



Band Edge\_Band12\_10MHz\_QPSK\_1\_0\_LowCH23060-704



Band Edge\_Band12\_10MHz\_QPSK\_50\_0\_HighCH23130-711



Band Edge\_Band12\_10MHz\_QPSK\_1\_49\_HighCH23130-711



# Band Edge\_Band12\_10MHz\_QPSK\_50\_0\_LowCH23060-704



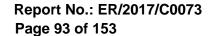
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Band Edge\_Band17\_5MHz\_QPSK\_1\_0\_LowCH23755-706.5



Band Edge\_Band17\_5MHz\_QPSK\_25\_0\_HighCH23825-713.5



#### Band Edge\_Band17\_5MHz\_QPSK\_1\_24\_HighCH23825-713.5



#### Band Edge\_Band17\_10MHz\_QPSK\_1\_0\_LowCH23780-709



# Band Edge\_Band17\_5MHz\_QPSK\_25\_0\_LowCH23755-706.5



# Band Edge\_Band17\_10MHz\_QPSK\_1\_49\_HighCH23800-711



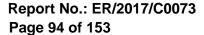
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Band Edge\_Band17\_10MHz\_QPSK\_50\_0\_LowCH23780-709



Band Edge\_Band17\_10MHz\_QPSK\_50\_0\_HighCH23800-711



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#### 10. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

### 10.1. 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).

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)

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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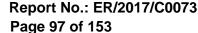




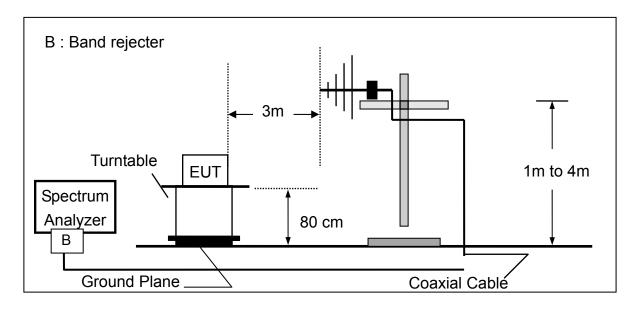
Table 2 — Unwanted Emissions for Mobile, Portable and Low-Power Fixed Subscriber **Equipment** 

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

Note: Measured at the edges of the highest and lowest frequency range(s) in which the equipment is designed to operate. See Section 5.2 for the permitted frequency ranges for various equipment types.

# 10.2. EUT Setup

Radiated Emission Test Set-Up, Frequency Below 1000MHz



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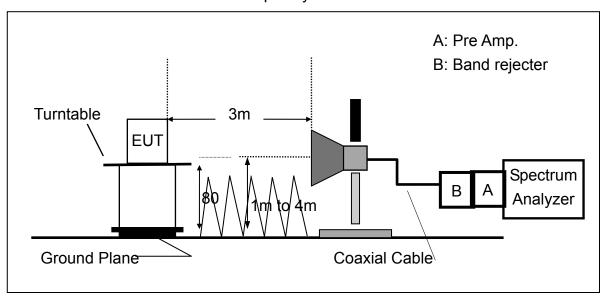
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### Radiated Emission Test Set-UP Frequency Over 1 GHz



#### 10.3. Measurement Procedure:

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

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

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

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

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

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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# 10.4. Measurement Equipment Used:

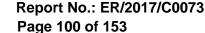
ERP, E	EIRP MEASUREM	ENT EQUIPME	NT List 966 (	Chamber	
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESCI7	100760	05/11/2017	05/10/2018
Spectrum Analyzer	Agilent	E4446A	MY51100003	04/25/2017	04/24/2018
Loop Antenna	ETS-Lindgren	6502	148045	09/20/2017	09/19/2018
Bilog Antenna	SCHWAZBECK	VULB9168	378	12/19/2017	12/18/2018
Horn Antenna	Schwarzbeck	BBHA9120D	1441	08/04/2017	08/03/2018
Pre-Amplifier	Agilent	8447D	2944A07676	01/03/2017	01/02/2018
Pre-Amplifier	EMC Instruments Corp.	EMC0126530	980038	01/03/2017	01/02/2018
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	ChamPro	AM-BS-4500-B	060776-ABS	N.C.R	N.C.R
Controller	ChamPro	EM1000	60776	N.C.R	N.C.R
Low Loss Cable	Huber Suhner	966_RX	9	01/05/2017	01/04/2018
3m Site NSA	SGS	966 chamber	N/A	07/01/2017	06/30/2018
Low Loss Cable	Huber Suhner	966 TX	1	01/05/2017	01/04/2018
Horn Antenna	Schwarzbeck	BBHA9170	184	12/12/2017	12/11/2018
Pre-Amplifier	EMC Instruments Corp.	EMC184045	980135	01/05/2017	01/04/2018
Radio Communication Analyzer	R&S	CMU200	102189	02/11/2017	02/10/2018
Radio Communication Analyer	Anritsu	MT8820C	6201465317	01/03/2017	01/02/2018

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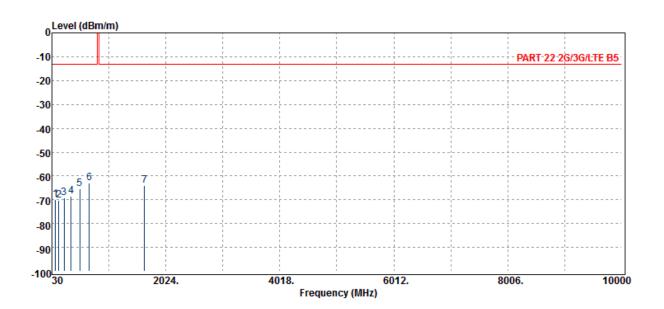
#### 10.5. Measurement Result:

### Radiated Spurious Emission Measurement Result: GPPRS 850 Mode

:GPRS 850 :24 deg\_C / 61 RH **Operation Band** Temp./Humi.

**Fundamental Frequency** :824.2 MHz Engineer

**Operation Mode** :Tx CH LOW EUT Pol. :H Plane :VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
93.05	S	-70.01	-67.98	-0.81	-1.22	-13.00	-57.01
146.40	S	-70.12	-66.40	-2.31	-1.42	-13.00	-57.12
245.34	S	-69.14	-70.76	3.37	-1.75	-13.00	-56.14
362.71	S	-68.68	-70.39	3.85	-2.15	-13.00	-55.68
519.85	S	-65.53	-66.89	3.75	-2.39	-13.00	-52.53
684.75	S	-62.97	-63.36	3.10	-2.70	-13.00	-49.97
1648.40	Н	-63.86	-66.74	7.11	-4.22	-13.00	-50.86

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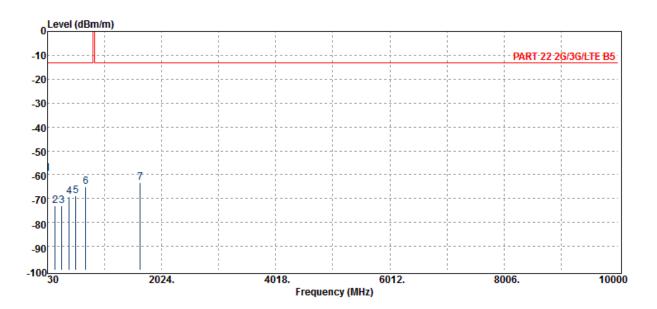
**Operation Band** Fundamental Frequency **Operation Mode** EUT Pol.

:GPRS 850 :824.2 MHz :Tx CH LOW :H Plane

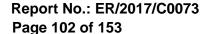
Temp./Humi. :24 deg\_C / 61 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		· ·
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
							_
30.00	S	-59.36	-43.63	-14.78	-0.96	-13.00	-46.36
165.80	S	-73.05	-70.33	-1.21	-1.50	-13.00	-60.05
280.26	S	-73.06	-74.60	3.42	-1.88	-13.00	-60.06
410.24	S	-69.33	-70.71	3.78	-2.40	-13.00	-56.33
526.64	S	-68.76	-70.01	3.71	-2.46	-13.00	-55.76
694.45	S	-65.03	-65.24	3.09	-2.88	-13.00	-52.03
1648.40	Н	-63.31	-66.20	7.11	-4.22	-13.00	-50.31





**Operation Band** Fundamental Frequency **Operation Mode** 

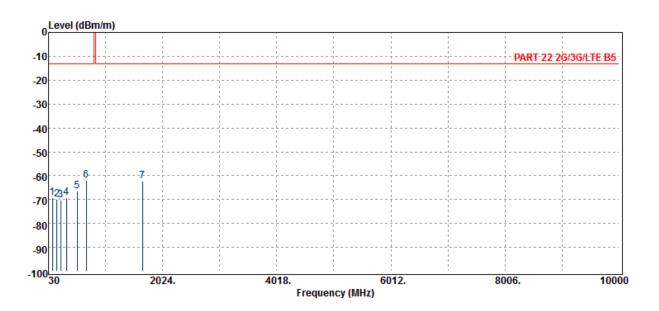
EUT Pol.

:GPRS 850 :836.6 MHz :Tx CH MID :H Plane

Temp./Humi. :24 deg\_C / 61 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		•
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
94.99	S	-69.08	-66.81	-1.04	-1.23	-13.00	-56.08
175.50	S	-70.03	-68.58	0.09	-1.54	-13.00	-57.03
239.52	S	-70.35	-71.88	3.28	-1.74	-13.00	-57.35
345.25	S	-69.14	-70.97	3.84	-2.01	-13.00	-56.14
532.46	S	-66.29	-67.45	3.68	-2.52	-13.00	-53.29
691.54	S	-62.10	-62.36	3.09	-2.83	-13.00	-49.10
1673.20	Н	-62.20	-65.11	7.20	-4.29	-13.00	-49.20

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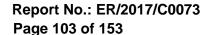
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**Operation Band** Fundamental Frequency **Operation Mode** 

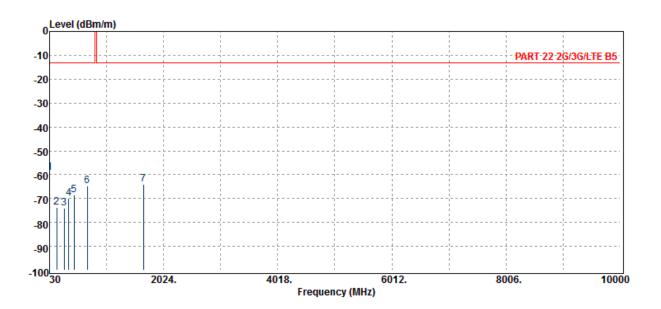
EUT Pol.

