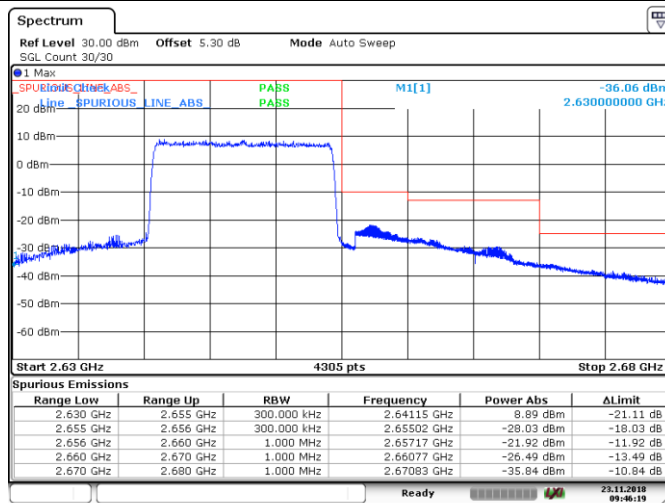
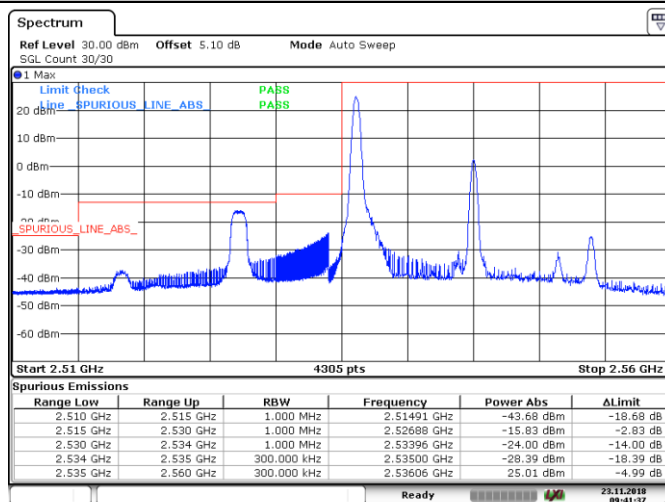


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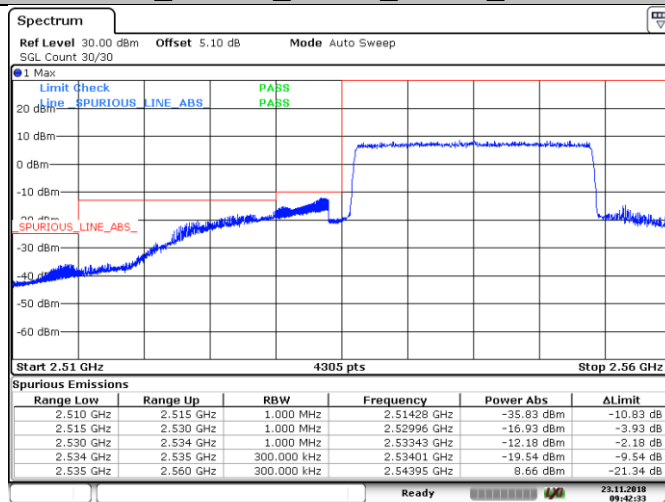
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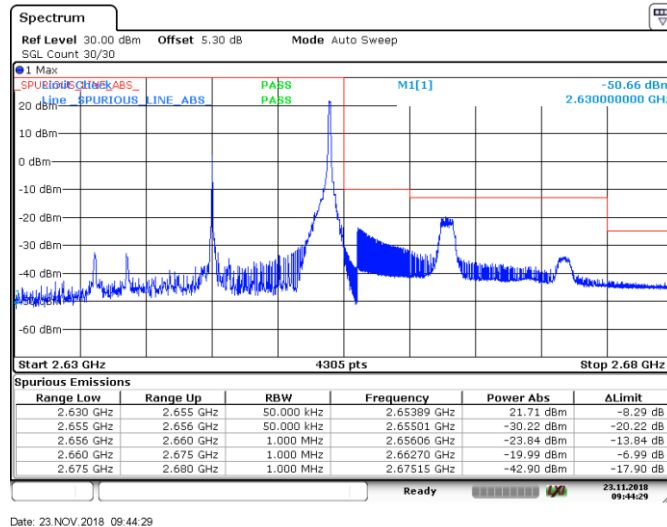
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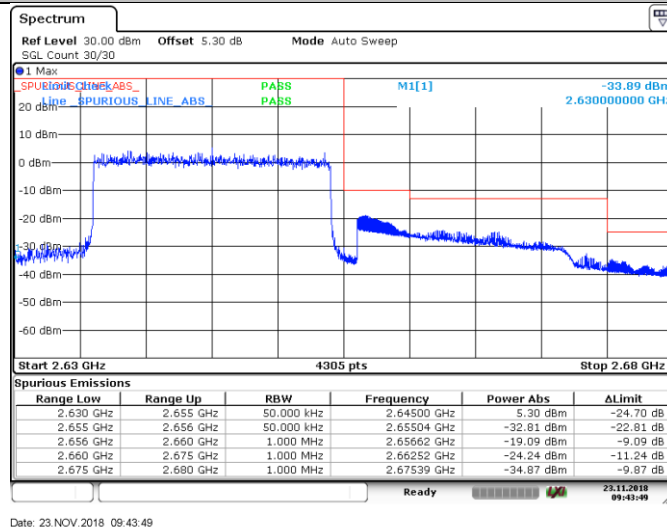
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Band41_20MHz_QPSK_41140_1RB#99



