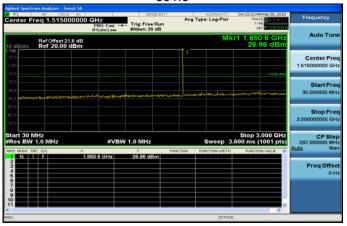
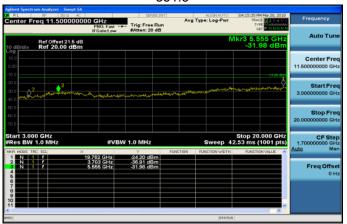




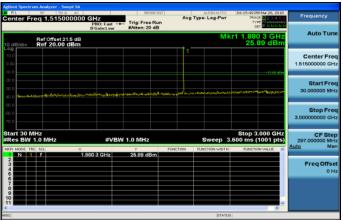
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3GHz~10GHz_Band2_3MHz_QPSK_1_0_LowCH18615-1



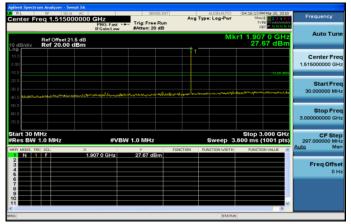
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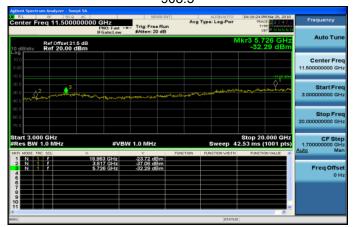
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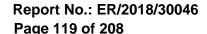


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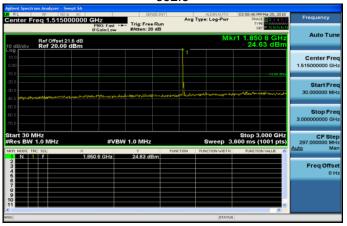
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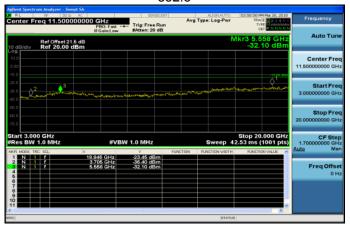




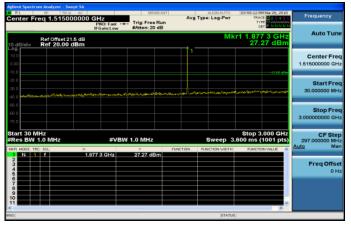
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3GHz~10GHz_Band2_5MHz_QPSK_1_0_LowCH18625-1



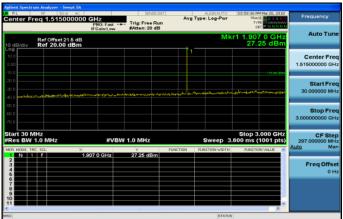
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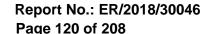


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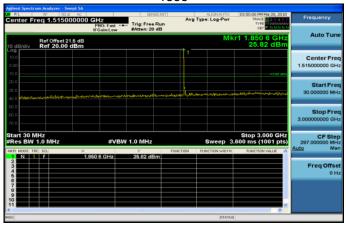
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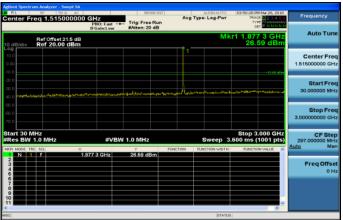
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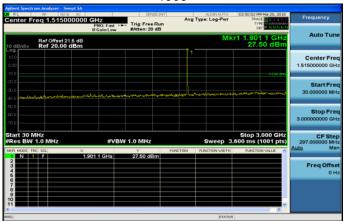
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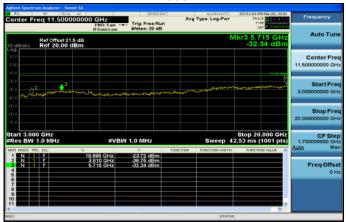
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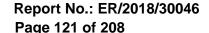


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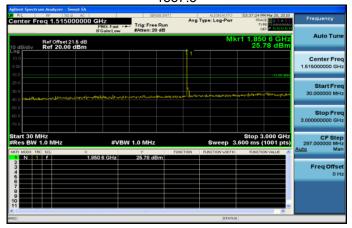
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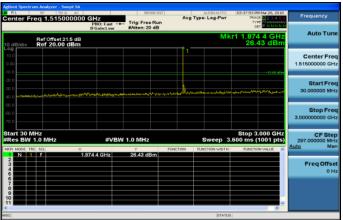
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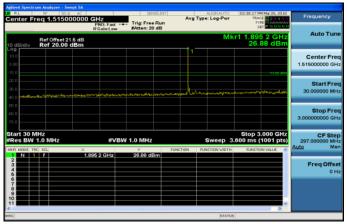
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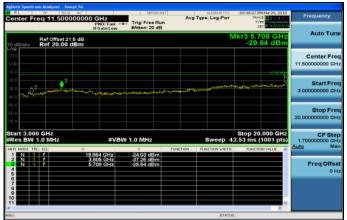
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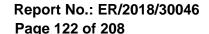


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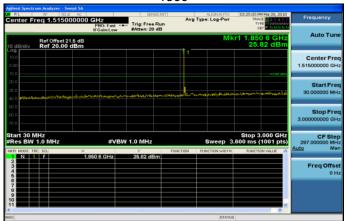
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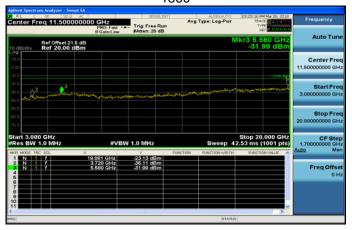




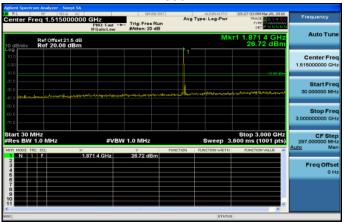
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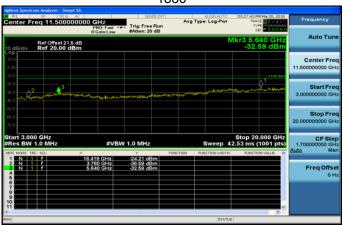
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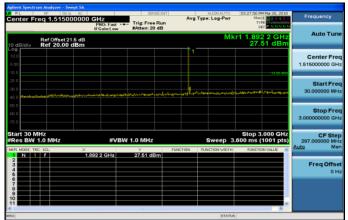
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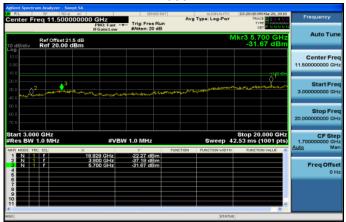
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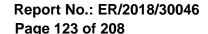


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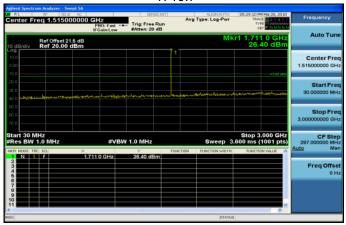


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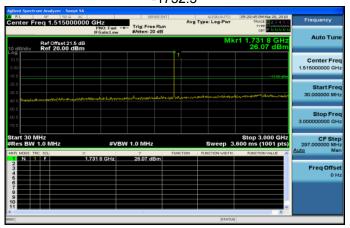




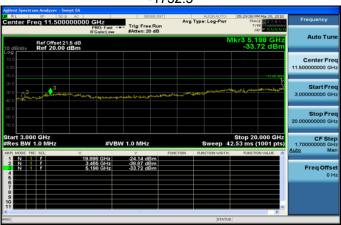
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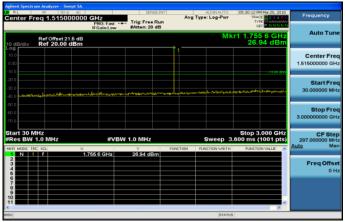


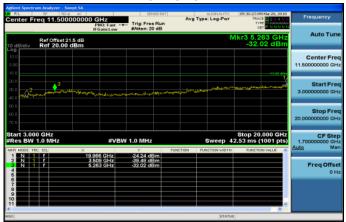
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3GHz~10GHz_Band4_1_4MHz_QPSK_1_0_MidCH20175 -1732.5

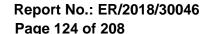






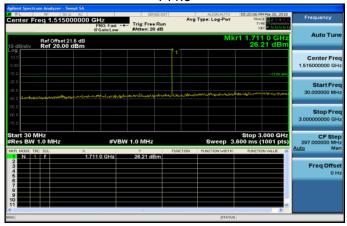
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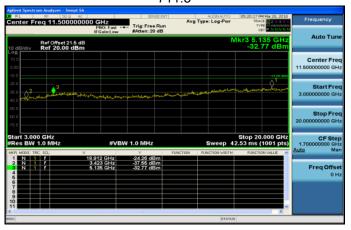




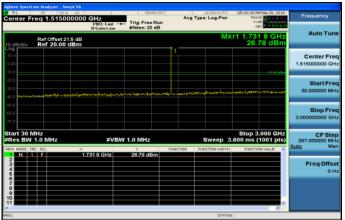
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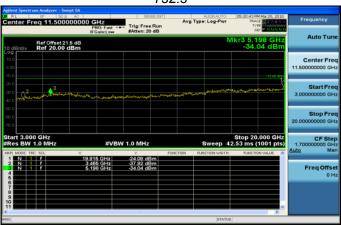
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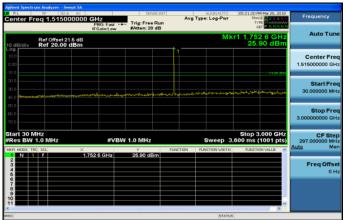
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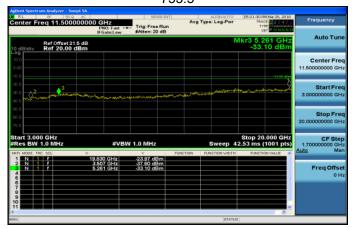
3GHz~10GHz_Band4_3MHz_QPSK_1_0_MidCH20175-1 732.5



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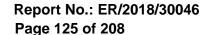


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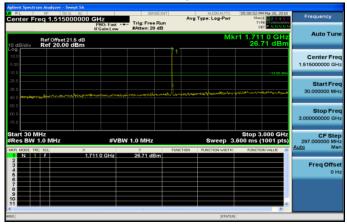
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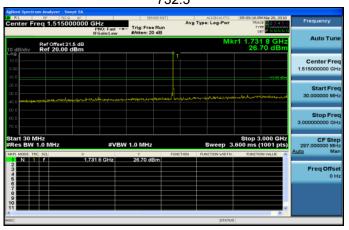
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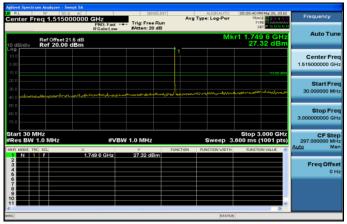
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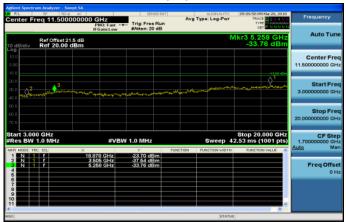
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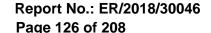


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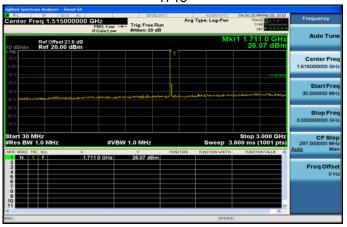
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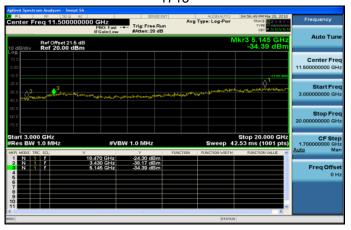




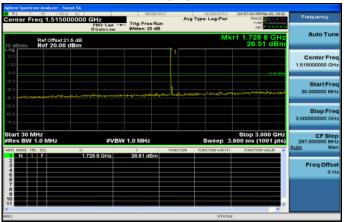
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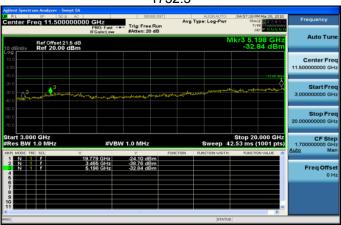
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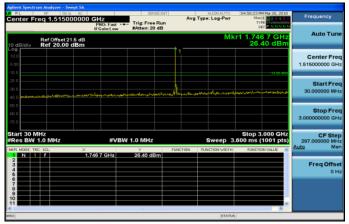
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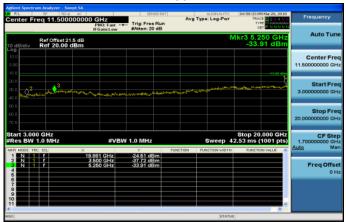
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30MHz~3GHz_Band4_10MHz_QPSK_1_0_HighCH20350-

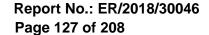


 $3 GHz \sim 10 GHz_Band4_10 MHz_QPSK_1_0_HighCH20350-10 GHz_RAM + 10 GHz$



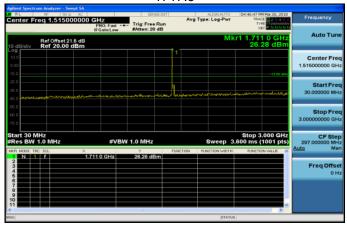
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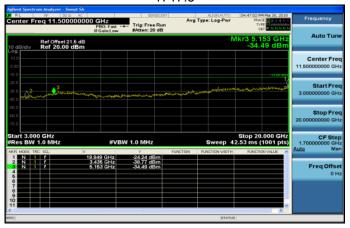




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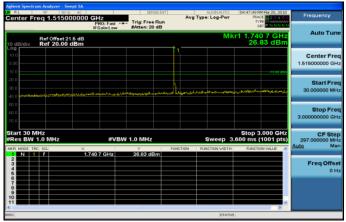
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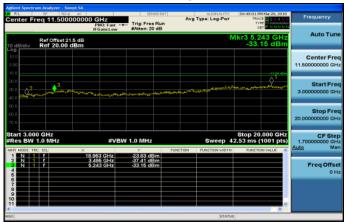
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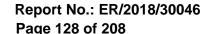


