

Report No.: T190304W03-RP1

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8. OUT OF BAND EMISSION AT ANTENNA TERMINALS

8.1. Standard Applicable

FCC §22.917(a), §24.238(a), Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

FCC §27.53(g)

Compliance 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 nstrumentation 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.

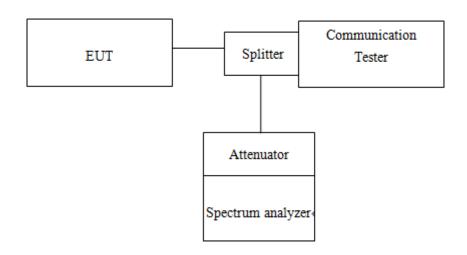
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8.2. Test SET-UP



8.3. Measurement Procedure

Conducted Emission

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

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

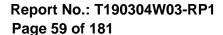
Band Edge

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

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8.4. Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	Agilent	N9010A	MY53400256	11/21/2018	11/20/2019
Digital Radio Communication Tester	R&S	CMU200	100535	09/17/2018	09/16/2019
DC Power Supply	Agilent	E3640A	KR93300208	08/15/2018	08/14/2019
Attenuator	Mini-Circuit	BW-S10W2+	1	02/26/2019	02/25/2020
DC Block	Mini-Circuits	BLK-18-S+	31129(1)	02/26/2019	02/25/2020
Splitter	RF-LAMBAD	RFLT2W1G18G	11-JSPD022-013	02/26/2019	02/25/2020
Coaxial Cables	Woken	00100A1F1A185C	RF12	02/26/2019	02/25/2020
Wideband Radio Communication Tester	R&S	CMW 500	116875	04/20/2018	04/19/2019

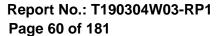
8.5. Measurement Result:

Refer to next pages.

NOTE: The occurrence of the spike on the conducted emission is the signal of the fundamental emission.

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Band Edge GSM_850MHz_LowCH128-824.2







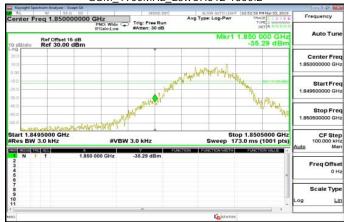
GPRS_850MHz_LowCH128-824.2



GPRS_850MHz_HighCH251-848.8



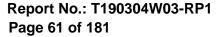
GSM_1900MHz_LowCH512-1850.2



GSM_1900MHz_HighCH810-1909.8

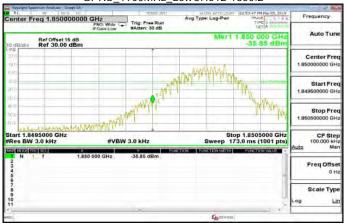


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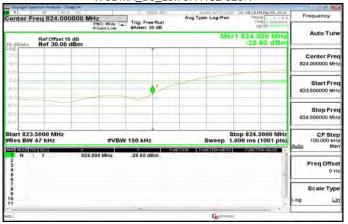
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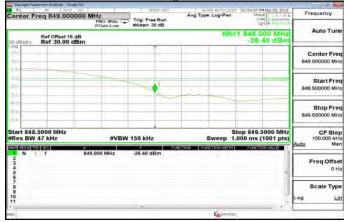




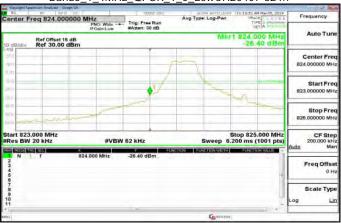
WCDMA_B5_LowCH4132-826.4



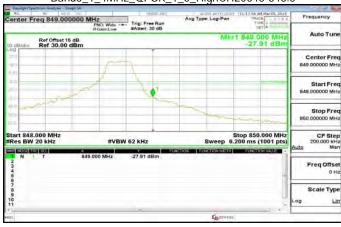
WCDMA_B5_HighCH4233-846.6



Band5_1_4MHz_QPSK_1_0_LowCH20407-824.7



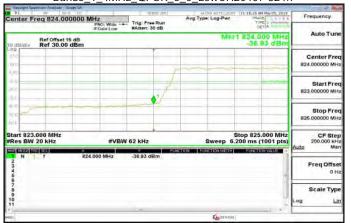
Band5 1 4MHz QPSK 1 5 HighCH20643-848.3



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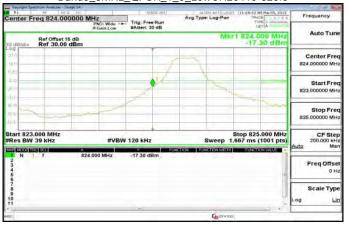
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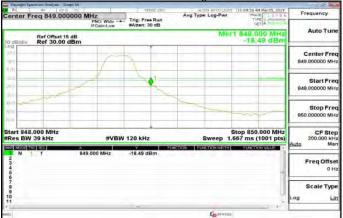
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Band5 3MHz QPSK 1 0 LowCH20415-825.5



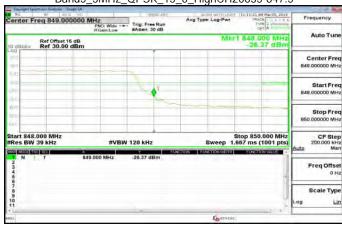
Band5_3MHz_QPSK_1_14_HighCH20635-847.5



Band5_3MHz_QPSK_15_0_LowCH20415-825.5



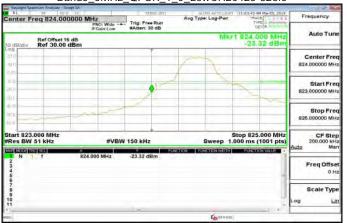
Band5 3MHz QPSK 15 0 HighCH20635-847.5



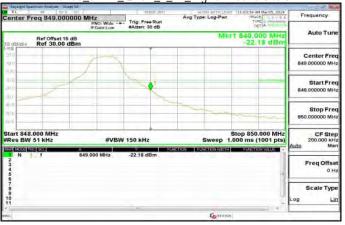
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Band5_5MHz_QPSK_1_0_LowCH20425-826.5



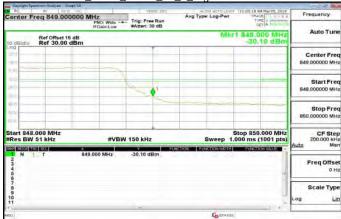
Band5_5MHz_QPSK_1_24_HighCH20625-846.5



Band5 5MHz QPSK 25 0 LowCH20425-826.5



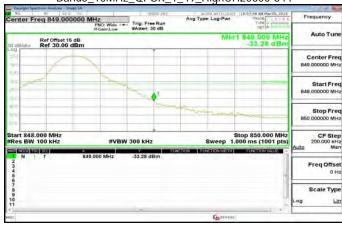
Band5_5MHz_QPSK_25_0_HighCH20625-846.5



Band5_10MHz_QPSK_1_0_LowCH20450-829



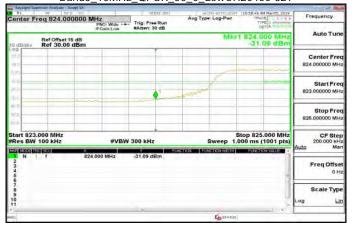
Band5 10MHz QPSK 1 49 HighCH20600-844



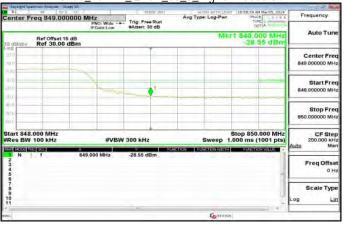
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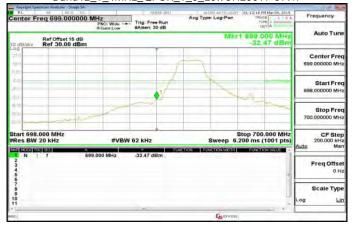
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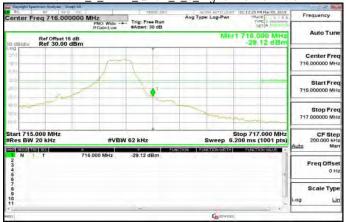
Band5_10MHz_QPSK_50_0_HighCH20600-844



Band12 1 4MHz QPSK 1 0 LowCH23017-699.7



Band12_1_4MHz_QPSK_1_5_HighCH23173-715.3



Band12_1_4MHz_QPSK_6_0_LowCH23017-699.7



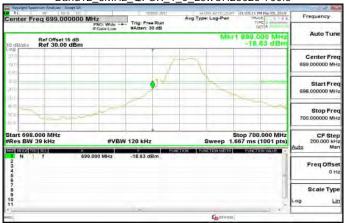
Band12 1 4MHz QPSK 6 0 HighCH23173-715.3



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Band12_3MHz_QPSK_1_0_LowCH23025-700.5



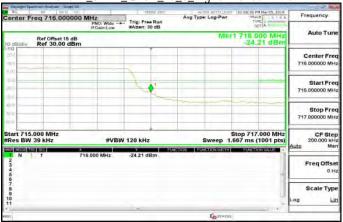
Band12_3MHz_QPSK_1_14_HighCH23165-714.5



Band12 3MHz QPSK 15 0 LowCH23025-700.5



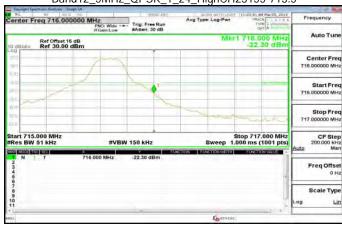
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Band12_5MHz_QPSK_1_0_LowCH23035-701.5



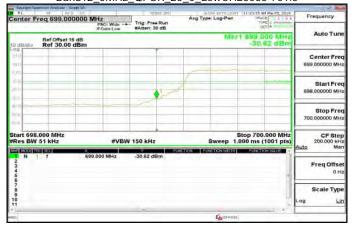
Band12 5MHz QPSK 1 24 HighCH23155-713.5



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Band12_5MHz_QPSK_25_0_LowCH23035-701.5



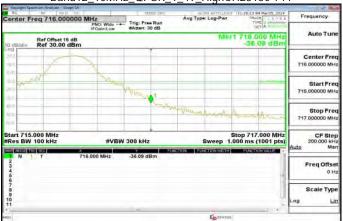
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Band12 10MHz QPSK 1 0 LowCH23060-704



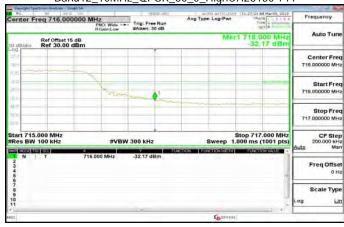
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Band12_10MHz_QPSK_50_0_LowCH23060-704



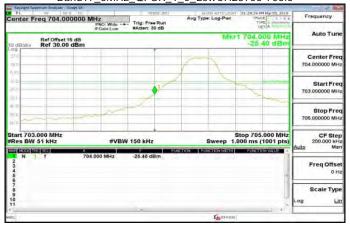
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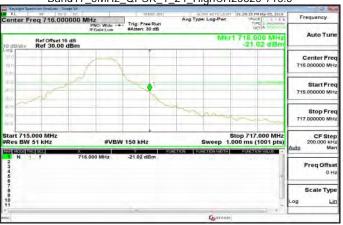
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Band17_5MHz_QPSK_1_0_LowCH23755-706.5



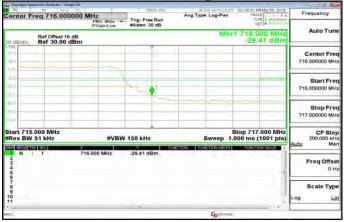
Band17_5MHz_QPSK_1_24_HighCH23825-713.5



Band17 5MHz QPSK 25 0 LowCH23755-706.5



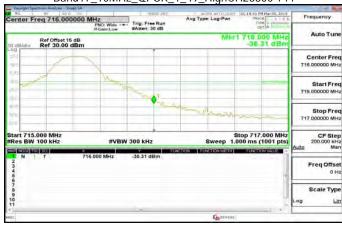
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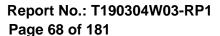
Band17_10MHz_QPSK_1_0_LowCH23780-709



Band17 10MHz QPSK 1 49 HighCH23800-711



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Band17_10MHz_QPSK_50_0_LowCH23780-709



Band17_10MHz_QPSK_50_0_HighCH23800-711



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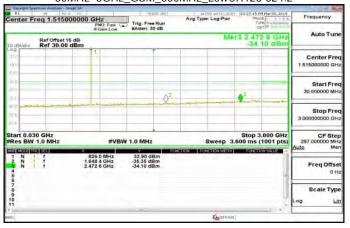
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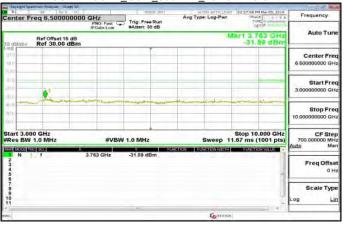


Out of Band Emission

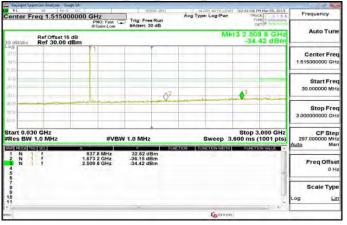
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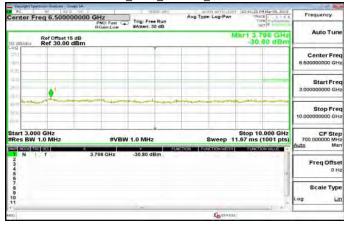
3GHz~10GHz_GSM_850MHz_LowCH128-824.2



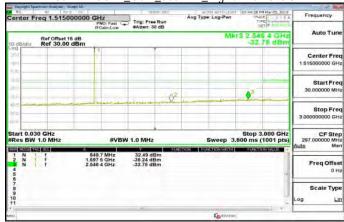
30MHz~3GHz GSM 850MHz MidCH190-836.6



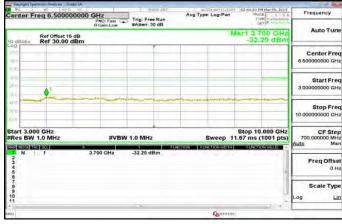
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30MHz~3GHz_GSM_850MHz_HighCH251-848.8



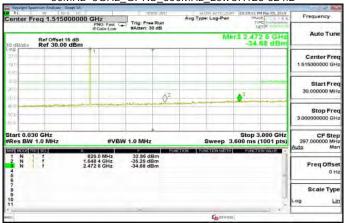
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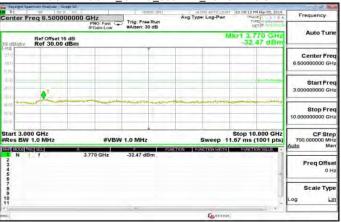
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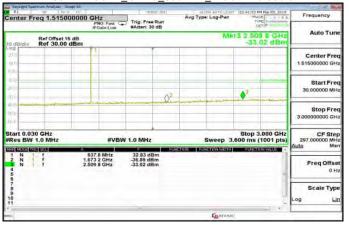
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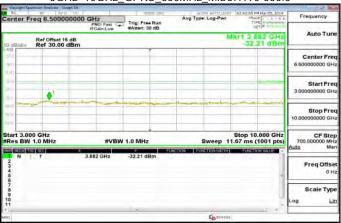
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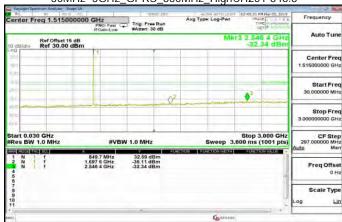
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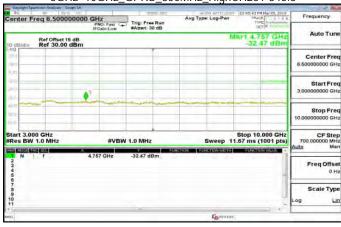
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30MHz~3GHz_GPRS_850MHz_HighCH251-848.8



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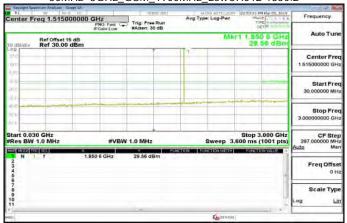


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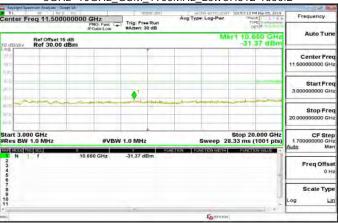
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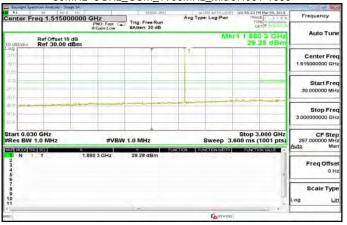
30MHz~3GHz_GSM_1900MHz_LowCH512-1850.2



3GHz~10GHz_GSM_1900MHz_LowCH512-1850.2



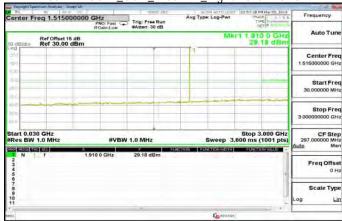
30MHz~3GHz GSM 1900MHz MidCH661-1880



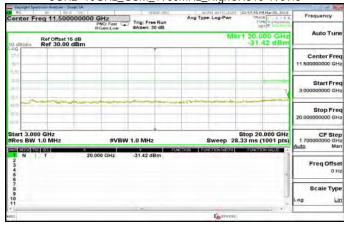
3GHz~10GHz_GSM_1900MHz_MidCH661-1880



30MHz~3GHz_GSM_1900MHz_HighCH810-1909.8



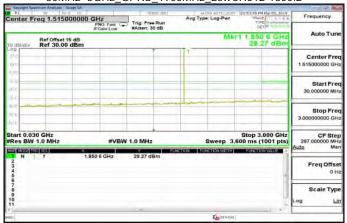
3GHz~10GHz GSM 1900MHz HighCH810-1909.8



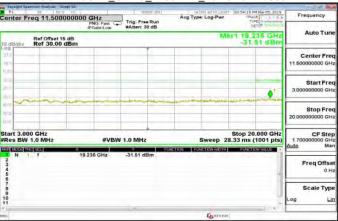
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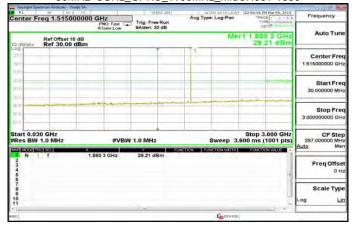
30MHz~3GHz_GPRS_1900MHz_LowCH512-1850.2



3GHz~10GHz_GPRS_1900MHz_LowCH512-1850.2



30MHz~3GHz GPRS 1900MHz MidCH661-1880



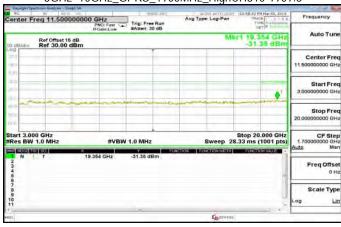
3GHz~10GHz_GPRS_1900MHz_MidCH661-1880



30MHz~3GHz_GPRS_1900MHz_HighCH810-1909.8



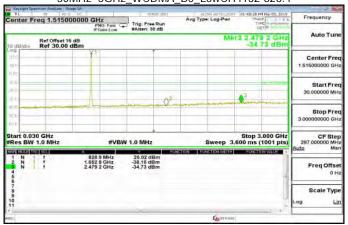
3GHz~10GHz GPRS 1900MHz HighCH810-1909.8



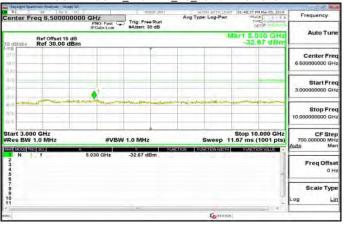
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



30MHz~3GHz_WCDMA_B5_LowCH4132-826.4



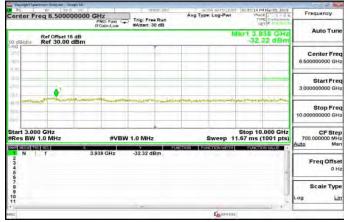
3GHz~10GHz_WCDMA_B5_LowCH4132-826.4



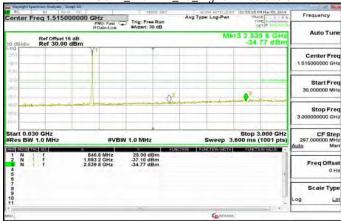
30MHz~3GHz WCDMA B5 MidCH4183-836.6



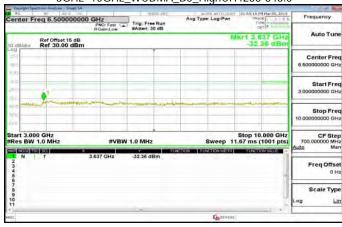
3GHz~10GHz_WCDMA_B5_MidCH4183-836.6



30MHz~3GHz_WCDMA_B5_HighCH4233-846.6



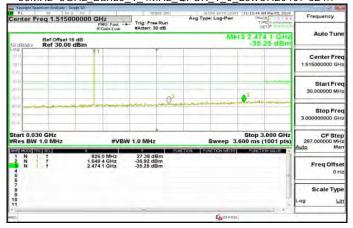
3GHz~10GHz WCDMA B5 HighCH4233-846.6



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



30MHz~3GHz_Band5_1_4MHz_QPSK_1_0_LowCH20407-824.7



3GHz~10GHz_Band5_1_4MHz_QPSK_1_0_LowCH20407-824.7



30MHz~3GHz Band5 1 4MHz QPSK 1 0 MidCH20525-836.5



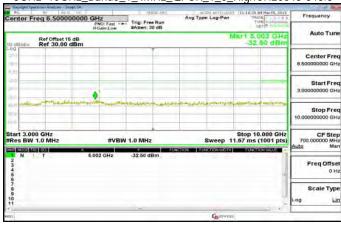
3GHz~10GHz_Band5_1_4MHz_QPSK_1_0_MidCH20525-836.5



30MHz~3GHz_Band5_1_4MHz_QPSK_1_0_HighCH20643-848.3



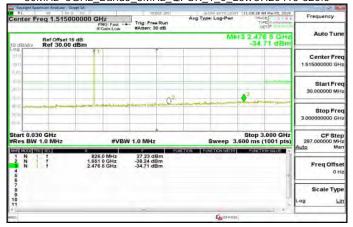
3GHz~10GHz Band5 1 4MHz QPSK 1 0 HighCH20643-848.3



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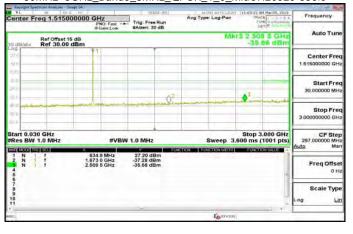
30MHz~3GHz_Band5_3MHz_QPSK_1_0_LowCH20415-825.5



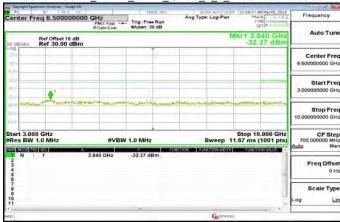
3GHz~10GHz_Band5_3MHz_QPSK_1_0_LowCH20415-825.5



30MHz~3GHz Band5 3MHz QPSK 1 0 MidCH20525-836.5



3GHz~10GHz_Band5_3MHz_QPSK_1_0_MidCH20525-836.5



30MHz~3GHz_Band5_3MHz_QPSK_1_0_HighCH20635-847.5



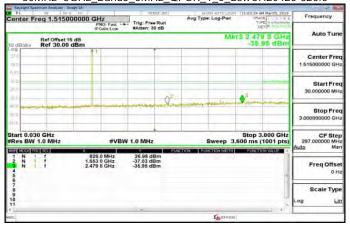
3GHz~10GHz Band5 3MHz QPSK 1 0 HighCH20635-847.5



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.