Band41_20MHz_QPSK_41140_100RB#0

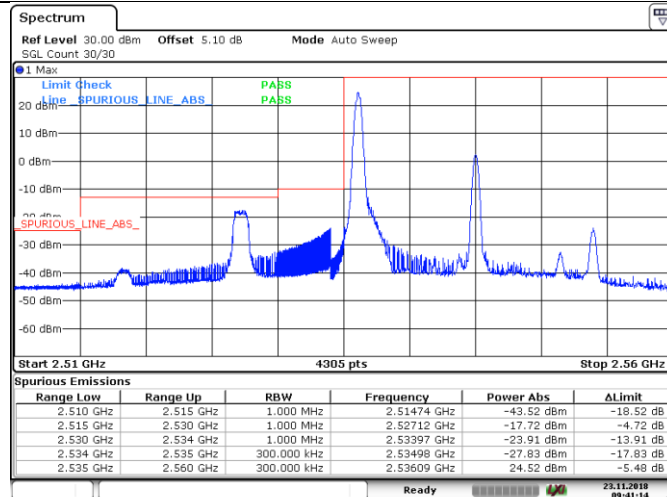


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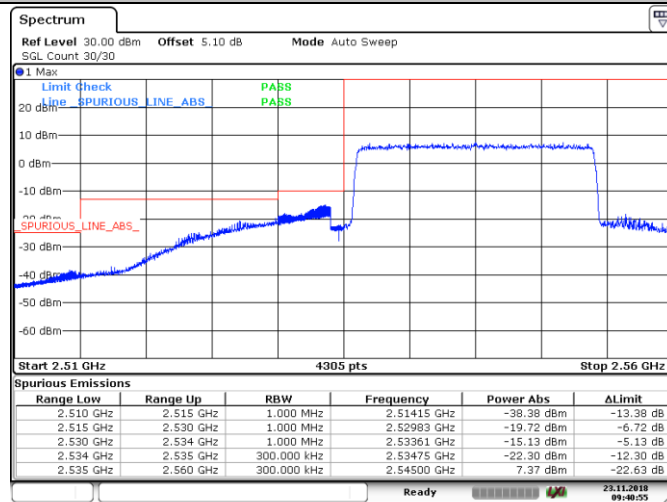
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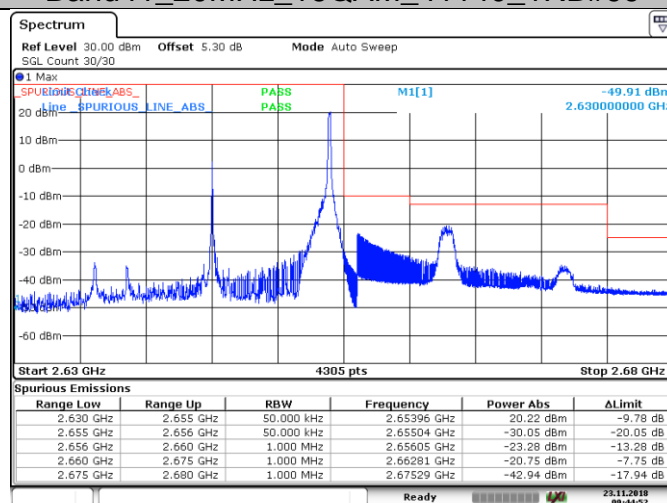
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Band41_20MHz_16QAM_40140_100RB#0