:GPRS 850 :836.6 MHz :Tx CH MID :H Plane

Temp./Humi. :24 deg\_C / 61 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin	
•			Output Level	Gain	Loss		· ·	
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB	
							_	
30.00	S	-59.11	-43.37	-14.78	-0.96	-13.00	-46.11	
154.16	S	-73.61	-70.25	-1.90	-1.45	-13.00	-60.61	
284.14	S	-74.05	-75.58	3.43	-1.89	-13.00	-61.05	
366.59	S	-70.04	-71.71	3.85	-2.17	-13.00	-57.04	
459.71	S	-68.51	-69.99	3.69	-2.21	-13.00	-55.51	
692.51	S	-64.59	-64.84	3.09	-2.84	-13.00	-51.59	
1673.20	Н	-64.02	-66.92	7.20	-4.29	-13.00	-51.02	

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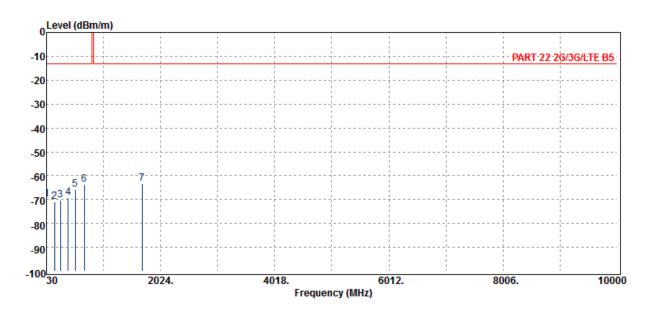
**Operation Band** Fundamental Frequency **Operation Mode** EUT Pol.

:GPRS 850 :848.8 MHz :Tx CH HIGH :H Plane

Temp./Humi. :24 deg\_C / 61 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



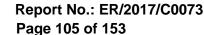
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		J
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
							_
30.00	S	-70.04	-54.30	-14.78	-0.96	-13.00	-57.04
172.59	S	-70.85	-68.88	-0.44	-1.53	-13.00	-57.85
274.44	S	-70.36	-71.99	3.47	-1.85	-13.00	-57.36
405.39	S	-69.19	-70.58	3.80	-2.41	-13.00	-56.19
534.40	S	-65.67	-66.80	3.67	-2.54	-13.00	-52.67
686.69	S	-63.77	-64.12	3.10	-2.74	-13.00	-50.77
1697.60	Н	-63.29	-66.26	7.28	-4.31	-13.00	-50.29

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**Operation Band** Fundamental Frequency **Operation Mode** 

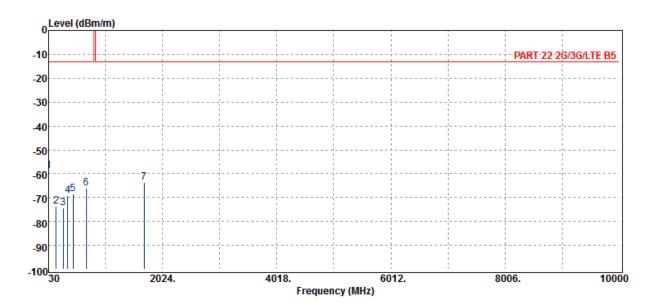
EUT Pol.

:GPRS 850 :848.8 MHz :Tx CH HIGH :H Plane

Temp./Humi. :24 deg\_C / 61 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		· ·
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
							_
30.00	S	-58.96	-43.22	-14.78	-0.96	-13.00	-45.96
160.95	S	-73.67	-70.63	-1.57	-1.48	-13.00	-60.67
285.11	S	-74.28	-75.80	3.43	-1.90	-13.00	-61.28
366.59	S	-69.28	-70.95	3.85	-2.17	-13.00	-56.28
456.80	S	-68.41	-69.89	3.67	-2.20	-13.00	-55.41
689.60	S	-66.00	-66.30	3.09	-2.79	-13.00	-53.00
1697.60	Н	-63.62	-66.60	7.28	-4.31	-13.00	-50.62

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**Operation Mode** 

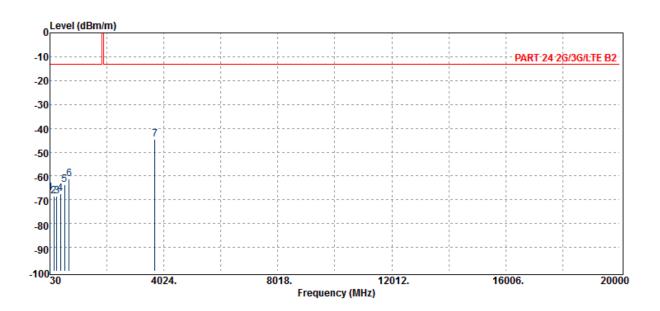
### Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

:Tx CH LOW

**Operation Band** :GPRS 1900 Temp./Humi. :22 deg\_C / 62 RH

Fundamental Frequency :1850.2 MHz Engineer :Tin

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

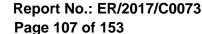


Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		· ·
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
30.00	S	-67.06	8.78	-12.63	-0.96	-13.00	-54.06
165.80	S	-68.47	3.61	0.94	-1.50	-13.00	-55.47
274.44	S	-68.45	-0.48	5.62	-1.85	-13.00	-55.45
398.60	S	-67.48	-0.55	5.97	-2.37	-13.00	-54.48
547.01	S	-63.51	3.49	5.75	-2.67	-13.00	-50.51
696.39	S	-61.17	6.70	5.24	-2.91	-13.00	-48.17
3700.40	Н	-44.67	6.77	12.44	-6.58	-13.00	-31.67

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**Operation Band** Fundamental Frequency

**Operation Mode** EUT Pol.

:GPRS 1900 :1850.2 MHz :Tx CH LOW

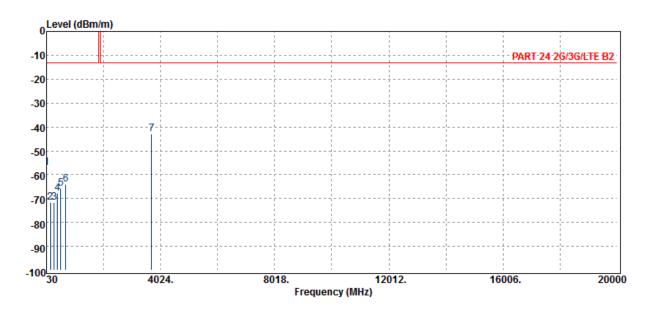
:H Plane

Temp./Humi.

:22 deg\_C / 62 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



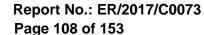
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
							_
30.00	S	-57.25	20.54	-12.63	-0.96	-13.00	-44.25
167.74	S	-71.77	0.39	1.08	-1.51	-13.00	-58.77
294.81	S	-71.73	-4.03	5.67	-1.94	-13.00	-58.73
419.94	S	-67.84	-0.42	5.90	-2.33	-13.00	-54.84
527.61	S	-65.70	1.03	5.86	-2.47	-13.00	-52.70
697.36	S	-63.87	4.86	5.23	-2.93	-13.00	-50.87
3700.40	Н	-42.94	6.96	12.44	-6.58	-13.00	-29.94

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**Operation Band** Fundamental Frequency

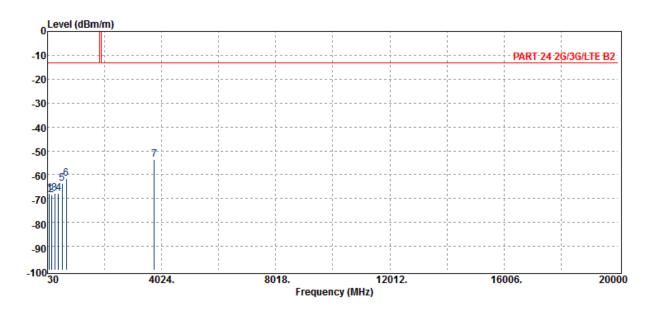
**Operation Mode** EUT Pol.

:GPRS 1900 :1880 MHz :Tx CH MID :H Plane

Temp./Humi. :22 deg\_C / 62 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		· ·
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
94.02	S	-67.66	1.28	1.22	-1.22	-13.00	-54.66
167.74	S	-68.58	3.43	1.08	-1.51	-13.00	-55.58
287.05	S	-67.88	-0.55	5.58	-1.91	-13.00	-54.88
410.24	S	-67.85	-0.10	5.93	-2.40	-13.00	-54.85
537.31	S	-63.67	3.51	5.80	-2.57	-13.00	-50.67
689.60	S	-61.66	7.26	5.24	-2.79	-13.00	-48.66
3760.00	Н	-53.64	6.77	12.45	-6.60	-13.00	-40.64



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**Operation Band** Fundamental Frequency **Operation Mode** 

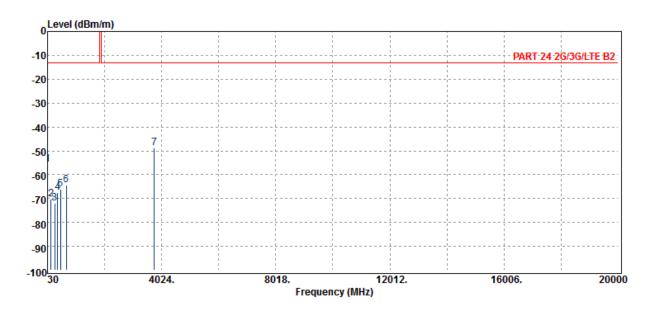
EUT Pol.

:GPRS 1900 :1880 MHz :Tx CH MID :H Plane

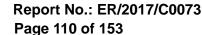
Temp./Humi. :22 deg\_C / 62 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
							_
30.00	S	-55.69	20.54	-12.63	-0.96	-13.00	-42.69
146.40	S	-70.30	1.83	-0.16	-1.42	-13.00	-57.30
279.29	S	-72.11	-4.21	5.58	-1.87	-13.00	-59.11
381.14	S	-67.60	-0.56	5.99	-2.27	-13.00	-54.60
490.75	S	-66.24	-0.39	5.97	-2.28	-13.00	-53.24
692.51	S	-64.26	4.68	5.24	-2.84	-13.00	-51.26
3760.00	Н	-48.89	7.06	12.45	-6.60	-13.00	-35.89





**Operation Band** Fundamental Frequency

**Operation Mode** EUT Pol.

:GPRS 1900 :1909.8 MHz :Tx CH HIGH

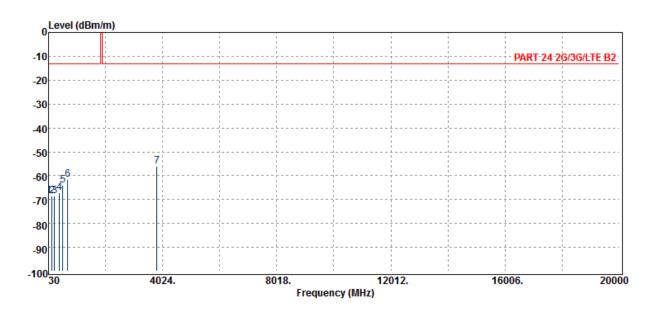
:H Plane

Temp./Humi.

:22 deg\_C / 62 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		•
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
30.00	S	-68.42	8.78	-12.63	-0.96	-13.00	-55.42
154.16	S	-68.61	3.89	0.25	-1.45	-13.00	-55.61
241.46	S	-68.51	-0.07	5.46	-1.74	-13.00	-55.51
419.94	S	-67.09	0.21	5.90	-2.33	-13.00	-54.09
529.55	S	-63.94	3.49	5.85	-2.49	-13.00	-50.94
697.36	S	-61.63	6.71	5.23	-2.93	-13.00	-48.63
3819.60	Н	-56.15	7.19	12.47	-6.65	-13.00	-43.15

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**Operation Band** Fundamental Frequency **Operation Mode** 

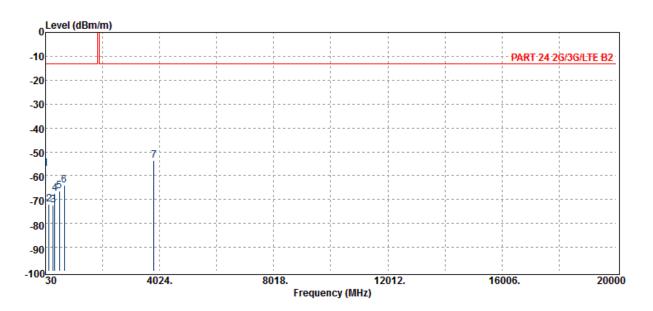
EUT Pol.