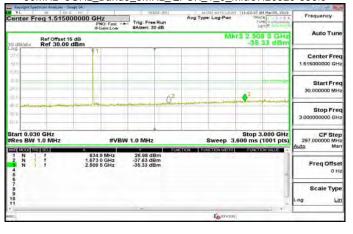
30MHz~3GHz_Band5_5MHz_QPSK_1_0_LowCH20425-826.5



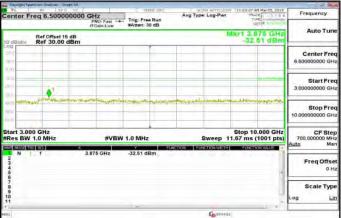
3GHz~10GHz_Band5_5MHz_QPSK_1_0_LowCH20425-826.5



30MHz~3GHz Band5 5MHz QPSK 1 0 MidCH20525-836.5



3GHz~10GHz_Band5_5MHz_QPSK_1_0_MidCH20525-836.5



30MHz~3GHz_Band5_5MHz_QPSK_1_0_HighCH20625-846.5



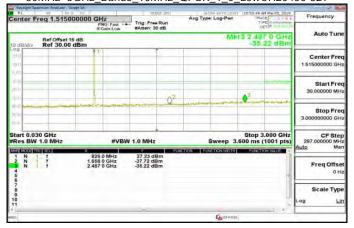
3GHz~10GHz Band5 5MHz QPSK 1 0 HighCH20625-846.5



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.



30MHz~3GHz_Band5_10MHz_QPSK_1_0_LowCH20450-829



3GHz~10GHz_Band5_10MHz_QPSK_1_0_LowCH20450-829



30MHz~3GHz Band5 10MHz QPSK 1 0 MidCH20525-836.5



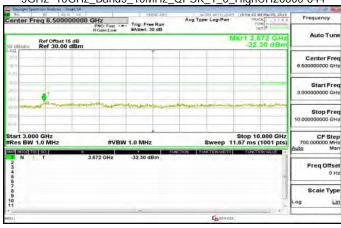
3GHz~10GHz_Band5_10MHz_QPSK_1_0_MidCH20525-836.5



30MHz~3GHz_Band5_10MHz_QPSK_1_0_HighCH20600-844



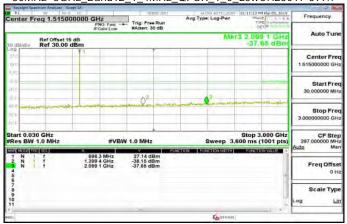
3GHz~10GHz Band5 10MHz QPSK 1 0 HighCH20600-844



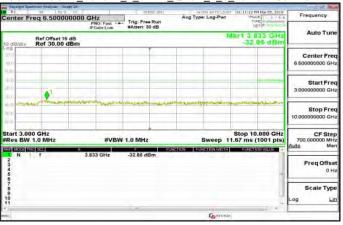
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



30MHz~3GHz_Band12_1_4MHz_QPSK_1_0_LowCH23017-699.7



3GHz~10GHz_Band12_1_4MHz_QPSK_1_0_LowCH23017-699.7



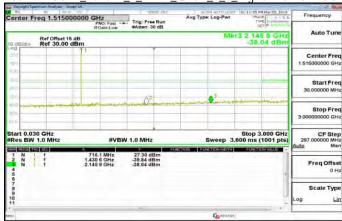
30MHz~3GHz Band12 1 4MHz QPSK 1 0 MidCH23095-707.5



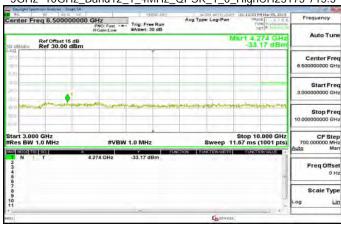
3GHz~10GHz_Band12_1_4MHz_QPSK_1_0_MidCH23095-707.5



30MHz~3GHz_Band12_1_4MHz_QPSK_1_0_HighCH23173-715.3



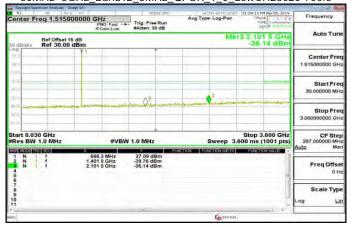
3GHz~10GHz Band12 1 4MHz QPSK 1 0 HighCH23173-715.3



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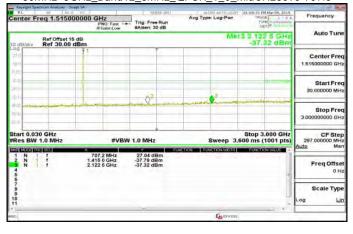
30MHz~3GHz_Band12_3MHz_QPSK_1_0_LowCH23025-700.5



3GHz~10GHz_Band12_3MHz_QPSK_1_0_LowCH23025-700.5



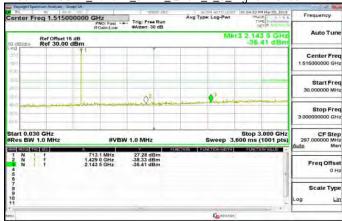
30MHz~3GHz Band12 3MHz QPSK 1 0 MidCH23095-707.5



3GHz~10GHz_Band12_3MHz_QPSK_1_0_MidCH23095-707.5



30MHz~3GHz_Band12_3MHz_QPSK_1_0_HighCH23165-714.5



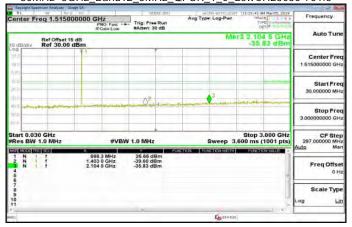
3GHz~10GHz Band12 3MHz QPSK 1 0 HighCH23165-714.5



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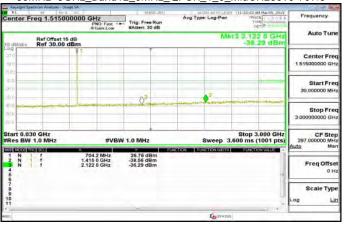
30MHz~3GHz_Band12_5MHz_QPSK_1_0_LowCH23035-701.5



3GHz~10GHz_Band12_5MHz_QPSK_1_0_LowCH23035-701.5



30MHz~3GHz Band12 5MHz QPSK 1 0 MidCH23095-707.5



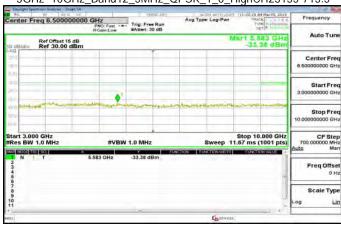
3GHz~10GHz_Band12_5MHz_QPSK_1_0_MidCH23095-707.5



30MHz~3GHz_Band12_5MHz_QPSK_1_0_HighCH23155-713.5



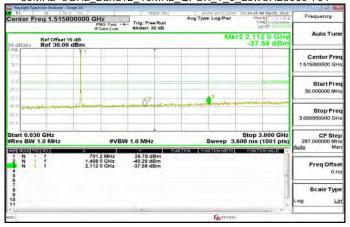
3GHz~10GHz Band12 5MHz QPSK 1 0 HighCH23155-713.5



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30MHz~3GHz_Band12_10MHz_QPSK_1_0_LowCH23060-704



3GHz~10GHz_Band12_10MHz_QPSK_1_0_LowCH23060-704



30MHz~3GHz Band12 10MHz QPSK 1 0 MidCH23095-707.5



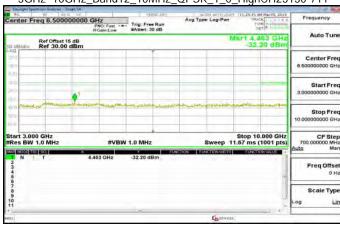
3GHz~10GHz_Band12_10MHz_QPSK_1_0_MidCH23095-707.5



30MHz~3GHz_Band12_10MHz_QPSK_1_0_HighCH23130-711



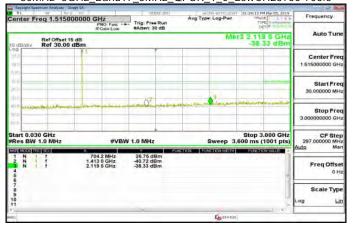
3GHz~10GHz Band12 10MHz QPSK 1 0 HighCH23130-711



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.



30MHz~3GHz_Band17_5MHz_QPSK_1_0_LowCH23755-706.5



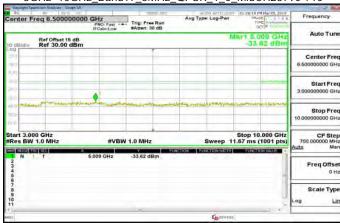
3GHz~10GHz_Band17_5MHz_QPSK_1_0_LowCH23755-706.5



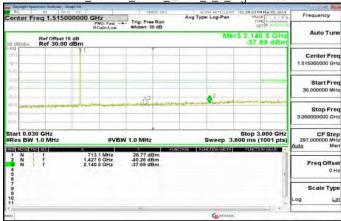
30MHz~3GHz Band17 5MHz QPSK 1 0 MidCH23790-710



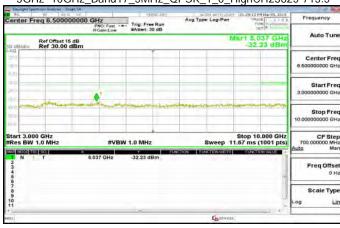
3GHz~10GHz_Band17_5MHz_QPSK_1_0_MidCH23790-710



30MHz~3GHz_Band17_5MHz_QPSK_1_0_HighCH23825-713.5



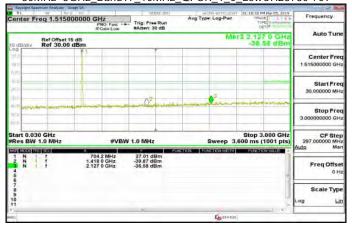
3GHz~10GHz Band17 5MHz QPSK 1 0 HighCH23825-713.5



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.



30MHz~3GHz_Band17_10MHz_QPSK_1_0_LowCH23780-709



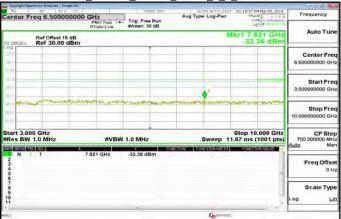
3GHz~10GHz_Band17_10MHz_QPSK_1_0_LowCH23780-709



30MHz~3GHz Band17 10MHz QPSK 1 0 MidCH23790-710



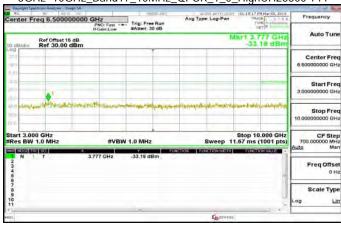
3GHz~10GHz_Band17_10MHz_QPSK_1_0_MidCH23790-710



30MHz~3GHz_Band17_10MHz_QPSK_1_0_HighCH23800-711



3GHz~10GHz Band17 10MHz QPSK 1 0 HighCH23800-711



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FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT 9.

9.1. Standard Applicable

According to FCC §2.1053,

FCC §22.917(a), §24.238(a), 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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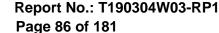




Table 2 — Unwanted Emissions for Mobile, Portable and Low-Power Fixed Subscriber **Equipment**

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	$43 + 10 \log_{10}(p)$

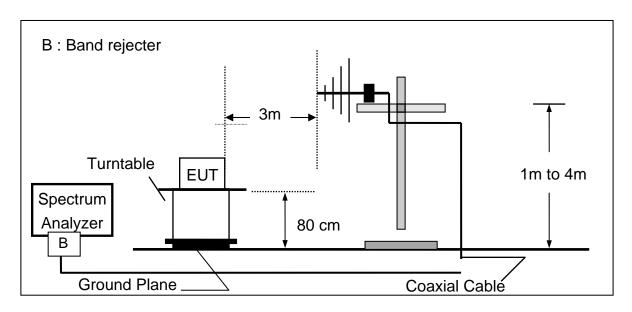
Note: Measured at the edges of the highest and lowest frequency range(s) in which the equipment is designed to operate. See Section 1.2 for the permitted frequency ranges for various equipment types.

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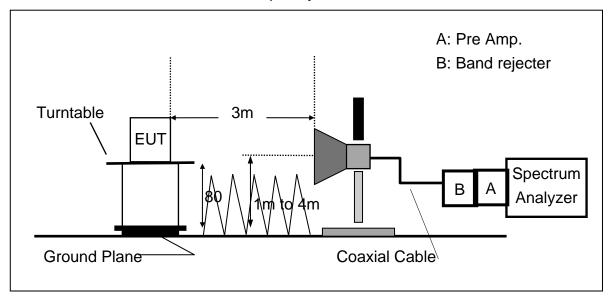


9.2. EUT Setup

Radiated Emission Test Set-Up, Frequency Below 1000MHz



Radiated Emission Test Set-UP Frequency Over 1 GHz



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9.3. Measurement Procedure:

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

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

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

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

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

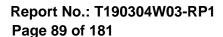
9.4. Measurement Equipment Used:

9.4. Measurement Equipment Oseu.								
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.			
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	05/31/2018	05/30/2019			
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	01/30/2019	01/29/2020			
Pre-Amplifier	MITEQ	AMF-6F-260400-40-8P	985646	02/26/2019	02/25/2020			
Pre-Amplifier	EMEC	EM330	060609	02/26/2019	02/25/2020			
Pre-Amplifier	HP	8449B	3008A00965	02/26/2019	02/25/2020			
Horn Antenna	Schwarzbeck	BBHA9170	184	12/27/2018	12/26/2019			
Horn Antenna	ETS LINDGREN	3116	00026370	12/26/2018	12/25/2019			
Horn Antenna	SCHWARZBECK	BBHA 9120D	779	03/09/2019	03/08/2020			
Bilog Antenna	Sunol Sciences	JB3	A030105	07/13/2018	07/12/2019			
Bilog Antenna	Sunol Sciences	JB1	A052609	03/06/2019	03/05/2020			
double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	08/20/2018	08/19/2019			

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Loop Antenna	ETS.LINDGREN	6502	148045	10/08/2018	10/07/2019
High Pass Filter	SOLVANG TECHNOLOGY INC.	STI15	9923	02/26/2019	02/25/2020
High Pass Filters	MICRO TRON- ICS	HPM13195	003	02/26/2019	02/25/2020
Band Reject Fil- ters	MICRO TRON- ICS	BRM 50702	120	02/26/2019	02/25/2020
Attenuator	Marvelous	MVE2213-10	RF80	02/26/2019	02/25/2020
Digital Radio Communication Tester	R&S	CMU200	100535	09/17/2018	09/16/2019
Wideband Radio Communication Tester	R&S	CMW 500	116875	04/20/2018	04/19/2019
Cable	HUBER SU- HNER	SUCOFLEX 104PEA	25157	02/26/2019	02/25/2020
Cable	HUBER SU- HNER	SUCOFLEX 104PEA	20995	02/26/2019	02/25/2020
Software	e3 V6.11-20180413				

Note: WPC wireless charging functions are implemented in field strength of spurious radiation measurement.

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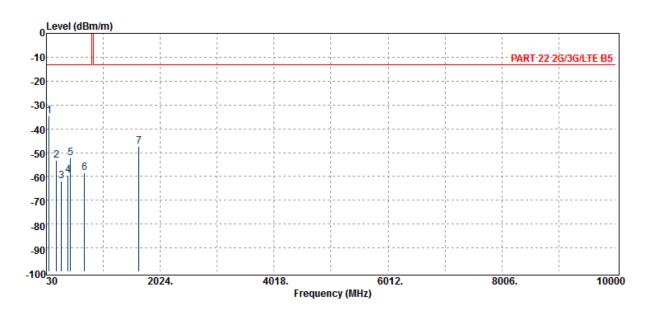
9.5. Measurement Result:

Radiated Spurious Emission Measurement Result: GSM 850 Mode

Operation Band :GSM 850 **Test Date** :2019-03-26

Fundamental Frequency :824.2 MHz Temp./Humi. :24 deg C / 64 RH

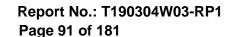
Operation Mode :Tx CH LOW Engineer :Kane EUT Pol. :H Plane Measurement Antenna Pol. :VERTICAL



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
•		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
76.56	-34.69	-25.17	-8.93	-0.72	0.13	-13.00	-21.69
207.51	-53.43	-49.97	-2.40	-1.19	0.12	-13.00	-40.43
294.81	-61.81	-58.34	-2.15	-1.42	0.10	-13.00	-48.81
408.30	-59.51	-56.34	-1.75	-1.68	0.26	-13.00	-46.51
451.95	-52.10	-48.49	-2.05	-1.76	0.20	-13.00	-39.10
694.45	-58.39	-55.74	-1.35	-2.22	0.92	-13.00	-45.39
1648.40	-47.54	-54.10	9.70	-3.55	0.41	-13.00	-34.54

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Operation Band Fundamental Frequency **Operation Mode**

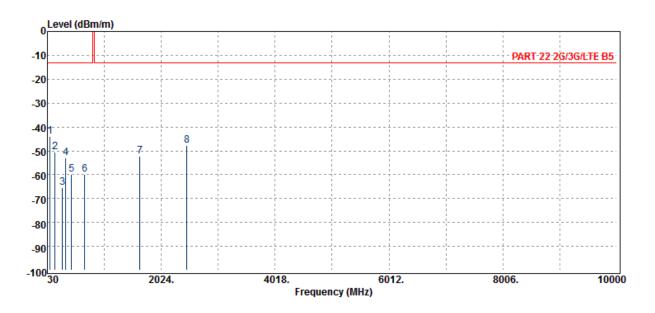
EUT Pol.

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

Test Date Temp./Humi. :2019-03-26 :24 deg_C / 64 RH

Engineer :Kane

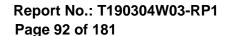
:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-43.95	-34.09	-9.28	-0.71	0.13	-13.00	-30.95
160.95	-50.53	-43.44	-6.17	-1.05	0.12	-13.00	-37.53
296.75	-65.32	-61.92	-2.08	-1.42	0.10	-13.00	-52.32
348.16	-52.97	-50.10	-1.51	-1.54	0.19	-13.00	-39.97
453.89	-59.74	-56.13	-2.05	-1.77	0.20	-13.00	-46.74
681.84	-59.87	-57.21	-1.29	-2.20	0.83	-13.00	-46.87
1648.40	-52.30	-58.86	9.70	-3.55	0.41	-13.00	-39.30
2472.60	-47.67	-54.28	10.69	-4.46	0.38	-13.00	-34.67

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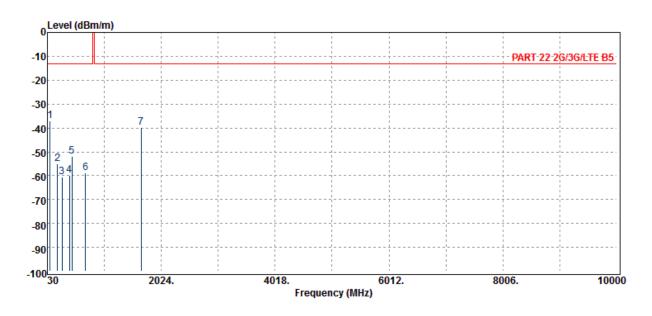


EUT Pol.