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Band41_20MHz_16QAM_41140_1RB#99



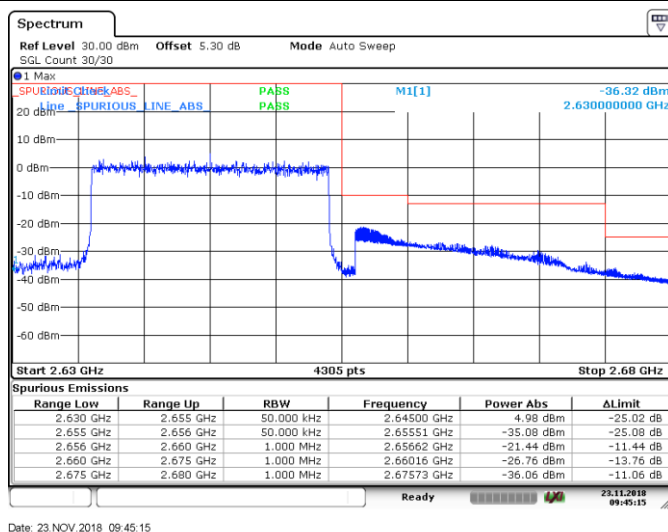
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NOTE: The occurrence of the spike on the conducted emission is the signal of the fundamental emission.

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9. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

9.1. Standard Applicable

According to FCC §2.1053,

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

§27.53 (c)

(2) On any frequency outside the 776– 788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log$ (P) dB (-13dBm)

(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log$ (P) dB in a 6.25 kHz band segment, for mobile and portable stations;

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

FCC §27.53(c) (5) & FCC §27.53(g)

Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

FCC §27.53(h) (3)

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

FCC §27.53(m) (4) (6)

For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log$ (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log$ (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log$ (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log$ (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.

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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.

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

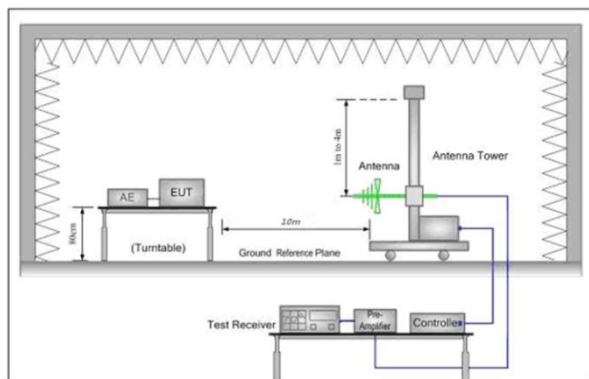


Figure 1. 30MHz to 1GHz

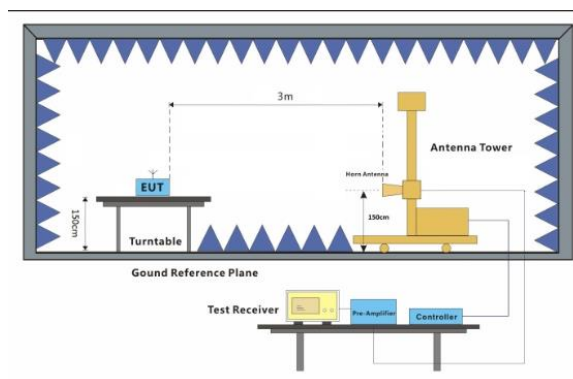


Figure 2. above 1GHz

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.

$$\text{ERP (dBm)} = \text{SG Level(dBm)} + \text{Antenna Gain(dBd)} + \text{Cable Loss(dB)}$$

$$\text{EIRP (dBm)} = \text{SG Level(dBm)} + \text{Antenna Gain(dBi)} + \text{Cable Loss(dB)}$$

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9.3. Measurement Equipment Used:

Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018/3/13	2021/3/12
Wideband Radio Communication Tester	Anristu	MT8821C	6201462742	2018/5/2	2019/5/1
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	W005-02	2018/3/13	2019/3/12
EXA Signal Analyzer (10Hz-26.5GHz)	Agilent Technologies Inc	N9010A	SEM004-09	2018/4/13	2019/4/12
Spectrum Analyzer (20Hz-43GHz)	Rohde & Schwarz	FSU43	SEM004-08	2018/4/2	2019/4/1
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-01	2017/6/27	2020/6/26
Horn Antenna (800MHz-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018/4/13	2021/4/12
Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2017/10/17	2020/10/16
Amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2018/9/25	2019/9/24
Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2018/9/27	2019/9/26
Pre-amplifier (26-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2018/4/2	2019/4/1
Band filter	N/A	N/A	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2018/7/12	2019/7/11
Tunable Notch Filter WRCD1700/2000-0.2/40-10EEK	WAINRIGHT Instruments GMBH	N/A	N/A	N/A	N/A
Tunable Notch Filter WRCD800/960-0.2/40-10EEK	WAINRIGHT Instruments GMBH	N/A	N/A	N/A	N/A
HighPass Filter WHK1.2/15G-10SS	WAINRIGHT Instruments GMBH	N/A	N/A	N/A	N/A
HighPass Filter WHKX10-2700-3000-18000-40SS	WAINRIGHT Instruments GMBH	N/A	N/A	N/A	N/A
HighPass Filter WHKX7.0/26.5G-6SS	WAINRIGHT Instruments GMBH	N/A	N/A	N/A	N/A
Band Reject Filter WRCG 824/849-814/859-40/8SS	WAINRIGHT Instruments GMBH	N/A	N/A	N/A	N/A
Band Reject Filter WRCG 1850/1910-1835/1925-40/8SS	WAINRIGHT Instruments GMBH	N/A	N/A	N/A	N/A
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A

Note: The measurement was taken place with the long duration of the time, and additional equipment list as shown above indicate those equipment of which has been subject to undertake the calibration in intermediate period of time of the measurement.

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9.4. Measurement Result:

9.5.1. Radiated Spurious Emission Measurement Result: GSM850 Mode (The Worst Case)

9.5.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
62.640500	-74.24	-13.00	61.24	Vertical
124.963000	-80.42	-13.00	67.42	Vertical
437.497000	-74.07	-13.00	61.07	Vertical
1648.500000	-46.63	-13.00	33.63	Vertical
4120.700000	-45.28	-13.00	32.28	Vertical
7030.600000	-53.04	-13.00	40.04	Vertical
59.682000	-69.57	-13.00	56.57	Horizontal
600.020500	-70.74	-13.00	57.74	Horizontal
1648.050000	-51.27	-13.00	38.27	Horizontal
2472.450000	-42.82	-13.00	29.82	Horizontal
4120.700000	-47.62	-13.00	34.62	Horizontal
7023.600000	-52.96	-13.00	39.96	Horizontal

9.5.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
61.234000	-74.70	-13.00	61.70	Vertical
346.123000	-74.50	-13.00	61.50	Vertical
1673.250000	-43.95	-13.00	30.95	Vertical
2509.875000	-44.80	-13.00	31.80	Vertical
3346.850000	-55.34	-13.00	42.34	Vertical
4183.000000	-48.17	-13.00	35.17	Vertical
63.125500	-74.01	-13.00	61.01	Horizontal
104.302000	-74.22	-13.00	61.22	Horizontal
343.067500	-71.42	-13.00	58.42	Horizontal
1673.100000	-50.22	-13.00	37.22	Horizontal
2510.475000	-44.71	-13.00	31.71	Horizontal
4183.000000	-49.98	-13.00	36.98	Horizontal

9.5.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
61.670500	-74.84	-13.00	61.84	Vertical
370.761000	-76.83	-13.00	63.83	Vertical
1697.550000	-44.04	-13.00	31.04	Vertical
2546.325000	-45.13	-13.00	32.13	Vertical
4243.550000	-48.61	-13.00	35.61	Vertical
7383.400000	-52.55	-13.00	39.55	Vertical
61.525000	-68.66	-13.00	55.66	Horizontal
450.010000	-74.08	-13.00	61.08	Horizontal
1697.475000	-49.49	-13.00	36.49	Horizontal
2546.700000	-43.91	-13.00	30.91	Horizontal
4244.250000	-55.29	-13.00	42.29	Horizontal
6928.400000	-53.68	-13.00	40.68	Horizontal

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9.5.2. Radiated Spurious Emission Measurement Result: GSM1900 Mode (The Worst Case)

9.5.2.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.338000	-75.01	-13.00	62.01	Vertical
122.586500	-80.69	-13.00	67.69	Vertical
599.972000	-72.07	-13.00	59.07	Vertical
3700.350000	-51.00	-13.00	38.00	Vertical
6307.150000	-53.16	-13.00	40.16	Vertical
8566.750000	-50.54	-13.00	37.54	Vertical
61.525000	-69.62	-13.00	56.62	Horizontal
212.457000	-75.80	-13.00	62.80	Horizontal
599.972000	-70.77	-13.00	57.77	Horizontal
3700.700000	-53.61	-13.00	40.61	Horizontal
6080.350000	-53.36	-13.00	40.36	Horizontal
8888.750000	-50.62	-13.00	37.62	Horizontal