:GPRS 1900 :1909.8 MHz :Tx CH HIGH :H Plane

Temp./Humi. :22 deg\_C / 62 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
30.00	S	-57.16	20.54	-12.63	-0.96	-13.00	-44.16
153.19	S	-72.06	1.22	0.20	-1.44	-13.00	-59.06
299.66	S	-72.16	-3.96	5.77	-1.95	-13.00	-59.16
356.89	S	-67.58	-1.12	6.01	-2.10	-13.00	-54.58
516.94	S	-66.43	0.76	5.91	-2.37	-13.00	-53.43
691.54	S	-63.94	4.77	5.24	-2.83	-13.00	-50.94
3819.60	Н	-53.51	7.51	12.47	-6.65	-13.00	-40.51



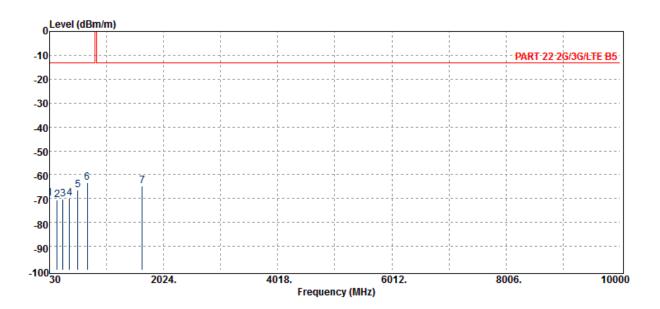
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### Radiated Spurious Emission Measurement Result: WCDMA Band 5 Mode

**Operation Band** Temp./Humi. :WCDMA B5 :24 deg\_C / 61 RH

Fundamental Frequency :826.4 MHz Engineer :Tin :Tx CH LOW **Operation Mode** 

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



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin	
•			Output Level	Gain	Loss		J	
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB	
30.00	S	-70.01	-54.27	-14.78	-0.96	-13.00	-57.01	
160.95	S	-70.66	-67.61	-1.57	-1.48	-13.00	-57.66	
262.80	S	-70.38	-72.22	3.63	-1.79	-13.00	-57.38	
379.20	S	-70.01	-71.59	3.84	-2.26	-13.00	-57.01	
527.61	S	-66.38	-67.62	3.71	-2.47	-13.00	-53.38	
687.66	S	-63.21	-63.55	3.10	-2.76	-13.00	-50.21	
1652.80	Н	-64.79	-67.68	7.12	-4.24	-13.00	-51.79	

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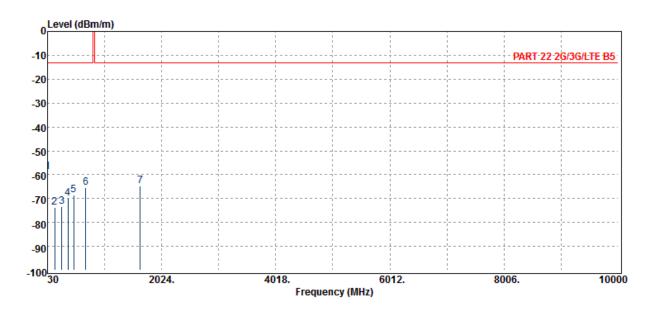
**Operation Band** Fundamental Frequency **Operation Mode** EUT Pol.

:WCDMA B5 :826.4 MHz :Tx CH LOW :H Plane

Temp./Humi. :24 deg\_C / 61 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
30.00	S	-58.70	-42.97	-14.78	-0.96	-13.00	-45.70
153.19	S	-73.78	-70.38	-1.95	-1.44	-13.00	-60.78
280.26	S	-73.45	-75.00	3.42	-1.88	-13.00	-60.45
384.05	S	-69.79	-71.33	3.83	-2.29	-13.00	-56.79
485.90	S	-68.56	-70.10	3.80	-2.26	-13.00	-55.56
697.36	S	-65.33	-65.49	3.08	-2.93	-13.00	-52.33
1652.80	Н	-64.70	-67.59	7.12	-4.24	-13.00	-51.70

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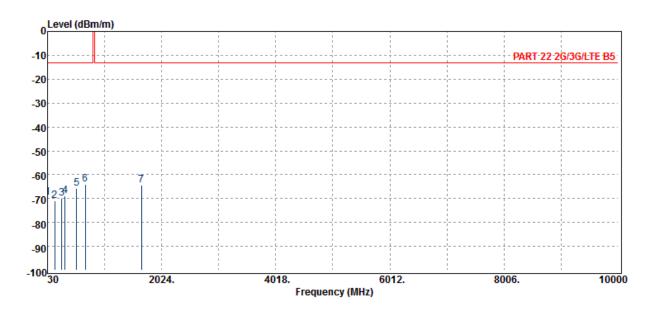
**Operation Band** Fundamental Frequency **Operation Mode** EUT Pol.

:WCDMA B5 :836.6 MHz :Tx CH MID :H Plane

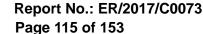
Temp./Humi. :24 deg\_C / 61 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		•
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
30.00	S	-69.58	-53.84	-14.78	-0.96	-13.00	-56.58
159.01	S	-70.96	-67.81	-1.68	-1.47	-13.00	-57.96
279.29	S	-70.06	-71.62	3.43	-1.87	-13.00	-57.06
333.61	S	-69.01	-70.88	3.79	-1.92	-13.00	-56.01
541.19	S	-65.91	-66.93	3.63	-2.61	-13.00	-52.91
692.51	S	-63.86	-64.10	3.09	-2.84	-13.00	-50.86
1673.20	Н	-64.33	-67.24	7.20	-4.29	-13.00	-51.33





**Operation Band** Fundamental Frequency **Operation Mode** 

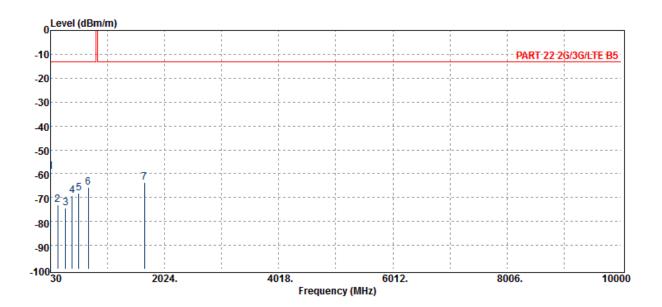
EUT Pol.

:WCDMA B5 :836.6 MHz :Tx CH MID :H Plane

Temp./Humi. :24 deg\_C / 61 RH

Engineer :Tin

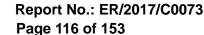
:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin	
•			Output Level	Gain	Loss		· ·	
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB	
							_	
30.00	S	-59.07	-43.33	-14.78	-0.96	-13.00	-46.07	
156.10	S	-73.11	-69.84	-1.81	-1.46	-13.00	-60.11	
293.84	S	-74.29	-75.85	3.50	-1.94	-13.00	-61.29	
411.21	S	-69.32	-70.70	3.78	-2.39	-13.00	-56.32	
522.76	S	-68.13	-69.44	3.73	-2.42	-13.00	-55.13	
689.60	S	-65.58	-65.88	3.09	-2.79	-13.00	-52.58	
1673.20	Н	-63.71	-66.62	7.20	-4.29	-13.00	-50.71	

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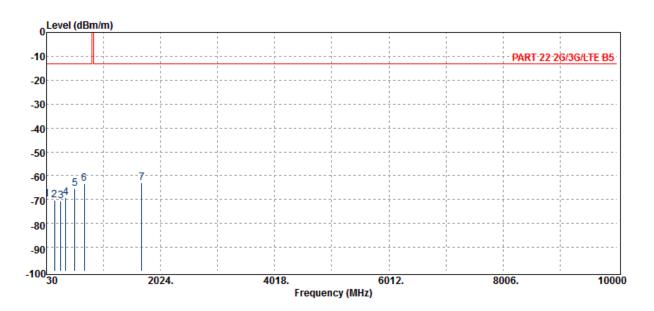
**Operation Band** Fundamental Frequency **Operation Mode** EUT Pol.

:WCDMA B5 :846.6 MHz :Tx CH HIGH :H Plane

Temp./Humi. :24 deg\_C / 61 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		•
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
							_
30.00	S	-69.98	-54.25	-14.78	-0.96	-13.00	-56.98
173.56	S	-70.15	-68.36	-0.26	-1.53	-13.00	-57.15
279.29	S	-70.50	-72.06	3.43	-1.87	-13.00	-57.50
362.71	S	-69.11	-70.82	3.85	-2.15	-13.00	-56.11
526.64	S	-65.45	-66.70	3.71	-2.46	-13.00	-52.45
689.60	S	-63.18	-63.48	3.09	-2.79	-13.00	-50.18
1693.20	Н	-63.12	-66.08	7.27	-4.30	-13.00	-50.12



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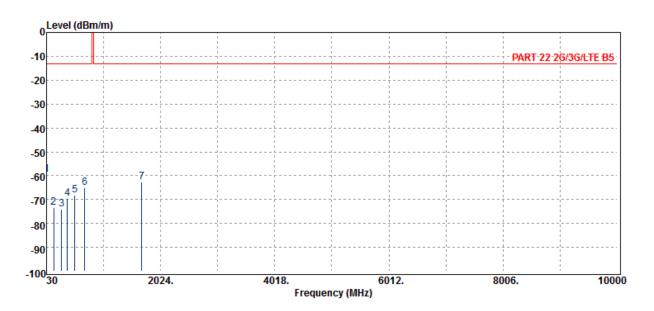
**Operation Band** Fundamental Frequency **Operation Mode** EUT Pol.