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

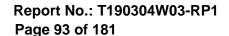
Test Date :2019-03-26 Temp./Humi. :24 deg_C / 64 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
75.59	-36.96	-27.30	-9.07	-0.72	0.13	-13.00	-23.96
204.60	-55.11	-51.13	-2.92	-1.18	0.12	-13.00	-42.11
288.99	-60.70	-57.19	-2.21	-1.41	0.10	-13.00	-47.70
415.09	-59.97	-56.68	-1.85	-1.69	0.25	-13.00	-46.97
456.80	-51.84	-48.22	-2.05	-1.77	0.20	-13.00	-38.84
697.36	-58.72	-56.04	-1.40	-2.22	0.94	-13.00	-45.72
1673.20	-39.63	-46.31	9.84	-3.58	0.42	-13.00	-26.63

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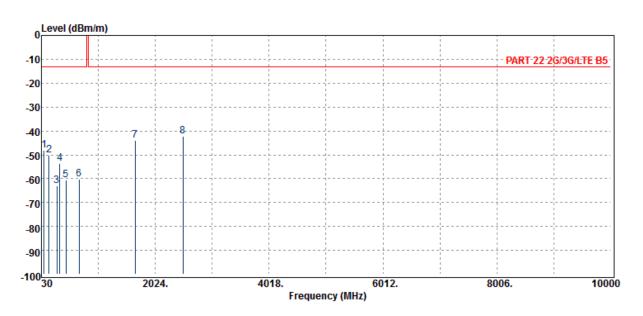


:GSM 850 :836.6 MHz :Tx CH MID EUT Pol. :H Plane

Test Date :2019-03-26 Temp./Humi. :24 deg_C / 64 RH

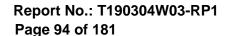
Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-48.09	-38.23	-9.28	-0.71	0.13	-13.00	-35.09
160.95	-50.34	-43.24	-6.17	-1.05	0.12	-13.00	-37.34
299.66	-62.92	-59.62	-1.96	-1.43	0.10	-13.00	-49.92
352.04	-53.70	-50.71	-1.63	-1.55	0.20	-13.00	-40.70
459.71	-60.43	-56.80	-2.05	-1.78	0.19	-13.00	-47.43
686.69	-60.32	-57.63	-1.35	-2.21	0.86	-13.00	-47.32
1673.20	-44.00	-50.68	9.84	-3.58	0.42	-13.00	-31.00
2509.80	-42.06	-48.64	10.80	-4.59	0.37	-13.00	-29.06

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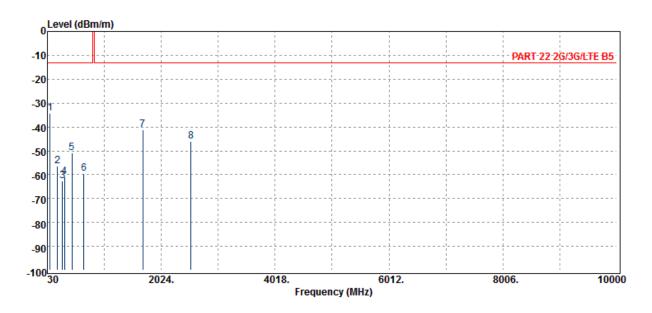




:GSM 850 :848.8 MHz :Tx CH HIGH :H Plane

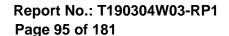
Test Date Temp./Humi. :2019-03-26 :24 deg_C / 64 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
•		Output Level	Gain	Loss			•
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-34.34	-24.48	-9.28	-0.71	0.13	-13.00	-21.34
204.60	-56.34	-52.36	-2.92	-1.18	0.12	-13.00	-43.34
296.75	-62.66	-59.26	-2.08	-1.42	0.10	-13.00	-49.66
330.70	-60.82	-57.82	-1.65	-1.51	0.16	-13.00	-47.82
456.80	-50.79	-47.16	-2.05	-1.77	0.20	-13.00	-37.79
665.35	-59.56	-56.64	-1.45	-2.17	0.71	-13.00	-46.56
1697.60	-41.25	-48.07	9.99	-3.60	0.43	-13.00	-28.25
2546.40	-46.07	-52.63	10.80	-4.59	0.35	-13.00	-33.07

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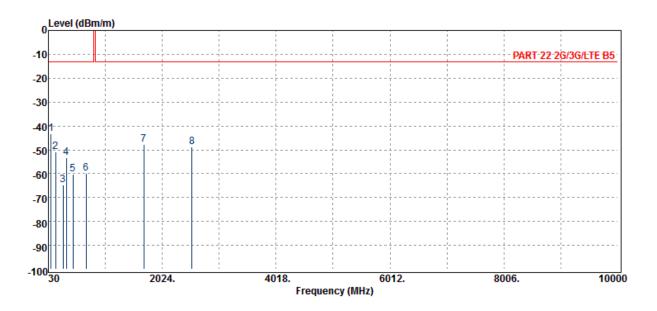


:GSM 850 :848.8 MHz :Tx CH HIGH :H Plane

Test Date Temp./Humi. :2019-03-26 :24 deg_C / 64 RH

Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			_
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
-							
73.65	-43.29	-33.43	-9.28	-0.71	0.13	-13.00	-30.29
159.01	-50.95	-43.68	-6.35	-1.04	0.12	-13.00	-37.95
288.99	-64.62	-61.11	-2.21	-1.41	0.10	-13.00	-51.62
347.19	-53.27	-50.42	-1.49	-1.54	0.19	-13.00	-40.27
461.65	-60.11	-56.40	-2.12	-1.78	0.19	-13.00	-47.11
686.69	-59.78	-57.08	-1.35	-2.21	0.86	-13.00	-46.78
1697.60	-47.71	-54.53	9.99	-3.60	0.43	-13.00	-34.71
2546.40	-48.79	-55.35	10.80	-4.59	0.35	-13.00	-35.79

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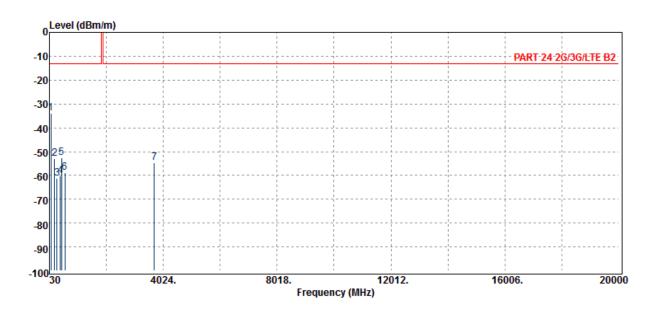
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Radiated Spurious Emission Measurement Result: GSM 1900 Mode

Operation Band :GSM 1900 **Test Date** :2019-03-28

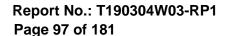
Fundamental Frequency :1850.2 MHz Temp./Humi. :24 deg_C / 64 RH

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-33.84	-23.98	-9.28	-0.71	0.13	-13.00	-20.84
206.54	-52.77	-49.17	-2.53	-1.18	0.12	-13.00	-39.77
294.81	-61.21	-57.74	-2.15	-1.42	0.10	-13.00	-48.21
411.21	-60.07	-56.87	-1.77	-1.68	0.26	-13.00	-47.07
458.74	-52.49	-48.86	-2.05	-1.78	0.20	-13.00	-39.49
576.11	-58.71	-55.46	-1.43	-2.02	0.20	-13.00	-45.71
3700.40	-54.77	-61.68	12.50	-5.72	0.13	-13.00	-41.77

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Operation Band :GSM 1900 Fundamental Frequency

Operation Mode EUT Pol.

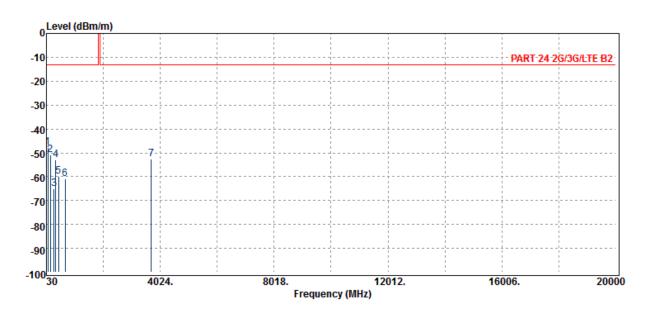
:1850.2 MHz :Tx CH LOW :H Plane

Test Date :2019-03-28

Temp./Humi. :24 deg_C / 64 RH

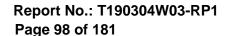
Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-47.78	-37.92	-9.28	-0.71	0.13	-13.00	-34.78
165.80	-50.93	-44.20	-5.79	-1.06	0.12	-13.00	-37.93
298.69	-64.90	-61.57	-2.00	-1.43	0.10	-13.00	-51.90
352.04	-53.08	-50.09	-1.63	-1.55	0.20	-13.00	-40.08
451.95	-60.02	-56.41	-2.05	-1.76	0.20	-13.00	-47.02
687.66	-60.96	-58.27	-1.35	-2.21	0.87	-13.00	-47.96
3700.40	-52.71	-59.62	12.50	-5.72	0.13	-13.00	-39.71

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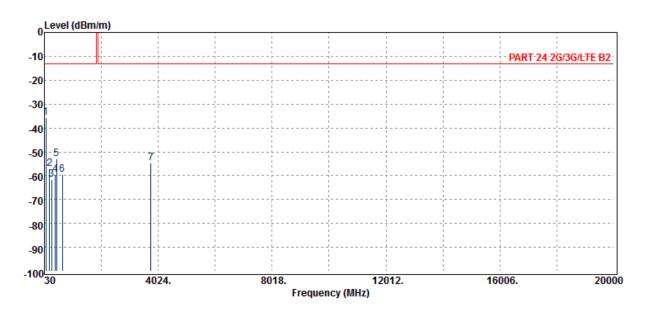




Operation Band :GSM 1900 **Test Date** :2019-03-28

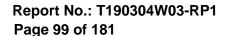
Fundamental Frequency :1880 MHz Temp./Humi. :24 deg_C / 64 RH

Operation Mode :Tx CH MID Engineer :Kane EUT Pol. :H Plane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-35.54	-25.68	-9.28	-0.71	0.13	-13.00	-22.54
206.54	-56.95	-53.35	-2.53	-1.18	0.12	-13.00	-43.95
289.96	-61.48	-58.02	-2.15	-1.41	0.10	-13.00	-48.48
410.24	-59.38	-56.21	-1.75	-1.68	0.26	-13.00	-46.38
451.95	-52.83	-49.22	-2.05	-1.76	0.20	-13.00	-39.83
658.56	-59.52	-56.52	-1.51	-2.16	0.66	-13.00	-46.52
3760.00	-54.56	-61.42	12.42	-5.69	0.12	-13.00	-41.56

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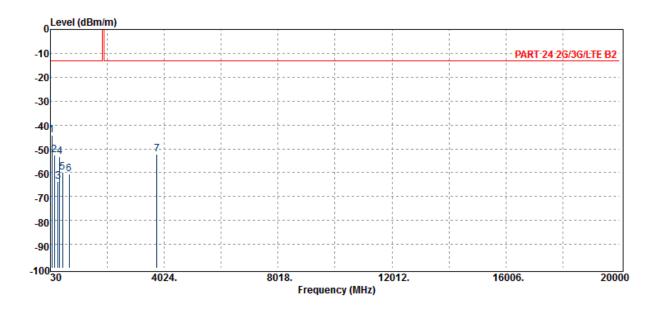


Operation Band :GSM 1900 **Test Date** :2019-03-28

Fundamental Frequency :1880 MHz Temp./Humi. :24 deg_C / 64 RH

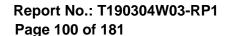
Operation Mode :Tx CH MID Engineer :Kane

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
							_
73.65	-44.30	-34.44	-9.28	-0.71	0.13	-13.00	-31.30
165.80	-52.48	-45.75	-5.79	-1.06	0.12	-13.00	-39.48
298.69	-63.63	-60.30	-2.00	-1.43	0.10	-13.00	-50.63
353.01	-53.21	-50.19	-1.67	-1.55	0.20	-13.00	-40.21
453.89	-60.01	-56.40	-2.05	-1.77	0.20	-13.00	-47.01
691.54	-60.39	-57.72	-1.35	-2.22	0.90	-13.00	-47.39
3760.00	-52.39	-59.24	12.42	-5.69	0.12	-13.00	-39.39

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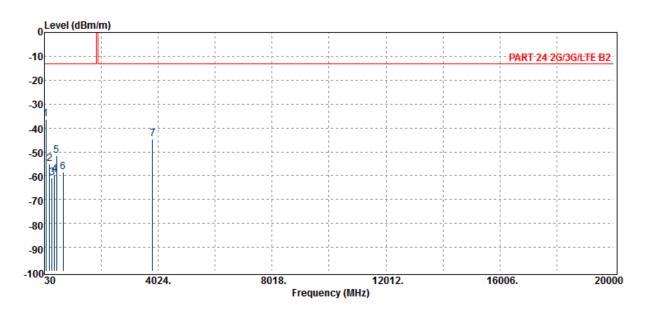


EUT Pol.

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

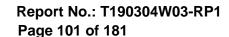
Test Date :2019-03-28 Temp./Humi. :24 deg_C / 64 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
75.59	-36.45	-26.80	-9.07	-0.72	0.13	-13.00	-23.45
207.51	-54.91	-51.45	-2.40	-1.19	0.12	-13.00	-41.91
299.66	-61.06	-57.77	-1.96	-1.43	0.10	-13.00	-48.06
382.11	-59.37	-56.49	-1.51	-1.62	0.25	-13.00	-46.37
451.95	-51.50	-47.90	-2.05	-1.76	0.20	-13.00	-38.50
691.54	-58.33	-55.67	-1.35	-2.22	0.90	-13.00	-45.33
3819.60	-44.78	-51.60	12.46	-5.76	0.12	-13.00	-31.78

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.





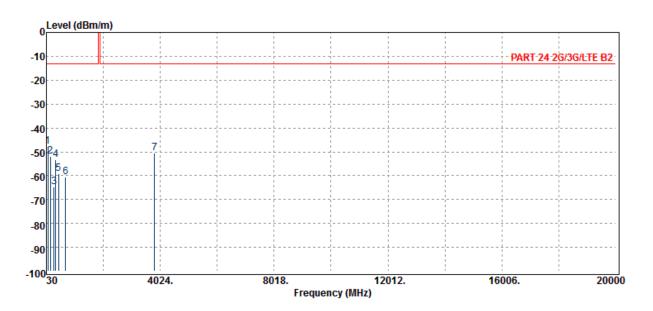
EUT Pol.

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

Test Date Temp./Humi. :2019-03-28 :24 deg_C / 64 RH

Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-47.79	-37.93	-9.28	-0.71	0.13	-13.00	-34.79
160.95	-51.96	-44.86	-6.17	-1.05	0.12	-13.00	-38.96
299.66	-64.68	-61.39	-1.96	-1.43	0.10	-13.00	-51.68
348.16	-53.23	-50.36	-1.51	-1.54	0.19	-13.00	-40.23
458.74	-59.21	-55.58	-2.05	-1.78	0.20	-13.00	-46.21
699.30	-60.43	-57.72	-1.44	-2.23	0.95	-13.00	-47.43
3819.60	-50.51	-57.33	12.46	-5.76	0.12	-13.00	-37.51

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.



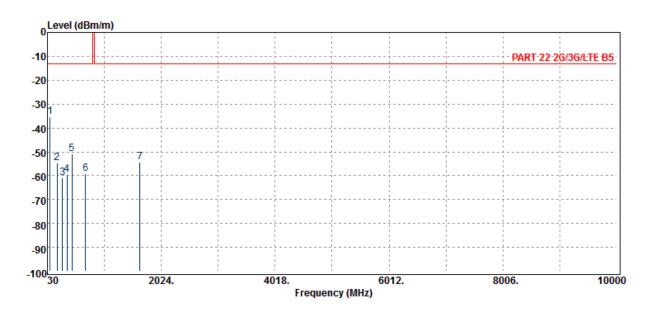


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Radiated Spurious Emission Measurement Result: WCDMA Band 5 Mode

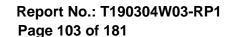
Operation Band :WCDMA B5 **Test Date** :2019-03-26 Fundamental Frequency :826.4 MHz Temp./Humi. :24 deg_C / 64 RH

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-35.22	-25.45	-9.19	-0.71	0.13	-13.00	-22.22
202.66	-54.77	-49.99	-3.73	-1.17	0.12	-13.00	-41.77
292.87	-61.05	-57.58	-2.15	-1.42	0.10	-13.00	-48.05
373.38	-59.60	-56.55	-1.68	-1.60	0.23	-13.00	-46.60
455.83	-50.91	-47.28	-2.05	-1.77	0.20	-13.00	-37.91
695.42	-59.06	-56.41	-1.36	-2.22	0.92	-13.00	-46.06
1652.80	-54.38	-60.96	9.72	-3.55	0.41	-13.00	-41.38

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.



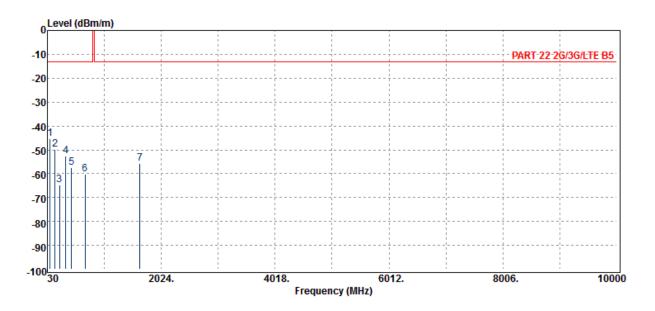


:WCDMA B5 :826.4 MHz :Tx CH LOW :H Plane

Test Date Temp./Humi. :2019-03-26 :24 deg_C / 64 RH

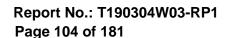
Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-45.20	-35.43	-9.19	-0.71	0.13	-13.00	-32.20
163.86	-49.98	-43.10	-5.94	-1.05	0.12	-13.00	-36.98
240.49	-64.73	-61.43	-2.13	-1.28	0.11	-13.00	-51.73
350.10	-52.52	-49.61	-1.55	-1.55	0.19	-13.00	-39.52
452.92	-57.56	-53.95	-2.05	-1.77	0.20	-13.00	-44.56
692.51	-60.29	-57.63	-1.35	-2.22	0.90	-13.00	-47.29
1652.80	-55.82	-62.40	9.72	-3.55	0.41	-13.00	-42.82

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.



:2019-03-26

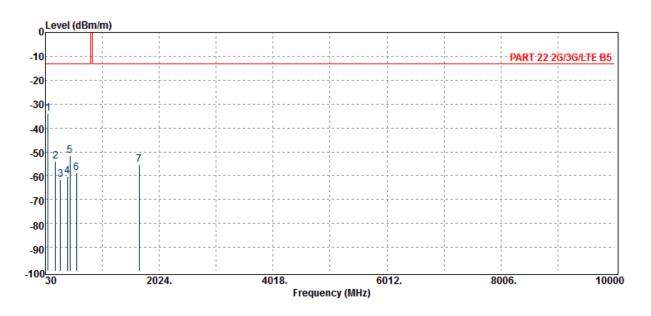


Operation Band Fundamental Frequency **Operation Mode** EUT Pol.

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

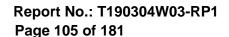
Test Date Temp./Humi.

:24 deg_C / 64 RH Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-34.00	-24.24	-9.19	-0.71	0.13	-13.00	-21.00
206.54	-54.14	-50.53	-2.53	-1.18	0.12	-13.00	-41.14
294.81	-61.74	-58.27	-2.15	-1.42	0.10	-13.00	-48.74
414.12	-60.15	-56.88	-1.83	-1.69	0.25	-13.00	-47.15
458.74	-51.49	-47.86	-2.05	-1.78	0.20	-13.00	-38.49
575.14	-58.78	-55.52	-1.45	-2.01	0.20	-13.00	-45.78
1673.20	-55.40	-62.07	9.84	-3.58	0.42	-13.00	-42.40

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.



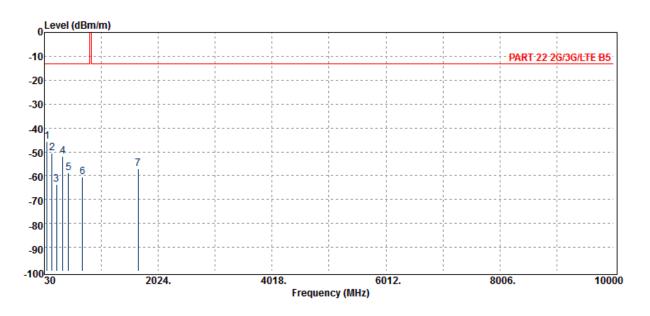


:WCDMA B5 :836.6 MHz :Tx CH MID :H Plane

Test Date Temp./Humi. :2019-03-26 :24 deg_C / 64 RH

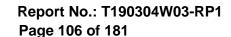
Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
							_
75.59	-45.80	-36.14	-9.07	-0.72	0.13	-13.00	-32.80
164.83	-50.55	-43.75	-5.86	-1.06	0.12	-13.00	-37.55
240.49	-63.57	-60.27	-2.13	-1.28	0.11	-13.00	-50.57
348.16	-52.05	-49.18	-1.51	-1.54	0.19	-13.00	-39.05
454.86	-58.84	-55.22	-2.05	-1.77	0.20	-13.00	-45.84
700.27	-60.51	-57.78	-1.45	-2.23	0.95	-13.00	-47.51
1673.20	-57.19	-63.87	9.84	-3.58	0.42	-13.00	-44.19

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.



:2019-03-26

:24 deg_C / 64 RH

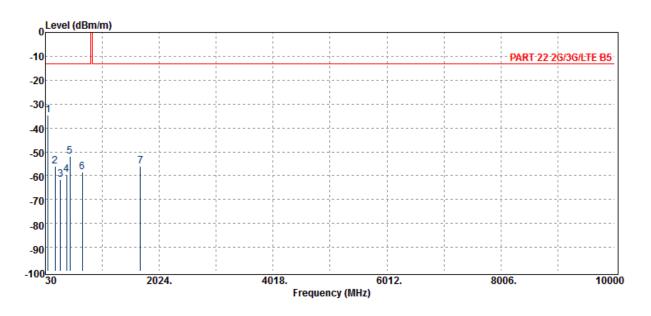


Operation Band Fundamental Frequency **Operation Mode** EUT Pol.

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

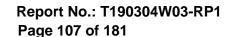
Test Date Temp./Humi.

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
75.59	-34.76	-25.11	-9.07	-0.72	0.13	-13.00	-21.76
200.72	-55.91	-50.32	-4.54	-1.17	0.12	-13.00	-42.91
295.78	-61.51	-58.06	-2.12	-1.42	0.10	-13.00	-48.51
403.45	-59.68	-56.57	-1.72	-1.67	0.27	-13.00	-46.68
455.83	-51.91	-48.29	-2.05	-1.77	0.20	-13.00	-38.91
672.14	-58.35	-55.51	-1.41	-2.19	0.76	-13.00	-45.35
1693.20	-55.90	-62.69	9.96	-3.59	0.42	-13.00	-42.90

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.





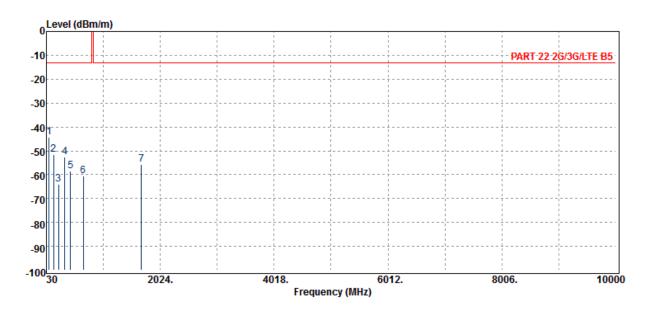
:WCDMA B5 :846.6 MHz :Tx CH HIGH :H Plane

Test Date Temp./Humi. Engineer

:2019-03-26 :24 deg_C / 64 RH

:Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-44.28	-34.51	-9.19	-0.71	0.13	-13.00	-31.28
159.01	-51.55	-44.28	-6.35	-1.04	0.12	-13.00	-38.55
240.49	-64.08	-60.78	-2.13	-1.28	0.11	-13.00	-51.08
353.01	-52.61	-49.59	-1.67	-1.55	0.20	-13.00	-39.61
450.98	-58.51	-54.91	-2.05	-1.76	0.21	-13.00	-45.51
677.96	-60.62	-57.93	-1.29	-2.20	0.80	-13.00	-47.62
1693.20	-55.62	-62.41	9.96	-3.59	0.42	-13.00	-42.62

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.