 $3 GHz \sim 10 GHz_Band4_15 MHz_QPSK_1_0_HighCH20325-10 GHz_RAM + 10 GHz$



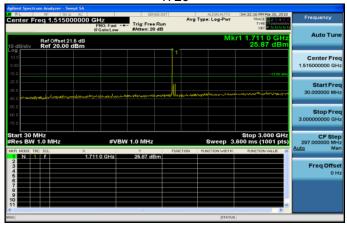
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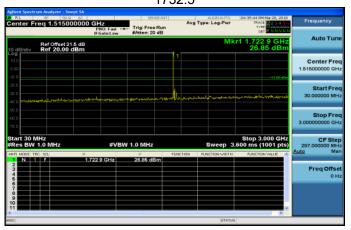
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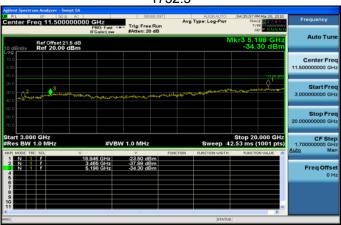
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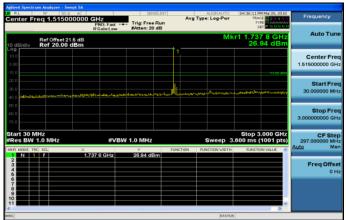
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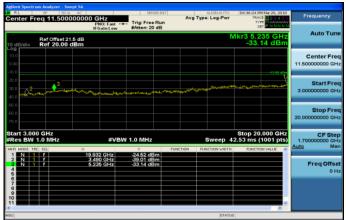
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30MHz~3GHz_Band4_20MHz_QPSK_1_0_HighCH20300-

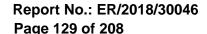


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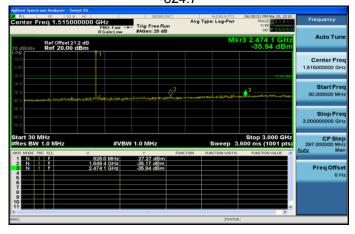


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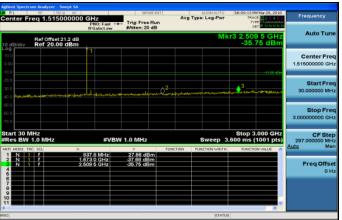




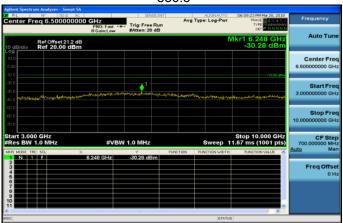




30MHz~3GHz_Band5_1_4MHz_QPSK_1_0_MidCH20525 -836.5



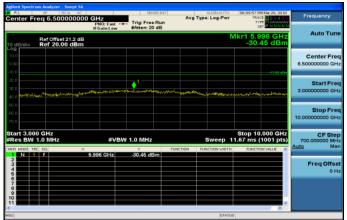
3GHz~10GHz_Band5_1_4MHz_QPSK_1_0_MidCH20525 -836.5



30MHz~3GHz_Band5_1_4MHz_QPSK_1_0_HighCH2064 3-848.3



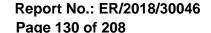
3GHz~10GHz_Band5_1_4MHz_QPSK_1_0_HighCH2064 3-848.3



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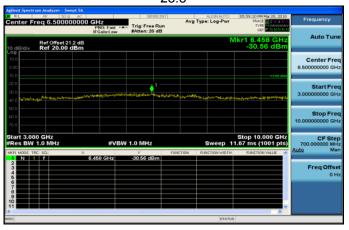




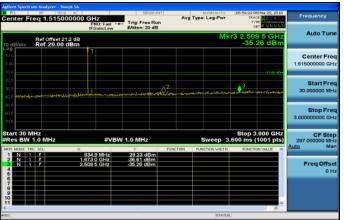
30MHz~3GHz_Band5_3MHz_QPSK_1_0_LowCH20415-8 25.5



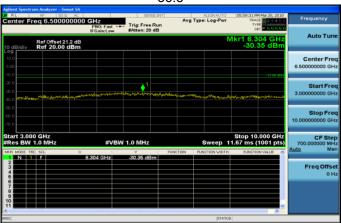
3GHz~10GHz_Band5_3MHz_QPSK_1_0_LowCH20415-8



30MHz~3GHz_Band5_3MHz_QPSK_1_0_MidCH20525-8

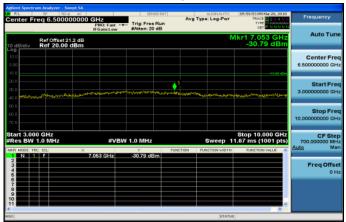


3GHz~10GHz_Band5_3MHz_QPSK_1_0_MidCH20525-8 36.5



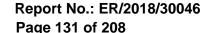
30MHz~3GHz_Band5_3MHz_QPSK_1_0_HighCH20635-8





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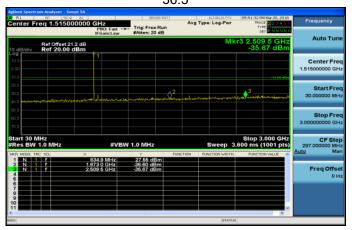
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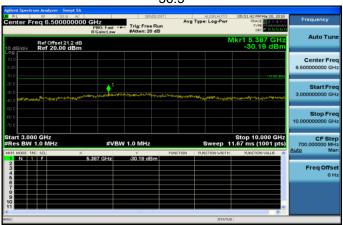
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30MHz~3GHz_Band5_5MHz_QPSK_1_0_MidCH20525-8



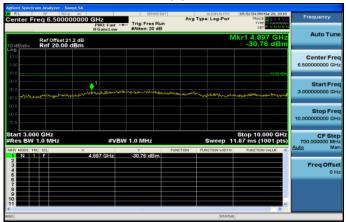
3GHz~10GHz_Band5_5MHz_QPSK_1_0_MidCH20525-8 36.5



30MHz~3GHz_Band5_5MHz_QPSK_1_0_HighCH20625-8



3GHz~10GHz_Band5_5MHz_QPSK_1_0_HighCH20625-8 46.5



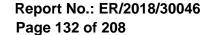
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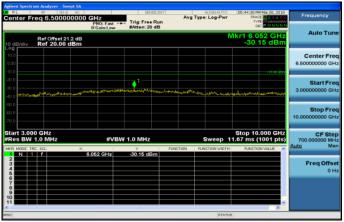




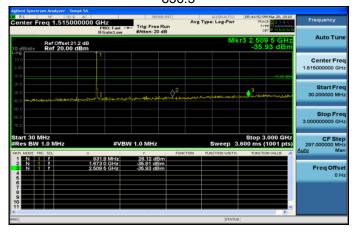
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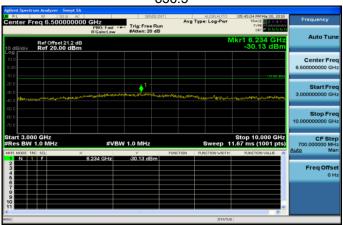
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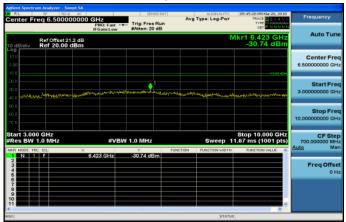
3GHz~10GHz_Band5_10MHz_QPSK_1_0_MidCH20525-836.5



30MHz~3GHz_Band5_10MHz_QPSK_1_0_HighCH20600-



3GHz~10GHz_Band5_10MHz_QPSK_1_0_HighCH20600-



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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(a)

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**

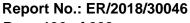
Frequency (MHz)	Attenuation (dB)
<2200	$43 + 10 \log_{10}(p)$
2200 - 2288	$70 + 10 \log_{10}(p)$
2288 - 2292	$67 + 10 \log_{10}(p)$
2292 - 2296	$61 + 10 \log_{10}(p)$
2296 - 2300	$55 + 10 \log_{10}(p)$
2300 - 2305	$43 + 10 \log_{10}(p)$
2305 - 2320	$43 + 10 \log_{10}(p)^{\text{Note}}$
2320 - 2324	$55 + 10 \log_{10}(p)$
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 1.2 for the permitted frequency ranges for various equipment types.

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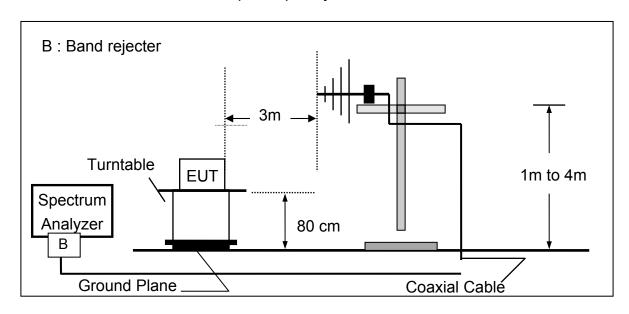




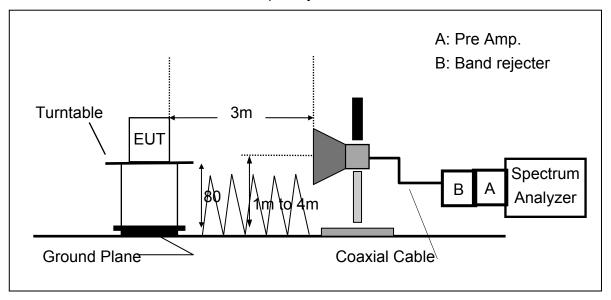
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10.2. EUT Setup

Radiated Emission Test Set-Up, Frequency Below 1000MHz



Radiated Emission Test Set-UP Frequency Over 1 GHz



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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)

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

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

"---": denotes Noise Floor.

10.4. Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Bi-log Antenna	SCHWAZBECK	VULB9168	378	2017/12/29	2018/12/28
Bi-log Antenna	SCHWAZBECK	VULB9168	300	2017/12/20	2018/12/19
Horn Antenna	Schwarzbeck	BBHA9120D	309	2018/01/04	2019/01/03
Horn Antenna	Schwarzbeck	BBHA9120D	1441	2017/08/04	2018/08/03
Spectrum Analyzer	Agilent	E4446A	MY51100003	2017/05/10	2018/05/09
EMI Test Receiver	R&S	ESCI7	100760	2017/06/06	2018/06/05
Network Analyzer	Anritsu	MS4644A	1216312	2017/05/25	2018/05/24
Radio Communication Analyer	Anritsu	MT8820C	6201465317	2018/01/15	2019/01/14
Pre-Amplifier	HP	8449B	3008A00578	2018/01/02	2019/01/01
Pre-Amplifier	HP	8447D	2944A07676	2018/01/02	2019/01/01
Attenuator	Mini-Circuit	BW-S10W2+	N/A	2018/01/02	2019/01/01
Filter 800-1000	Micro-Tronics	EWT	M1	2018/01/02	2019/01/01
1GHz High Pass Filter	Micro-Tronics	HPM50108	32	2018/01/02	2019/01/01
Low Loss Cable	Huber Suhner	966_RX	9	2018/01/02	2019/01/01
Low Loss Cable	Huber Suhner	966 TX	1	2018/01/02	2019/01/01

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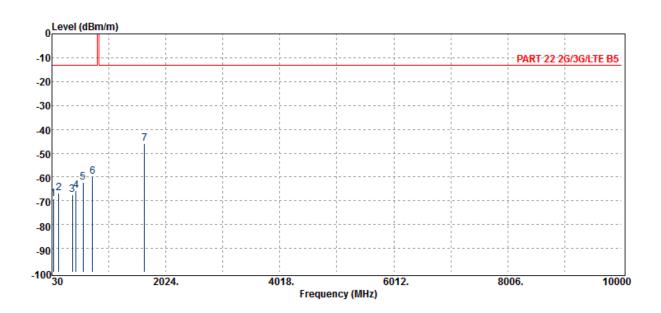
10.5. Measurement Result:

Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Band :GPRS 850 Temp./Humi. :24 deg C / 61 RH

Fundamental Frequency :824.2 MHz Engineer

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



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
54.25	S	-69.33	-58.37	-10.18	-0.78	-13.00	-56.33
151.25	S	-66.78	-63.75	-1.73	-1.29	-13.00	-53.78
385.99	S	-67.33	-69.07	3.75	-2.01	-13.00	-54.33
452.92	S	-65.81	-67.20	3.57	-2.18	-13.00	-52.81
573.20	S	-62.29	-63.47	3.77	-2.59	-13.00	-49.29
740.04	S	-60.00	-60.52	3.51	-2.99	-13.00	-47.00
1648.40	Н	-46.03	-48.65	6.97	-4.35	-13.00	-33.03

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Operation Band Fundamental Frequency **Operation Mode**

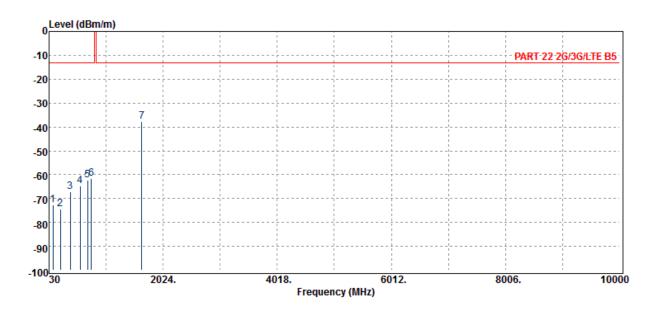
EUT Pol.

: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/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
98.87	S	-72.67	-70.47	-1.15	-1.04	-13.00	-59.67
229.82	S	-74.33	-76.02	3.31	-1.62	-13.00	-61.33
401.51	S	-67.21	-68.80	3.71	-2.13	-13.00	-54.21
575.14	S	-64.65	-65.86	3.75	-2.54	-13.00	-51.65
707.06	S	-62.19	-63.90	3.65	-1.93	-13.00	-49.19
770.11	S	-61.75	-63.18	3.46	-2.03	-13.00	-48.75
1648.40	Н	-37.83	-40.46	6.97	-4.35	-13.00	-24.83

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EUT Pol.