:WCDMA B5 :846.6 MHz :Tx CH HIGH :H Plane

Temp./Humi. :24 deg\_C / 61 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		•
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
							_
30.00	S	-59.37	-43.64	-14.78	-0.96	-13.00	-46.37
154.16	S	-73.32	-69.97	-1.90	-1.45	-13.00	-60.32
289.96	S	-74.10	-75.61	3.43	-1.92	-13.00	-61.10
395.69	S	-69.62	-71.09	3.82	-2.35	-13.00	-56.62
526.64	S	-68.07	-69.32	3.71	-2.46	-13.00	-55.07
697.36	S	-65.00	-65.15	3.08	-2.93	-13.00	-52.00
1693.20	Н	-62.47	-65.43	7.27	-4.30	-13.00	-49.47



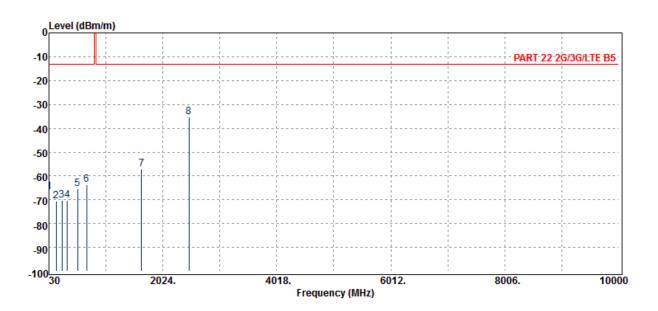
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## Radiated Spurious Emission Measurement Result: LTE-Band 5 (The Worst Case)

**Operation Band** Temp./Humi. :LTE B5 :22 deg\_C / 62 RH

Fundamental Frequency :825.5 MHz Engineer :Tin **Operation Mode** :Tx CH LOW

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

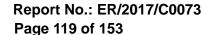


Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
30.00	S	-66.69	8.78	-14.78	-0.96	-13.00	-53.69
159.01	S	-70.44	3.79	-1.68	-1.47	-13.00	-57.44
257.95	S	-70.37	-1.06	3.63	-1.77	-13.00	-57.37
353.01	S	-70.09	-0.75	3.86	-2.07	-13.00	-57.09
529.55	S	-65.24	3.49	3.70	-2.49	-13.00	-52.24
686.69	S	-63.51	6.89	3.10	-2.74	-13.00	-50.51
1651.00	Н	-57.20	0.13	9.27	-4.23	-13.00	-44.20
2476.50	Н	-35.30	4.30	10.88	-5.23	-13.00	-22.30

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**Operation Band** Fundamental Frequency

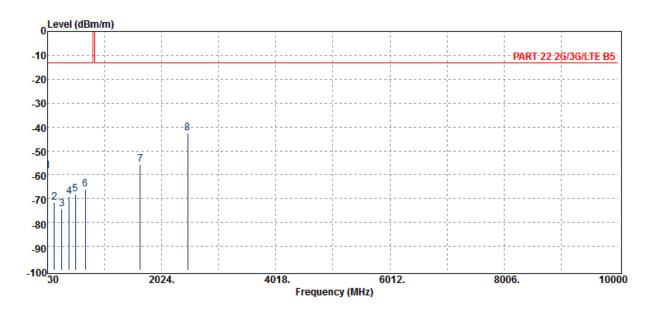
**Operation Mode** EUT Pol.

:LTE B5 :825.5 MHz :Tx CH LOW :H Plane

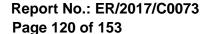
Temp./Humi. :22 deg\_C / 62 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		•
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
							_
30.00	S	-58.34	20.54	-14.78	-0.96	-13.00	-45.34
146.40	S	-71.51	1.83	-2.31	-1.42	-13.00	-58.51
280.26	S	-74.40	-4.08	3.42	-1.88	-13.00	-61.40
406.36	S	-69.04	-0.39	3.80	-2.42	-13.00	-56.04
519.85	S	-68.31	1.18	3.75	-2.39	-13.00	-55.31
689.60	S	-65.99	4.71	3.09	-2.79	-13.00	-52.99
1651.00	Н	-55.58	0.26	9.27	-4.23	-13.00	-42.58
2476.50	Н	-42.52	3.81	10.88	-5.23	-13.00	-29.52



:22 deg\_C / 62 RH



**Operation Band** Fundamental Frequency **Operation Mode** 

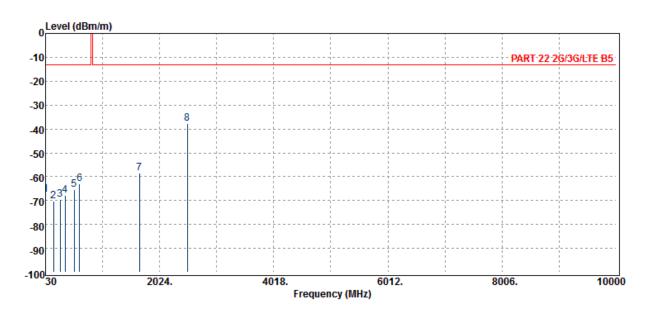
EUT Pol.

:LTE B5 :836.5 MHz :Tx CH MID :H Plane

Temp./Humi.

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
							_
30.00	S	-67.32	8.78	-14.78	-0.96	-13.00	-54.32
173.56	S	-70.11	2.83	-0.26	-1.53	-13.00	-57.11
287.05	S	-69.50	-0.55	3.43	-1.91	-13.00	-56.50
374.35	S	-67.99	-0.38	3.84	-2.23	-13.00	-54.99
534.40	S	-65.48	3.60	3.67	-2.54	-13.00	-52.48
621.70	S	-62.87	6.07	3.20	-2.53	-13.00	-49.87
1673.00	Н	-58.55	0.52	9.35	-4.29	-13.00	-45.55
2509.50	Н	-37.78	4.26	10.91	-5.26	-13.00	-24.78



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**Operation Band** Fundamental Frequency **Operation Mode** 

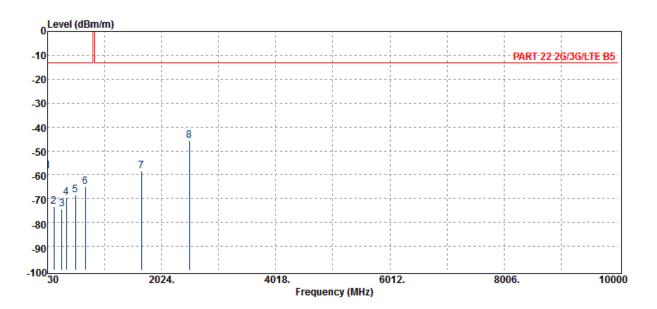
EUT Pol.

:LTE B5 :836.5 MHz :Tx CH MID :H Plane

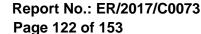
Temp./Humi. :22 deg\_C / 62 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		•
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
							_
30.00	S	-58.35	20.54	-14.78	-0.96	-13.00	-45.35
141.55	S	-73.39	1.08	-2.60	-1.40	-13.00	-60.39
280.26	S	-74.30	-4.08	3.42	-1.88	-13.00	-61.30
359.80	S	-69.45	-0.85	3.85	-2.12	-13.00	-56.45
519.85	S	-68.62	1.18	3.75	-2.39	-13.00	-55.62
692.51	S	-65.13	4.68	3.09	-2.84	-13.00	-52.13
1673.00	Н	-58.45	0.68	9.35	-4.29	-13.00	-45.45
2509.50	Н	-45.84	3.94	10.91	-5.26	-13.00	-32.84





**Operation Band** Fundamental Frequency

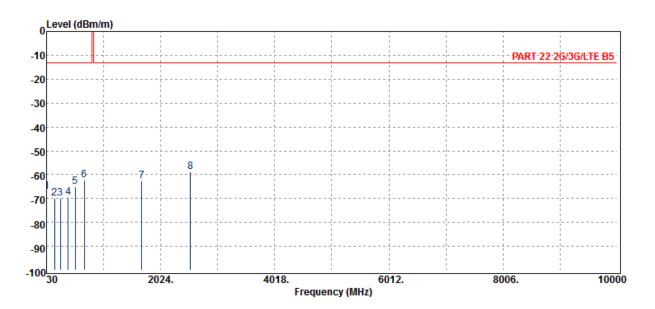
**Operation Mode** EUT Pol. :H Plane

:LTE B5 :847.5 MHz :Tx CH HIGH Temp./Humi.

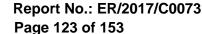
:22 deg\_C / 62 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		•
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
30.00	S	-67.13	8.78	-14.78	-0.96	-13.00	-54.13
173.56	S	-70.00	2.83	-0.26	-1.53	-13.00	-57.00
274.44	S	-69.74	-0.48	3.47	-1.85	-13.00	-56.74
408.30	S	-69.63	-0.29	3.79	-2.41	-13.00	-56.63
534.40	S	-65.21	3.60	3.67	-2.54	-13.00	-52.21
687.66	S	-62.26	6.99	3.10	-2.76	-13.00	-49.26
1695.00	Н	-62.67	0.35	7.27	-4.30	-13.00	-49.67
2542.50	Н	-58.71	4.32	8.81	-5.32	-13.00	-45.71





**Operation Band** Fundamental Frequency **Operation Mode** 

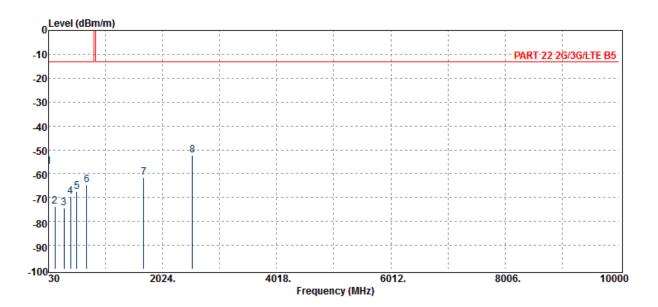
EUT Pol.

:LTE B5 :847.5 MHz :Tx CH HIGH :H Plane

Temp./Humi. :22 deg\_C / 62 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
							_
30.00	S	-57.19	20.54	-14.78	-0.96	-13.00	-44.19
141.55	S	-73.70	1.08	-2.60	-1.40	-13.00	-60.70
299.66	S	-74.32	-3.96	3.62	-1.95	-13.00	-61.32
416.06	S	-69.43	-0.37	3.76	-2.36	-13.00	-56.43
527.61	S	-67.59	1.03	3.71	-2.47	-13.00	-54.59
694.45	S	-64.70	4.64	3.09	-2.88	-13.00	-51.70
1695.00	Н	-61.45	0.45	7.27	-4.30	-13.00	-48.45
2542.50	Н	-52.10	4.10	8.81	-5.32	-13.00	-39.10



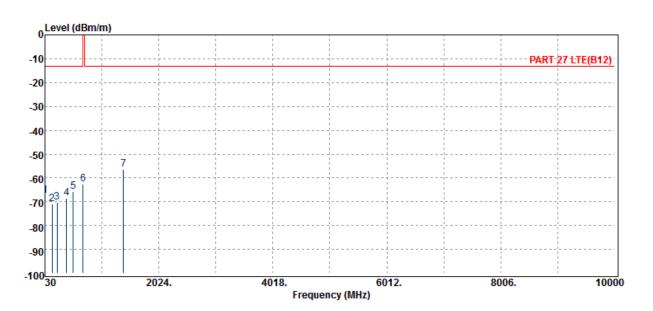
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## Radiated Spurious Emission Measurement Result: LTE-Band 12 (The Worst Case)

**Operation Band** :LTE B12 Temp./Humi. :22 deg\_C / 62 RH

Fundamental Frequency :699.7 MHz Engineer :Tin :Tx CH LOW **Operation Mode** 

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

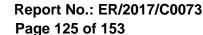


Freq.	Note	ERP	SG Output Level	Antenna Gain	Cable	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd	Loss dB	dBm	dB
1711 12	1711/2/0	ubiii	uDiii	ubu .	ub_	QDIII	<u> </u>
30.00	S	-67.55	-51.82	-14.78	-0.96	-13.00	-54.55
159.01	S	-70.77	-67.62	-1.68	-1.47	-13.00	-57.77
241.46	S	-70.09	-71.65	3.31	-1.74	-13.00	-57.09
411.21	S	-68.53	-69.91	3.78	-2.39	-13.00	-55.53
527.61	S	-65.66	-66.89	3.71	-2.47	-13.00	-52.66
697.36	S	-62.59	-62.75	3.08	-2.93	-13.00	-49.59
1399.40	Н	-56.34	-60.74	8.30	-3.90	-13.00	-43.34

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**Operation Band** Fundamental Frequency **Operation Mode** 

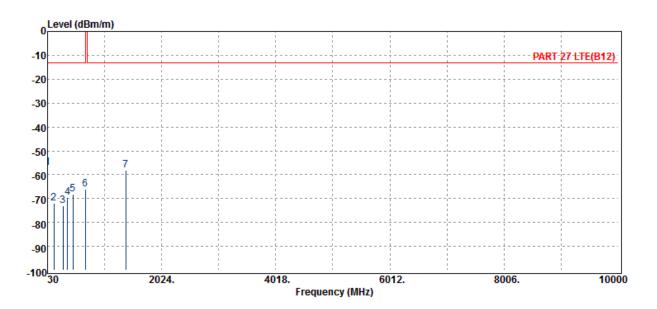
EUT Pol.