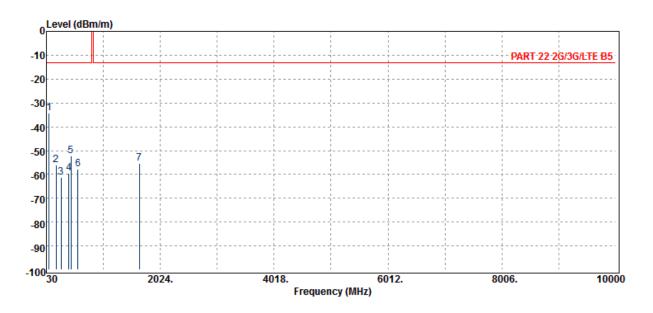
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Radiated Spurious Emission Measurement Result: LTE-Band 5 (The Worst Case)

Operation Band :LTE B5 **Test Date** :2019-03-28

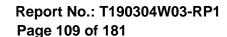
Fundamental Frequency :829 MHz Temp./Humi. :23 deg_C / 62 RH

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-34.29	-24.52	-9.19	-0.71	0.13	-13.00	-21.29
202.66	-55.99	-51.21	-3.73	-1.17	0.12	-13.00	-42.99
288.02	-61.24	-57.67	-2.27	-1.40	0.10	-13.00	-48.24
419.94	-59.62	-56.32	-1.85	-1.70	0.25	-13.00	-46.62
457.77	-52.32	-48.69	-2.05	-1.78	0.20	-13.00	-39.32
579.99	-57.63	-54.46	-1.35	-2.02	0.20	-13.00	-44.63
1658.00	-55.36	-61.96	9.75	-3.56	0.42	-13.00	-42.36

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.



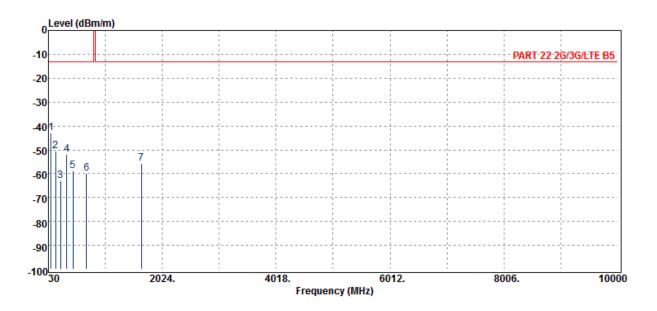


Operation Band :LTE B5 **Test Date** :2019-03-28

Fundamental Frequency :829 MHz Temp./Humi. :23 deg_C / 62 RH

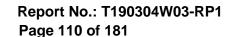
Operation Mode :Tx CH LOW Engineer :Kane EUT Pol.

:H Plane :HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-42.77	-33.00	-9.19	-0.71	0.13	-13.00	-29.77
159.01	-50.40	-43.13	-6.35	-1.04	0.12	-13.00	-37.40
240.49	-62.92	-59.62	-2.13	-1.28	0.11	-13.00	-49.92
351.07	-51.80	-48.85	-1.59	-1.55	0.19	-13.00	-38.80
456.80	-58.78	-55.16	-2.05	-1.77	0.20	-13.00	-45.78
700.27	-59.99	-57.27	-1.45	-2.23	0.95	-13.00	-46.99
1658.00	-55.55	-62.16	9.75	-3.56	0.42	-13.00	-42.55

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.





Operation Band Fundamental Frequency

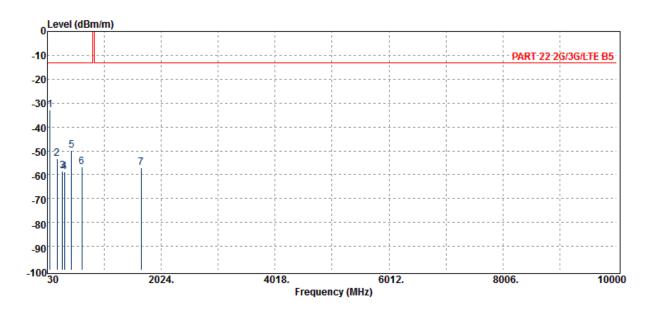
Operation Mode EUT Pol.

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

Test Date :2019-03-28

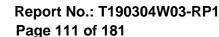
Temp./Humi. :23 deg_C / 62 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
							_
75.59	-33.01	-23.35	-9.07	-0.72	0.13	-13.00	-20.01
201.69	-53.31	-48.12	-4.13	-1.17	0.12	-13.00	-40.31
296.75	-58.47	-55.07	-2.08	-1.42	0.10	-13.00	-45.47
331.67	-58.77	-55.77	-1.65	-1.51	0.16	-13.00	-45.77
451.95	-49.88	-46.27	-2.05	-1.76	0.20	-13.00	-36.88
629.46	-56.77	-53.58	-1.54	-2.09	0.44	-13.00	-43.77
1673.00	-57.26	-63.93	9.84	-3.58	0.42	-13.00	-44.26

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.



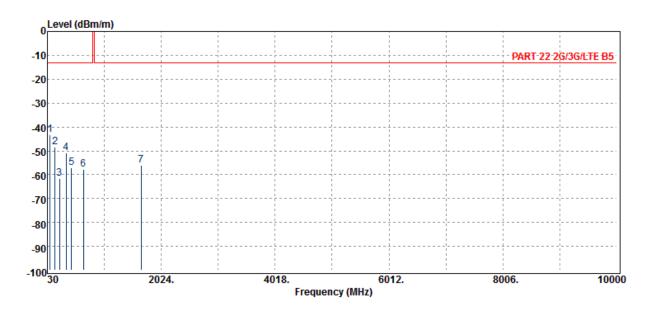


Operation Band :LTE B5 **Test Date** :2019-03-28

Fundamental Frequency Temp./Humi. :836.5 MHz :23 deg_C / 62 RH

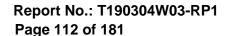
Operation Mode :Tx CH MID Engineer :Kane

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
							_
75.59	-43.32	-33.66	-9.07	-0.72	0.13	-13.00	-30.32
160.95	-48.30	-41.20	-6.17	-1.05	0.12	-13.00	-35.30
239.52	-61.48	-58.16	-2.15	-1.28	0.11	-13.00	-48.48
354.95	-51.00	-47.89	-1.75	-1.56	0.20	-13.00	-38.00
453.89	-57.22	-53.60	-2.05	-1.77	0.20	-13.00	-44.22
660.50	-57.87	-54.93	-1.45	-2.16	0.68	-13.00	-44.87
1673.00	-56.20	-62.87	9.84	-3.58	0.42	-13.00	-43.20

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.





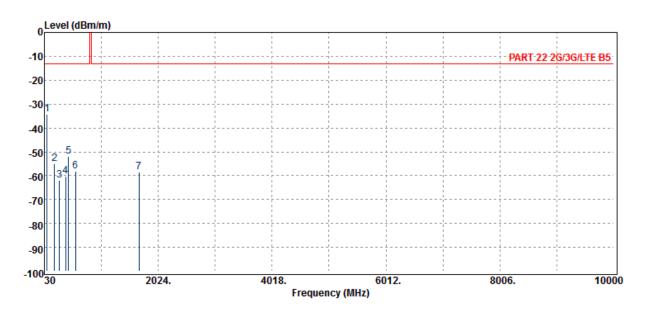
Operation Band Fundamental Frequency

Operation Mode EUT Pol.

:LTE B5 :844 MHz :Tx CH HIGH :H Plane

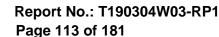
Test Date :2019-03-28 Temp./Humi. :23 deg_C / 62 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-34.36	-24.59	-9.19	-0.71	0.13	-13.00	-21.36
207.51	-55.03	-51.56	-2.40	-1.19	0.12	-13.00	-42.03
293.84	-61.85	-58.38	-2.15	-1.42	0.10	-13.00	-48.85
401.51	-60.05	-56.98	-1.68	-1.66	0.27	-13.00	-47.05
451.95	-51.92	-48.32	-2.05	-1.76	0.20	-13.00	-38.92
574.17	-58.00	-54.73	-1.45	-2.01	0.20	-13.00	-45.00
1688.00	-58.34	-65.10	9.93	-3.59	0.42	-13.00	-45.34

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.





Operation Band Fundamental Frequency

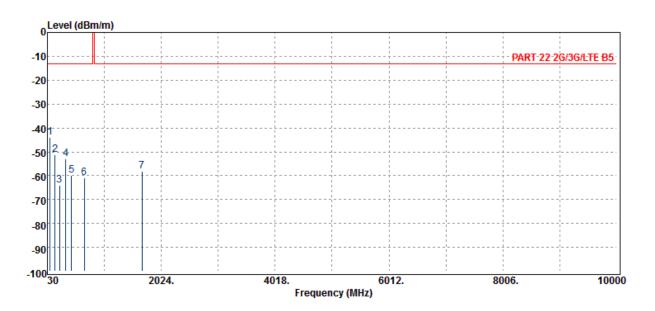
Operation Mode EUT Pol.

:LTE B5 :844 MHz :Tx CH HIGH :H Plane

Test Date :2019-03-28 Temp./Humi. :23 deg_C / 62 RH

Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-44.05	-34.28	-9.19	-0.71	0.13	-13.00	-31.05
162.89	-51.09	-44.14	-6.02	-1.05	0.12	-13.00	-38.09
240.49	-64.16	-60.86	-2.13	-1.28	0.11	-13.00	-51.16
349.13	-52.92	-50.03	-1.53	-1.55	0.19	-13.00	-39.92
451.95	-59.69	-56.08	-2.05	-1.76	0.20	-13.00	-46.69
675.05	-60.84	-58.08	-1.35	-2.19	0.78	-13.00	-47.84
1688.00	-58.15	-64.91	9.93	-3.59	0.42	-13.00	-45.15

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.



Report No.: T190304W03-RP1

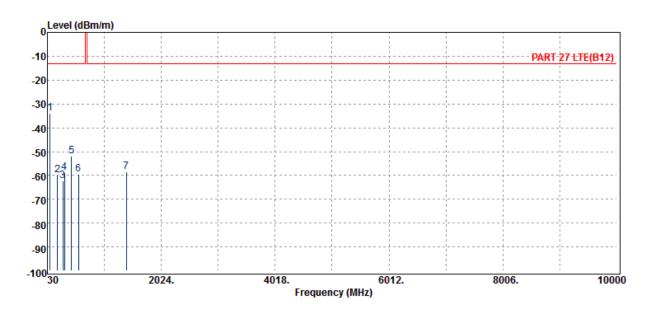
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Radiated Spurious Emission Measurement Result: LTE-Band 12 (The Worst Case)

Operation Band :LTE B12 **Test Date** :2019-03-28

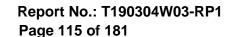
Fundamental Frequency :704 MHz Temp./Humi. :23 deg_C / 62 RH

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin	
•		Output Level	Gain	Loss				
MHz	dBm	[.] dBm	dBd/dBi	dB	dB	dBm	dB	
								•
74.62	-34.04	-24.28	-9.19	-0.71	0.14	-13.00	-21.04	
205.57	-59.83	-56.25	-2.67	-1.18	0.27	-13.00	-46.83	
298.69	-62.43	-59.34	-2.00	-1.43	0.34	-13.00	-49.43	
330.70	-58.75	-56.08	-1.65	-1.51	0.48	-13.00	-45.75	
453.89	-51.91	-48.34	-2.05	-1.77	0.25	-13.00	-38.91	
576.11	-59.55	-56.37	-1.43	-2.02	0.27	-13.00	-46.55	
1408.00	-58.56	-63.87	8.05	-3.25	0.51	-13.00	-45.56	

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.



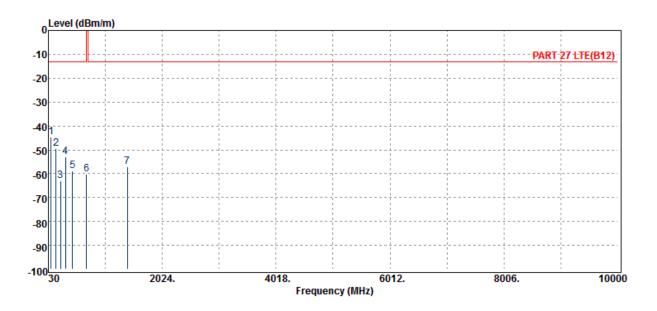


Operation Band :LTE B12 **Test Date** :2019-03-28

Fundamental Frequency :704 MHz Temp./Humi. :23 deg_C / 62 RH

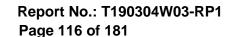
Operation Mode :Tx CH LOW Engineer :Kane

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-44.55	-34.79	-9.19	-0.71	0.14	-13.00	-31.55
162.89	-49.41	-42.45	-6.02	-1.05	0.11	-13.00	-36.41
239.52	-63.11	-59.93	-2.15	-1.28	0.24	-13.00	-50.11
332.64	-52.91	-50.22	-1.65	-1.51	0.48	-13.00	-39.91
453.89	-58.96	-55.39	-2.05	-1.77	0.25	-13.00	-45.96
697.36	-60.14	-56.51	-1.40	-2.22	0.00	-13.00	-47.14
1408.00	-57.04	-62.35	8.05	-3.25	0.51	-13.00	-44.04

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.



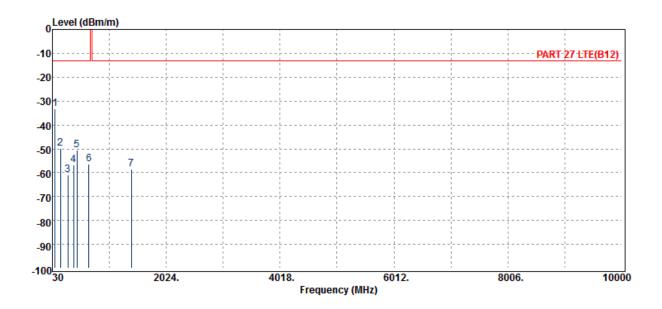


EUT Pol.

:LTE B12 :707.5 MHz :Tx CH MID :H Plane

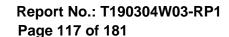
Test Date Temp./Humi. :2019-03-28 :23 deg_C / 62 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin	
•		Output Level	Gain	Loss			G	
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB	
74.62	-33.29	-23.53	-9.19	-0.71	0.14	-13.00	-20.29	
171.62	-49.99	-43.77	-5.29	-1.08	0.14	-13.00	-36.99	
298.69	-60.96	-57.86	-2.00	-1.43	0.34	-13.00	-47.96	
401.51	-56.83	-53.75	-1.68	-1.66	0.26	-13.00	-43.83	
461.65	-50.50	-46.84	-2.12	-1.78	0.24	-13.00	-37.50	
670.20	-56.41	-52.91	-1.45	-2.18	0.14	-13.00	-43.41	
1415.00	-58.35	-63.71	8.09	-3.26	0.53	-13.00	-45.35	

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.





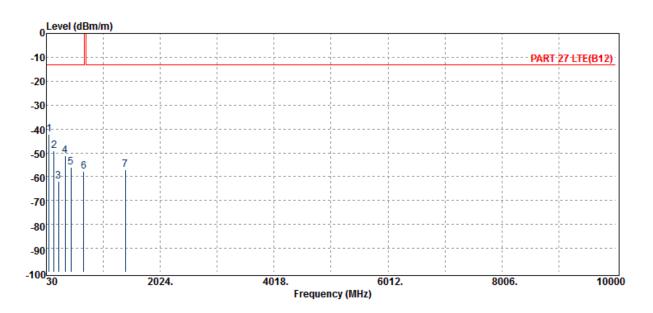
EUT Pol.

:LTE B12 :707.5 MHz :Tx CH MID :H Plane

Test Date :2019-03-28 Temp./Humi. :23 deg_C / 62 RH

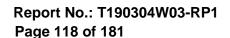
Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-42.11	-32.26	-9.28	-0.71	0.14	-13.00	-29.11
165.80	-49.21	-42.48	-5.79	-1.06	0.12	-13.00	-36.21
239.52	-62.00	-58.81	-2.15	-1.28	0.24	-13.00	-49.00
356.89	-51.33	-48.37	-1.79	-1.56	0.38	-13.00	-38.33
459.71	-56.01	-52.42	-2.05	-1.78	0.24	-13.00	-43.01
685.72	-57.95	-54.43	-1.35	-2.21	0.03	-13.00	-44.95
1415.00	-56.95	-62.31	8.09	-3.26	0.53	-13.00	-43.95

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.





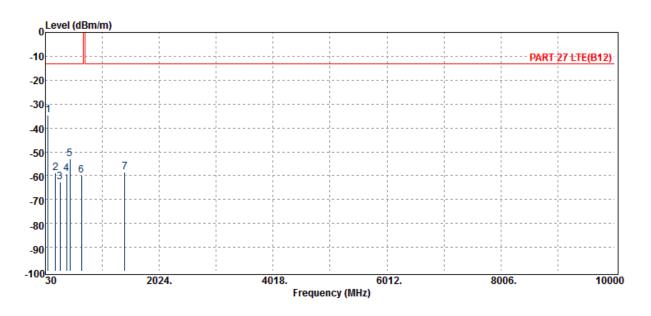
Operation Band Fundamental Frequency

Operation Mode EUT Pol.

:LTE B12 :711 MHz :Tx CH HIGH :H Plane

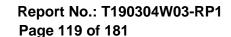
Test Date :2019-03-28 Temp./Humi. :23 deg_C / 62 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-34.44	-24.59	-9.28	-0.71	0.14	-13.00	-21.44
205.57	-58.75	-55.18	-2.67	-1.18	0.27	-13.00	-45.75
286.08	-62.46	-58.95	-2.38	-1.40	0.28	-13.00	-49.46
404.42	-59.28	-56.14	-1.74	-1.67	0.26	-13.00	-46.28
456.80	-52.77	-49.19	-2.05	-1.77	0.25	-13.00	-39.77
662.44	-59.77	-56.35	-1.45	-2.17	0.19	-13.00	-46.77
1422.00	-58.64	-64.06	8.13	-3.27	0.56	-13.00	-45.64

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.





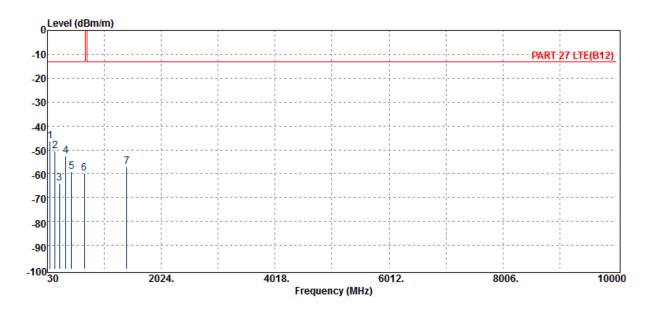
EUT Pol.

:LTE B12 :711 MHz :Tx CH HIGH :H Plane

Test Date Temp./Humi. :2019-03-28 :23 deg_C / 62 RH

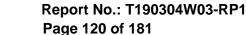
Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
75.59	-46.20	-36.56	-9.07	-0.72	0.14	-13.00	-33.20
162.89	-50.38	-43.42	-6.02	-1.05	0.11	-13.00	-37.38
239.52	-63.87	-60.68	-2.15	-1.28	0.24	-13.00	-50.87
350.10	-52.50	-49.81	-1.55	-1.55	0.41	-13.00	-39.50
453.89	-59.29	-55.72	-2.05	-1.77	0.25	-13.00	-46.29
672.14	-59.99	-56.52	-1.41	-2.19	0.13	-13.00	-46.99
1422.00	-57.09	-62.51	8.13	-3.27	0.56	-13.00	-44.09

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.



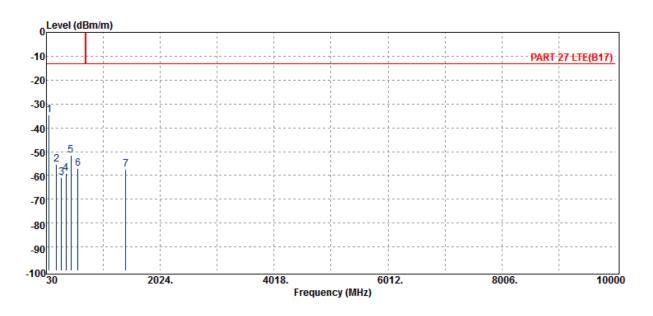


Radiated Spurious Emission Measurement Result: LTE-Band 17 (The Worst Case)

Operation Band :LTE B17 **Test Date** :2019-03-28

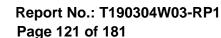
Fundamental Frequency :709 MHz Temp./Humi. :23 deg_C / 62 RH

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin	
•		Output Level	Gain	Loss				
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB	
								_
74.62	-34.47	-24.71	-9.19	-0.71	0.14	-13.00	-21.47	
204.60	-55.31	-51.49	-2.92	-1.18	0.27	-13.00	-42.31	
291.90	-60.91	-57.65	-2.15	-1.41	0.31	-13.00	-47.91	
373.38	-59.30	-56.34	-1.68	-1.60	0.32	-13.00	-46.30	
456.80	-51.62	-48.04	-2.05	-1.77	0.25	-13.00	-38.62	
580.96	-56.97	-53.91	-1.31	-2.03	0.28	-13.00	-43.97	
1418.00	-57.55	-62.94	8.11	-3.27	0.54	-13.00	-44.55	

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.





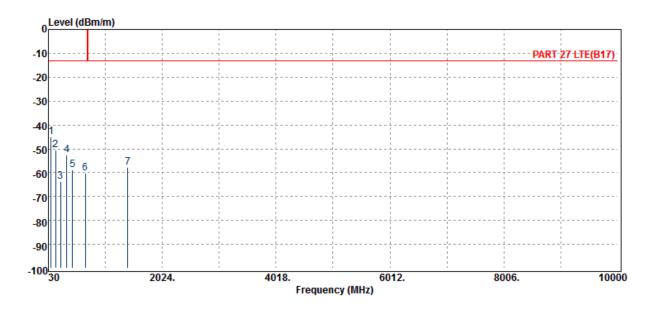
EUT Pol.