9.5.2.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
61.864500	-74.30	-13.00	61.30	Vertical
121.228500	-80.38	-13.00	67.38	Vertical
352.137000	-74.05	-13.00	61.05	Vertical
3759.500000	-50.68	-13.00	37.68	Vertical
6066.700000	-52.45	-13.00	39.45	Vertical
8977.650000	-50.18	-13.00	37.18	Vertical
61.379500	-69.24	-13.00	56.24	Horizontal
212.505500	-74.88	-13.00	61.88	Horizontal
599.972000	-73.17	-13.00	60.17	Horizontal
3759.850000	-49.18	-13.00	36.18	Horizontal
6059.700000	-52.80	-13.00	39.80	Horizontal
8977.300000	-50.90	-13.00	37.90	Horizontal

9.5.2.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
61.670500	-69.53	-13.00	56.53	Vertical
212.505500	-77.05	-13.00	64.05	Vertical
427.894000	-78.01	-13.00	65.01	Vertical
3819.000000	-51.12	-13.00	38.12	Vertical
6056.200000	-53.93	-13.00	40.93	Vertical
9008.800000	-50.36	-13.00	37.36	Vertical
71.613000	-73.89	-13.00	60.89	Horizontal
125.011500	-80.09	-13.00	67.09	Horizontal
599.972000	-71.39	-13.00	58.39	Horizontal
3820.050000	-50.22	-13.00	37.22	Horizontal
6070.900000	-52.44	-13.00	39.44	Horizontal
9228.950000	-50.40	-13.00	37.40	Horizontal

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9.5.3. Radiated Spurious Emission Measurement Result: WCDMA Band 2 Mode(The Worst Case)

9.5.3.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
63.450000	-81.80	-13.00	68.80	Vertical
90.450000	-82.88	-13.00	69.88	Vertical
340.100000	-79.02	-13.00	66.02	Vertical
3702.487500	-67.14	-13.00	54.14	Vertical
6056.137500	-64.73	-13.00	51.73	Vertical
8969.925000	-62.32	-13.00	49.32	Vertical
62.700000	-77.33	-13.00	64.33	Horizontal
104.300000	-82.53	-13.00	69.53	Horizontal
346.150000	-79.85	-13.00	66.85	Horizontal
4218.750000	-67.04	-13.00	54.04	Horizontal
7009.687500	-64.48	-13.00	51.48	Horizontal
9299.962500	-61.78	-13.00	48.78	Horizontal

9.5.3.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
65.250000	-81.62	-13.00	68.62	Vertical
125.000000	-86.19	-13.00	73.19	Vertical
352.250000	-79.51	-13.00	66.51	Vertical
3758.062500	-67.60	-13.00	54.60	Vertical
6053.700000	-64.78	-13.00	51.78	Vertical
9292.162500	-62.03	-13.00	49.03	Vertical
62.500000	-77.14	-13.00	64.14	Horizontal
104.300000	-82.54	-13.00	69.54	Horizontal
340.100000	-79.27	-13.00	66.27	Horizontal
3639.600000	-68.36	-13.00	55.36	Horizontal
6054.675000	-64.85	-13.00	51.85	Horizontal
8976.750000	-62.08	-13.00	49.08	Horizontal

9.5.3.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.100000	-81.26	-13.00	68.26	Vertical
125.000000	-85.86	-13.00	72.86	Vertical
340.050000	-78.71	-13.00	65.71	Vertical
3813.150000	-67.31	-13.00	54.31	Vertical
7053.075000	-63.72	-13.00	50.72	Vertical
10401.712500	-61.86	-13.00	48.86	Vertical
62.200000	-77.61	-13.00	64.61	Horizontal
104.300000	-82.12	-13.00	69.12	Horizontal
335.500000	-78.78	-13.00	65.78	Horizontal
3813.637500	-67.84	-13.00	54.84	Horizontal
6053.212500	-64.87	-13.00	51.87	Horizontal
9296.550000	-61.72	-13.00	48.72	Horizontal

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9.5.4. Radiated Spurious Emission Measurement Result: WCDMA Band 5 Mode(The Worst Case)