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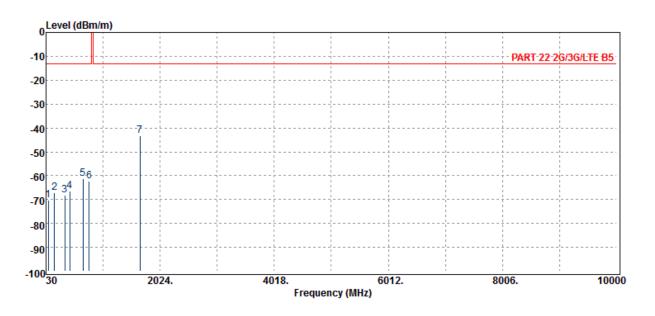
Operation Band :GPRS 850 Fundamental Frequency :836.6 MHz **Operation Mode** :Tx CH MID

:H Plane

Temp./Humi. :24 deg_C / 61 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
70.74	S	-70.26	-63.99	-5.37	-0.90	-13.00	-57.26
176.47	S	-67.04	-66.10	0.43	-1.36	-13.00	-54.04
355.92	S	-68.29	-70.08	3.84	-2.04	-13.00	-55.29
448.07	S	-66.28	-67.80	3.54	-2.02	-13.00	-53.28
673.11	S	-61.38	-62.62	3.76	-2.52	-13.00	-48.38
782.72	S	-62.19	-62.17	3.45	-3.47	-13.00	-49.19
1673.20	Н	-43.24	-45.91	7.06	-4.39	-13.00	-30.24

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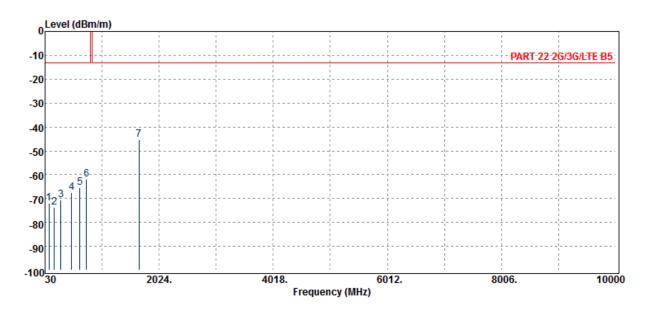
Operation Band :GPRS 850 Fundamental Frequency :836.6 MHz **Operation Mode**

:Tx CH MID

EUT Pol. :H Plane Temp./Humi. :24 deg_C / 61 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
96.93	S	-71.83	-69.77	-1.02	-1.04	-13.00	-58.83
190.05	S	-73.68	-74.80	2.55	-1.43	-13.00	-60.68
309.36	S	-70.61	-72.42	3.66	-1.85	-13.00	-57.61
498.51	S	-67.55	-69.43	4.04	-2.16	-13.00	-54.55
642.07	S	-65.37	-66.71	3.79	-2.45	-13.00	-52.37
753.62	S	-61.96	-63.12	3.47	-2.31	-13.00	-48.96
1673.20	Н	-45.30	-47.96	7.06	-4.39	-13.00	-32.30

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Operation Band Fundamental Frequency **Operation Mode**

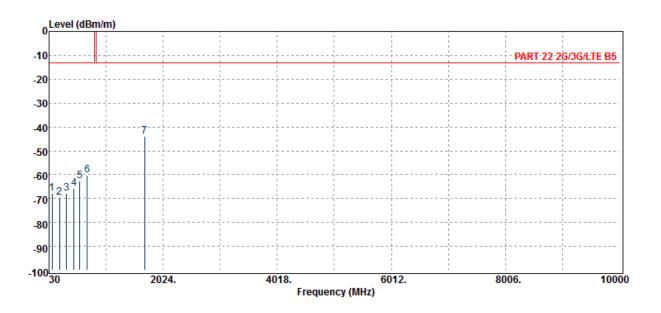
EUT Pol.

: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/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
85.29	S	-67.98	-65.62	-1.37	-0.99	-13.00	-54.98
214.30	S	-69.64	-71.64	3.55	-1.55	-13.00	-56.64
339.43	S	-67.66	-69.50	3.81	-1.97	-13.00	-54.66
464.56	S	-65.57	-66.69	3.69	-2.57	-13.00	-52.57
568.35	S	-62.67	-63.74	3.81	-2.74	-13.00	-49.67
694.45	S	-60.14	-61.23	3.69	-2.61	-13.00	-47.14
1697.60	Н	-43.83	-46.53	7.14	-4.43	-13.00	-30.83

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Operation Band Fundamental Frequency **Operation Mode**

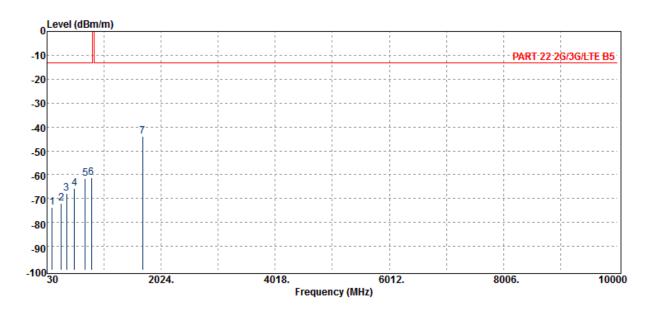
EUT Pol.

: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/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
121.18	S	-73.58	-70.56	-1.86	-1.16	-13.00	-60.58
275.41	S	-71.84	-73.56	3.45	-1.73	-13.00	-58.84
375.32	S	-67.67	-69.41	3.78	-2.04	-13.00	-54.67
507.24	S	-65.58	-67.27	4.04	-2.35	-13.00	-52.58
695.42	S	-61.71	-62.87	3.69	-2.53	-13.00	-48.71
803.09	S	-61.15	-62.44	3.44	-2.15	-13.00	-48.15
1697.60	Н	-43.98	-46.69	7.14	-4.43	-13.00	-30.98

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Operation Mode

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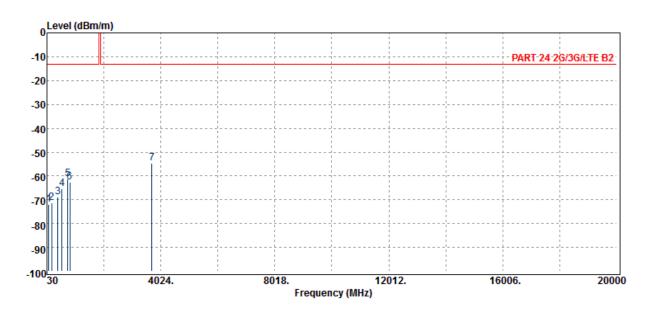
Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

:Tx CH LOW

Operation Band :GPRS 1900 Temp./Humi. :22 deg_C / 61 RH

Fundamental Frequency :1850.2 MHz Engineer :Tin

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



Freq.	Note	ERP/EIRP	SG	Antenna	Cable	Limit	Margin
-			Output Level	Gain	Loss		_
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
101.78	S	-71.84	-71.55	0.76	-1.05	-13.00	-58.84
195.87	S	-71.34	-74.91	5.02	-1.46	-13.00	-58.34
408.30	S	-68.72	-72.42	5.83	-2.14	-13.00	-55.72
558.65	S	-65.44	-68.99	6.05	-2.50	-13.00	-52.44
755.56	S	-61.40	-64.86	5.62	-2.16	-13.00	-48.40
834.13	S	-62.59	-64.91	5.60	-3.28	-13.00	-49.59
3700.40	Н	-54.72	-60.58	12.44	-6.58	-13.00	-41.72

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Operation Band Fundamental Frequency **Operation Mode**

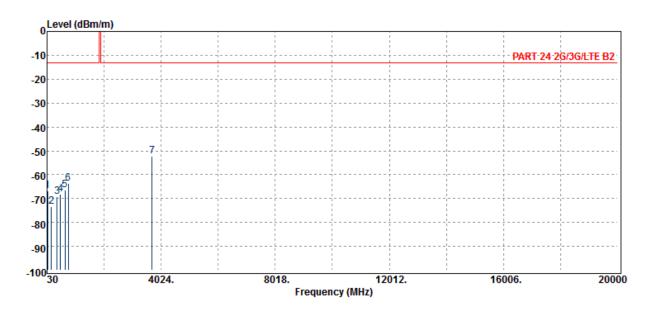
EUT Pol.

:GPRS 1900 :1850.2 MHz :Tx CH LOW :H Plane

Temp./Humi. :22 deg_C / 61 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
45.52	S	-66.65	-56.12	-9.82	-0.70	-13.00	-53.65
183.26	S	-73.41	-75.67	3.65	-1.39	-13.00	-60.41
378.23	S	-69.29	-73.19	5.92	-2.03	-13.00	-56.29
495.60	S	-68.32	-72.39	6.16	-2.09	-13.00	-55.32
665.35	S	-66.49	-70.45	5.93	-1.97	-13.00	-53.49
779.81	S	-63.64	-66.10	5.60	-3.14	-13.00	-50.64
3700.40	Н	-52.29	-57.95	12.57	-6.91	-13.00	-39.29

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Operation Band Fundamental Frequency

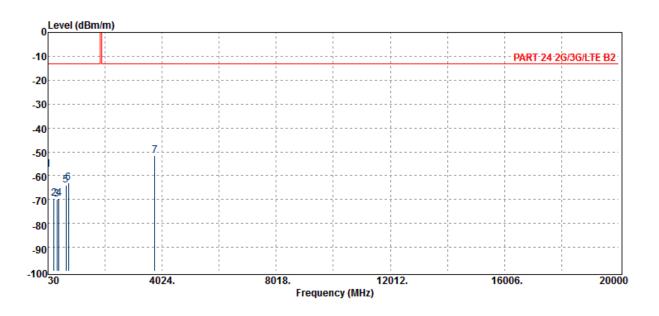
Operation Mode EUT Pol.

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

Temp./Humi. :22 deg_C / 61 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		_
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
33.88	S	-57.61	-45.54	-11.46	-0.61	-13.00	-44.61
245.34	S	-69.53	-73.50	5.66	-1.69	-13.00	-56.53
338.46	S	-69.91	-73.89	5.95	-1.97	-13.00	-56.91
412.18	S	-69.58	-73.27	5.82	-2.13	-13.00	-56.58
662.44	S	-64.09	-68.03	5.94	-2.00	-13.00	-51.09
750.71	S	-62.86	-65.95	5.62	-2.53	-13.00	-49.86
3760.00	Н	-51.42	-57.15	12.61	-6.89	-13.00	-38.42

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Operation Band Fundamental Frequency

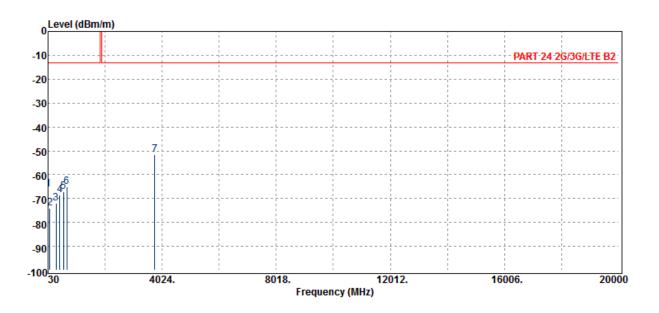
Operation Mode EUT Pol.

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

Temp./Humi. :22 deg_C / 61 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
41.64	S	-66.00	-55.01	-10.32	-0.67	-13.00	-53.00
98.87	S	-74.21	-74.17	1.00	-1.04	-13.00	-61.21
315.18	S	-72.00	-75.98	5.84	-1.86	-13.00	-59.00
446.13	S	-68.49	-72.25	5.70	-1.95	-13.00	-55.49
571.26	S	-67.06	-70.35	5.94	-2.65	-13.00	-54.06
693.48	S	-65.08	-68.24	5.84	-2.68	-13.00	-52.08
3760.00	Н	-51.58	-57.31	12.61	-6.89	-13.00	-38.58

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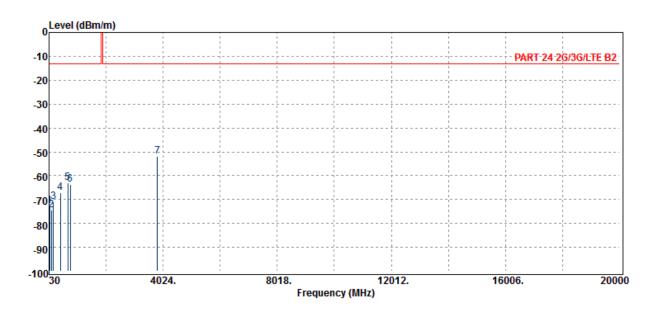
Operation Band :GPRS 1900 Fundamental Frequency :1909.8 MHz

Operation Mode :Tx CH HIGH EUT Pol. :H Plane

Temp./Humi. :22 deg_C / 61 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		•
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
45.52	S	-72.76	-62.24	-9.82	-0.70	-13.00	-59.76
115.36	S	-74.47	-73.53	0.19	-1.13	-13.00	-61.47
182.29	S	-70.79	-72.89	3.50	-1.39	-13.00	-57.79
420.91	S	-67.13	-70.81	5.79	-2.11	-13.00	-54.13
684.75	S	-63.12	-65.67	5.87	-3.32	-13.00	-50.12
780.78	S	-63.82	-66.17	5.60	-3.25	-13.00	-50.82
3819.60	Н	-51.91	-57.55	12.66	-7.02	-13.00	-38.91

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Operation Band Fundamental Frequency **Operation Mode**

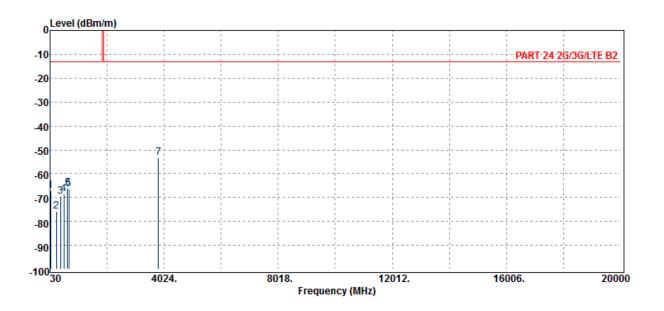
EUT Pol.