:LTE B17 :709 MHz :Tx CH LOW :H Plane

Test Date Temp./Humi. :2019-03-28 :23 deg_C / 62 RH

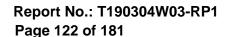
Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			_
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-44.94	-35.18	-9.19	-0.71	0.14	-13.00	-31.94
158.04	-50.35	-42.96	-6.44	-1.04	0.08	-13.00	-37.35
239.52	-63.75	-60.56	-2.15	-1.28	0.24	-13.00	-50.75
351.07	-52.62	-49.88	-1.59	-1.55	0.40	-13.00	-39.62
453.89	-58.86	-55.29	-2.05	-1.77	0.25	-13.00	-45.86
674.08	-60.30	-56.86	-1.37	-2.19	0.11	-13.00	-47.30
1418.00	-57.89	-63.28	8.11	-3.27	0.54	-13.00	-44.89

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.





Operation Band Fundamental Frequency

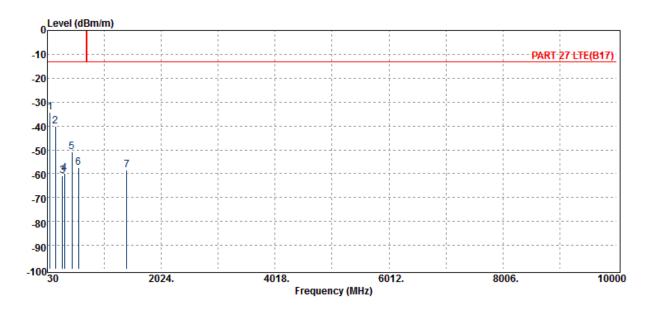
Operation Mode EUT Pol.

:LTE B17 :710 MHz :Tx CH MID :H Plane

Test Date :2019-03-28

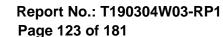
Temp./Humi. :23 deg_C / 62 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
76.56	-34.17	-24.67	-8.93	-0.72	0.14	-13.00	-21.17
169.68	-40.15	-33.73	-5.48	-1.07	0.14	-13.00	-27.15
292.87	-61.02	-57.77	-2.15	-1.42	0.31	-13.00	-48.02
330.70	-59.91	-57.24	-1.65	-1.51	0.48	-13.00	-46.91
457.77	-50.89	-47.31	-2.05	-1.78	0.25	-13.00	-37.89
577.08	-57.60	-54.44	-1.41	-2.02	0.27	-13.00	-44.60
1420.00	-58.53	-63.93	8.12	-3.27	0.55	-13.00	-45.53

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.



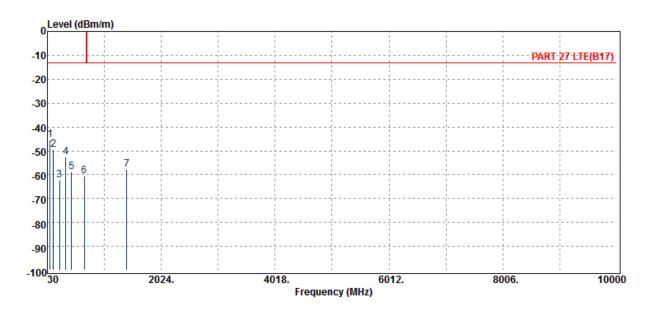


Operation Band :LTE B17 **Test Date** :2019-03-28

Fundamental Frequency :710 MHz Temp./Humi. :23 deg_C / 62 RH

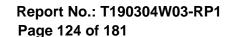
Operation Mode :Tx CH MID Engineer :Kane

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-45.23	-35.38	-9.28	-0.71	0.14	-13.00	-32.23
134.76	-49.31	-39.04	-9.39	-0.96	0.07	-13.00	-36.31
239.52	-62.31	-59.12	-2.15	-1.28	0.24	-13.00	-49.31
350.10	-52.43	-49.74	-1.55	-1.55	0.41	-13.00	-39.43
451.95	-58.87	-55.31	-2.05	-1.76	0.25	-13.00	-45.87
677.96	-60.65	-57.25	-1.29	-2.20	0.08	-13.00	-47.65
1420.00	-57.66	-63.06	8.12	-3.27	0.55	-13.00	-44.66

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.



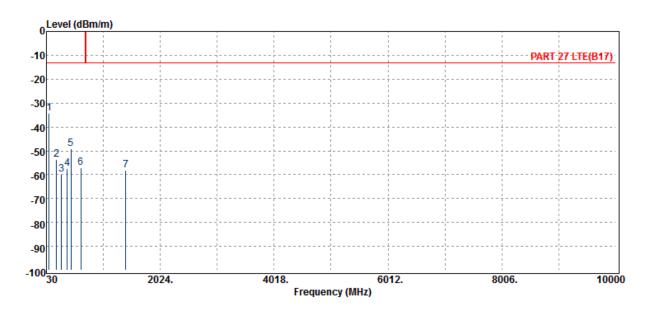


EUT Pol.

:LTE B17 :711 MHz :Tx CH HIGH :H Plane

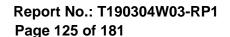
Test Date :2019-03-28 Temp./Humi. :23 deg_C / 62 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
							_
75.59	-34.33	-24.69	-9.07	-0.72	0.14	-13.00	-21.33
206.54	-53.63	-50.20	-2.53	-1.18	0.28	-13.00	-40.63
291.90	-59.79	-56.53	-2.15	-1.41	0.31	-13.00	-46.79
392.78	-57.50	-54.62	-1.51	-1.64	0.26	-13.00	-44.50
458.74	-49.12	-45.54	-2.05	-1.78	0.25	-13.00	-36.12
629.46	-57.11	-53.91	-1.54	-2.09	0.43	-13.00	-44.11
1422.00	-58.10	-63.52	8.13	-3.27	0.56	-13.00	-45.10

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.



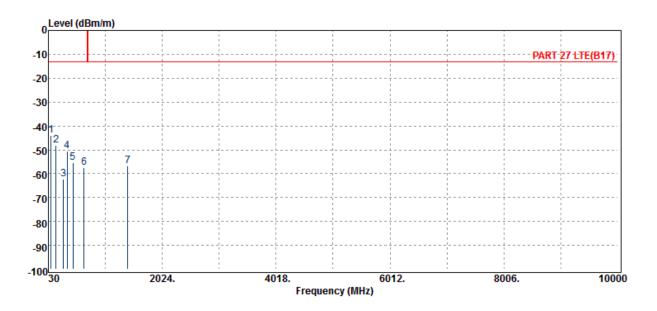


Operation Band :LTE B17 **Test Date** :2019-03-28

Fundamental Frequency :711 MHz Temp./Humi. :23 deg_C / 62 RH

Operation Mode :Tx CH HIGH Engineer :Kane

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-44.08	-34.32	-9.19	-0.71	0.14	-13.00	-31.08
163.86	-48.05	-41.16	-5.94	-1.05	0.11	-13.00	-35.05
296.75	-62.18	-59.00	-2.08	-1.42	0.33	-13.00	-49.18
355.92	-50.63	-47.69	-1.77	-1.56	0.39	-13.00	-37.63
460.68	-55.49	-51.87	-2.08	-1.78	0.24	-13.00	-42.49
657.59	-57.59	-54.12	-1.55	-2.16	0.23	-13.00	-44.59
1422.00	-56.84	-62.26	8.13	-3.27	0.56	-13.00	-43.84

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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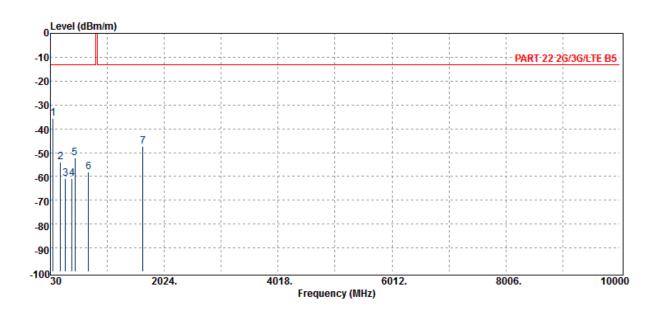
9.6. Measurement Result (Wireless Charging Mode):

Radiated Spurious Emission Measurement Result: GSM 850 Mode

Operation Band Test Date :GSM 850 :2019-03-26

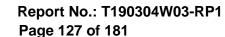
Fundamental Frequency :824.2 MHz Temp./Humi. :24 deg C / 64 RH

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
75.59	-35.69	-26.04	-9.07	-0.72	0.13	-13.00	-22.69
207.51	-53.93	-50.47	-2.40	-1.19	0.12	-13.00	-40.93
289.96	-60.94	-57.48	-2.15	-1.41	0.10	-13.00	-47.94
411.21	-60.78	-57.58	-1.77	-1.68	0.26	-13.00	-47.78
458.74	-52.37	-48.74	-2.05	-1.78	0.20	-13.00	-39.37
697.36	-58.22	-55.54	-1.40	-2.22	0.94	-13.00	-45.22
1648.40	-47.54	-54.10	9.70	-3.55	0.41	-13.00	-34.54

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.





Operation Band Fundamental Frequency

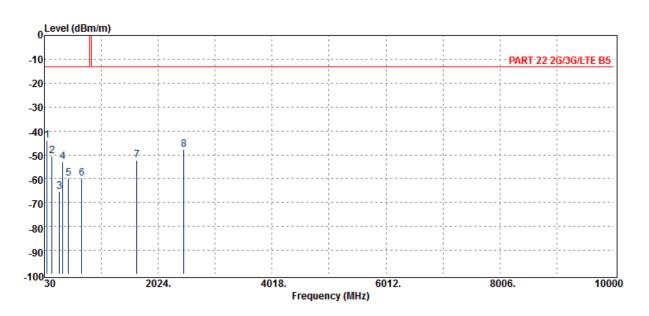
Operation Mode EUT Pol.

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

Test Date :2019-03-26

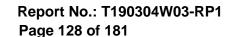
Temp./Humi. :24 deg_C / 64 RH Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
•		Output Level	Gain	Loss			•
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-43.95	-34.09	-9.28	-0.71	0.13	-13.00	-30.95
160.95	-50.53	-43.44	-6.17	-1.05	0.12	-13.00	-37.53
296.75	-65.32	-61.92	-2.08	-1.42	0.10	-13.00	-52.32
348.16	-52.97	-50.10	-1.51	-1.54	0.19	-13.00	-39.97
453.89	-59.74	-56.13	-2.05	-1.77	0.20	-13.00	-46.74
681.84	-59.87	-57.21	-1.29	-2.20	0.83	-13.00	-46.87
1648.40	-52.30	-58.86	9.70	-3.55	0.41	-13.00	-39.30
2472.60	-47.67	-54.28	10.69	-4.46	0.38	-13.00	-34.67

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.



:2019-03-26

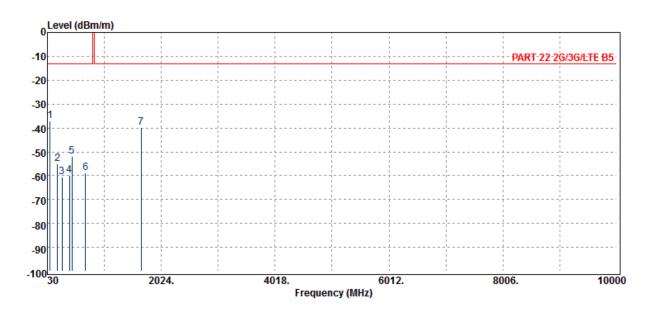


Operation Band Fundamental Frequency **Operation Mode** EUT Pol.

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

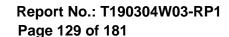
Test Date Temp./Humi.

:24 deg_C / 64 RH Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
75.59	-36.96	-27.30	-9.07	-0.72	0.13	-13.00	-23.96
204.60	-55.11	-51.13	-2.92	-1.18	0.12	-13.00	-42.11
288.99	-60.70	-57.19	-2.21	-1.41	0.10	-13.00	-47.70
415.09	-59.97	-56.68	-1.85	-1.69	0.25	-13.00	-46.97
456.80	-51.84	-48.22	-2.05	-1.77	0.20	-13.00	-38.84
697.36	-58.72	-56.04	-1.40	-2.22	0.94	-13.00	-45.72
1673.20	-39.63	-46.31	9.84	-3.58	0.42	-13.00	-26.63

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.





Operation Band Fundamental Frequency

Operation Mode

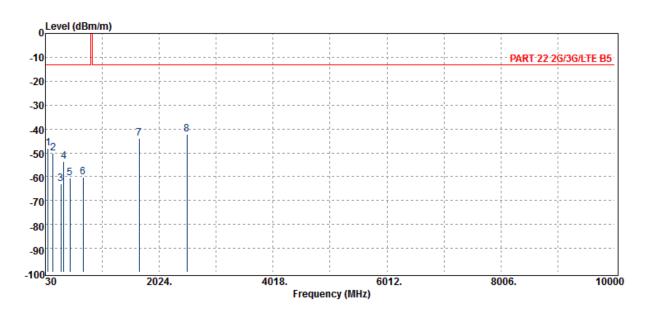
EUT Pol.

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

Test Date :2019-03-26 Temp./Humi. :24 deg_C / 64 RH

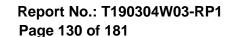
Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			-
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-48.09	-38.23	-9.28	-0.71	0.13	-13.00	-35.09
160.95	-50.34	-43.24	-6.17	-1.05	0.12	-13.00	-37.34
299.66	-62.92	-59.62	-1.96	-1.43	0.10	-13.00	-49.92
352.04	-53.70	-50.71	-1.63	-1.55	0.20	-13.00	-40.70
459.71	-60.43	-56.80	-2.05	-1.78	0.19	-13.00	-47.43
686.69	-60.32	-57.63	-1.35	-2.21	0.86	-13.00	-47.32
1673.20	-44.00	-50.68	9.84	-3.58	0.42	-13.00	-31.00
2509.80	-42.06	-48.64	10.80	-4.59	0.37	-13.00	-29.06

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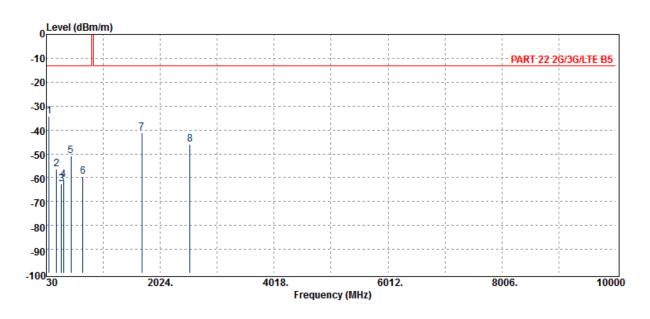




:GSM 850 :848.8 MHz :Tx CH HIGH :H Plane

Test Date :2019-03-26 Temp./Humi. :24 deg_C / 64 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-34.34	-24.48	-9.28	-0.71	0.13	-13.00	-21.34
204.60	-56.34	-52.36	-2.92	-1.18	0.12	-13.00	-43.34
296.75	-62.66	-59.26	-2.08	-1.42	0.10	-13.00	-49.66
330.70	-60.82	-57.82	-1.65	-1.51	0.16	-13.00	-47.82
456.80	-50.79	-47.16	-2.05	-1.77	0.20	-13.00	-37.79
665.35	-59.56	-56.64	-1.45	-2.17	0.71	-13.00	-46.56
1697.60	-41.25	-48.07	9.99	-3.60	0.43	-13.00	-28.25
2546.40	-46.07	-52.63	10.80	-4.59	0.35	-13.00	-33.07

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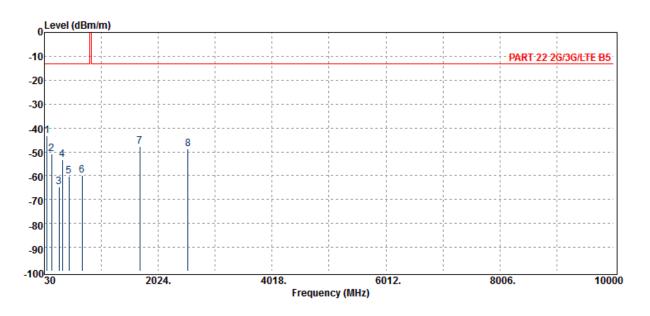


:GSM 850 :848.8 MHz :Tx CH HIGH :H Plane

Test Date Temp./Humi. :2019-03-26 :24 deg_C / 64 RH

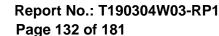
Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-43.29	-33.43	-9.28	-0.71	0.13	-13.00	-30.29
159.01	-50.95	-43.68	-6.35	-1.04	0.12	-13.00	-37.95
288.99	-64.62	-61.11	-2.21	-1.41	0.10	-13.00	-51.62
347.19	-53.27	-50.42	-1.49	-1.54	0.19	-13.00	-40.27
461.65	-60.11	-56.40	-2.12	-1.78	0.19	-13.00	-47.11
686.69	-59.78	-57.08	-1.35	-2.21	0.86	-13.00	-46.78
1697.60	-47.71	-54.53	9.99	-3.60	0.43	-13.00	-34.71
2546.40	-48.79	-55.35	10.80	-4.59	0.35	-13.00	-35.79

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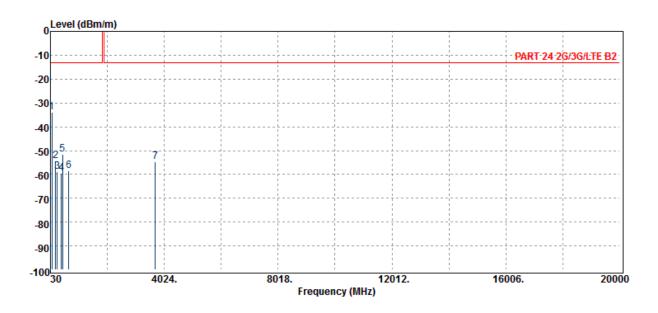


Radiated Spurious Emission Measurement Result: GSM 1900 Mode

Operation Band :GSM 1900 **Test Date** :2019-03-28

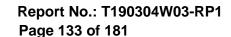
Fundamental Frequency :1850.2 MHz Temp./Humi. :24 deg_C / 64 RH

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
•		Output Level	Gain	Loss			J
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-33.82	-24.06	-9.19	-0.71	0.13	-13.00	-20.82
203.63	-54.39	-50.01	-3.32	-1.18	0.12	-13.00	-41.39
261.83	-58.82	-55.56	-2.03	-1.34	0.11	-13.00	-45.82
418.97	-59.64	-56.34	-1.85	-1.70	0.25	-13.00	-46.64
451.95	-51.65	-48.04	-2.05	-1.76	0.20	-13.00	-38.65
671.17	-58.62	-55.76	-1.43	-2.19	0.75	-13.00	-45.62
3700.40	-54.51	-61.42	12.50	-5.72	0.13	-13.00	-41.51

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.





Operation Band Fundamental Frequency

Operation Mode EUT Pol.

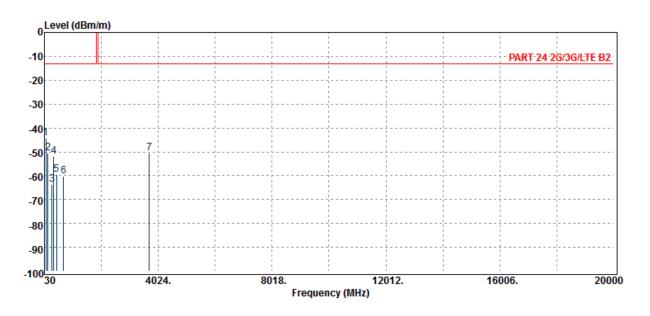
:GSM 1900 :1850.2 MHz :Tx CH LOW :H Plane

Test Date Temp./Humi.

:2019-03-28 :24 deg_C / 64 RH

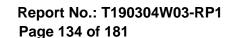
Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-44.23	-34.46	-9.19	-0.71	0.13	-13.00	-31.23
158.04	-50.65	-43.29	-6.44	-1.04	0.12	-13.00	-37.65
299.66	-63.76	-60.46	-1.96	-1.43	0.10	-13.00	-50.76
350.10	-52.04	-49.13	-1.55	-1.55	0.19	-13.00	-39.04
457.77	-59.40	-55.77	-2.05	-1.78	0.20	-13.00	-46.40
697.36	-60.07	-57.38	-1.40	-2.22	0.94	-13.00	-47.07
3700.40	-50.38	-57.29	12.50	-5.72	0.13	-13.00	-37.38

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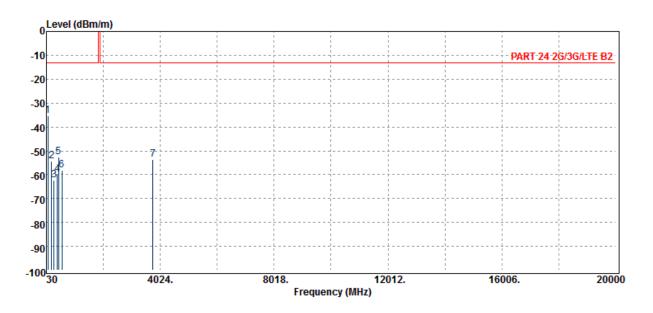
Operation Band :GSM 1900

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

EUT Pol. :H Plane **Test Date** :2019-03-28

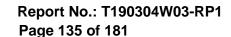
Temp./Humi. :24 deg_C / 64 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-35.27	-25.51	-9.19	-0.71	0.13	-13.00	-22.27
204.60	-54.19	-50.21	-2.92	-1.18	0.12	-13.00	-41.19
292.87	-62.19	-58.72	-2.15	-1.42	0.10	-13.00	-49.19
415.09	-59.79	-56.50	-1.85	-1.69	0.25	-13.00	-46.79
457.77	-52.53	-48.90	-2.05	-1.78	0.20	-13.00	-39.53
575.14	-58.17	-54.91	-1.45	-2.01	0.20	-13.00	-45.17
3760.00	-53.72	-60.57	12.42	-5.69	0.12	-13.00	-40.72

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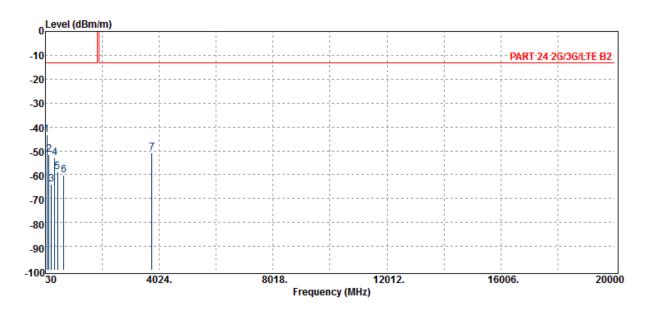


Operation Band :GSM 1900 **Test Date** :2019-03-28

Fundamental Frequency :1880 MHz Temp./Humi. :24 deg_C / 64 RH

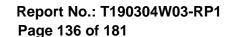
Operation Mode :Tx CH MID Engineer :Kane

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin	
•		Output Level	Gain	Loss			J	
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB	
74.62	-43.38	-33.61	-9.19	-0.71	0.13	-13.00	-30.38	
157.07	-51.67	-44.21	-6.54	-1.03	0.12	-13.00	-38.67	
239.52	-64.18	-60.86	-2.15	-1.28	0.11	-13.00	-51.18	
351.07	-52.78	-49.83	-1.59	-1.55	0.19	-13.00	-39.78	
455.83	-58.71	-55.09	-2.05	-1.77	0.20	-13.00	-45.71	
679.90	-60.22	-57.58	-1.25	-2.20	0.82	-13.00	-47.22	
3760.00	-50.87	-57.72	12.42	-5.69	0.12	-13.00	-37.87	

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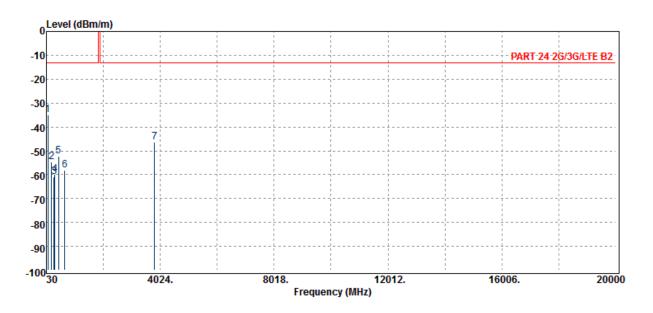




:GSM 1900 :1909.8 MHz :Tx CH HIGH :H Plane

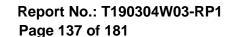
Test Date :2019-03-28 Temp./Humi. :24 deg_C / 64 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-35.08	-25.31	-9.19	-0.71	0.13	-13.00	-22.08
207.51	-54.57	-51.11	-2.40	-1.19	0.12	-13.00	-41.57
291.90	-60.92	-57.46	-2.15	-1.41	0.10	-13.00	-47.92
330.70	-59.78	-56.79	-1.65	-1.51	0.16	-13.00	-46.78
459.71	-52.18	-48.55	-2.05	-1.78	0.19	-13.00	-39.18
673.11	-58.10	-55.29	-1.39	-2.19	0.77	-13.00	-45.10
3819.60	-46.41	-53.23	12.46	-5.76	0.12	-13.00	-33.41

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.