:LTE B12 :699.7 MHz :Tx CH LOW :H Plane

Temp./Humi. :22 deg\_C / 62 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



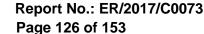
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		•
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
30.00	S	-57.20	-41.46	-14.78	-0.96	-13.00	-44.20
140.58	S	-72.14	-68.08	-2.66	-1.40	-13.00	-59.14
299.66	S	-73.14	-74.82	3.62	-1.95	-13.00	-60.14
377.26	S	-69.61	-71.20	3.84	-2.24	-13.00	-56.61
476.20	S	-68.24	-69.76	3.76	-2.23	-13.00	-55.24
692.51	S	-65.97	-66.22	3.09	-2.84	-13.00	-52.97
1399.40	Н	-58.02	-62.40	8.27	-3.89	-13.00	-45.02

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**Operation Band** Fundamental Frequency

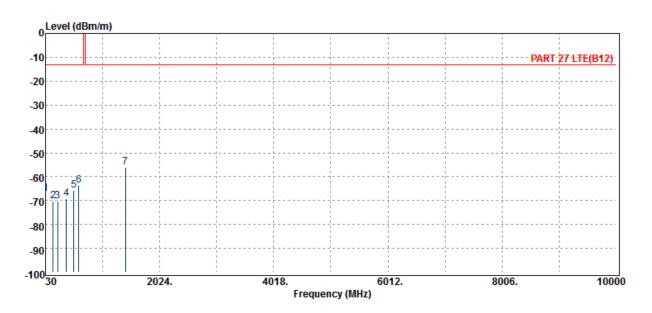
:707.5 MHz **Operation Mode** :Tx CH MID EUT Pol. :H Plane

:LTE B12

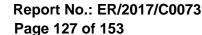
Temp./Humi. :22 deg\_C / 62 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		•
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
							_
30.00	S	-67.27	-51.53	-14.78	-0.96	-13.00	-54.27
165.80	S	-70.16	-67.44	-1.21	-1.50	-13.00	-57.16
240.49	S	-70.31	-71.87	3.29	-1.74	-13.00	-57.31
391.81	S	-69.16	-70.65	3.83	-2.33	-13.00	-56.16
526.64	S	-65.60	-66.85	3.71	-2.46	-13.00	-52.60
613.94	S	-63.53	-64.14	3.21	-2.60	-13.00	-50.53
1415.00	Н	-56.08	-60.53	8.38	-3.93	-13.00	-43.08





**Operation Band** Fundamental Frequency

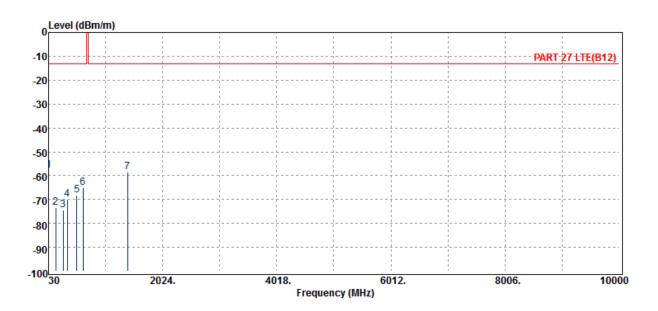
:707.5 MHz **Operation Mode** :Tx CH MID EUT Pol. :H Plane

:LTE B12

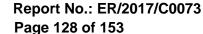
Temp./Humi. :22 deg\_C / 62 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		•
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
30.00	S	-57.67	-41.93	-14.78	-0.96	-13.00	-44.67
159.01	S	-73.21	-70.06	-1.68	-1.47	-13.00	-60.21
287.05	S	-74.34	-75.86	3.43	-1.91	-13.00	-61.34
357.86	S	-69.95	-71.70	3.85	-2.11	-13.00	-56.95
522.76	S	-68.29	-69.60	3.73	-2.42	-13.00	-55.29
634.31	S	-65.17	-65.88	3.17	-2.45	-13.00	-52.17
1415.00	Н	-58.58	-63.01	8.34	-3.91	-13.00	-45.58





**Operation Band** Fundamental Frequency **Operation Mode** 

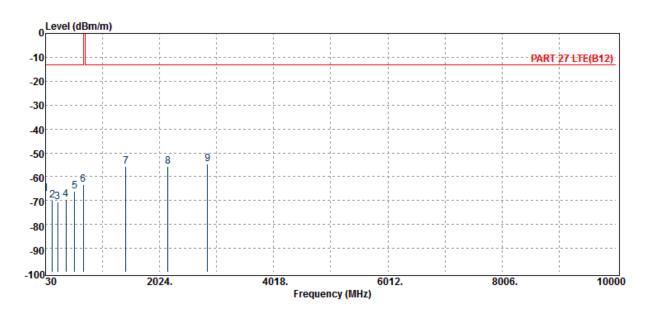
EUT Pol.

:LTE B12 :715.3 MHz :Tx CH HIGH :H Plane

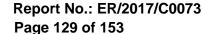
Temp./Humi. :22 deg\_C / 62 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
							_
30.00	S	-67.22	-51.49	-14.78	-0.96	-13.00	-54.22
146.40	S	-69.97	-66.24	-2.31	-1.42	-13.00	-56.97
240.49	S	-70.44	-71.99	3.29	-1.74	-13.00	-57.44
384.05	S	-69.39	-70.94	3.83	-2.29	-13.00	-56.39
536.34	S	-65.97	-67.07	3.66	-2.56	-13.00	-52.97
689.60	S	-63.36	-63.67	3.09	-2.79	-13.00	-50.36
1430.60	Н	-55.80	-60.27	8.41	-3.94	-13.00	-42.80
2145.90	Н	-55.80	-61.52	10.58	-4.86	-13.00	-42.80
2861.20	Н	-54.82	-60.46	11.35	-5.70	-13.00	-41.82





**Operation Band** Fundamental Frequency

**Operation Mode** EUT Pol.

:LTE B12 :715.3 MHz :Tx CH HIGH

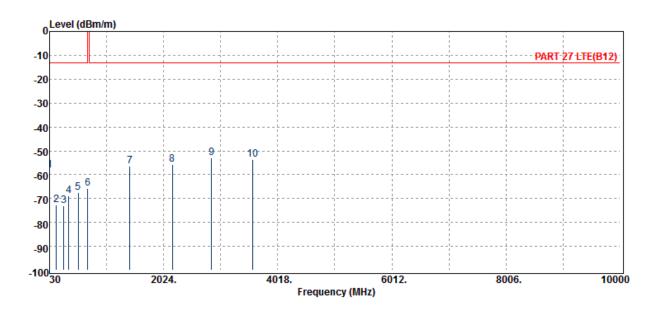
:H Plane

Temp./Humi.

:22 deg\_C / 62 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		_
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
30.00	S	-58.13	-42.39	-14.78	-0.96	-13.00	-45.13
146.40	S	-72.80	-69.07	-2.31	-1.42	-13.00	-59.80
280.26	S	-72.97	-74.51	3.42	-1.88	-13.00	-59.97
364.65	S	-68.92	-70.61	3.85	-2.16	-13.00	-55.92
531.49	S	-67.62	-68.79	3.69	-2.51	-13.00	-54.62
700.27	S	-65.87	-65.97	3.08	-2.98	34.77	-100.64
1430.60	Н	-56.52	-60.99	8.41	-3.94	-13.00	-43.52
2145.90	Н	-55.86	-61.58	10.59	-4.87	-13.00	-42.86
2861.20	Н	-52.91	-58.55	11.35	-5.70	-13.00	-39.91
3576.50	Н	-53.46	-59.47	12.42	-6.41	-13.00	-40.46

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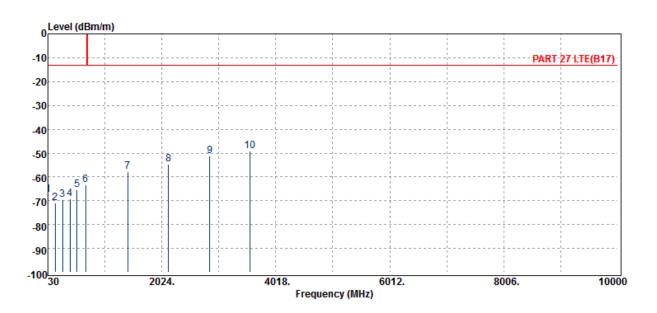
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# Radiated Spurious Emission Measurement Result: LTE-Band 17 (The Worst Case)

**Operation Band** :LTE B17 Temp./Humi. :22 deg\_C / 62 RH

Fundamental Frequency :709.0 MHz Engineer :Tin :Tx CH LOW **Operation Mode** 

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



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
30.00	S	-67.57	8.78	-14.78	-0.96	-13.00	-54.57
153.19	S	-70.95	3.68	-1.95	-1.44	-13.00	-57.95
285.11	S	-69.54	-0.53	3.43	-1.90	-13.00	-56.54
418.00	S	-69.09	0.13	3.76	-2.35	-13.00	-56.09
539.25	S	-65.52	3.46	3.64	-2.59	-13.00	-52.52
686.69	S	-63.39	6.89	3.10	-2.74	-13.00	-50.39
1418.00	Н	-57.89	1.72	8.38	-3.93	-13.00	-44.89
2127.00	Н	-54.84	4.33	10.55	-4.82	-13.00	-41.84
2836.00	Н	-51.14	5.06	11.35	-5.70	-13.00	-38.14
3545.00	Н	-49.15	6.70	12.41	-6.46	-13.00	-36.15

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**Operation Band** Fundamental Frequency **Operation Mode** 

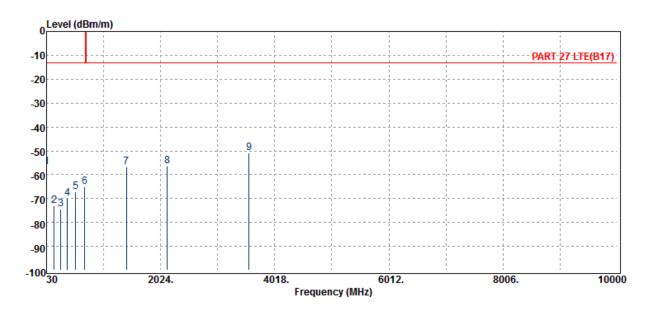
EUT Pol.