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

Temp./Humi. :22 deg_C / 61 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
51.34	S	-67.13	-57.62	-8.75	-0.75	-13.00	-54.13
260.86	S	-75.62	-79.72	5.81	-1.70	-13.00	-62.62
391.81	S	-69.45	-73.28	5.89	-2.06	-13.00	-56.45
510.15	S	-68.46	-72.25	6.19	-2.39	-13.00	-55.46
640.13	S	-65.98	-69.42	5.93	-2.49	-13.00	-52.98
684.75	S	-66.37	-68.91	5.87	-3.32	-13.00	-53.37
3819.60	Н	-53.30	-58.94	12.66	-7.02	-13.00	-40.30

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Operation Mode

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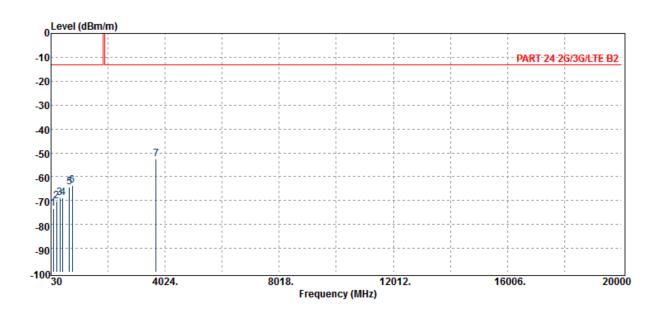
Radiated Spurious Emission Measurement Result: HSDPA Band 2 Mode

Operation Band :HSDPA B2 Temp./Humi. :22 deg_C / 61 RH

Fundamental Frequency Engineer :1852.4 MHz

:Tx CH LOW

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



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
104.69	S	-73.33	-72.77	0.50	-1.07	-13.00	-60.33
218.18	S	-70.13	-74.10	5.54	-1.57	-13.00	-57.13
335.55	S	-69.02	-73.01	5.94	-1.95	-13.00	-56.02
438.37	S	-68.98	-72.74	5.73	-1.97	-13.00	-55.98
675.05	S	-64.39	-67.64	5.90	-2.65	-13.00	-51.39
777.87	S	-63.78	-66.46	5.60	-2.92	-13.00	-50.78
3704.80	Н	-52.76	-58.42	12.57	-6.90	-13.00	-39.76

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Operation Band Fundamental Frequency **Operation Mode**

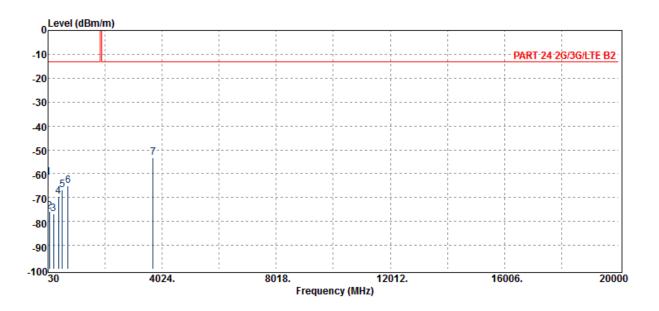
EUT Pol.

:HSDPA B2 :1852.4 MHz :Tx CH LOW :H Plane

Temp./Humi. :22 deg_C / 61 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
34.85	S	-61.50	-49.65	-11.23	-0.62	-13.00	-48.50
75.59	S	-75.68	-73.14	-1.60	-0.93	-13.00	-62.68
220.12	S	-76.80	-80.70	5.47	-1.58	-13.00	-63.80
392.78	S	-69.62	-73.44	5.88	-2.06	-13.00	-56.62
529.55	S	-66.90	-70.67	6.16	-2.39	-13.00	-53.90
724.52	S	-64.95	-67.66	5.73	-3.01	-13.00	-51.95
3704.80	Н	-53.15	-58.82	12.57	-6.90	-13.00	-40.15

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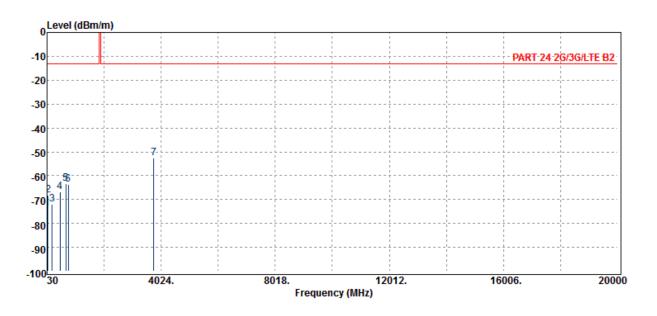


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Operation Band :HSDPA B2 Temp./Humi. :22 deg_C / 61 RH

Fundamental Frequency :1880 MHz Engineer :Tin **Operation Mode** :Tx CH MID

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



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
44.55	S	-73.58	-62.92	-9.97	-0.69	-13.00	-60.58
64.92	S	-68.06	-62.14	-5.06	-0.86	-13.00	-55.06
216.24	S	-71.84	-75.90	5.62	-1.56	-13.00	-58.84
485.90	S	-66.89	-71.11	6.06	-1.84	-13.00	-53.89
693.48	S	-63.38	-66.54	5.84	-2.68	-13.00	-50.38
776.90	S	-63.63	-66.42	5.60	-2.81	-13.00	-50.63
3760.00	Н	-52.47	-58.20	12.61	-6.89	-13.00	-39.47

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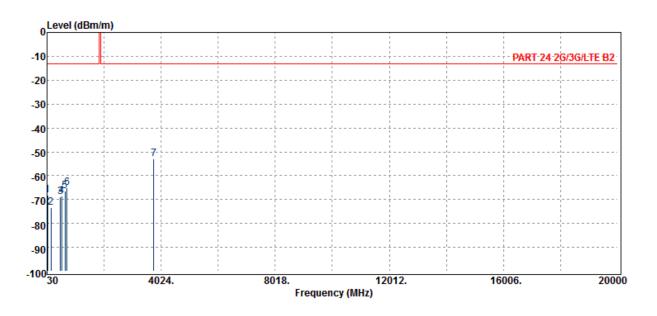


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Operation Band :HSDPA B2 Temp./Humi. :22 deg_C / 61 RH

Fundamental Frequency :1880 MHz Engineer :Tin **Operation Mode** :Tx CH MID

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



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
53.28	S	-68.01	-58.97	-8.27	-0.77	-13.00	-55.01
172.59	S	-73.45	-74.06	1.95	-1.34	-13.00	-60.45
493.66	S	-69.01	-73.11	6.14	-2.04	-13.00	-56.01
541.19	S	-68.57	-72.80	6.14	-1.91	-13.00	-55.57
658.56	S	-66.27	-70.14	5.95	-2.08	-13.00	-53.27
732.28	S	-64.98	-67.66	5.69	-3.02	-13.00	-51.98
3760.00	Н	-52.84	-58.57	12.61	-6.89	-13.00	-39.84

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Operation Band Fundamental Frequency **Operation Mode**

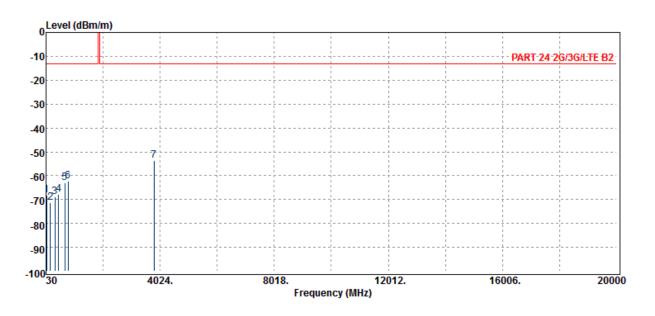
EUT Pol.

:HSDPA B2 :1907.6 MHz :Tx CH HIGH :H Plane

Temp./Humi. :22 deg_C / 61 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
52.31	S	-68.18	-58.91	-8.51	-0.76	-13.00	-55.18
184.23	S	-71.29	-73.70	3.80	-1.40	-13.00	-58.29
346.22	S	-68.75	-72.72	5.99	-2.01	-13.00	-55.75
463.59	S	-67.81	-71.10	5.83	-2.54	-13.00	-54.81
693.48	S	-63.13	-66.29	5.84	-2.68	-13.00	-50.13
800.18	S	-62.42	-65.61	5.59	-2.40	-13.00	-49.42
3815.20	Н	-53.61	-59.26	12.66	-7.00	-13.00	-40.61

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Operation Band Fundamental Frequency **Operation Mode**

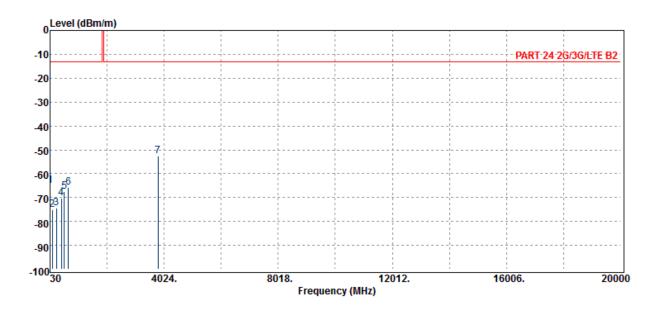
EUT Pol.

:HSDPA B2 :1907.6 MHz :Tx CH HIGH :H Plane

Temp./Humi. :22 deg_C / 61 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
37.76	S	-65.21	-53.75	-10.82	-0.64	-13.00	-52.21
104.69	S	-75.06	-74.50	0.50	-1.07	-13.00	-62.06
259.89	S	-74.37	-78.49	5.82	-1.70	-13.00	-61.37
420.91	S	-70.13	-73.81	5.79	-2.11	-13.00	-57.13
530.52	S	-67.45	-71.26	6.16	-2.35	-13.00	-54.45
667.29	S	-65.87	-69.69	5.93	-2.11	-13.00	-52.87
3815.20	Н	-52.56	-58.22	12.66	-7.00	-13.00	-39.56

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Operation Mode

Report No.: ER/2018/30046

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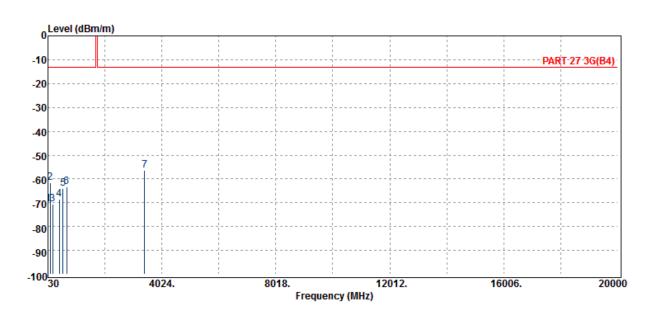
Radiated Spurious Emission Measurement Result: HSDPA Band 4 Mode

:Tx CH LOW

Operation Band Temp./Humi. :HSDPA B4 :22 deg_C / 62 RH

Fundamental Frequency :1712.4 MHz Engineer :Tin

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



Freq.	Note	ERP/EIRP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		_
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
40.67	S	-70.63	-59.52	-10.45	-0.66	-13.00	-57.63
102.75	S	-61.70	-61.32	0.68	-1.06	-13.00	-48.70
193.93	S	-70.75	-74.22	4.92	-1.45	-13.00	-57.75
424.79	S	-68.42	-72.10	5.77	-2.09	-13.00	-55.42
552.83	S	-64.07	-67.99	6.10	-2.18	-13.00	-51.07
682.81	S	-63.41	-66.10	5.88	-3.19	-13.00	-50.41
3424.80	Н	-56.34	-62.03	12.23	-6.54	-13.00	-43.34

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Operation Band Fundamental Frequency **Operation Mode**

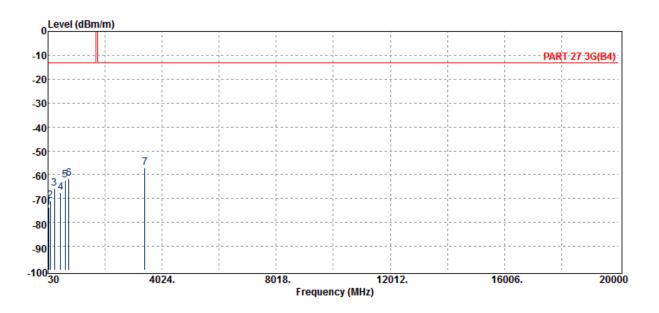
EUT Pol.

:HSDPA B4 :1712.4 MHz :Tx CH LOW :H Plane

Temp./Humi. :22 deg_C / 62 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
45.52	S	-73.72	-63.19	-9.82	-0.70	-13.00	-60.72
114.39	S	-70.83	-69.87	0.17	-1.12	-13.00	-57.83
256.98	S	-65.73	-69.81	5.78	-1.70	-13.00	-52.73
464.56	S	-67.49	-70.76	5.84	-2.57	-13.00	-54.49
635.28	S	-62.15	-65.46	5.90	-2.59	-13.00	-49.15
762.35	S	-61.63	-65.60	5.61	-1.64	-13.00	-48.63
3424.80	Н	-56.99	-62.68	12.23	-6.54	-13.00	-43.99

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Operation Band Fundamental Frequency

Operation Mode EUT Pol.

:HSDPA B4 :1732.6 MHz :Tx CH MID

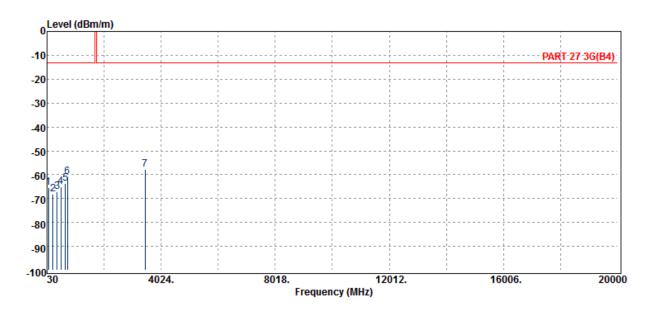
:H Plane

Temp./Humi.

:22 deg_C / 62 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
84.32	S	-65.54	-65.16	0.60	-0.98	-13.00	-52.54
237.58	S	-68.18	-72.11	5.59	-1.66	-13.00	-55.18
377.26	S	-67.15	-71.05	5.93	-2.03	-13.00	-54.15
515.97	S	-65.12	-68.84	6.18	-2.46	-13.00	-52.12
667.29	S	-63.63	-67.45	5.93	-2.11	-13.00	-50.63
741.98	S	-60.94	-63.62	5.66	-2.98	-13.00	-47.94
3465.20	Н	-57.87	-63.64	12.32	-6.56	-13.00	-44.87

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Operation Band Fundamental Frequency

Operation Mode EUT Pol.