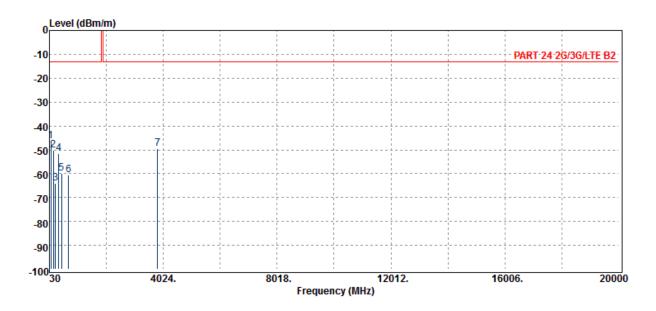




Operation Band :GSM 1900 **Test Date** :2019-03-28

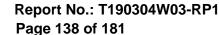
Fundamental Frequency :1909.8 MHz Temp./Humi. :24 deg_C / 64 RH **Operation Mode**

:Tx CH HIGH Engineer :Kane EUT Pol. :H Plane :HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
							_
73.65	-46.33	-36.47	-9.28	-0.71	0.13	-13.00	-33.33
160.95	-50.31	-43.21	-6.17	-1.05	0.12	-13.00	-37.31
239.52	-64.08	-60.76	-2.15	-1.28	0.11	-13.00	-51.08
351.07	-51.53	-48.58	-1.59	-1.55	0.19	-13.00	-38.53
454.86	-59.76	-56.14	-2.05	-1.77	0.20	-13.00	-46.76
696.39	-60.65	-57.98	-1.38	-2.22	0.93	-13.00	-47.65
3819.60	-49.46	-56.28	12.46	-5.76	0.12	-13.00	-36.46

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.



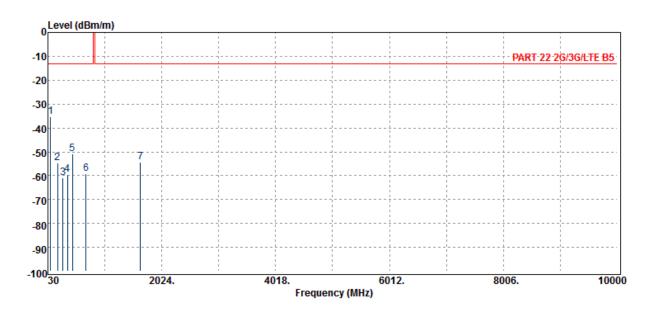


Radiated Spurious Emission Measurement Result: WCDMA Band 5 Mode

Operation Band :WCDMA B5 **Test Date** :2019-03-26

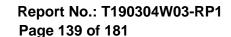
Fundamental Frequency :826.4 MHz Temp./Humi. :24 deg_C / 64 RH

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



Freq.	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Filter	Limit	Margin
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-35.22	-25.45	-9.19	-0.71	0.13	-13.00	-22.22
202.66	-54.77	-49.99	-3.73	-1.17	0.12	-13.00	-41.77
292.87	-61.05	-57.58	-2.15	-1.42	0.10	-13.00	-48.05
373.38	-59.60	-56.55	-1.68	-1.60	0.23	-13.00	-46.60
455.83	-50.91	-47.28	-2.05	-1.77	0.20	-13.00	-37.91
695.42	-59.06	-56.41	-1.36	-2.22	0.92	-13.00	-46.06
1652.80	-54.38	-60.96	9.72	-3.55	0.41	-13.00	-41.38

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.



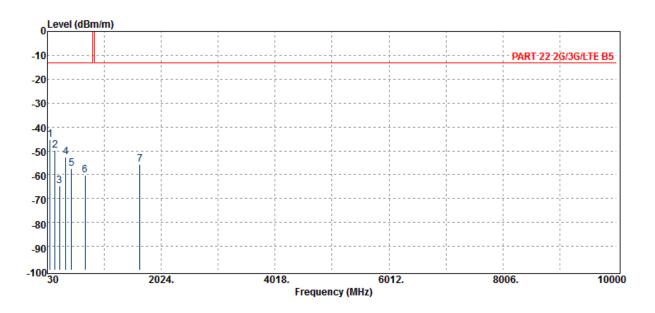


:WCDMA B5 :826.4 MHz :Tx CH LOW :H Plane

Test Date Temp./Humi. :2019-03-26 :24 deg_C / 64 RH

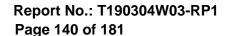
Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-45.20	-35.43	-9.19	-0.71	0.13	-13.00	-32.20
163.86	-49.98	-43.10	-5.94	-1.05	0.12	-13.00	-36.98
240.49	-64.73	-61.43	-2.13	-1.28	0.11	-13.00	-51.73
350.10	-52.52	-49.61	-1.55	-1.55	0.19	-13.00	-39.52
452.92	-57.56	-53.95	-2.05	-1.77	0.20	-13.00	-44.56
692.51	-60.29	-57.63	-1.35	-2.22	0.90	-13.00	-47.29
1652.80	-55.82	-62.40	9.72	-3.55	0.41	-13.00	-42.82

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.

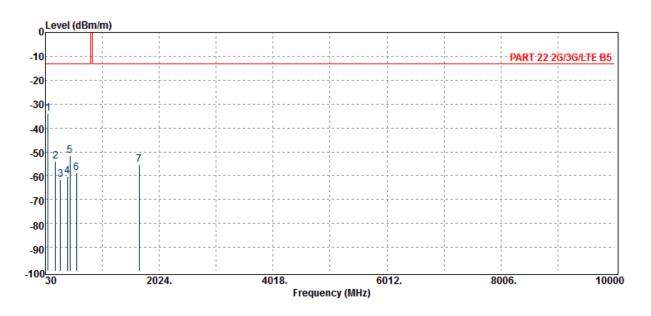




:WCDMA B5 :836.6 MHz :Tx CH MID :H Plane

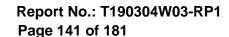
Test Date Temp./Humi. :2019-03-26 :24 deg_C / 64 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-34.00	-24.24	-9.19	-0.71	0.13	-13.00	-21.00
206.54	-54.14	-50.53	-2.53	-1.18	0.12	-13.00	-41.14
294.81	-61.74	-58.27	-2.15	-1.42	0.10	-13.00	-48.74
414.12	-60.15	-56.88	-1.83	-1.69	0.25	-13.00	-47.15
458.74	-51.49	-47.86	-2.05	-1.78	0.20	-13.00	-38.49
575.14	-58.78	-55.52	-1.45	-2.01	0.20	-13.00	-45.78
1673.20	-55.40	-62.07	9.84	-3.58	0.42	-13.00	-42.40

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.



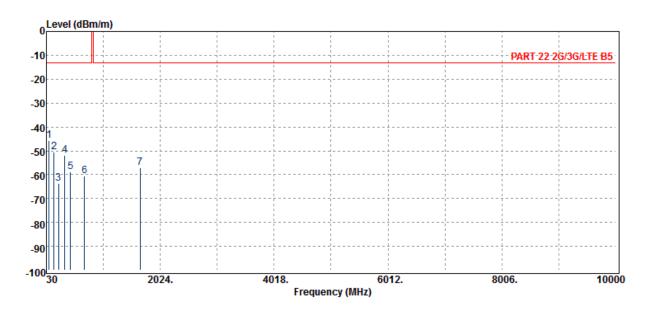


:WCDMA B5 :836.6 MHz :Tx CH MID :H Plane

Test Date Temp./Humi. :2019-03-26 :24 deg_C / 64 RH

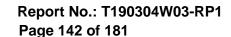
Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
							_
75.59	-45.80	-36.14	-9.07	-0.72	0.13	-13.00	-32.80
164.83	-50.55	-43.75	-5.86	-1.06	0.12	-13.00	-37.55
240.49	-63.57	-60.27	-2.13	-1.28	0.11	-13.00	-50.57
348.16	-52.05	-49.18	-1.51	-1.54	0.19	-13.00	-39.05
454.86	-58.84	-55.22	-2.05	-1.77	0.20	-13.00	-45.84
700.27	-60.51	-57.78	-1.45	-2.23	0.95	-13.00	-47.51
1673.20	-57.19	-63.87	9.84	-3.58	0.42	-13.00	-44.19

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.

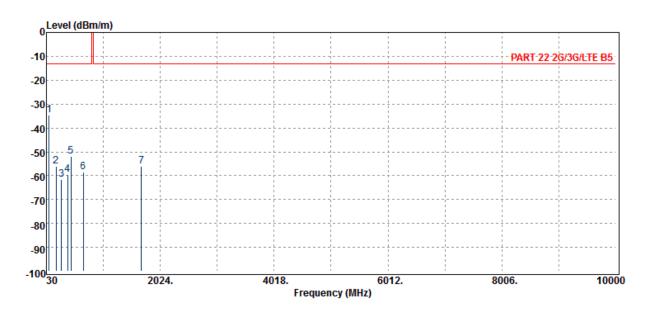




:WCDMA B5 :846.6 MHz :Tx CH HIGH :H Plane

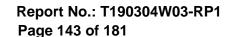
Test Date :2019-03-26 Temp./Humi. :24 deg_C / 64 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
75.59	-34.76	-25.11	-9.07	-0.72	0.13	-13.00	-21.76
200.72	-55.91	-50.32	-4.54	-1.17	0.12	-13.00	-42.91
295.78	-61.51	-58.06	-2.12	-1.42	0.10	-13.00	-48.51
403.45	-59.68	-56.57	-1.72	-1.67	0.27	-13.00	-46.68
455.83	-51.91	-48.29	-2.05	-1.77	0.20	-13.00	-38.91
672.14	-58.35	-55.51	-1.41	-2.19	0.76	-13.00	-45.35
1693.20	-55.90	-62.69	9.96	-3.59	0.42	-13.00	-42.90

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.





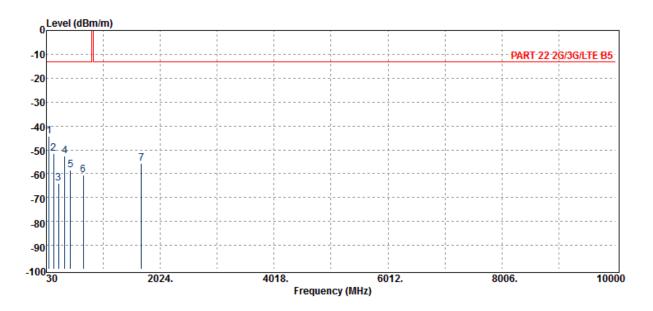
:WCDMA B5 :846.6 MHz :Tx CH HIGH :H Plane

Test Date Temp./Humi. Engineer

:2019-03-26 :24 deg_C / 64 RH

:Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-44.28	-34.51	-9.19	-0.71	0.13	-13.00	-31.28
159.01	-51.55	-44.28	-6.35	-1.04	0.12	-13.00	-38.55
240.49	-64.08	-60.78	-2.13	-1.28	0.11	-13.00	-51.08
353.01	-52.61	-49.59	-1.67	-1.55	0.20	-13.00	-39.61
450.98	-58.51	-54.91	-2.05	-1.76	0.21	-13.00	-45.51
677.96	-60.62	-57.93	-1.29	-2.20	0.80	-13.00	-47.62
1693.20	-55.62	-62.41	9.96	-3.59	0.42	-13.00	-42.62

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.



Report No.: T190304W03-RP1

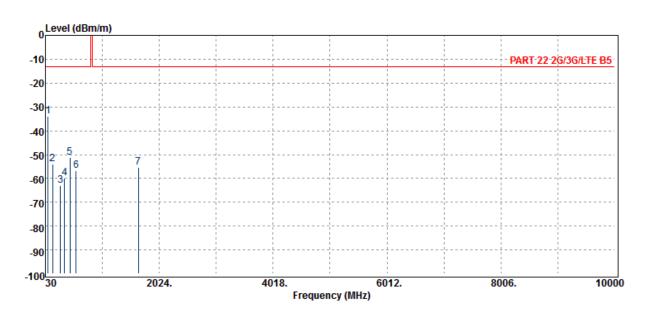
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Radiated Spurious Emission Measurement Result: LTE-Band 5 (The Worst Case)

Operation Band :LTE B5 **Test Date** :2019-03-28

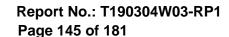
Fundamental Frequency :829 MHz Temp./Humi. :23 deg_C / 62 RH

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
							_
74.62	-33.87	-24.10	-9.19	-0.71	0.13	-13.00	-20.87
157.07	-54.06	-46.61	-6.54	-1.03	0.12	-13.00	-41.06
296.75	-62.94	-59.54	-2.08	-1.42	0.10	-13.00	-49.94
367.56	-59.78	-56.66	-1.75	-1.59	0.22	-13.00	-46.78
456.80	-51.14	-47.51	-2.05	-1.77	0.20	-13.00	-38.14
570.29	-56.74	-53.48	-1.45	-2.00	0.19	-13.00	-43.74
1658.00	-55.42	-62.02	9.75	-3.56	0.42	-13.00	-42.42

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.



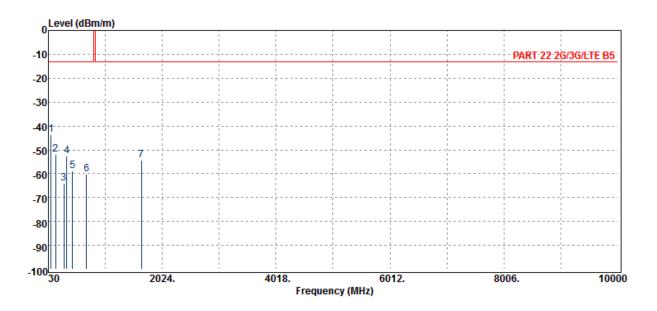


Operation Band :LTE B5 **Test Date** :2019-03-28

Fundamental Frequency :829 MHz Temp./Humi. :23 deg_C / 62 RH

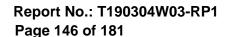
Operation Mode :Tx CH LOW Engineer :Kane

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin	
•		Output Level	Gain	Loss			· ·	
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB	
								-
74.62	-43.71	-33.94	-9.19	-0.71	0.13	-13.00	-30.71	
159.01	-52.00	-44.73	-6.35	-1.04	0.12	-13.00	-39.00	
299.66	-63.99	-60.70	-1.96	-1.43	0.10	-13.00	-50.99	
348.16	-52.74	-49.87	-1.51	-1.54	0.19	-13.00	-39.74	
454.86	-58.69	-55.07	-2.05	-1.77	0.20	-13.00	-45.69	
700.27	-60.08	-57.36	-1.45	-2.23	0.95	-13.00	-47.08	
1658.00	-54.33	-60.93	9.75	-3.56	0.42	-13.00	-41.33	

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.



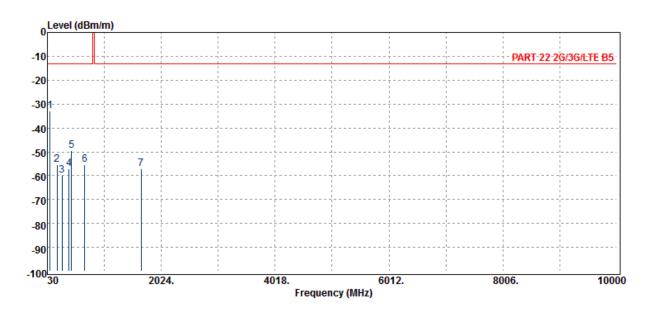


EUT Pol.

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

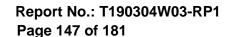
Test Date :2019-03-28 Temp./Humi. :23 deg_C / 62 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-32.98	-23.12	-9.28	-0.71	0.13	-13.00	-19.98
199.75	-55.28	-49.41	-4.82	-1.16	0.12	-13.00	-42.28
288.02	-60.00	-56.43	-2.27	-1.40	0.10	-13.00	-47.00
407.33	-57.26	-54.10	-1.75	-1.67	0.26	-13.00	-44.26
451.95	-49.39	-45.79	-2.05	-1.76	0.20	-13.00	-36.39
685.72	-55.54	-52.84	-1.35	-2.21	0.86	-13.00	-42.54
1673.00	-56.95	-63.63	9.84	-3.58	0.42	-13.00	-43.95

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.



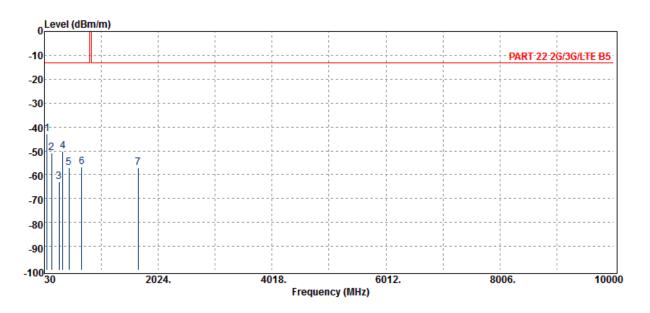


Operation Band :LTE B5 **Test Date** :2019-03-28

Fundamental Frequency Temp./Humi. :836.5 MHz :23 deg_C / 62 RH

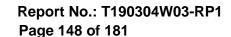
Operation Mode :Tx CH MID Engineer :Kane

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-42.83	-33.06	-9.19	-0.71	0.13	-13.00	-29.83
159.01	-50.71	-43.45	-6.35	-1.04	0.12	-13.00	-37.71
283.17	-62.92	-59.14	-2.49	-1.39	0.10	-13.00	-49.92
349.13	-50.03	-47.14	-1.53	-1.55	0.19	-13.00	-37.03
460.68	-57.26	-53.60	-2.08	-1.78	0.19	-13.00	-44.26
681.84	-56.77	-54.11	-1.29	-2.20	0.83	-13.00	-43.77
1673.00	-57.07	-63.75	9.84	-3.58	0.42	-13.00	-44.07

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.





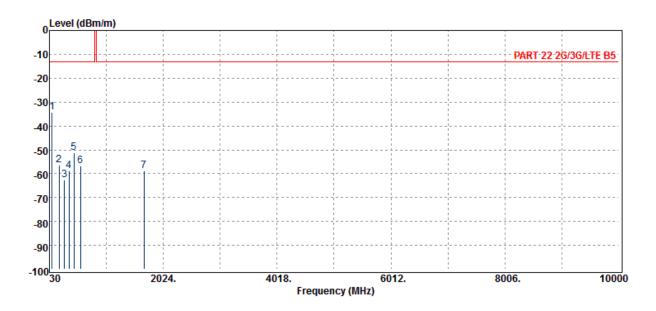
EUT Pol.

:LTE B5 :844 MHz :Tx CH HIGH :H Plane

Test Date :2019-03-28

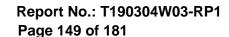
Temp./Humi. :23 deg_C / 62 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
75.59	-34.26	-24.61	-9.07	-0.72	0.13	-13.00	-21.26
200.72	-56.35	-50.76	-4.54	-1.17	0.12	-13.00	-43.35
296.75	-62.67	-59.26	-2.08	-1.42	0.10	-13.00	-49.67
373.38	-58.85	-55.80	-1.68	-1.60	0.23	-13.00	-45.85
456.80	-51.37	-47.75	-2.05	-1.77	0.20	-13.00	-38.37
575.14	-56.59	-53.33	-1.45	-2.01	0.20	-13.00	-43.59
1688.00	-58.80	-65.56	9.93	-3.59	0.42	-13.00	-45.80

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.





EUT Pol.

