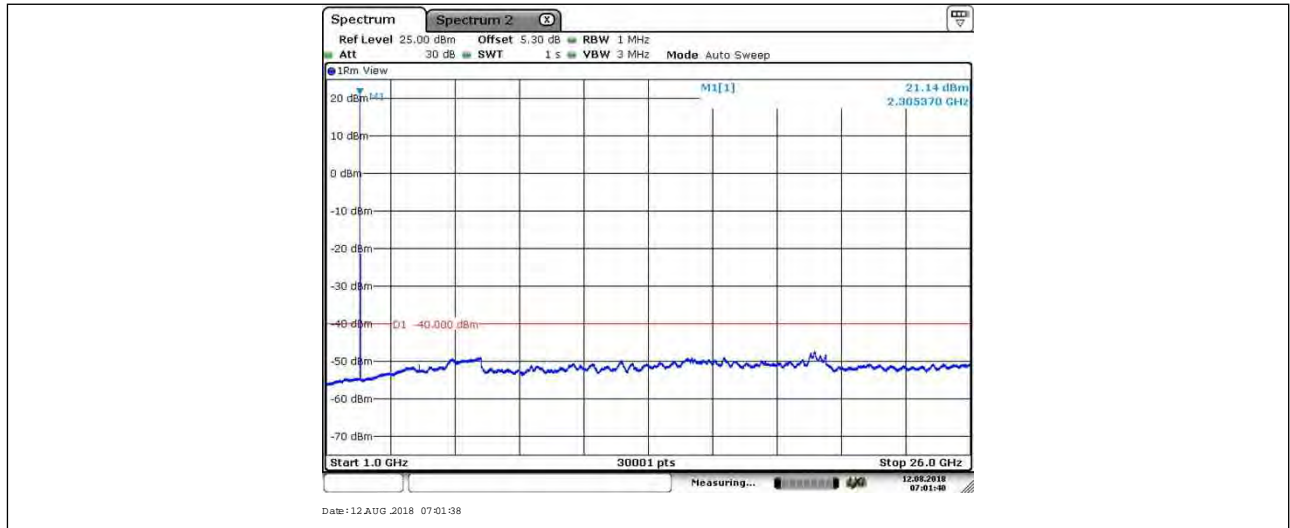
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## 7 Field Strength of Spurious Radiation

### 7.1 For LTE

#### 7.1.1 Test BAND = LTE BAND 30

##### 7.1.1.1 Test Mode =LTE/TM1 10MHz RB1#0

##### 7.1.1.1.1 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.350000	-81.52	-40.00	41.52	Vertical
104.250000	-61.74	-40.00	21.74	Vertical
2826.500000	-53.31	-40.00	13.31	Vertical
4205.750000	-67.22	-40.00	27.22	Vertical
6039.400000	-65.22	-40.00	25.22	Vertical
8639.725000	-63.71	-40.00	23.71	Vertical
63.200000	-77.64	-40.00	37.64	Horizontal
104.300000	-72.54	-40.00	32.54	Horizontal
2826.500000	-48.05	-40.00	8.05	Horizontal
4269.775000	-67.23	-40.00	27.23	Horizontal
6489.850000	-65.16	-40.00	25.16	Horizontal
9245.850000	-63.68	-40.00	23.68	Horizontal

#### NOTE:

- 1) The disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.
- 2) We have tested all modulation and all Bandwidth, but only the worst case data presented in this report.





## 8 Frequency Stability

### 8.1 Frequency Vs Voltage

Voltage										
BAND	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
BAND30	10MHz	QPSK	27710	50RB#0	VH	NT	6.40	0.002771	±2.5	PASS
				50RB#0	VL	NT	3.00	0.001299	±2.5	PASS
				50RB#0	VN	NT	6.30	0.002727	±2.5	PASS
		16QAM	27710	50RB#0	VH	NT	5.70	0.002468	±2.5	PASS
				50RB#0	VL	NT	3.80	0.001645	±2.5	PASS
				50RB#0	VN	NT	7.70	0.003333	±2.5	PASS
		64QAM	27710	50RB#0	VH	NT	3.40	0.001472	±2.5	PASS
				50RB#0	VL	NT	4.60	0.001991	±2.5	PASS
				50RB#0	VN	NT	4.40	0.001905	±2.5	PASS

### 8.2 Frequency Vs Temperature

Temperature										
BAND	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
BAND30	10MHz	QPSK	27710	50RB#0	NV	0	5.30	0.002294	±2.5	PASS
				50RB#0	NV	10	5.50	0.002381	±2.5	PASS
				50RB#0	NV	20	3.50	0.001515	±2.5	PASS
				50RB#0	NV	-20	5.30	0.002294	±2.5	PASS
				50RB#0	NV	-30	3.70	0.001602	±2.5	PASS
		16QAM	27710	50RB#0	NV	0	7.90	0.003420	±2.5	PASS
				50RB#0	NV	10	4.40	0.001905	±2.5	PASS
				50RB#0	NV	20	3.00	0.001299	±2.5	PASS
				50RB#0	NV	-20	5.30	0.002294	±2.5	PASS
				50RB#0	NV	-30	5.00	0.002165	±2.5	PASS
		64QAM	27710	50RB#0	NV	0	4.70	0.002035	±2.5	PASS
				50RB#0	NV	10	4.20	0.001818	±2.5	PASS
				50RB#0	NV	20	2.80	0.001212	±2.5	PASS
				50RB#0	NV	-20	4.50	0.001948	±2.5	PASS
				50RB#0	NV	-30	5.60	0.002424	±2.5	PASS

The End