:HSDPA B4 :1732.6 MHz :Tx CH MID

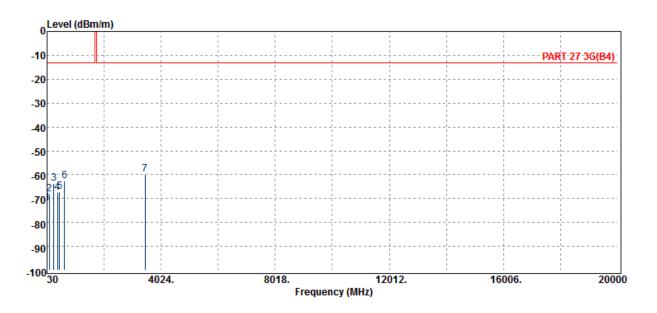
:H Plane

Temp./Humi.

:22 deg_C / 62 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
33.88	S	-71.92	-59.86	-11.46	-0.61	-13.00	-58.92
112.45	S	-68.12	-67.13	0.12	-1.11	-13.00	-55.12
268.62	S	-63.69	-67.65	5.67	-1.72	-13.00	-50.69
400.54	S	-67.32	-71.07	5.86	-2.12	-13.00	-54.32
467.47	S	-66.98	-70.37	5.87	-2.49	-13.00	-53.98
642.07	S	-62.50	-65.99	5.94	-2.45	-13.00	-49.50
3465.20	Н	-59.95	-65.71	12.32	-6.56	-13.00	-46.95

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Operation Band Fundamental Frequency **Operation Mode**

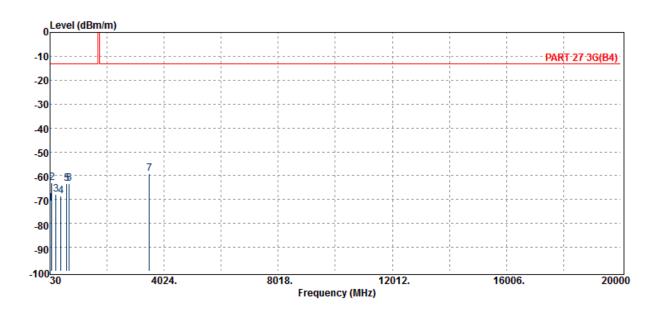
EUT Pol.

:HSDPA B4 :1752.6 MHz :Tx CH HIGH :H Plane

Temp./Humi. :22 deg_C / 62 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		_
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
							_
38.73	S	-71.73	-60.39	-10.69	-0.65	-13.00	-58.73
101.78	S	-63.03	-62.74	0.76	-1.05	-13.00	-50.03
237.58	S	-67.74	-71.67	5.59	-1.66	-13.00	-54.74
410.24	S	-68.38	-72.07	5.83	-2.13	-13.00	-55.38
612.00	S	-63.40	-66.78	5.76	-2.38	-13.00	-50.40
709.00	S	-63.24	-66.98	5.79	-2.05	-13.00	-50.24
3505.20	Н	-59.33	-65.07	12.40	-6.66	-13.00	-46.33

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Operation Band Fundamental Frequency **Operation Mode**

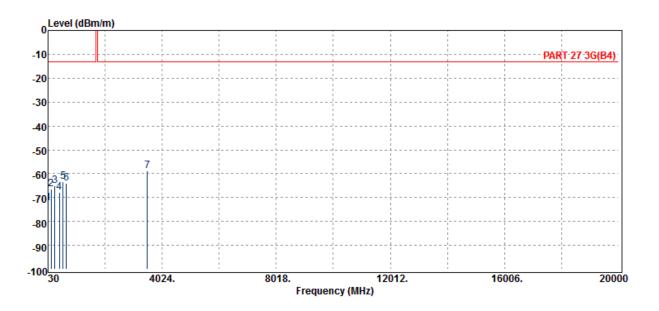
EUT Pol.

:HSDPA B4 :1752.6 MHz :Tx CH HIGH :H Plane

Temp./Humi. :22 deg_C / 62 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
33.88	S	-72.23	-60.17	-11.46	-0.61	-13.00	-59.23
142.52	S	-66.50	-65.20	-0.03	-1.27	-13.00	-53.50
266.68	S	-64.93	-68.92	5.71	-1.71	-13.00	-51.93
433.52	S	-67.86	-71.59	5.74	-2.01	-13.00	-54.86
554.77	S	-63.29	-67.09	6.09	-2.29	-13.00	-50.29
671.17	S	-63.88	-67.41	5.91	-2.38	-13.00	-50.88
3505.20	Н	-58.73	-64.47	12.40	-6.66	-13.00	-45.73

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Operation Mode

Report No.: ER/2018/30046

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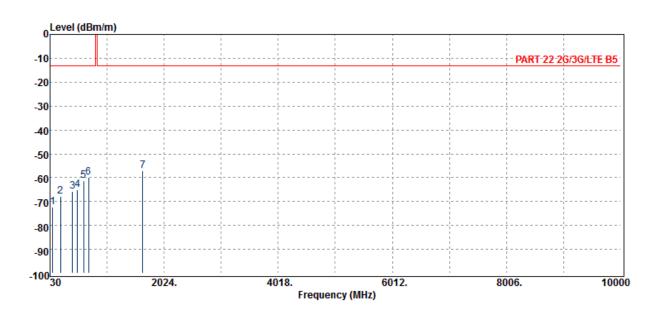
Radiated Spurious Emission Measurement Result: HSUPA Band 5 Mode

:Tx CH LOW

Operation Band :HSUPA B5 Temp./Humi. :24 deg_C / 61 RH

Fundamental Frequency Engineer :826.4 MHz

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



Freq.	Note	ERP/EIRP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
							_
75.59	S	-72.49	-67.81	-3.75	-0.93	-13.00	-59.49
216.24	S	-67.67	-69.58	3.47	-1.56	-13.00	-54.67
419.94	S	-65.85	-67.39	3.64	-2.11	-13.00	-52.85
508.21	S	-64.92	-66.59	4.04	-2.36	-13.00	-51.92
620.73	S	-61.31	-62.30	3.66	-2.67	-13.00	-48.31
702.21	S	-59.89	-61.55	3.67	-2.01	-13.00	-46.89
1652.80	Н	-57.07	-59.70	6.99	-4.36	-13.00	-44.07

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Operation Band Fundamental Frequency **Operation Mode**

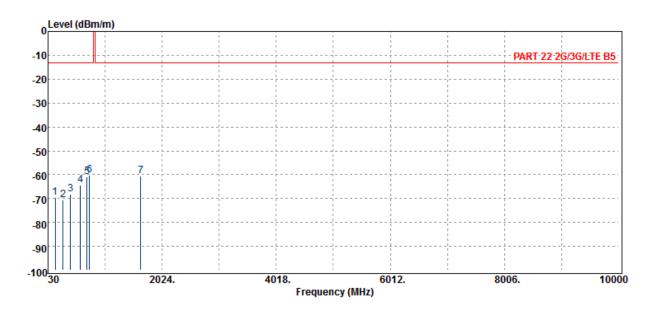
EUT Pol.

:HSUPA 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/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
155.13	S	-69.66	-66.85	-1.51	-1.30	-13.00	-56.66
293.84	S	-70.45	-72.15	3.50	-1.80	-13.00	-57.45
421.88	S	-68.13	-69.67	3.63	-2.10	-13.00	-55.13
593.57	S	-64.38	-65.77	3.59	-2.20	-13.00	-51.38
710.94	S	-60.79	-62.25	3.63	-2.17	-13.00	-47.79
752.65	S	-60.27	-61.37	3.47	-2.38	-13.00	-47.27
1652.80	Н	-60.51	-63.14	6.99	-4.36	-13.00	-47.51

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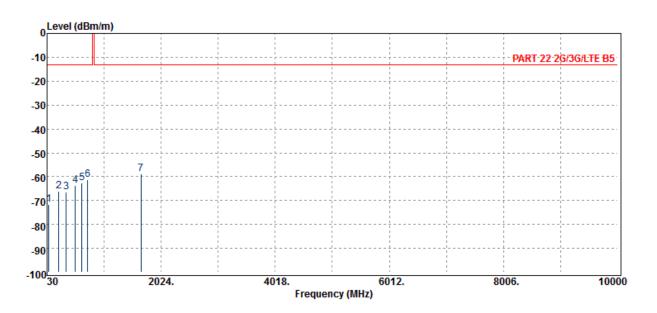


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Operation Band :HSUPA B5 Temp./Humi. :24 deg_C / 61 RH

Fundamental Frequency :836.6 MHz Engineer :Tin **Operation Mode** :Tx CH MID

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



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
59.10	S	-71.65	-61.77	-9.06	-0.82	-13.00	-58.65
238.55	S	-66.00	-67.79	3.45	-1.66	-13.00	-53.00
362.71	S	-66.44	-68.19	3.82	-2.07	-13.00	-53.44
525.67	S	-63.66	-65.13	4.01	-2.55	-13.00	-50.66
641.10	S	-62.73	-64.05	3.78	-2.47	-13.00	-49.73
738.10	S	-61.24	-61.77	3.52	-2.99	-13.00	-48.24
1673.20	Н	-58.74	-61.41	7.06	-4.39	-13.00	-45.74

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EUT Pol.

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Operation Band :HSUPA B5 Fundamental Frequency :836.6 MHz **Operation Mode**

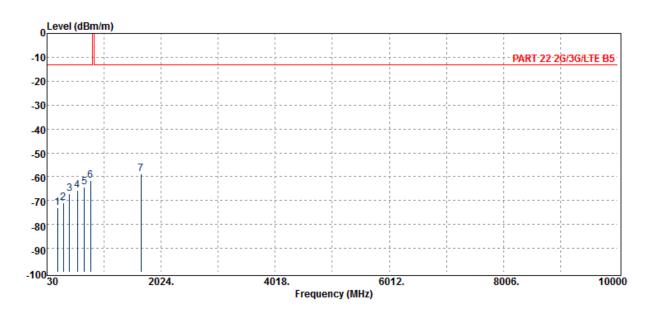
:Tx CH MID

:H Plane

Temp./Humi. :24 deg_C / 61 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		_
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
211.39	S	-72.99	-75.12	3.66	-1.53	-13.00	-59.99
317.12	S	-70.80	-72.64	3.70	-1.87	-13.00	-57.80
424.79	S	-67.03	-68.56	3.62	-2.09	-13.00	-54.03
557.68	S	-65.74	-67.20	3.91	-2.45	-13.00	-52.74
680.87	S	-64.28	-64.95	3.73	-3.06	-13.00	-51.28
791.45	S	-61.44	-61.72	3.44	-3.16	-13.00	-48.44
1673.20	Н	-58.71	-61.37	7.06	-4.39	-13.00	-45.71

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Operation Band Fundamental Frequency

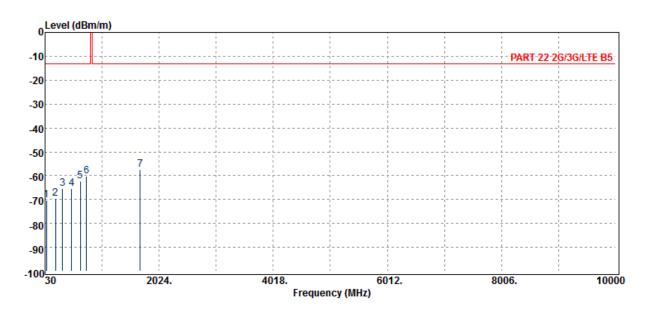
Operation Mode EUT Pol.

:HSUPA 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/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
56.19	S	-70.18	-59.66	-9.72	-0.79	-13.00	-57.18
213.33	S	-69.54	-71.58	3.58	-1.54	-13.00	-56.54
337.49	S	-65.42	-67.26	3.80	-1.96	-13.00	-52.42
491.72	S	-65.42	-67.40	3.97	-1.99	-13.00	-52.42
645.95	S	-62.34	-63.78	3.81	-2.36	-13.00	-49.34
753.62	S	-60.27	-61.44	3.47	-2.31	-13.00	-47.27
1693.20	Н	-57.53	-60.22	7.12	-4.43	-13.00	-44.53

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Operation Band Fundamental Frequency **Operation Mode**

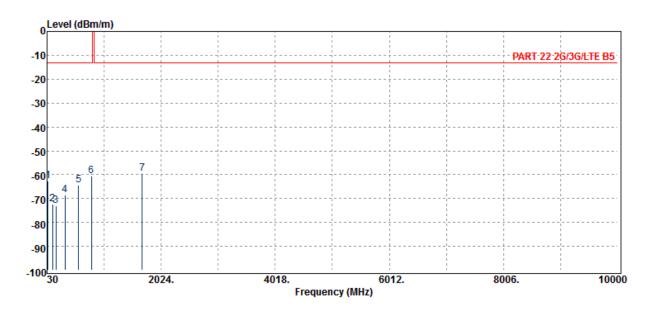
EUT Pol.