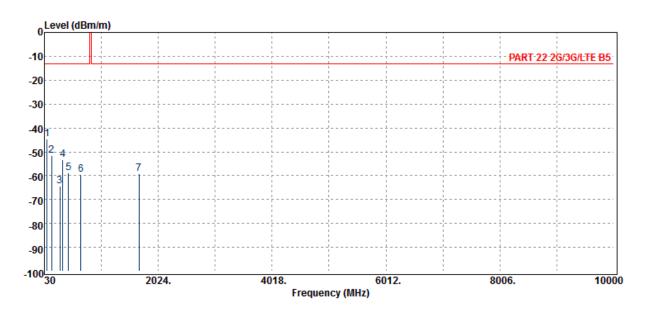
:LTE B5 :844 MHz :Tx CH HIGH :H Plane

Test Date Temp./Humi. :2019-03-28

:23 deg_C / 62 RH

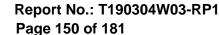
Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
							_
74.62	-44.50	-34.74	-9.19	-0.71	0.13	-13.00	-31.50
159.01	-51.73	-44.46	-6.35	-1.04	0.12	-13.00	-38.73
298.69	-64.21	-60.87	-2.00	-1.43	0.10	-13.00	-51.21
352.04	-53.33	-50.34	-1.63	-1.55	0.20	-13.00	-40.33
452.92	-58.80	-55.19	-2.05	-1.77	0.20	-13.00	-45.80
667.29	-59.65	-56.74	-1.45	-2.18	0.73	-13.00	-46.65
1688.00	-59.07	-65.83	9.93	-3.59	0.42	-13.00	-46.07

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.



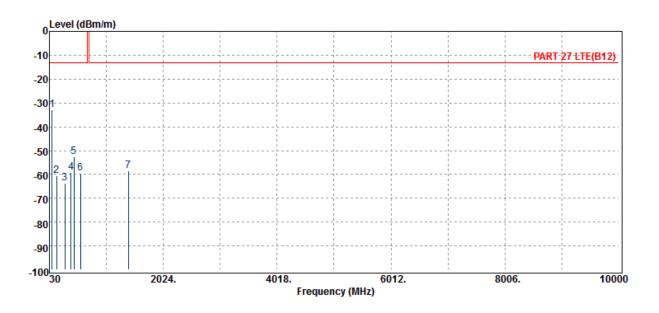


Radiated Spurious Emission Measurement Result: LTE-Band 12 (The Worst Case)

Operation Band :LTE B12 **Test Date** :2019-03-28

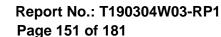
Fundamental Frequency :704 MHz Temp./Humi. :23 deg_C / 62 RH

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin	
•		Output Level	Gain	Loss			G	
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB	
75.59	-33.02	-23.38	-9.07	-0.72	0.14	-13.00	-20.02	
157.07	-60.42	-52.93	-6.54	-1.03	0.08	-13.00	-47.42	
298.69	-63.74	-60.65	-2.00	-1.43	0.34	-13.00	-50.74	
412.18	-59.33	-56.11	-1.79	-1.68	0.26	-13.00	-46.33	
455.83	-52.42	-48.85	-2.05	-1.77	0.25	-13.00	-39.42	
572.23	-59.53	-56.33	-1.45	-2.01	0.25	-13.00	-46.53	
1408.00	-58.40	-63.70	8.05	-3.25	0.51	-13.00	-45.40	

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.



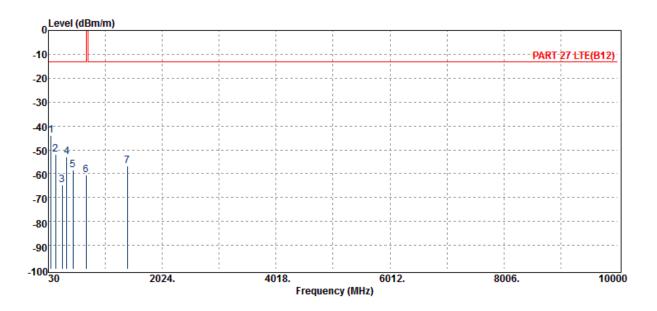


Operation Band :LTE B12 **Test Date** :2019-03-28

Fundamental Frequency :704 MHz Temp./Humi. :23 deg_C / 62 RH

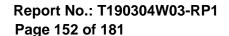
Operation Mode :Tx CH LOW Engineer :Kane

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
75.59	-43.90	-34.26	-9.07	-0.72	0.14	-13.00	-30.90
158.04	-51.85	-44.46	-6.44	-1.04	0.08	-13.00	-38.85
270.56	-64.64	-60.92	-2.56	-1.36	0.20	-13.00	-51.64
348.16	-52.92	-50.28	-1.51	-1.54	0.42	-13.00	-39.92
455.83	-58.46	-54.89	-2.05	-1.77	0.25	-13.00	-45.46
690.57	-60.56	-56.99	-1.35	-2.21	0.00	-13.00	-47.56
1408.00	-56.60	-61.91	8.05	-3.25	0.51	-13.00	-43.60

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.





Operation Band Fundamental Frequency

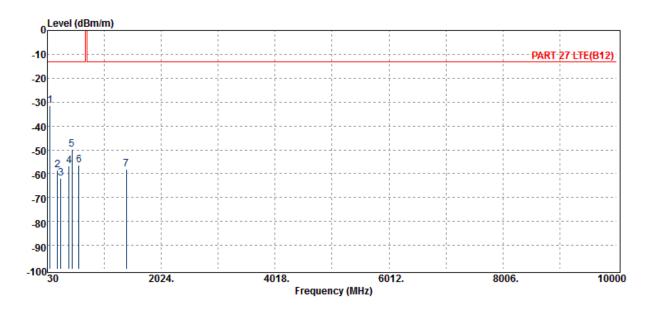
Operation Mode EUT Pol.

:LTE B12 :707.5 MHz :Tx CH MID :H Plane

Test Date :2019-03-28

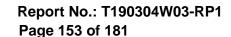
Temp./Humi. :23 deg_C / 62 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-31.48	-21.72	-9.19	-0.71	0.14	-13.00	-18.48
203.63	-58.56	-54.33	-3.32	-1.18	0.27	-13.00	-45.56
263.77	-61.91	-58.54	-2.23	-1.34	0.20	-13.00	-48.91
407.33	-56.91	-53.75	-1.75	-1.67	0.26	-13.00	-43.91
456.80	-49.91	-46.33	-2.05	-1.77	0.25	-13.00	-36.91
579.02	-56.53	-53.41	-1.37	-2.02	0.27	-13.00	-43.53
1415.00	-58.25	-63.61	8.09	-3.26	0.53	-13.00	-45.25

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.





Operation Band Fundamental Frequency

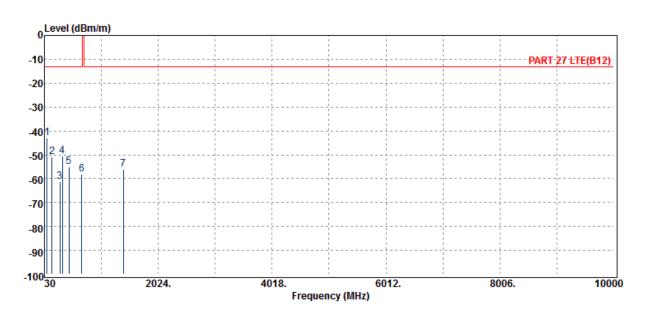
Operation Mode EUT Pol.

:LTE B12 :707.5 MHz :Tx CH MID :H Plane

Test Date :2019-03-28 Temp./Humi. :23 deg_C / 62 RH

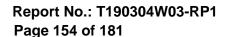
Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
							_
73.65	-42.95	-33.10	-9.28	-0.71	0.14	-13.00	-29.95
160.95	-50.97	-43.85	-6.17	-1.05	0.10	-13.00	-37.97
299.66	-61.22	-58.17	-1.96	-1.43	0.35	-13.00	-48.22
347.19	-50.62	-48.01	-1.49	-1.54	0.42	-13.00	-37.62
456.80	-55.04	-51.47	-2.05	-1.77	0.25	-13.00	-42.04
685.72	-58.12	-54.59	-1.35	-2.21	0.03	-13.00	-45.12
1415.00	-56.04	-61.40	8.09	-3.26	0.53	-13.00	-43.04

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.



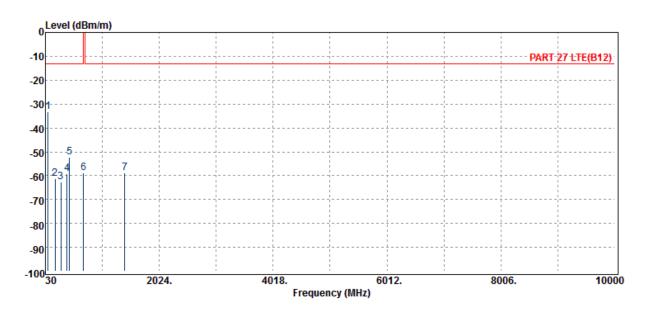


EUT Pol.

:LTE B12 :711 MHz :Tx CH HIGH :H Plane

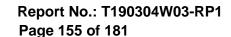
Test Date :2019-03-28 Temp./Humi. :23 deg_C / 62 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-33.14	-23.38	-9.19	-0.71	0.14	-13.00	-20.14
200.72	-61.29	-55.83	-4.54	-1.17	0.26	-13.00	-48.29
299.66	-62.66	-59.61	-1.96	-1.43	0.35	-13.00	-49.66
408.30	-59.21	-56.05	-1.75	-1.68	0.26	-13.00	-46.21
452.92	-52.36	-48.79	-2.05	-1.77	0.25	-13.00	-39.36
695.42	-58.95	-55.37	-1.36	-2.22	0.00	-13.00	-45.95
1422.00	-58.98	-64.40	8.13	-3.27	0.56	-13.00	-45.98

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.



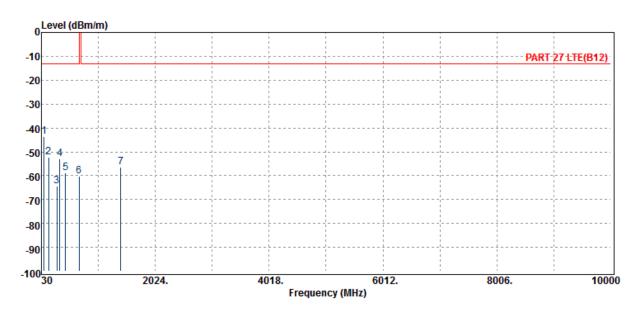


Operation Band :LTE B12 **Test Date** :2019-03-28

Fundamental Frequency :711 MHz Temp./Humi. :23 deg_C / 62 RH

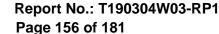
Operation Mode :Tx CH HIGH Engineer :Kane EUT Pol.

:H Plane :HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
							_
73.65	-43.64	-33.79	-9.28	-0.71	0.14	-13.00	-30.64
159.01	-52.27	-44.97	-6.35	-1.04	0.09	-13.00	-39.27
297.72	-64.50	-61.37	-2.04	-1.43	0.34	-13.00	-51.50
348.16	-53.06	-50.41	-1.51	-1.54	0.42	-13.00	-40.06
450.98	-58.76	-55.20	-2.05	-1.76	0.25	-13.00	-45.76
688.63	-60.24	-56.69	-1.35	-2.21	0.01	-13.00	-47.24
1422.00	-56.37	-61.79	8.13	-3.27	0.56	-13.00	-43.37

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.



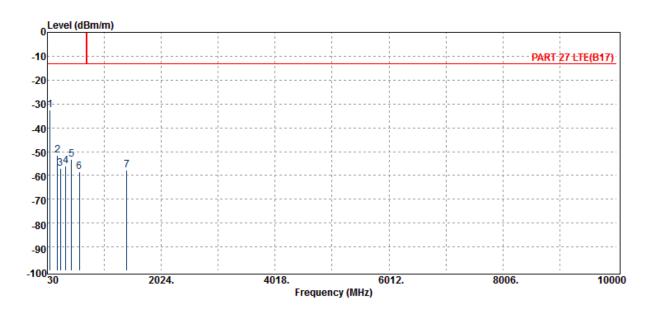


Radiated Spurious Emission Measurement Result: LTE-Band 17 (The Worst Case)

Operation Band :LTE B17 **Test Date** :2019-03-28

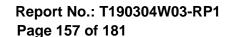
Fundamental Frequency :709 MHz Temp./Humi. :23 deg_C / 62 RH

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-32.56	-22.81	-9.19	-0.71	0.14	-13.00	-19.56
203.63	-51.50	-47.28	-3.32	-1.18	0.27	-13.00	-38.50
258.92	-57.18	-54.27	-1.79	-1.33	0.21	-13.00	-44.18
352.04	-56.14	-53.36	-1.63	-1.55	0.40	-13.00	-43.14
454.86	-53.41	-49.84	-2.05	-1.77	0.25	-13.00	-40.41
591.63	-58.65	-55.93	-0.98	-2.05	0.32	-13.00	-45.65
1418.00	-57.76	-63.15	8.11	-3.27	0.54	-13.00	-44.76

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.





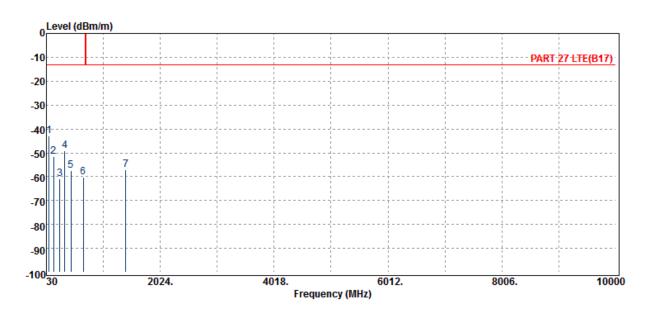
EUT Pol.

:LTE B17 :709 MHz :Tx CH LOW :H Plane

Test Date :2019-03-28 Temp./Humi. :23 deg_C / 62 RH

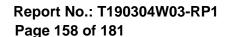
Engineer :Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
73.65	-42.96	-33.11	-9.28	-0.71	0.14	-13.00	-29.96
155.13	-51.39	-43.70	-6.74	-1.03	0.07	-13.00	-38.39
261.83	-60.94	-57.78	-2.03	-1.34	0.20	-13.00	-47.94
352.04	-49.22	-46.44	-1.63	-1.55	0.40	-13.00	-36.22
455.83	-57.45	-53.88	-2.05	-1.77	0.25	-13.00	-44.45
672.14	-60.04	-56.57	-1.41	-2.19	0.13	-13.00	-47.04
1418.00	-57.02	-62.41	8.11	-3.27	0.54	-13.00	-44.02

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.





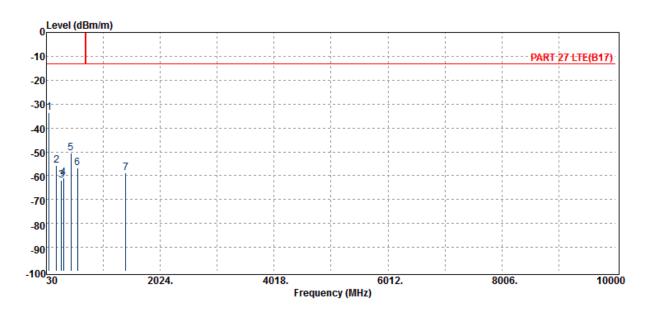
EUT Pol.

:LTE B17 :710 MHz :Tx CH MID :H Plane

Test Date :2019-03-28

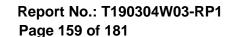
Temp./Humi. :23 deg_C / 62 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-33.66	-23.90	-9.19	-0.71	0.14	-13.00	-20.66
206.54	-55.78	-52.34	-2.53	-1.18	0.28	-13.00	-42.78
292.87	-62.07	-58.82	-2.15	-1.42	0.31	-13.00	-49.07
330.70	-60.77	-58.10	-1.65	-1.51	0.48	-13.00	-47.77
458.74	-50.68	-47.10	-2.05	-1.78	0.25	-13.00	-37.68
574.17	-56.87	-53.67	-1.45	-2.01	0.26	-13.00	-43.87
1420.00	-58.73	-64.13	8.12	-3.27	0.55	-13.00	-45.73

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.



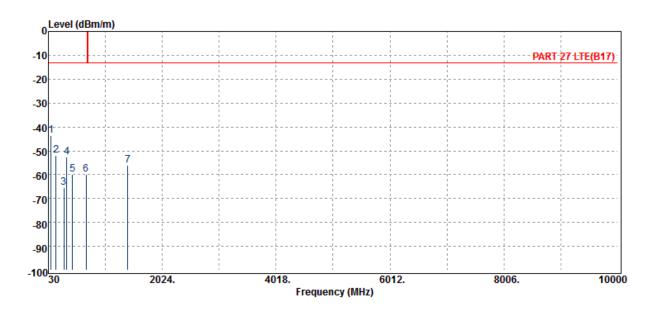


Operation Band :LTE B17 **Test Date** :2019-03-28

Fundamental Frequency :710 MHz Temp./Humi. :23 deg_C / 62 RH

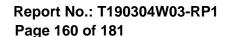
Operation Mode :Tx CH MID Engineer :Kane

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



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-43.76	-34.00	-9.19	-0.71	0.14	-13.00	-30.76
160.95	-51.77	-44.65	-6.17	-1.05	0.10	-13.00	-38.77
298.69	-65.34	-62.25	-2.00	-1.43	0.34	-13.00	-52.34
348.16	-52.67	-50.03	-1.51	-1.54	0.42	-13.00	-39.67
451.95	-59.77	-56.20	-2.05	-1.76	0.25	-13.00	-46.77
689.60	-59.83	-56.27	-1.35	-2.21	0.00	-13.00	-46.83
1420.00	-56.22	-61.63	8.12	-3.27	0.55	-13.00	-43.22

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.





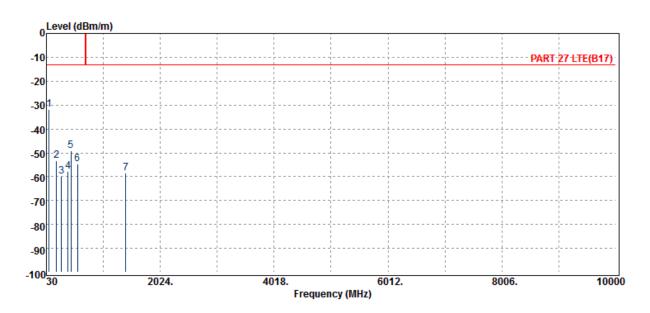
EUT Pol.

:LTE B17 :711 MHz :Tx CH HIGH :H Plane

Test Date :2019-03-28

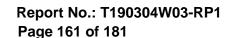
Temp./Humi. :23 deg_C / 62 RH

Engineer :Kane :VERTICAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-31.98	-22.22	-9.19	-0.71	0.14	-13.00	-18.98
203.63	-53.28	-49.05	-3.32	-1.18	0.27	-13.00	-40.28
291.90	-59.93	-56.67	-2.15	-1.41	0.31	-13.00	-46.93
412.18	-57.63	-54.41	-1.79	-1.68	0.26	-13.00	-44.63
461.65	-48.99	-45.33	-2.12	-1.78	0.24	-13.00	-35.99
578.05	-54.84	-51.70	-1.39	-2.02	0.27	-13.00	-41.84
1422.00	-58.37	-63.79	8.13	-3.27	0.56	-13.00	-45.37

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EUT Pol.

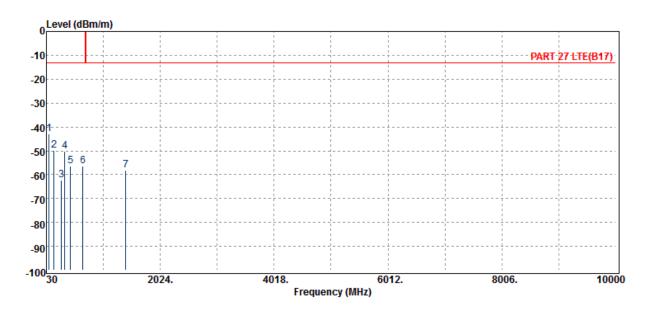
:LTE B17 :711 MHz :Tx CH HIGH :H Plane

Test Date Temp./Humi. Engineer

:2019-03-28 :23 deg_C / 62 RH

:Kane

:HORIZONTAL Measurement Antenna Pol.



Freq.	ERP/EIRP	SG	Antenna	Cable	Filter	Limit	Margin
-		Output Level	Gain	Loss			
MHz	dBm	dBm	dBd/dBi	dB	dB	dBm	dB
74.62	-42.87	-33.11	-9.19	-0.71	0.14	-13.00	-29.87
159.98	-49.79	-42.59	-6.25	-1.04	0.09	-13.00	-36.79
296.75	-62.23	-59.05	-2.08	-1.42	0.33	-13.00	-49.23
349.13	-50.25	-47.58	-1.53	-1.55	0.41	-13.00	-37.25
453.89	-56.44	-52.87	-2.05	-1.77	0.25	-13.00	-43.44
665.35	-56.53	-53.09	-1.45	-2.17	0.17	-13.00	-43.53
1422.00	-58.05	-63.47	8.13	-3.27	0.56	-13.00	-45.05

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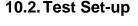
Report No.: T190304W03-RP1

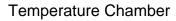
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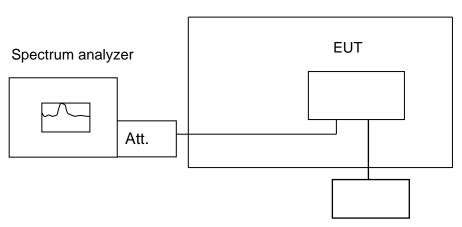
FREQUENCY STABILITY MEASUREMENT 10.

10.1. 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

10.3. Measurement Procedure

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

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

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

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

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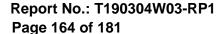
Report No.: T190304W03-RP1

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10.4. Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyz- er	Agilent	N9010A	MY53400256	11/21/2018	11/20/2019
Digital Radio Commu- nication Tester	R&S	CMU200	100535	09/17/2018	09/16/2019
DC Power Supply	Agilent	E3640A	KR93300208	08/15/2018	08/14/2019
Thermostatic/Hrgrosatic Chamber	TAICHY	MHG-150LF	930619	10/08/2018	10/07/2019
Attenuator	Mini-Circuit	BW-S10W2+	1	02/26/2019	02/25/2020
DC Block	Mini-Circuits	BLK-18-S+	31129(1)	02/26/2019	02/25/2020
Splitter	RF-LAMBAD	RFLT2W1G18G	11-JSPD022-013	02/26/2019	02/25/2020
Coaxial Cables	Woken	00100A1F1A185C	RF12	02/26/2019	02/25/2020
Wideband Radio Communication Tester	R&S	CMW 500	116875	04/20/2018	04/19/2019

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.