:LTE B17 :709.0 MHz :Tx CH LOW :H Plane

Temp./Humi. :22 deg\_C / 62 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



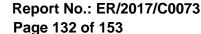
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
							_
30.00	S	-56.74	20.54	-14.78	-0.96	-13.00	-43.74
160.95	S	-73.10	0.51	-1.57	-1.48	-13.00	-60.10
280.26	S	-74.51	-4.08	3.42	-1.88	-13.00	-61.51
396.66	S	-69.80	-0.95	3.82	-2.36	-13.00	-56.80
539.25	S	-67.13	0.55	3.64	-2.59	-13.00	-54.13
694.45	S	-65.01	4.64	3.09	-2.88	-13.00	-52.01
1418.00	Н	-56.79	2.27	8.38	-3.93	-13.00	-43.79
2127.00	Н	-56.33	4.26	10.55	-4.82	-13.00	-43.33
3545.00	Н	-50.92	6.78	12.41	-6.46	-13.00	-37.92

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**Operation Band** Fundamental Frequency

**Operation Mode** EUT Pol.

:LTE B17 :710.0 MHz :Tx CH MID

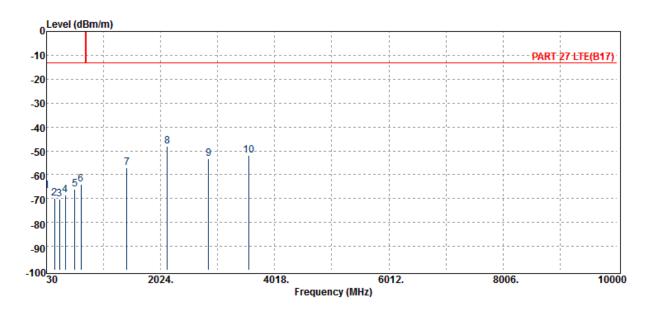
:H Plane

Temp./Humi.

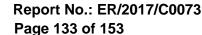
:22 deg\_C / 62 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
30.00	S	-66.94	8.78	-14.78	-0.96	-13.00	-53.94
173.56	S	-69.77	2.83	-0.26	-1.53	-13.00	-56.77
255.04	S	-70.40	-1.11	3.56	-1.76	-13.00	-57.40
359.80	S	-68.56	-0.50	3.85	-2.12	-13.00	-55.56
526.64	S	-66.10	3.44	3.71	-2.46	-13.00	-53.10
629.46	S	-64.09	6.15	3.18	-2.47	-13.00	-51.09
1420.00	Н	-57.10	1.52	8.41	-3.94	-13.00	-44.10
2130.00	Н	-48.11	4.33	10.55	-4.82	-13.00	-35.11
2840.00	Н	-53.17	5.06	11.35	-5.70	-13.00	-40.17
3550.00	Н	-51.94	6.70	12.41	-6.46	-13.00	-38.94





**Operation Band** Fundamental Frequency

**Operation Mode** EUT Pol.

:LTE B17 :710.0 MHz :Tx CH MID

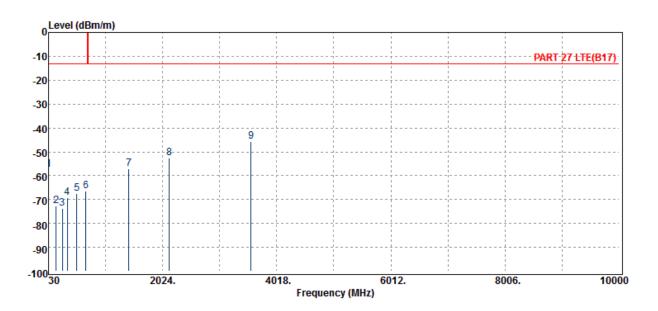
:H Plane

Temp./Humi.

:22 deg\_C / 62 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
-			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
30.00	S	-57.43	20.54	-14.78	-0.96	-13.00	-44.43
159.98	S	-72.70	0.83	-1.64	-1.48	-13.00	-59.70
274.44	S	-73.82	-4.55	3.47	-1.85	-13.00	-60.82
356.89	S	-69.18	-1.12	3.86	-2.10	-13.00	-56.18
526.64	S	-67.56	1.04	3.71	-2.46	-13.00	-54.56
682.81	S	-66.42	3.84	3.10	-2.67	-13.00	-53.42
1420.00	Н	-57.12	1.87	8.41	-3.94	-13.00	-44.12
2130.00	Н	-52.43	4.26	10.55	-4.82	-13.00	-39.43
3550.00	Н	-45.77	6.78	12.41	-6.46	-13.00	-32.77



Page 134 of 153

**Operation Band** Fundamental Frequency **Operation Mode** 

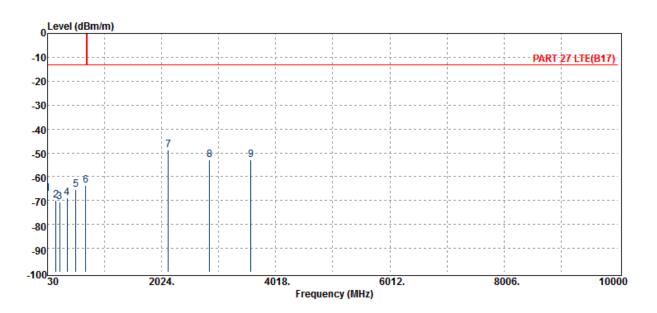
EUT Pol.

:LTE B17 :711.0 MHz :Tx CH HIGH :H Plane

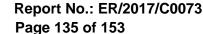
Temp./Humi. :22 deg\_C / 62 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
30.00	S	-67.27	8.78	-14.78	-0.96	-13.00	-54.27
178.41	S	-69.76	1.19	0.61	-1.55	-13.00	-56.76
239.52	S	-70.61	0.24	3.28	-1.74	-13.00	-57.61
374.35	S	-68.86	-0.38	3.84	-2.23	-13.00	-55.86
527.61	S	-65.32	3.50	3.71	-2.47	-13.00	-52.32
697.36	S	-63.71	6.71	3.08	-2.93	-13.00	-50.71
2133.00	Н	-48.85	4.33	10.55	-4.82	-13.00	-35.85
2844.00	Н	-53.07	5.06	11.35	-5.70	-13.00	-40.07
3555.00	Н	-52.82	6.76	12.42	-6.41	-13.00	-39.82





**Operation Band** Fundamental Frequency **Operation Mode** 

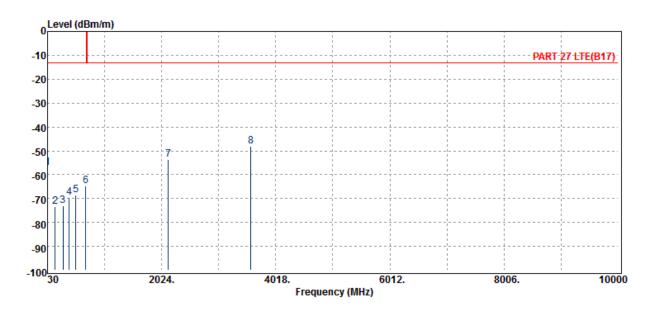
EUT Pol.

:LTE B17 :711.0 MHz :Tx CH HIGH :H Plane

Temp./Humi. :22 deg\_C / 62 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin	
			Output Level	Gain	Loss		_	
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB	
							_	
30.00	S	-57.24	20.54	-14.78	-0.96	-13.00	-44.24	
162.89	S	-73.53	-0.15	-1.42	-1.49	-13.00	-60.53	
299.66	S	-73.14	-3.96	3.62	-1.95	-13.00	-60.14	
408.30	S	-69.47	-0.28	3.79	-2.41	-13.00	-56.47	
527.61	S	-68.54	1.03	3.71	-2.47	-13.00	-55.54	
696.39	S	-64.62	4.77	3.09	-2.91	-13.00	-51.62	
2133.00	Н	-53.48	4.26	10.55	-4.82	-13.00	-40.48	
3555.00	Н	-48.10	6.87	12.42	-6.41	-13.00	-35.10	



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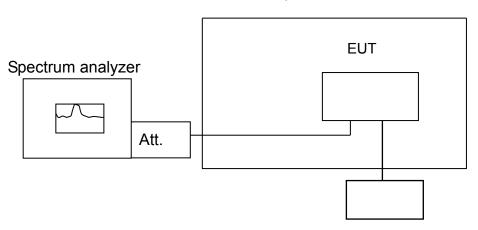
### 11. FREQUENCY STABILITY MEASUREMENT

# 11.1. Standard Applicable:

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

### 11.2. Test Set-up:





Variable DC Power Supply

Note: Measurement setup for testing on Antenna connector

#### 11.3. Measurement Procedure:

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

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

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

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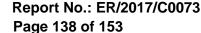
# 11.4. Measurement Equipment Used:

Conduc	ted Emission (m	neasured at a	antenna port)	Test Site			
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.		
TYPE		NUMBER	NUMBER	CAL.			
Power Meter	Anritsu	ML2495A	1005007	12/15/2017	12/14/2018		
Power Sensor	Anritsu	MA2411B	917032	12/15/2017	12/14/2018		
EXA Spectrum Analyz- er	Agilent	N9030A	MY53120760	03/21/2017	03/20/2018		
DC Block	Mini-Circuits	BLK-18-S+	1	01/05/2017	01/04/2018		
Coaxial Cable	HU- BER+SUHNER	SUCOFLEX 102	23670/2	01/05/2017	01/04/2018		
Attenuator	Mini-Circuit	BW-S10W2+	2	01/05/2017	01/04/2018		
Splitter	Agilent	11636B	N/A	01/05/2017	01/04/2018		
DC Power Supply	Agilent	E3640A	MY52410006	10/26/2017	10/27/2018		
Temperature Chamber	TERCHY	MHG-120LF	911009	05/19/2017	05/18/2018		
Radio Communication Analyzer	R&S	CMU200	102189	02/11/2017	02/10/2018		
Radio Communication Analyer	Anritsu	MT8820C	6201465317	01/03/2017	01/02/2018		

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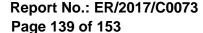
#### 11.5. Measurement Result:

#### FREQUENCY ERROR vs. VOLTAGE

REGULACI ERROR VS. VOLIAGE								
Ref	erence Frequenc	y: GPRS 850 Mid	Channel 836.6 M	1Hz				
		Limit: +/- 2.5 ppm						
Power Supply	Environment	Frequency						
Vdc	Temperature	(MHz)	Delta (Hz)	Limit (Hz)				
	( )	, ,						
4.42	20	836.600003	-2	2091				
3.85	20	836.600005	0	2091				
3.27	20	836.599999	-6	2091				
2.8 (End point)	20	836.600008	3	2091				

### FREQUENCY ERROR vs. TEMPERATURE

Re	Reference Frequency: GPRS 850 Mid Channel 836.6 MHz								
		Limit: +/- 2.5 ppm							
Power Supply	Environment	Frequency							
Vdc	Temperature ( )	(MHz)	Delta (Hz)	Limit (Hz)					
3.85	50	836.600012	10	2091					
3.85	40	836.60001	8	2091					
3.85	30	836.599994	-8	2091					
3.85	20	836.599991	-11	2091					
3.85	10	836.600009	7	2091					
3.85	0	836.600002	0	2091					
3.85	-10	836.600003	1	2091					
3.85	-20	836.600002	0	2091					
3.85	-30	836.600005	3	2091					