:HSUPA 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/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
44.55	S	-62.68	-49.88	-12.12	-0.69	-13.00	-49.68
128.94	S	-72.25	-69.11	-1.94	-1.20	-13.00	-59.25
186.17	S	-72.93	-73.48	1.96	-1.41	-13.00	-59.93
345.25	S	-68.36	-70.19	3.83	-2.01	-13.00	-55.36
581.93	S	-64.32	-65.68	3.69	-2.33	-13.00	-51.32
803.09	S	-60.57	-61.86	3.44	-2.15	-13.00	-47.57
1693.20	Н	-59.60	-62.29	7.12	-4.43	-13.00	-46.60

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Operation Mode

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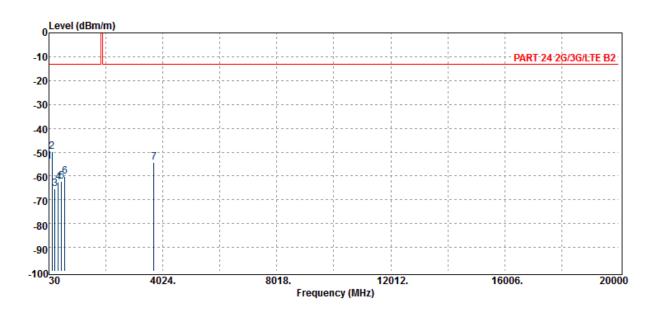
Radiated Spurious Emission Measurement Result: LTE-Band 2 (The Worst Case)

Operation Band Temp./Humi. :LTE B2 :24.1 deg_C / 65 RH

Fundamental Frequency :1852.5 MHz Engineer :Tin

:Tx CH LOW

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



Freq.	Note	ERP/EIRP	SG	Antenna	Cable	Limit	Margin
-			Output Level	Gain	Loss		_
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
40.67	S	-53.96	-40.70	-12.60	-0.66	-13.00	-40.96
134.76	S	-49.98	-46.63	-2.12	-1.23	-13.00	-36.98
236.61	S	-65.57	-67.34	3.42	-1.65	-13.00	-52.57
359.80	S	-62.63	-64.40	3.83	-2.06	-13.00	-49.63
465.53	S	-62.32	-63.46	3.70	-2.57	-13.00	-49.32
592.60	S	-60.04	-61.44	3.60	-2.20	-13.00	-47.04
3705.00	Н	-54.25	-59.91	12.57	-6.90	-13.00	-41.25

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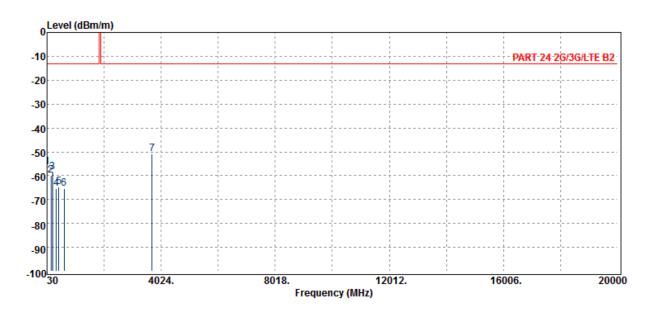
Operation Band :LTE B2 Fundamental Frequency

:1852.5 MHz **Operation Mode** :Tx CH LOW EUT Pol. :H Plane

Temp./Humi. :24.1 deg_C / 65 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
33.88	S	-56.36	-42.14	-13.61	-0.61	-13.00	-43.36
163.86	S	-59.86	-57.56	-1.00	-1.31	-13.00	-46.86
224.00	S	-58.40	-60.12	3.32	-1.60	-13.00	-45.40
350.10	S	-65.55	-67.38	3.85	-2.02	-13.00	-52.55
444.19	S	-64.80	-66.44	3.56	-1.92	-13.00	-51.80
629.46	S	-65.39	-66.39	3.71	-2.71	-13.00	-52.39
3705.00	Н	-50.95	-56.62	12.57	-6.90	-13.00	-37.95

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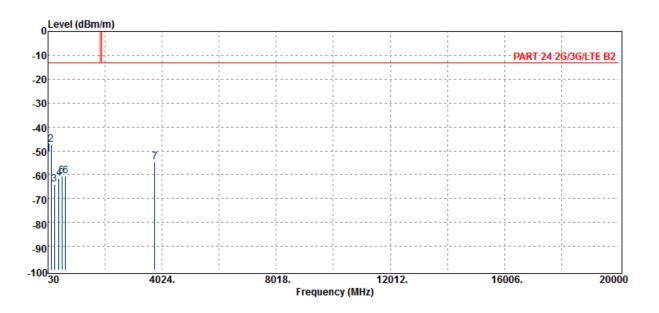
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Operation Band :LTE B2 Fundamental Frequency :1880 MHz **Operation Mode** :Tx CH MID

EUT Pol. :H Plane Temp./Humi. :24.1 deg_C / 65 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
40.67	S	-51.16	-37.90	-12.60	-0.66	-13.00	-38.16
145.43	S	-47.55	-44.23	-2.03	-1.29	-13.00	-34.55
252.13	S	-64.14	-66.00	3.56	-1.70	-13.00	-51.14
413.15	S	-61.63	-63.17	3.67	-2.13	-13.00	-48.63
517.91	S	-60.49	-62.03	4.03	-2.49	-13.00	-47.49
641.10	S	-60.52	-61.84	3.78	-2.47	-13.00	-47.52
3760.00	Н	-54.59	-60.32	12.61	-6.89	-13.00	-41.59

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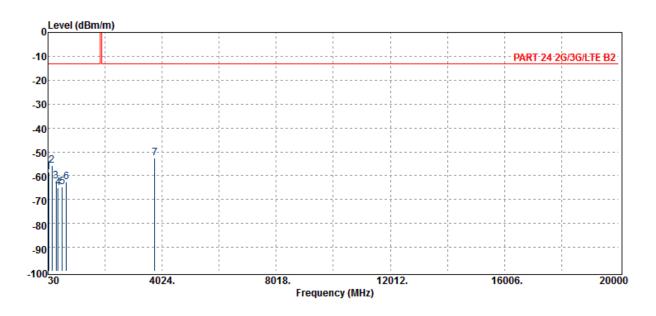


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Operation Band :LTE B2 Temp./Humi. :24.1 deg_C / 65 RH :Tin

Fundamental Frequency :1880 MHz Engineer **Operation Mode** :Tx CH MID

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



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
44.55	S	-58.48	-45.67	-12.12	-0.69	-13.00	-45.48
166.77	S	-55.83	-53.70	-0.82	-1.32	-13.00	-42.83
317.12	S	-62.44	-64.28	3.70	-1.87	-13.00	-49.44
385.99	S	-64.91	-66.65	3.75	-2.01	-13.00	-51.91
523.73	S	-64.64	-66.09	4.02	-2.56	-13.00	-51.64
676.99	S	-62.64	-63.60	3.75	-2.79	-13.00	-49.64
3760.00	Н	-52.50	-58.23	12.61	-6.89	-13.00	-39.50

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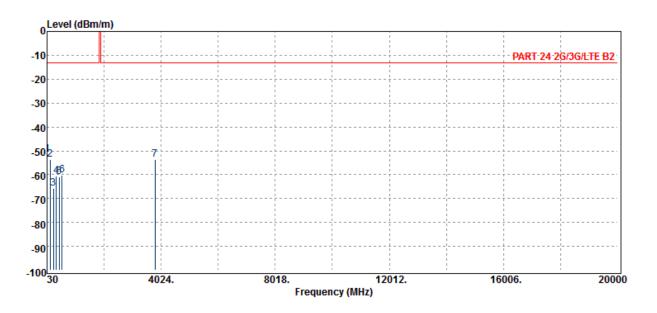


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Operation Band :LTE B2 Temp./Humi. :24.1 deg_C / 65 RH

Fundamental Frequency :1907.5 MHz Engineer :Tin **Operation Mode** :Tx CH HIGH

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



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
39.70	S	-51.60	-38.22	-12.72	-0.66	-13.00	-38.60
143.49	S	-53.56	-50.16	-2.13	-1.28	-13.00	-40.56
256.98	S	-65.70	-67.63	3.63	-1.70	-13.00	-52.70
350.10	S	-60.61	-62.44	3.85	-2.02	-13.00	-47.61
456.80	S	-60.91	-62.21	3.61	-2.31	-13.00	-47.91
561.56	S	-60.12	-61.34	3.87	-2.66	-13.00	-47.12
3815.00	Н	-53.65	-59.31	12.66	-7.00	-13.00	-40.65

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Operation Band Fundamental Frequency **Operation Mode**

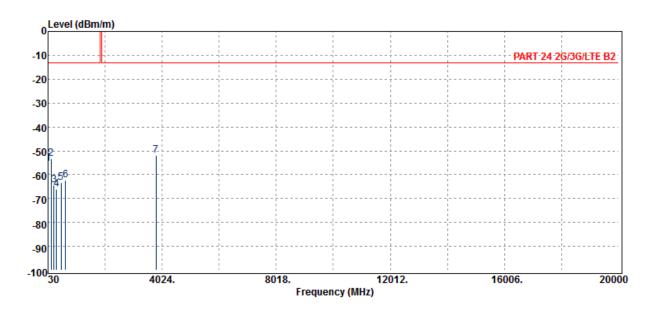
EUT Pol.

:LTE B2 :1907.5 MHz :Tx CH HIGH :H Plane

Temp./Humi. :24.1 deg_C / 65 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
33.88	S	-55.32	-41.10	-13.61	-0.61	-13.00	-42.32
138.64	S	-53.34	-49.83	-2.26	-1.25	-13.00	-40.34
236.61	S	-64.32	-66.09	3.42	-1.65	-13.00	-51.32
321.00	S	-66.01	-67.86	3.72	-1.87	-13.00	-53.01
480.08	S	-63.35	-65.21	3.85	-2.00	-13.00	-50.35
649.83	S	-62.38	-63.93	3.83	-2.28	-13.00	-49.38
3815.00	Н	-51.99	-57.65	12.66	-7.00	-13.00	-38.99

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Operation Mode

Report No.: ER/2018/30046

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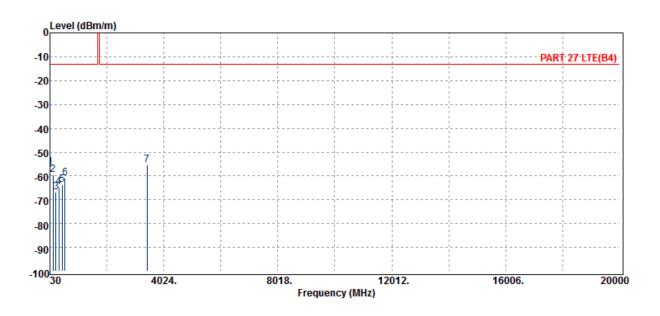
Radiated Spurious Emission Measurement Result: LTE-Band 4 (The Worst Case)

Operation Band Temp./Humi. :LTE B4 :24.1 deg_C / 65 RH

Fundamental Frequency :1717.5 MHz Engineer :Tin

:Tx CH LOW

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



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
42.61	S	-56.54	-43.51	-12.35	-0.68	-13.00	-43.54
143.49	S	-59.44	-56.03	-2.13	-1.28	-13.00	-46.44
233.70	S	-66.86	-68.59	3.37	-1.64	-13.00	-53.86
340.40	S	-64.73	-66.57	3.81	-1.98	-13.00	-51.73
460.68	S	-63.81	-65.02	3.65	-2.44	-13.00	-50.81
554.77	S	-60.96	-62.61	3.94	-2.29	-13.00	-47.96
3435.00	Н	-55.22	-60.93	12.25	-6.55	-13.00	-42.22

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Operation Band Fundamental Frequency **Operation Mode**

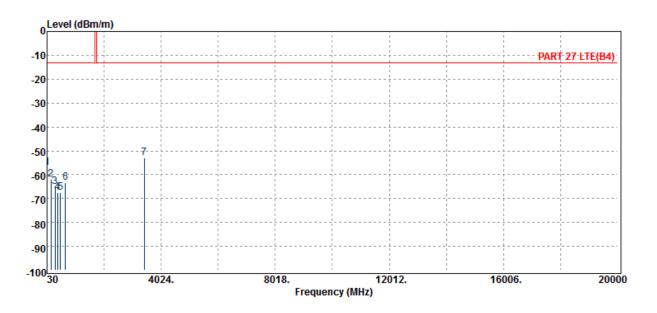
EUT Pol.

:LTE B4 :1717.5 MHz :Tx CH LOW :H Plane

Temp./Humi. :24.1 deg_C / 65 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
34.85	S	-57.15	-43.15	-13.38	-0.62	-13.00	-44.15
167.74	S	-62.05	-59.98	-0.76	-1.32	-13.00	-49.05
307.42	S	-64.99	-66.79	3.65	-1.85	-13.00	-51.99
392.78	S	-67.48	-69.15	3.73	-2.06	-13.00	-54.48
506.27	S	-67.46	-69.17	4.04	-2.34	-13.00	-54.46
676.99	S	-63.23	-64.19	3.75	-2.79	-13.00	-50.23
3435.00	Н	-53.07	-58.78	12.25	-6.55	-13.00	-40.07

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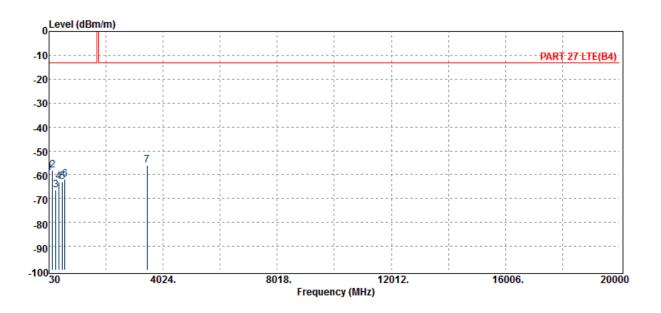
Operation Band :LTE B4 Fundamental Frequency

:1732.5 MHz **Operation Mode** :Tx CH MID EUT Pol. :H Plane

Temp./Humi. :24.1 deg_C / 65 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		_
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
							_
43.58	S	-59.22	-46.30	-12.23	-0.68	-13.00	-46.22
151.25	S	-58.19	-55.16	-1.73	-1.29	-13.00	-45.19
271.53	S	-66.47	-68.23	3.49	-1.72	-13.00	-53.47
376.29	S	-63.13	-64.87	3.78	-2.03	-13.00	-50.13
496.57	S	-62.81	-64.72	4.02	-2.11	-13.00	-49.81
585.81	S	-61.93	-63.35	3.66	-2.24	-13.00	-48.93
3465.00	Н	-56.18	-61.94	12.32	-6.56	-13.00	-43.18

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Operation Band Fundamental Frequency **Operation Mode**

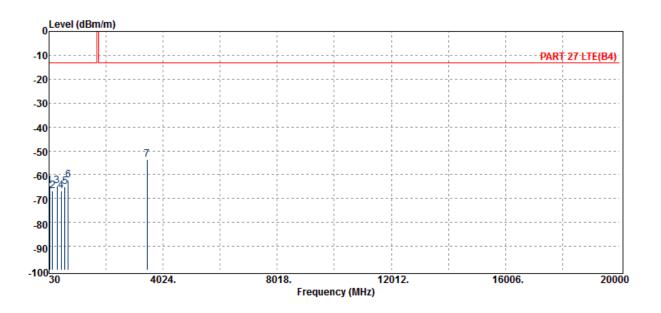
EUT Pol.