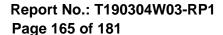




10.5. Measurement Result

GPRS 850 Mid Channel 836.6 MHz									
Limit: +/- 2.5 ppm									
Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Limit (Hz)					
	FREQUENCY ERROR vs. VOLTAGE								
4	20	836.60001	10	2091					
3.85	20	836.600001	1	2091					
3.7	20	836.599991	-9	2091					
3.2 (End point)	20	836.599996	-4	2091					
	FREQUEN	CY ERROR vs.	Temp.						
3.85	50	836.600002	2	2091					
3.85	40	836.600007	7	2091					
3.85	30	836.600004	4	2091					
3.85	20	836.599993	-7	2091					
3.85	10	836.599996	-4	2091					
3.85	0	836.600001	1	2091					
3.85	-10	836.599996	-4	2091					
3.85	-20	836.600003	3	2091					
3.85	-30	836.599997	-3	2091					

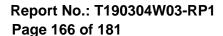
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.





GPRS 1900 Mid Channel 1880 MHz								
	Lim	it: +/- 2.5 ppm						
Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Limit (Hz)				
FREQUENCY ERROR vs. VOLTAGE								
4	20	1880.000004	4	4700				
3.85	20	1879.999997	-3	4700				
3.7	20	1879.999994	-6	4700				
3.2 (End point)	20	1879.999997	-3	4700				
	FREQUENC	CY ERROR vs.	Temp.					
3.85	50	1879.999991	-9	4700				
3.85	40	1880.000002	2	4700				
3.85	30	1880.000004	4	4700				
3.85	20	1880	0	4700				
3.85	10	1879.999992	-8	4700				
3.85	0	1880.000003	3	4700				
3.85	-10	1880.000002	2	4700				
3.85	-20	1880.000001	1	4700				
3.85	-30	1880.000007	7	4700				

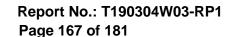
Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.





WCDMA V Mid Channel 836.6 MHz									
	Lim	it: +/- 2.5 ppm							
Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Limit (Hz)					
FREQUENCY ERROR vs. VOLTAGE									
4	20	836.600003	3	2091					
3.85	20	836.59999	-10	2091					
3.7	20	836.599999	-1	2091					
3.2 (End point)	20	836.60001	10	2091					
	FREQUEN	CY ERROR vs.	Temp.						
3.85	50	836.599996	-4	2091					
3.85	40	836.600007	7	2091					
3.85	30	836.599991	-9	2091					
3.85	20	836.599994	-6	2091					
3.85	10	836.59999	-10	2091					
3.85	0	836.599999	-1	2091					
3.85	-10	836.599992	-8	2091					
3.85	-20	836.59999	-10	2091					
3.85	-30	836.600009	9	2091					

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.

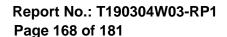




Reference Freq.:		LTE B5 Mid Channel		MHz 10M QPSK CH 20525					
Power Supply Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)					
	Freq. ERROR vs. VOLTAGE								
4	25	836.500001	1	2091					
3.85	25	836.500008	8	2091					
3.7	25	836.500008	8	2091					
3.2 (End Point)	25	836.500003	3	2091					
		Freq. ERROR	vs. Temp.						
3.85	-30	836.500001	1	2091					
3.85	-20	836.500001	1	2091					
3.85	-10	836.500007	7	2091					
3.85	0	836.499991	-9	2091					
3.85	10	836.500007	7	2091					
3.85	20	836.500005	5	2091					
3.85	30	836.499997	-3	2091					
3.85	40	836.500004	4	2091					
3.85	50	836.500000	0	2091					

Reference Freq.:	LTE B12 Mid Channel		707.5	MHz 10M QPSK CH 23095				
Power Supply Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)				
Freq. ERROR vs. VOLTAGE								
4	25	707.499991	-9	1769				
3.85	25	707.500009	9	1769				
3.7	25	707.499995	-5	1769				
3.2 (End Point)	25	707.500002	2	1769				
	Freq. ERROR vs. Temp.							
3.85	-30	707.499994	-6	1769				
3.85	-20	707.500004	4	1769				
3.85	-10	707.500007	7	1769				
3.85	0	707.500008	8	1769				
3.85	10	707.500000	0	1769				
3.85	20	707.499998	-2	1769				
3.85	30	707.499998	-2	1769				
3.85	40	707.500007	7	1769				
3.85	50	707.500003	3	1769				

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.





Reference Freq.:	LTE B17 Mid Channel		710	MHz 10M QPSK CH 23790
Power Supply Vdc	Temp.(°C)	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)
	F	req. ERROR vs	s. VOLTAGE	
4	25	710.000003	3	1775
3.85	25	709.999999	-1	1775
3.7	25	710.000005	5	1775
3.2 (End Point)	25	709.999998	-2	1775
		Freq. ERROR	vs. Temp.	
3.85	-30	710.000006	6	1775
3.85	-20	709.999993	-7	1775
3.85	-10	709.999993	-7	1775
3.85	0	709.999996	-4	1775
3.85	10	709.999999	-1	1775
3.85	20	709.999994	-6	1775
3.85	30	710.000001	1	1775
3.85	40	709.999993	-7	1775
3.85	50	710.000000	0	1775

Note: The battery is rated 3.85Vdc.

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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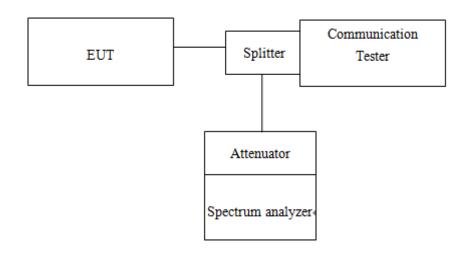
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11. **PEAK TO AVERAGE RATIO**

11.1. Standard Applicable

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

11.2. Test SET-UP



11.3. Measurement Procedure

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

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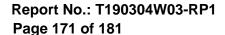
Report No.: T190304W03-RP1

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11.4. Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	Agilent	N9010A	MY53400256	11/21/2018	11/20/2019
Digital Radio Communication Tester	R&S	CMU200	100535	09/17/2018	09/16/2019
DC Power Supply	Agilent	E3640A	KR93300208	08/15/2018	08/14/2019
Attenuator	Mini-Circuit	BW-S10W2+	1	02/26/2019	02/25/2020
DC Block	Mini-Circuits	BLK-18-S+	31129(1)	02/26/2019	02/25/2020
Splitter	RF-LAMBAD	RFLT2W1G18G	11-JSPD022-013	02/26/2019	02/25/2020
Coaxial Cables	Woken	00100A1F1A185C	RF12	02/26/2019	02/25/2020
Wideband Radio Communication Tester	R&S	CMW 500	116875	04/20/2018	04/19/2019

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.





11.5. Measurement Result **Tabular Results:**

Freq.	СН	Peak-to-Average Ratio (dB)			
(MHz)		GSM	GPRS		
		850	850		
824.2	128	9.97	9.55		
836.6	190	9.8	8.36		
848.8	251	9.42	9.66		

Freq. (MHz)	СН	Peak-to-Average Ratio (dB)			
		GSM	GPRS		
		1900	1900		
1850.2	512	9.64	9.51		
1880	661	9.78	9.96		
1909.8	810	9.26	10.13		

Freq.		Peak-to-Average Ratio (dB)			
(MHz)	CH	WCDMA	HSDPA	HSUPA	
(IVII IZ)	(IVITIZ)		V	V	
826.4	4132	3.64	3.43	3.27	
836.6	4183	3.40	3.38	3.51	
846.6	4233	3.38	3.58	3.59	

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LTE BAND 5								
Channel bandwidth: 1.4MHz				Channel bandwidth: 3MHz				
Freq.	СН	PAPR	(dB)	Freq.	СН	PAPR (dB)		
(MHz)	СП	64QAM	Limit	(MHz)	Сп	64QAM	Limit	
824.7	20407	6.11	13	825.5	20415	6.13	13	
836.5	20525	5.78	13	836.5	20525	5.75	13	
848.3	20643	6.17	13	847.5	20635	6.16	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	6.11	13	829.0	20450	6.21	13	
836.5	20525	6.02	13	836.5	20525	5.97	13	
846.5	20625	6.17	13	844.0	20600	6.21	13	

LTE BAND 12									
Channel bandwidth: 1.4MHz				Channel bandwidth: 3MHz					
Freq. (MHz)	СН	PAPR (dB)		Freq.	СН	PAPR (dB)			
		64QAM	Limit	(MHz)	СП	64QAM	Limit		
699.7	23017	5.52	13	700.5	23025	5.90	13		
707.5	23095	5.54	13	707.5	23095	5.74	13		
715.3	23173	5.69	13	714.5	23165	5.87	13		

LTE BAND 12									
Channel bandwidth: 5MHz				Channel bandwidth: 10MHz					
Freq. (MHz)	СН	PAPR (dB)		Freq.	СН	PAPR (dB)			
		64QAM	Limit	(MHz)	СП	64QAM	Limit		
701.5	23035	5.79	13	704.0	23060	5.82	13		
707.5	23095	5.67	13	707.5	23095	5.79	13		
713.5	23155	5.80	13	711.0	23130	5.87	13		

LTE BAND 17									
Channel bandwidth: 1.4MHz				Channel bandwidth: 3MHz					
Freq. (MHz)	СН	PAPR (dB)		Freq.	СН	PAPR (dB)			
	CII	64QAM	Limit	(MHz)	Сп	64QAM	Limit		
706.5	23755	5.65	13	709.0	23780	5.73	13		
710.0	23790	5.60	13	710.0	23790	5.80	13		
713.5	23825	5.77	13	711.0	23800	5.75	13		

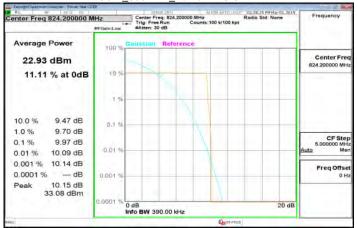
Measurement Results:

Please refer to next page.

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GSM_850MHz_LowCH128-824.2



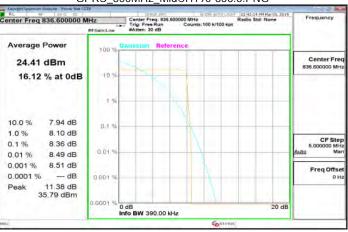
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GSM 850MHz MidCH190-836.6



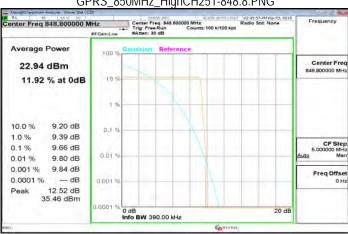
GPRS 850MHz MidCH190-836.6.PNG



GSM 850MHz HighCH251-848.8



GPRS_850MHz_HighCH251-848.8.PNG



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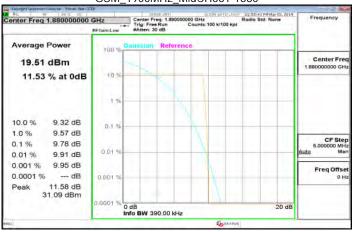
GSM_1900MHz_LowCH512-1850.2



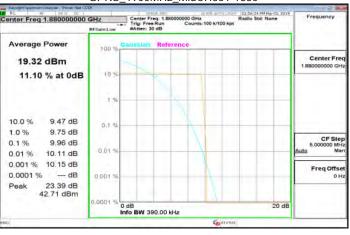
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GSM 1900MHz MidCH661-1880



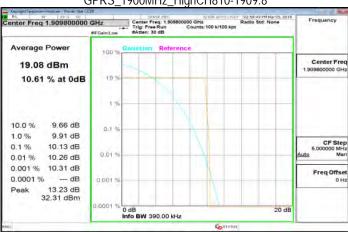
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GSM 1900MHz HighCH810-1909.8



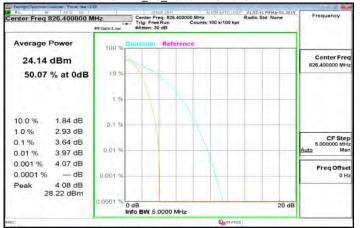
GPRS 1900MHz HighCH810-1909.8



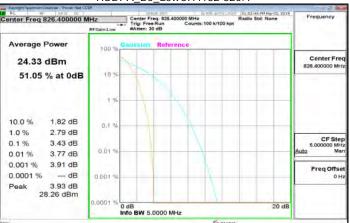
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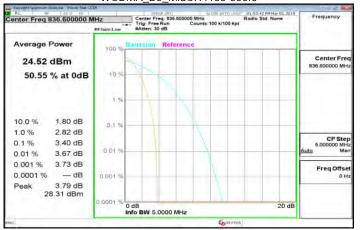
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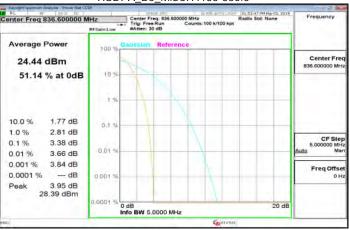
HSDPA_B5_LowCH4132-826.4



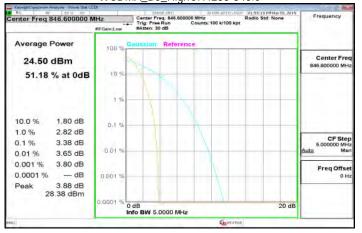
WCDMA_B5_MidCH4183-836.6



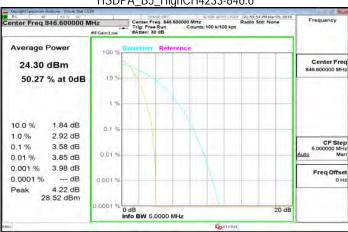
HSDPA B5 MidCH4183-836.6



WCDMA_B5_HighCH4233-846.6



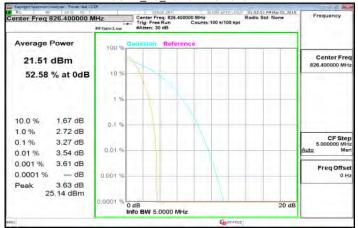
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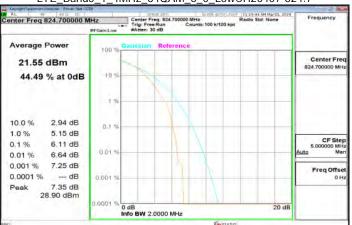
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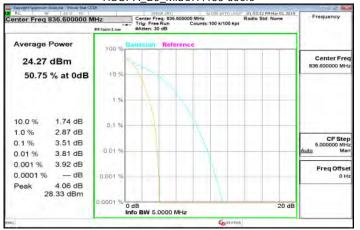
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LTE_Band5_1_4MHz_64QAM_6_0_LowCH20407-824.7



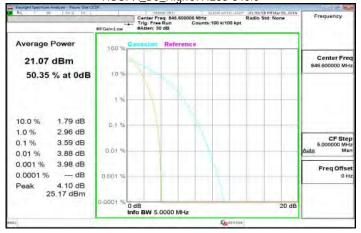
HSUPA B5 MidCH4183-836.6



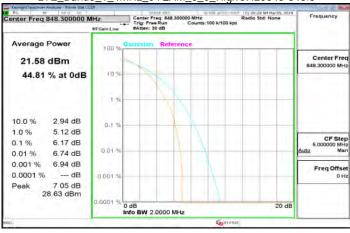
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HSUPA_B5_HighCH4233-846.6



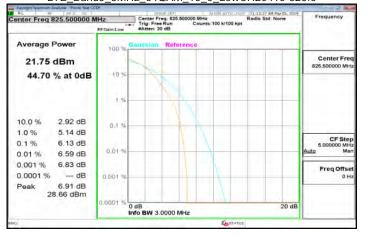
LTE_Band5_1_4MHz_64QAM_6_0_HighCH20643-848.3



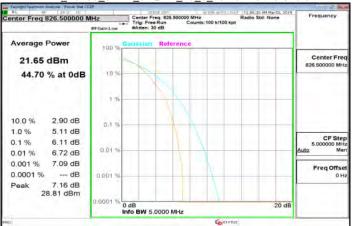
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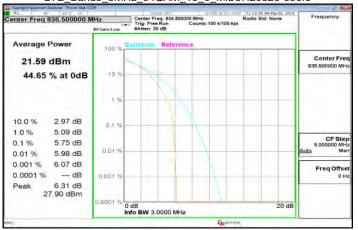
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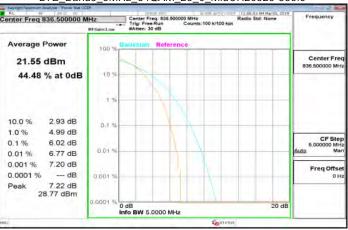
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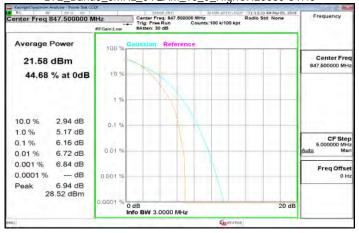
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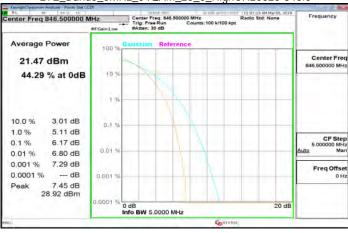
LTE_Band5_5MHz_64QAM_25_0_MidCH20525-836.5



LTE Band5 3MHz 64QAM 15 0 HighCH20635-847.5



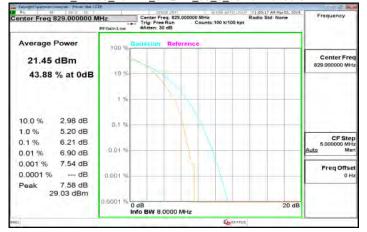
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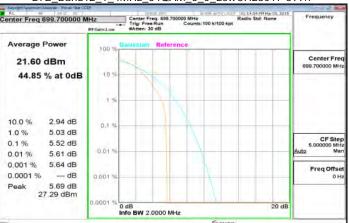
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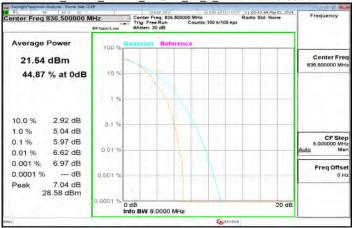
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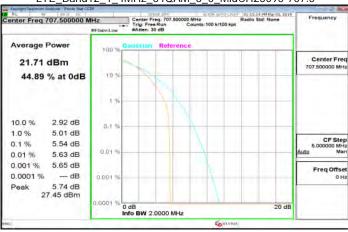
LTE_Band12_1_4MHz_64QAM_6_0_LowCH23017-699.7



LTE_Band5_10MHz_64QAM_50_0_MidCH20525-836.5



LTE_Band12_1_4MHz_64QAM_6_0_MidCH23095-707.5



LTE Band5 10MHz 64QAM 50 0 HighCH20600-844



LTE Band12 1 4MHz 64QAM 6 0 HighCH23173-715.3



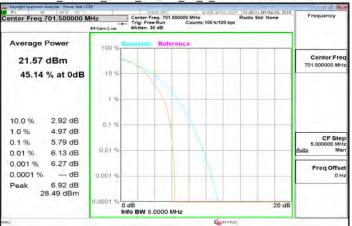
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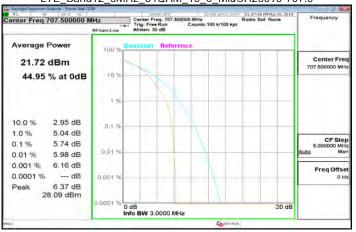
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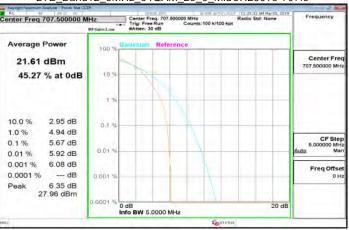
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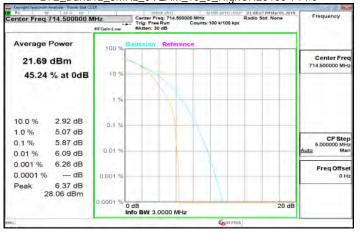
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LTE Band12 3MHz 64QAM 15 0 HighCH23165-714.5



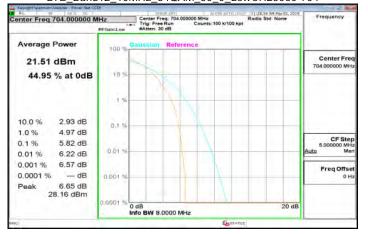
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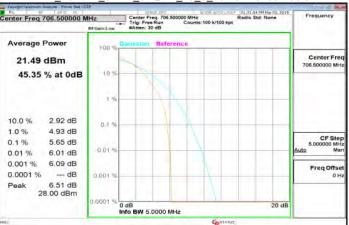
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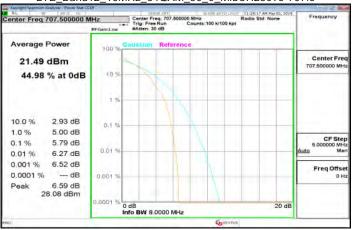
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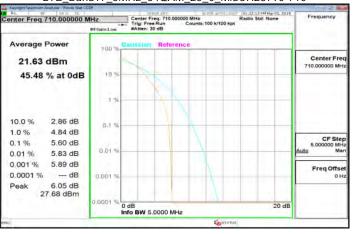
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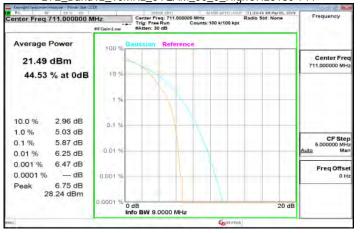
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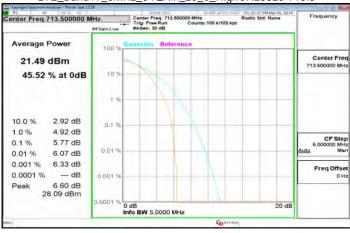
LTE_Band17_5MHz_64QAM_25_0_MidCH23790-710



LTE Band12 10MHz 64QAM 50 0 HighCH23130-711



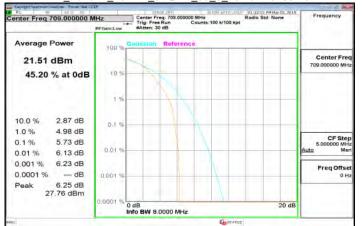
LTE Band17 5MHz 64QAM 25 0 HighCH23825-713.5



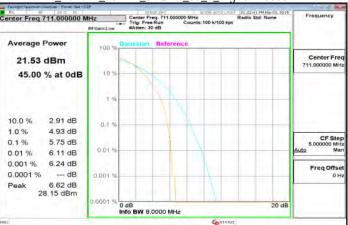
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LTE_Band17_10MHz_64QAM_50_0_LowCH23780-709



LTE_Band17_10MHz_64QAM_50_0_HighCH23800-711



LTE_Band17_10MHz_64QAM_50_0_MidCH23790-710



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