FREQUENCY ERROR vs. VOLTAGE

Ref	erence Frequenc	y: GPRS 1900 Mi	d Channel 1880 N	ЛHz			
		Limit: +/- 2.5 ppm					
Power Supply	Environment	Frequency					
Vdc	Temperature ( )	(MHz)	Delta (Hz)	Limit (Hz)			
4.42	20	1879999992	-11	4700			
3.85	20	1879999998	5	4700			
3.27	20	1880000009	-1	4700			
2.8 (End point)	20	1879999996	5	4700			

## FREQUENCY ERROR vs. TEMPERATURE

Reference Frequency: GPRS 1900 Mid Channel 1880 MHz							
	L	.imit: +/- 2.5 ppm = H	Z				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)			
Vdc	Temperature ( )	(MHz)	Della (112)				
3.85	50	188000001	10	4700			
3.85	40	1879999985	8	4700			
3.85	30	1879999998	-2	4700			
3.85	20	1880000002	1	4700			
3.85	10	1879999990	-4	4700			
3.85	0	1879999996	2	4700			
3.85	-10	1880000013	8	4700			
3.85	-20	1879999993	9	4700			
3.85	-30	1880000003	11	4700			



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### FREQUENCY ERROR vs. VOLTAGE

	Reference Frequency: WCDMA V Mid Channel 836.6 MHz						
	Limit: +/- 2.5 ppm						
Power Supply	IENVIRONMENTI EREGIJENCV I						
Vdc	Temperature ( )	(MHz)	Delta (Hz)	Limit (Hz)			
4.42	20	836599999	-3	2091			
3.85	20	836600008	14	2091			
3.27	20 836600000		6	2091			
2.8 (End Point)	20	836599986	9	2091			

### FREQUENCY ERROR vs. TEMPERATURE

	Refere	nce Frequency: WCI	DMA V Mid Channel	836.6 MHz				
		Limit: -	⊦/- 2.5 ppm					
Power Supply	Environment	Frequency	Dolto (Uz)	Limit (Lla)				
Vdc	Temperature ( )	(MHz)	Delta (Hz)	Limit (Hz)				
3.85	50	836599988	11	2091				
3.85	40	836600014	10	2091				
3.85	30	836599987	8	2091				
3.85	20	836599998	4	2091				
3.85	10	836600008	0	2091				
3.85	0	836599998	3	2091				
3.85	-10	836600006	6	2091				
3.85	-20	836600003	9	2091				
3.85	-30	836600012	12	2091				



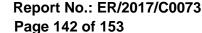
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### FREQUENCY ERROR vs. VOLTAGE

Reference Frequency:		LTE B5 Mid 836.5 Channel		MHz 10M QPSK CH 20525			
	Limit: +/- 2.5 ppm						
Power Supply	Environment	Frequency					
Vdc	Temperature ( )	(MHz)	Delta (Hz)	Limit (Hz)			
4.42	25	836.500006	2	2091			
3.85	25	836.500004	0	2091			
3.27	25	836.500011	7	2091			
2.8 (End Point)	25	836.500005	1	2091			

## FREQUENCY ERROR vs. TEMPERATURE

Reference	ce Frequency:	LTE B5 Mid Channel	836.5	MHz 10M QPSK CH 20525
		Limit: +/- 2.5	ppm	
Power Supply	Environment	Frequency	Dolto (Hz)	Limit (Uz)
Vdc	Vdc Temperature (MHz)		Delta (Hz)	Limit (Hz)
3.85	-30	836.499998	4	2091
3.85	-20	836.500006	12	2091
3.85	-10	836.499996	2	2091
3.85	0	836.50001	16	2091
3.85	10	836.500008	14	2091
3.85	20	836.499994	0	2091
3.85	30	836.499997	3	2091
3.85	40	836.500001	7	2091
3.85	50	836.5	6	2091





FREQUENCY ERROR vs. VOLTAGE

	TREGOLIOT LIMON VS. VOLIAGE						
Reference Frequency:		LTE B12 Mid Channel	2535.0	MHz 10M QPSK CH 23095			
		Limit: +/- 2	.5 ppm				
Power Supply	Environment	vironment Frequency					
Vdc	Temperature ( )	(MHz)	Delta (Hz)	Limit (Hz)			
4.42	25	707.500004	-4	1769			
3.85	25	707.500008	0	1769			
3.27	25	707.5	-8	1769			
2.8 (End Point)	25	707.500013	5	1769			

#### FREQUENCY ERROR vs. TEMPERATURE

Reference Frequency:		LTE B12 Mid Channel	2535.0	MHz 10M QPSK CH 23095		
	Limit: +/- 2.5 ppm					
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Uz)		
Vdc	Temperature ( )	Temperature (MHz)		Limit (Hz)		
3.85	-30	707.499992	-20	1769		
3.85	-20	707.500005	-7	1769		
3.85	-10	707.499998	-14	1769		
3.85	0	707.500003	-9	1769		
3.85	10	707.500009	-3	1769		
3.85	20	707.500012	0	1769		
3.85	30	707.500004	-8	1769		
3.85	40	707.499997	-15	1769		
3.85	50	707.500001	-11	1769		



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### FREQUENCY ERROR vs. VOLTAGE

l Reference Fredliency.		LTE B17 Mid Channel	2595.0	MHz 10M QPSK CH 38000
		Limit: +/- 2	.5 ppm	
Power Supply	Environment	Frequency		
Vdc	Temperature ( )	(MHz)	Delta (Hz)	Limit (Hz)
4.42	25	710	-4	1775
3.85	25	710	0	1775
3.27	25	710.00001	2	1775
2.8 (End Point)	25	710.00001	6	1775

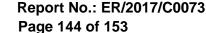
## FREQUENCY ERROR vs. TEMPERATURE

Reference	ce Frequency:	LTE B17 Mid Channel	2595.0	MHz 10M QPSK CH 38000			
	Limit: +/- 2.5 ppm						
Power Supply Environment		Frequency	Dolto (Hz)	Limit (Uz)			
Vdc	/dc Temperature (MHz		Delta (Hz)	Limit (Hz)			
3.85	-30	710.00001	13	1775			
3.85	-20	710.00001	8	1775			
3.85	-10	710.00001	9	1775			
3.85	0	710	-2	1775			
3.85	10	710	0	1775			
3.85	20	710	0	1775			
3.85	30	710	7	1775			
3.85	40	710	5	1775			
3.85	50	710.00001	12	1775			

Note: The battery is rated 3.85V dc.

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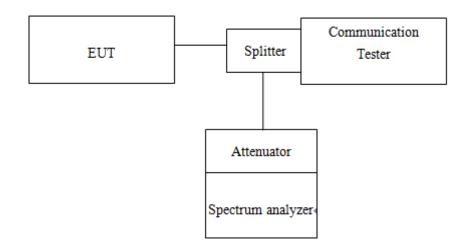


### 12. PEAK TO AVERAGE RATIO

# 12.1. Standard Applicable

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

#### 12.2. Test SET-UP



#### 12.3. Measurement Procedure

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

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

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## 12.4. Measurement Equipment Used

Conduc	Conducted Emission (measured at antenna port) Test Site								
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.				
Power Meter	Anritsu	ML2495A	1005007	12/15/2017	12/14/2018				
Power Sensor	Anritsu	MA2411B	917032	12/15/2017	12/14/2018				
EXA Spectrum Analyz- er	Agilent	N9030A	MY53120760	03/21/2017	03/20/2018				
DC Block	Mini-Circuits	BLK-18-S+	1	01/05/2017	01/04/2018				
Coaxial Cable	HU- BER+SUHNER	SUCOFLEX 102	23670/2	01/05/2017	01/04/2018				
Attenuator	Mini-Circuit	BW-S10W2+	2	01/05/2017	01/04/2018				
Splitter	Agilent	11636B	N/A	01/05/2017	01/04/2018				
DC Power Supply	Agilent	E3640A	MY52410006	10/26/2017	10/27/2018				
Temperature Chamber	TERCHY	MHG-120LF	911009	05/19/2017	05/18/2018				
Radio Communication Analyzer	R&S	CMU200	102189	02/11/2017	02/10/2018				
Radio Communication Analyer	Anritsu	MT8820C	6201465317	01/03/2017	01/02/2018				

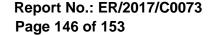
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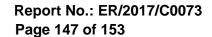
#### 12.5. Measurement Result

### **Tabular Results:**

Freq. (MHz)	СН	Peak-to-Average Ratio (dB)		
		GSM	GPRS	
		1900	1900	
1850.2	9296	9.72	9.48	
1880.0	9400	10.54	9.06	
1909.8	9538	10.74	9.25	

LTE BAND 5							
Channel bandwidth: 1.4MHz				С	hannel ban	dwidth: 3MH	łz
Freq.	СН	Peak-to-Average Ratio (dB)		Freq.	СН	Peak-to- Ratio	Average (dB)
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT
824.7	20407	6.38	13	825.5	20415	6.44	13
836.5	20525	6.27	13	836.5	20525	6.27	13
848.3	20643	6.15	13	847.5	20635	6.34	13

LTE BAND 5								
Channel bandwidth: 5MHz				Channel bandwidth: 10MHz				
Freq.	СН	Peak-to-Avera CH Ratio (dB)		Freq.	СН	Peak-to-Average Ratio (dB)		
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT	
826.5	20425	6.30	13	829.0	20450	6.27	13	
836.5	20525	6.08	13	836.5	20525	6.16	13	
846.5	20625	6.35	13	844.0	20600	6.26	13	





LTE BAND 12								
Ch	nannel band	width: 1.4M	Hz	Channel bandwidth: 3MHz				
Freq.	СН	Peak-to-Average Ratio (dB)		Freq.	СН	Peak-to-Average Ratio (dB)		
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT	
699.7	23017	6.12	13	700.5	23025	6.24	13	
707.5	23095	6.24	13	707.5	23095	6.28	13	
715.3	23173	5.96	13	714.5	23165	6.15	13	

LTE BAND 12								
С	hannel band	dwidth: 5MH	łz	Channel bandwidth: 10MHz				
Freq.	Peak-to-Average CH Ratio (dB)		0	Freq.	СН	Peak-to-Average Ratio (dB)		
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT	
701.5	23035	6.05	13	704.0	23060	6.13	13	
707.5	23095	6.16	13	707.5	23095	6.10	13	
713.5	23155	6.02	13	711.0	23130	6.05	13	

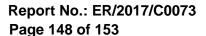
LTE BAND 17								
Channel bandwidth: 5MHz				Channel bandwidth: 10MHz				
Freq.	СН	Peak-to-Average Ratio (dB)		Freq.	СН	Peak-to-Average Ratio (dB)		
(MHz)		16QAM	LIMIT	(MHz)		16QAM	LIMIT	
706.5	23755	6.22	13	709.0	23780	6.09	13	
710.0	23790	6.11	13	710.0	23790	5.98	13	
713.5	23825	6.04	13	711.0	23780	6.13	13	

### **Measurement Results:**

Please refer to next page.