:LTE B4 :1732.5 MHz :Tx CH MID :H Plane

Temp./Humi. :24.1 deg_C / 65 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
51.34	S	-64.74	-53.08	-10.90	-0.75	-13.00	-51.74
149.31	S	-66.90	-63.77	-1.84	-1.29	-13.00	-53.90
315.18	S	-64.68	-66.51	3.69	-1.86	-13.00	-51.68
450.98	S	-66.77	-68.20	3.55	-2.12	-13.00	-53.77
580.96	S	-65.13	-66.47	3.70	-2.36	-13.00	-52.13
695.42	S	-62.21	-63.37	3.69	-2.53	-13.00	-49.21
3465.00	Н	-53.50	-59.26	12.32	-6.56	-13.00	-40.50

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Operation Band Fundamental Frequency

Operation Mode EUT Pol.

:LTE B4 :1747.5 MHz :Tx CH HIGH

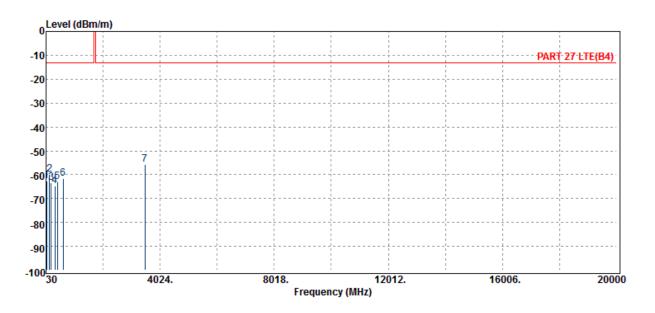
:H Plane

Temp./Humi.

:24.1 deg_C / 65 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
47.46	S	-62.54	-50.17	-11.65	-0.72	-13.00	-49.54
151.25	S	-59.90	-56.88	-1.73	-1.29	-13.00	-46.90
209.45	S	-63.22	-65.38	3.68	-1.52	-13.00	-50.22
344.28	S	-64.59	-66.42	3.83	-2.00	-13.00	-51.59
432.55	S	-62.85	-64.42	3.60	-2.02	-13.00	-49.85
624.61	S	-61.71	-62.60	3.68	-2.80	-13.00	-48.71
3495.00	Н	-55.87	-61.65	12.39	-6.61	-13.00	-42.87

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Operation Band :LTE B4 Fundamental Frequency

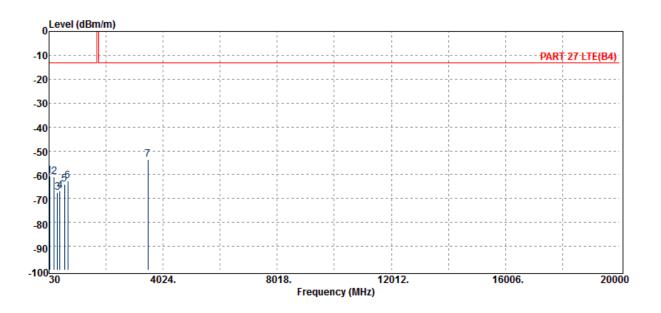
Operation Mode EUT Pol.

:1747.5 MHz :Tx CH HIGH :H Plane

Temp./Humi. :24.1 deg_C / 65 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
45.52	S	-60.56	-47.89	-11.97	-0.70	-13.00	-47.56
208.48	S	-61.06	-63.17	3.62	-1.52	-13.00	-48.06
327.79	S	-67.53	-69.38	3.75	-1.90	-13.00	-54.53
413.15	S	-66.68	-68.22	3.67	-2.13	-13.00	-53.68
576.11	S	-64.00	-65.23	3.74	-2.51	-13.00	-51.00
682.81	S	-62.77	-63.31	3.73	-3.19	-13.00	-49.77
3495.00	Н	-53.66	-59.44	12.39	-6.61	-13.00	-40.66

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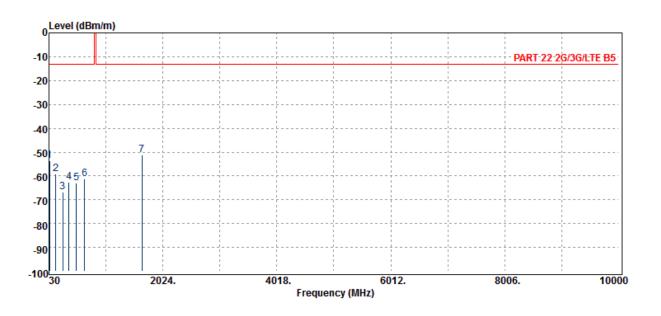
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Radiated Spurious Emission Measurement Result: LTE-Band 5 (The Worst Case)

Temp./Humi. **Operation Band** :LTE B5 :24.1 deg_C / 65 RH

Fundamental Frequency :826.5 MHz Engineer :Tin **Operation Mode** :Tx CH LOW

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



Freq.	Note	ERP/EIRP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		· ·
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
							_
40.67	S	-53.46	15.14	-12.60	-0.66	-13.00	-40.46
145.43	S	-59.00	9.88	-2.03	-1.29	-13.00	-46.00
268.62	S	-66.87	3.36	3.52	-1.72	-13.00	-53.87
382.11	S	-62.78	3.61	3.76	-2.02	-13.00	-49.78
511.12	S	-62.81	5.64	4.04	-2.40	-13.00	-49.81
655.65	S	-61.39	8.35	3.81	-2.15	-13.00	-48.39
1658.00	Н	-51.09	2.46	9.16	-4.37	-13.00	-38.09

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Operation Band Fundamental Frequency **Operation Mode**

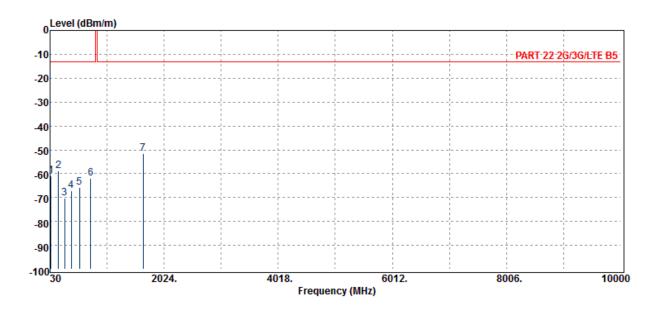
EUT Pol.

:LTE B5 :826.5 MHz :Tx CH LOW :H Plane

Temp./Humi. :24.1 deg_C / 65 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		_
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
							_
49.40	S	-61.06	19.94	-11.34	-0.74	-13.00	-48.06
174.53	S	-58.65	2.75	0.12	-1.35	-13.00	-45.65
284.14	S	-70.11	0.02	3.42	-1.76	-13.00	-57.11
402.48	S	-66.97	3.17	3.71	-2.13	-13.00	-53.97
547.98	S	-65.64	4.97	3.98	-1.92	-13.00	-52.64
741.01	S	-62.10	9.70	3.51	-2.98	-13.00	-49.10
1658.00	Н	-51.56	3.06	9.16	-4.37	-13.00	-38.56

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EUT Pol.

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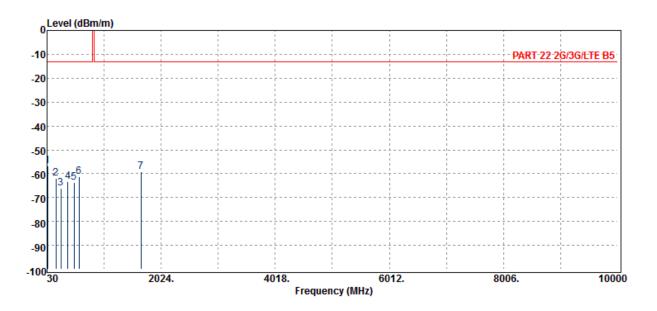
Operation Band :LTE B5 Fundamental Frequency :836.5 MHz **Operation Mode**

:Tx CH MID :H Plane

Temp./Humi. :24.1 deg_C / 65 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
42.61	S	-56.73	15.30	-12.35	-0.68	-13.00	-43.73
182.29	S	-62.00	4.79	1.35	-1.39	-13.00	-49.00
270.56	S	-66.25	3.35	3.50	-1.72	-13.00	-53.25
394.72	S	-63.35	3.51	3.73	-2.08	-13.00	-50.35
503.36	S	-63.62	5.31	4.05	-2.28	-13.00	-50.62
592.60	S	-61.12	9.12	3.60	-2.20	-13.00	-48.12
1673.00	Н	-59.21	2.57	9.21	-4.39	-13.00	-46.21

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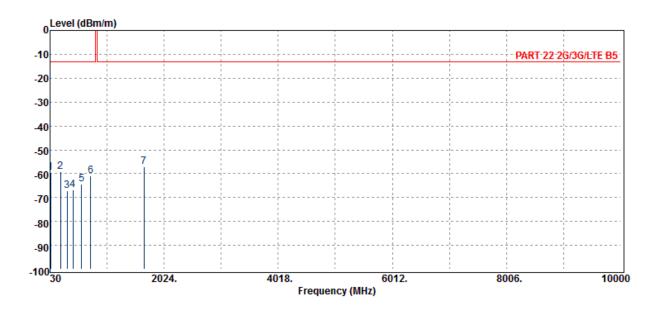
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Operation Band :LTE B5 Fundamental Frequency :836.5 MHz **Operation Mode** :Tx CH MID

EUT Pol. :H Plane Temp./Humi. :24.1 deg_C / 65 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
38.73	S	-59.60	23.34	-12.84	-0.65	-13.00	-46.60
211.39	S	-59.08	-3.64	3.66	-1.53	-13.00	-46.08
330.70	S	-66.96	2.20	3.77	-1.92	-13.00	-53.96
430.61	S	-66.73	3.78	3.60	-2.04	-13.00	-53.73
583.87	S	-64.53	6.23	3.68	-2.28	-13.00	-51.53
742.95	S	-60.91	9.70	3.50	-2.97	-13.00	-47.91
1673.00	Н	-57.17	3.15	9.21	-4.39	-13.00	-44.17

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Operation Band Fundamental Frequency **Operation Mode**

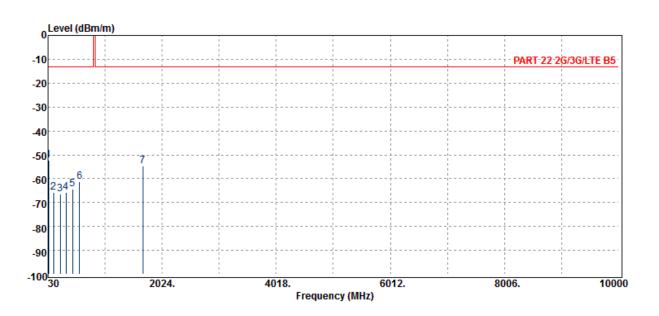
EUT Pol.

:LTE B5 :846.5 MHz :Tx CH HIGH :H Plane

Temp./Humi. :24.1 deg_C / 65 RH

Engineer :Tin

:VERTICAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG	Antenna	Cable	Limit	Margin
•			Output Level	Gain	Loss		•
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
							_
38.73	S	-52.40	13.95	-12.84	-0.65	-13.00	-39.40
128.94	S	-65.58	6.59	-1.94	-1.20	-13.00	-52.58
240.49	S	-66.29	4.37	3.48	-1.67	-13.00	-53.29
342.34	S	-65.78	3.20	3.82	-1.99	-13.00	-52.78
458.74	S	-64.50	4.46	3.63	-2.38	-13.00	-51.50
584.84	S	-61.23	9.17	3.67	-2.25	-13.00	-48.23
1688.00	Н	-54.73	2.81	7.11	-4.42	-13.00	-41.73

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Operation Band Fundamental Frequency **Operation Mode**

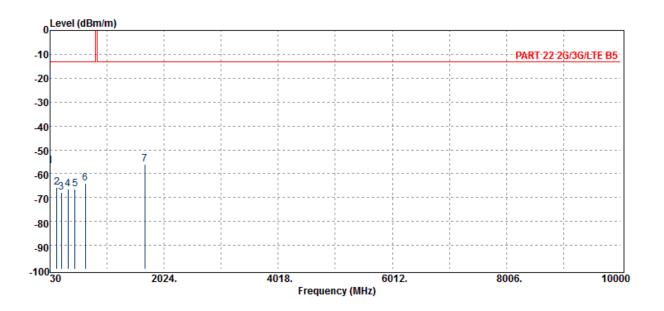
EUT Pol.

:LTE B5 :846.5 MHz :Tx CH HIGH :H Plane

Temp./Humi. :24.1 deg_C / 65 RH

Engineer :Tin

:HORIZONTAL Measurement Antenna Pol.



Freq.	Note	ERP/EIRP	SG	Antenna	Cable	Limit	Margin
-			Output Level	Gain	Loss		_
MHz	F/H/E/S	dBm	dBm	dBd/dBi	dB	dBm	dB
34.85	S	-56.78	23.56	-13.38	-0.62	-13.00	-43.78
151.25	S	-65.80	5.03	-1.73	-1.29	-13.00	-52.80
229.82	S	-67.81	-3.28	3.31	-1.62	-13.00	-54.81
346.22	S	-66.48	3.29	3.84	-2.01	-13.00	-53.48
469.41	S	-66.38	4.03	3.74	-2.41	-13.00	-53.38
649.83	S	-64.18	6.24	3.83	-2.28	-13.00	-51.18
1688.00	Н	-56.20	3.30	7.11	-4.42	-13.00	-43.20

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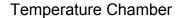
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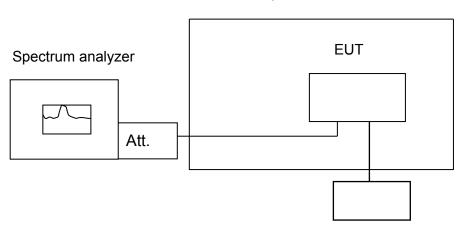
11. FREQUENCY STABILITY MEASUREMENT

11.1. Standard Applicable

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







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

EQUIPMENT TYPE	MFR	MODEL NUM- BER	SERIAL NUM- BER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	Agilent	N9010A	MY54200716	2017/10/16	2018/10/15
Radio Communication Analyer	Anritsu	MT8820C	6201465317	2018/01/17	2019/01/16
Attenuator	Mini-Circuit	BW-S10W2+	2	2018/01/02	2019/01/01
Splitter	RF-LAMBAD	RFLT2W1G18G	11-JSPF412-018	2018/01/02	2019/01/01
Coaxial Cables	N/A	WK CE Cable	N/A	2018/01/02	2019/01/01
Temperature Chamber	TERCHY	MHG-120LF	911009	2017/05/19	2018/05/18

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11.5. Measurement Result

	GPRS 8	50 Mid Channel	836.6	MHz			
	Lin	nit: +/- 2.5 ppm					
Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Limit (Hz)			
	FREQUENC'	Y ERROR vs. V	OLTAGE				
4.43	20	836.600009	8.999999977	2091			
3.85	20	836.59999	-9.999999975	2091			
3.27	20	836.599998	-1.999999995	2091			
3 (End point)	20	836.600004	3.99999999	2091			
FREQUENCY ERROR vs. Temp.							
3.85	50	836.600004	3.99999999	2091			
3.85	40	836.600009	8.999999977	2091			
3.85	30	836.600002	1.999999995	2091			
3.85	20	836.599998	-1.999999995	2091			
3.85	10	836.600006	5.999999985	2091			
3.85	0	836.59999	-9.999999975	2091			
3.85	-10	836.600001	0.999999997	2091			
3.85	-20	836.599993	-6.999999982	2091			
3.85	-30	836.599999	-0.999999997	2091			

	GPRS 19	00 Mid Channel	1880	MHz			
	Lin	nit: +/- 2.5 ppm					
Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Limit (Hz)			
	FREQUENCY	Y ERROR vs. V	OLTAGE				
4.43	20	1880.000005	5.000000101	4700			
3.85	20	1879.999993	-7.000000096	4700			
3.27	20	1879.999995	-5.000000101	4700			
3 (End point)	20	1880.000002	1.999999995	4700			
FREQUENCY ERROR vs. Temp.							
3.85	50	1880.000001	1.000000111	4700			
3.85	40	1879.999998	-1.999999995	4700			
3.85	30	1879.999999	-1.000000111	4700			
3.85	20	1880.000001	1.000000111	4700			
3.85	10	1879.999999	-1.000000111	4700			
3.85	0	1880.00001	9.99999975	4700			
3.85	-10	1879.999997	-3.00000106	4700			
3.85	-20	1879.999995	-5.000000101	4700			
3.85	-30	1879.999999	-1.000000111	4700			

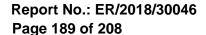
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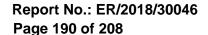
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	WCDMA	All Mid Channel	1880	MHz			
	Lin	nit: +/- 2.5 ppm					
Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Limit (Hz)			
	FREQUENCY	Y ERROR vs. V	OLTAGE				
4.43	20	1879.99999	-9.999999975	4700			
3.85	20	1879.999996	-3.99999999	4700			
3.27	20	1879.999992	-7.99999998	4700			
3 (End point)	20	1880.000003	3.00000106	4700			
FREQUENCY ERROR vs. Temp.							
3.85	50	1880.000002	1.999999995	4700			
3.85	40	1880.00001	9.99999975	4700			
3.85	30	1880	0	4700			
3.85	20	1880.000001	1.00000111	4700			
3.85	10	1880.00001	9.99999975	4700			
3.85	0	1880.000009	9.000000091	4700			
3.85	-10	1880.000009	9.000000091	4700			
3.85	-20	1880	0	4700			
3.85	-30	1879.999991	-9.000000091	4700			

WCDMA IV Mid Channel 1732.6 MHz										
	Limit: +/- 2.5 ppm									
Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Limit (Hz)						
	FREQUENCY	Y ERROR vs. V	OLTAGE							
4.43	20	1732.600005	5.00000101	4331						
3.85	20	1732.599993	-6.999999869	4331						
3.27	20	1732.599995	-4.999999874	4331						
3 (End point)	20	1732.600002	1.999999995	4331						
	FREQUEN	CY ERROR vs.	Temp.							
3.85	50	1732.600001	1.00000111	4331						
3.85	40	1732.599998	-1.999999995	4331						
3.85	30	1732.599999	-0.999999884	4331						
3.85	20	1732.600001	1.00000111	4331						
3.85	10	1732.599999	-0.999999884	4331						
3.85	0	1732.60001	10.0000002	4331						
3.85	-10	1732.599997	-2.999999879	4331						
3.85	-20	1732.599995	-4.999999874	4331						
3.85	-30	1732.599999	-0.999999884	4331						





WCDMA V Mid Channel 836.6 MHz										
	Limit: +/- 2.5 ppm									
Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Limit (Hz)						
	FREQUENCY ERROR vs. VOLTAGE									
4.43	20	836.59999	-9.999999975	2091						
3.85	20	836.599996	-3.99999999	2091						
3.27	20	836.599992	-7.99999998	2091						
3 (End point)	20	836.600003	2.999999992	2091						
	FREQUEN	CY ERROR vs.	Temp.							
3.85	50	836.600002	1.999999995	2091						
3.85	40	836.60001	9.99999975	2091						
3.85	30	836.6	0	2091						
3.85	20	836.600001	0.99999997	2091						
3.85	10	836.60001	9.99999975	2091						
3.85	0	836.600009	8.999999977	2091						
3.85	-10	836.600009	8.999999977	2091						
3.85	-20	836.6	0	2091						
3.85	-30	836.599991	-8.999999977	2091						

Reference Freq.:	Reference Freq.: LTE B2 Chan		1880	MHz 20M QPSK CH 18900						
Power Supply Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)						
Freq. ERROR vs. VOLTAGE										
4.43	25	1880.000009	9.0000001	4700						
3.85	25	1879.999990	-10	4700						
3.27	25	1879.999998	-2	4700						
3 (End Point)	25	1880.000004	4	4700						
		Freq. ERROR	vs. Temp.							
3.85	-30	1880.000004	4	4700						
3.85	-20	1880.000009	9.0000001	4700						
3.85	-10	1880.000002	2	4700						
3.85	0	1879.999998	-2	4700						
3.85	10	1880.000006	6	4700						
3.85	20	1879.999990	-10	4700						
3.85	30	1880.000001	1.0000001	4700						
3.85	40	1879.999993	-7	4700						
3.85	50	1879.999999	-1	4700						

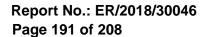
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Reference Freq.:		B4 Mid annel	1732.5	MHz 20M QPSK CH 20175						
Power Supply Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)						
Freq. ERROR vs. VOLTAGE										
4.43	25	1732.499990	-10	4331						
3.85	25	1732.499996	-4	4331						
3.27	25	1732.499992	-8	4331						
3 (End Point)	25	1732.500003	3.0000001	4331						
		Freq. ERROR	vs. Temp.							
3.85	-30	1732.500002	2	4331						
3.85	-20	1732.500010	10	4331						
3.85	-10	1732.500000	0	4331						
3.85	0	1732.500001	1.0000001	4331						
3.85	10	1732.500010	10	4331						
3.85	20	1732.500009	9.0000001	4331						
3.85	30	1732.500009	9.0000001	4331						
3.85	40	1732.500000	0	4331						
3.85	50	1732.499991	-9	4331						

Reference Freq.:	rence Freq.: LTE B5 Mid Channel		836.5	MHz 10M QPSK CH 20525						
Power Supply Vdc	\ - /	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)						
Freq. ERROR vs. VOLTAGE										
4.43	25	836.500005	5	2091						
3.85	25	836.499993	-7	2091						
3.27	25	836.499995	-5	2091						
3 (End Point)	25	836.500002	2	2091						
		Freq. ERROR	vs. Temp.							
3.85	-30	836.500001	1	2091						
3.85	-20	836.499998	-2	2091						
3.85	-10	836.499999	-1	2091						
3.85	0	836.500001	1	2091						
3.85	10	836.499999	-1	2091						
3.85	20	836.500010	10	2091						
3.85	30	836.499997	-3	2091						
3.85	40	836.499995	-5	2091						
3.85	50	836.499999	-1	2091						

Note: The battery is rated 3.85V dc.

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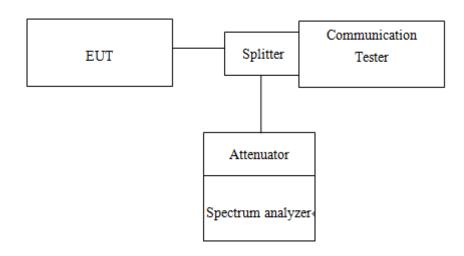
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12. **PEAK TO AVERAGE RATIO**

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.

12.4. Measurement Equipment Used

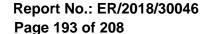
EQUIPMENT TYPE	MFR	MODEL NUM- BER	SERIAL NUM- BER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	Agilent	N9010A	MY54200716	2017/10/16	2018/10/15
Radio Communication Analyer	Anritsu	MT8820C	6201465317	2018/01/17	2019/01/16
Attenuator	Mini-Circuit	BW-S10W2+	2	2018/01/02	2019/01/01
Splitter	RF-LAMBAD	RFLT2W1G18G	11-JSPF412-018	2018/01/02	2019/01/01
Coaxial Cables	N/A	WK CE Cable	N/A	2018/01/02	2019/01/01
Temperature Chamber	TERCHY	MHG-120LF	911009	2017/05/19	2018/05/18

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12.5. Measurement Result

Tabular Results:

Erog		Peak-to-Avera	age Ratio (dB)
Freq. (MHz)	CH	GSM	GPRS
(IVIHZ)		1900	1900
1850.2	512	9.21	9.61
1880	661	10.1	9.45
1909.8	810	8.57	8.93

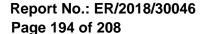
Eroa		Peak-to-Average Ratio (dB)				
Freq. (MHz)	CH	WCDMA	HSDPA	HSUPA		
(IVITZ)		II	II	II		
1852.4	9262	3.11	3.20	3.19		
1880	9400	3.10	3.16	3.17		
1907.6	9538	3.13	3.22	3.59		

Freq.		Peak-to-Average Ratio (dB)				
(MHz)	CH	WCDMA	HSDPA	HSUPA		
(IVITIZ)		IV	IV	IV		
1712.4	1312	3.05	3.11	3.13		
1732.6	1413	3.06	3.16	3.15		
1752.6	1513	3.06	3.25	3.23		

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LTE BAND 2										
Chan	nel bandı	width: 1.4	MHz	Char	nnel band	lwidth: 3N	lHz			
Freq.	СН	PAPR	(dB)	Freq.	СН	PAPR	(dB)			
(MHz)	СП	64QAM	Limit	(MHz)	СН	64QAM	Limit			
1850.7	18607	6.69	13	1851.5	18615	6.76	13			
1880.0	18900	6.82	13	1880.0	18900	6.75	13			
1909.3	19193	6.49	13	1908.5	19185	6.60	13			

	LTE BAND 2										
Channel bandwidth: 5MHz				Chan	nel band	width: 10N	ЛHz				
Freq.	СН	PAPR	(dB)	Freq.	Freq. CH PAPR (dE		(dB)				
(MHz)	СП	64QAM	Limit	(MHz)	СН	64QAM	Limit				
1852.5	18625	6.57	13	1855.0	18650	6.50	13				
1880.0	18900	6.61	13	1880.0	18900	6.57	13				
1907.5	19175	6.50	13	1905.0	19150	6.47	13				

	LTE BAND 2										
Chan	Channel bandwidth: 15MHz				nel band	width: 20N	ЛHz				
Freq.	СН	PAPR	PAPR (dB) Freq.		PAPR (d		(dB)				
(MHz)	СП	64QAM	Limit	(MHz)	СН	64QAM	Limit				
1857.5	18675	6.28	13	1860.0	18700	6.74	13				
1880.0	18900	6.32	13	1880.0	18900	6.75	13				
1902.5	19125	6.29	13	1900.0	19100	6.69	13				

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LTE BAND 4									
Channel bandwidth: 1.4MHz				Channel bandwidth: 3MHz					
Freq. CH		PAPR (dB)		Freq.	СН	PAPR (dB)			
(MHz)	СП	64QAM	Limit	(MHz)	СП	64QAM	Limit		
1710.7	19957	6.32	13	1711.5	19965	6.47	13		
1732.5	20175	6.23	13	1732.5	20175	6.37	13		
1754.3	20393	6.17	13	1753.5	20385	6.38	13		

LTE BAND 4									
Chan	nel band	dwidth: 5N	/lHz	Channel bandwidth: 10MHz					
Freq. CH		PAPR (dB)		Freq.	СН	PAPR (dB)			
(MHz)	СП	64QAM	Limit	(MHz)	СП	64QAM	Limit		
1712.5	19957	6.35	13	1715.0	20000	6.30	13		
1732.5	20175	6.26	13	1732.5	20175	6.30	13		
1752.5	20375	6.30	13	1750.0	20350	6.20	13		

LTE BAND 4									
Channel bandwidth: 15MHz				Channel bandwidth: 20MHz					
Freq.	СН	PAPR (dB)		Freq.	СН	PAPR (dB)			
(MHz)	СП	64QAM	Limit	(MHz)	СП	64QAM	Limit		
1717.5	20025	6.17	13	1720.0	20050	6.64	13		
1732.5	20175	6.15	13	1732.5	20175	6.64	13		
1747.5	20325	6.15	13	1745.0	20300	6.64	13		

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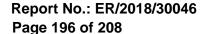
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LTE BAND 5									
Chan	nel band	width: 1.4	MHz	Channel bandwidth: 3MHz					
Freq.	СН	PAPR (dB)		Freq.	СН	PAPR (dB)			
(MHz)		64QAM	Limit	(MHz)	G	64QAM	Limit		
824.7	20407	6.68	13	825.5	20415	6.77	13		
836.5	20525	6.68	13	836.5	20525	6.67	13		
848.3	20643	6.43	13	847.5	20635	6.71	13		

LTE BAND 5									
Channel bandwidth: 5MHz				Channel bandwidth: 10MHz					
Freq.	СН	PAPR (dB)		Freq.	СН	PAPR (dB)			
(MHz)	СП	64QAM	Limit	(MHz)	СП	64QAM	Limit		
826.5	20425	6.57	13	829.0	20450	6.49	13		
836.5	20525	6.58	13	836.5	20525	6.50	13		
846.5	20625	6.57	13	844.0	20600	6.48	13		

Measurement Results:

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