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#### GSM 1900 Channel Low

# **GPRS 1900 Channel Low**





#### GSM 1900 Channel Mid

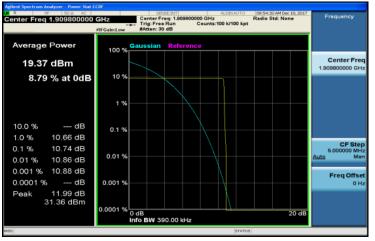
#### GPRS 1900 Channel Mid





#### GSM 1900 Channel High

#### GPRS 1900 Channel High

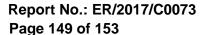




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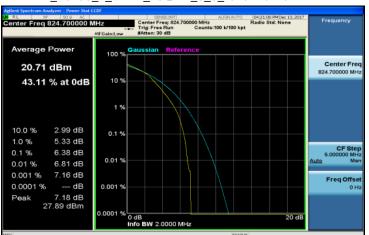
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### LTE\_Band5\_1\_4MHz\_16QAM\_6\_0\_ Channel Low



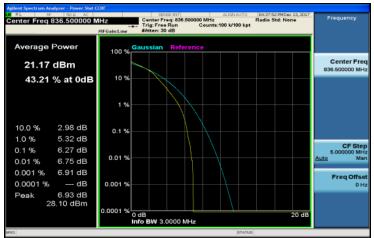
# LTE\_Band5\_3MHz\_16QAM\_15\_0\_ Channel Low



#### LTE Band5 1 4MHz 16QAM 6 0 Channel Mid



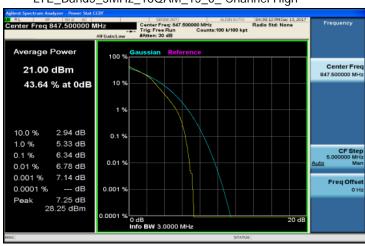
### LTE\_Band5\_3MHz\_16QAM\_15\_0\_ Channel Mid



# LTE\_Band5\_1\_4MHz\_16QAM\_6\_0\_ Channel High



#### LTE\_Band5\_3MHz\_16QAM\_15\_0\_ Channel High

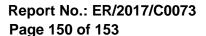


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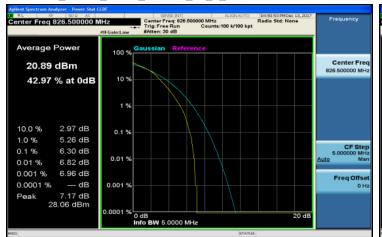
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### LTE\_Band5\_5MHz\_16QAM\_25\_0\_ Channel Low

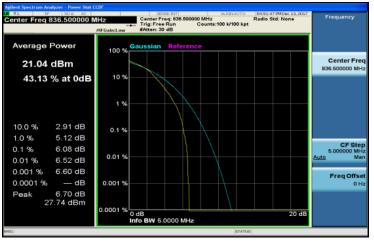
#### LTE\_Band5\_10MHz\_16QAM\_50\_0\_ Channel Low

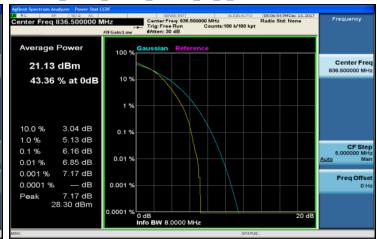




#### LTE\_Band5\_5MHz\_16QAM\_25\_0\_ Channel Mid

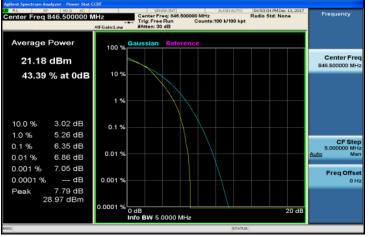
LTE\_Band5\_10MHz\_16QAM\_50\_0\_ Channel Mid

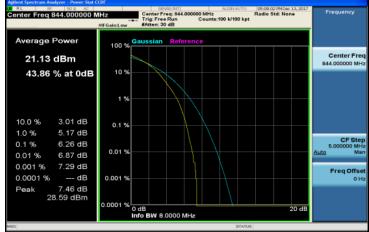




#### LTE\_Band5\_5MHz\_16QAM\_25\_0\_ Channel High

#### LTE\_Band5\_10MHz\_16QAM\_50\_0\_ Channel High





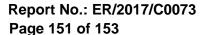
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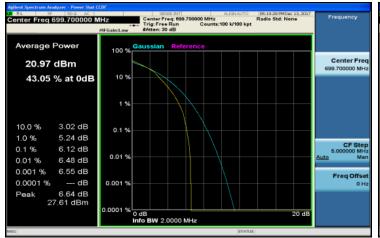
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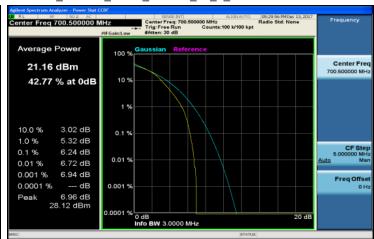




### LTE\_Band12\_1\_4MHz\_16QAM\_6\_0\_ Channel Low

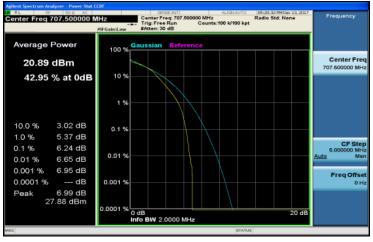
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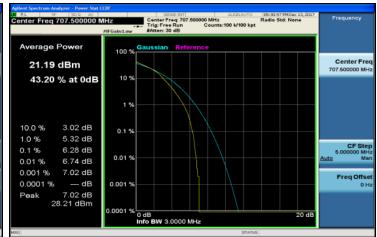




#### LTE\_Band12\_1\_4MHz\_16QAM\_6\_0\_ Channel Mid

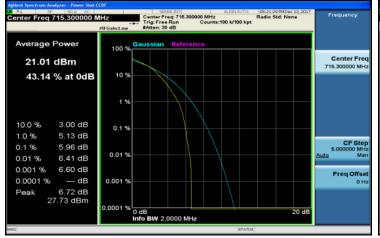
LTE\_Band12\_3MHz\_16QAM\_15\_0\_ Channel Mid

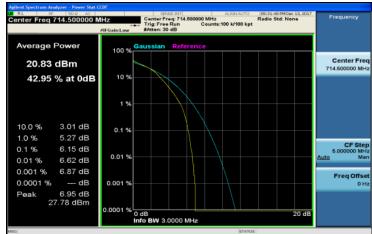




### LTE\_Band12\_1\_4MHz\_16QAM\_6\_0\_ Channel High

#### LTE\_Band12\_3MHz\_16QAM\_15\_0\_ Channel High





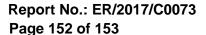
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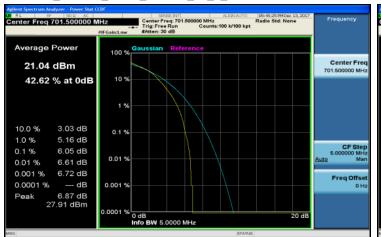
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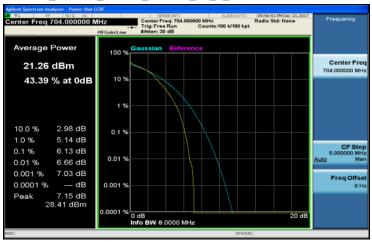




### LTE\_Band12\_5MHz\_16QAM\_25\_0\_ Channel Low

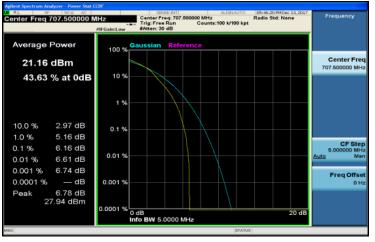
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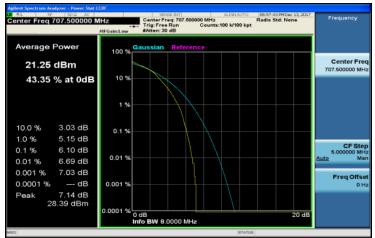




#### LTE\_Band12\_5MHz\_16QAM\_25\_0\_ Channel Mid

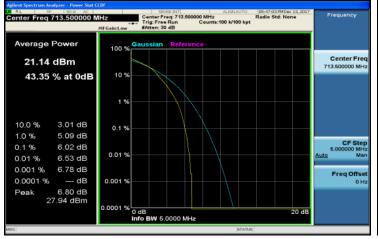
LTE\_Band12\_10MHz\_16QAM\_50\_0\_ Channel Mid

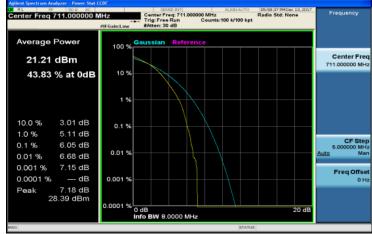




### LTE\_Band12\_5MHz\_16QAM\_25\_0\_ Channel High

#### LTE\_Band12\_10MHz\_16QAM\_50\_0\_ Channel High





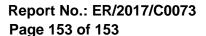
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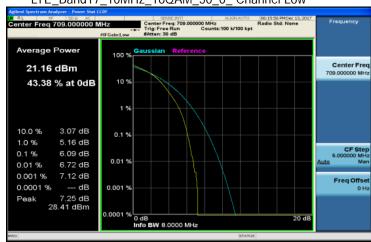




### LTE\_Band17\_5MHz\_16QAM\_25\_0\_ Channel Low

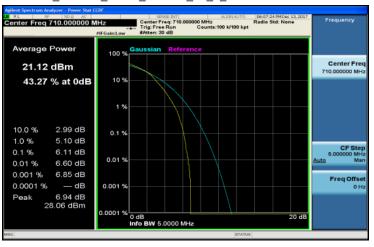
## LTE\_Band17\_10MHz\_16QAM\_50\_0\_ Channel Low

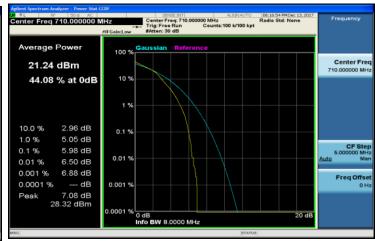




### LTE\_Band17\_5MHz\_16QAM\_25\_0\_ Channel Mid

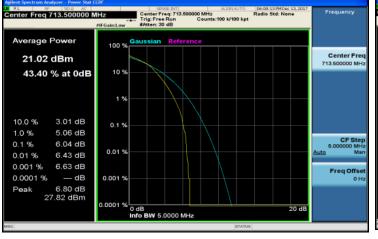
LTE\_Band17\_10MHz\_16QAM\_50\_0\_ Channel Mid

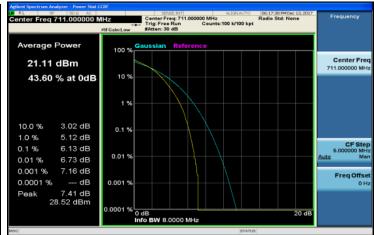




# LTE\_Band17\_5MHz\_16QAM\_25\_0\_ Channel High

### LTE Band17 10MHz 16QAM 50 0 Channel High





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