9.5.4.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.350000	-81.60	-13.00	68.60	Vertical
346.000000	-78.85	-13.00	65.85	Vertical
1743.000000	-63.92	-13.00	50.92	Vertical
2681.500000	-57.15	-13.00	44.15	Vertical
4304.062500	-66.84	-13.00	53.84	Vertical
9284.850000	-62.06	-13.00	49.06	Vertical
62.600000	-77.30	-13.00	64.30	Horizontal
344.450000	-78.44	-13.00	65.44	Horizontal
1694.000000	-64.43	-13.00	51.43	Horizontal
2801.000000	-56.68	-13.00	43.68	Horizontal
4107.600000	-67.39	-13.00	54.39	Horizontal
7813.575000	-63.71	-13.00	50.71	Horizontal

9.5.4.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
55.100000	-81.29	-13.00	68.29	Vertical
343.000000	-78.94	-13.00	65.94	Vertical
1765.000000	-63.75	-13.00	50.75	Vertical
2643.000000	-57.47	-13.00	44.47	Vertical
4283.587500	-66.90	-13.00	53.90	Vertical
9297.037500	-61.95	-13.00	48.95	Vertical
62.500000	-76.87	-13.00	63.87	Horizontal
344.450000	-79.66	-13.00	66.66	Horizontal
1791.000000	-63.40	-13.00	50.40	Horizontal
2673.500000	-57.47	-13.00	44.47	Horizontal
4282.612500	-66.62	-13.00	53.62	Horizontal
7485.000000	-63.90	-13.00	50.90	Horizontal

9.5.4.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
56.250000	-81.48	-13.00	68.48	Vertical
341.400000	-78.94	-13.00	65.94	Vertical
1781.000000	-63.65	-13.00	50.65	Vertical
2681.500000	-57.24	-13.00	44.24	Vertical
4301.625000	-66.83	-13.00	53.83	Vertical
7483.537500	-63.92	-13.00	50.92	Vertical
63.150000	-77.28	-13.00	64.28	Horizontal
340.500000	-78.07	-13.00	65.07	Horizontal
1785.000000	-63.39	-13.00	50.39	Horizontal
2801.500000	-56.66	-13.00	43.66	Horizontal
4302.112500	-66.61	-13.00	53.61	Horizontal
9292.162500	-61.79	-13.00	48.79	Horizontal

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

9.5.5.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
56.100000	-81.11	-13.00	68.11	Vertical
90.450000	-83.72	-13.00	70.72	Vertical
342.800000	-79.84	-13.00	66.84	Vertical
3719.875000	-63.36	-13.00	50.36	Vertical
6064.100000	-64.79	-13.00	51.79	Vertical
8649.150000	-63.44	-13.00	50.44	Vertical
62.400000	-77.29	-13.00	64.29	Horizontal
104.300000	-82.95	-13.00	69.95	Horizontal
335.250000	-78.99	-13.00	65.99	Horizontal
3719.875000	-65.93	-13.00	52.93	Horizontal
7036.175000	-63.75	-13.00	50.75	Horizontal
9735.300000	-61.89	-13.00	48.89	Horizontal

9.5.5.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
65.000000	-81.79	-13.00	68.79	Vertical
90.500000	-83.68	-13.00	70.68	Vertical
353.450000	-77.23	-13.00	64.23	Vertical
3759.850000	-65.92	-13.00	52.92	Vertical
6056.300000	-64.77	-13.00	51.77	Vertical
9285.500000	-61.91	-13.00	48.91	Vertical
62.150000	-77.59	-13.00	64.59	Horizontal
104.300000	-82.79	-13.00	69.79	Horizontal
345.850000	-74.91	-13.00	61.91	Horizontal
3759.850000	-67.29	-13.00	54.29	Horizontal
6061.500000	-64.82	-13.00	51.82	Horizontal
9325.150000	-61.90	-13.00	48.90	Horizontal

9.5.5.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
55.950000	-81.02	-13.00	68.02	Vertical
90.450000	-83.20	-13.00	70.20	Vertical
345.850000	-79.52	-13.00	66.52	Vertical
3799.825000	-65.92	-13.00	52.92	Vertical
6061.500000	-64.82	-13.00	51.82	Vertical
9749.275000	-61.90	-13.00	48.90	Vertical
62.450000	-76.61	-13.00	63.61	Horizontal
104.300000	-82.42	-13.00	69.42	Horizontal
345.800000	-78.73	-13.00	65.73	Horizontal
3800.150000	-66.84	-13.00	53.84	Horizontal
6061.175000	-64.75	-13.00	51.75	Horizontal
9304.675000	-61.59	-13.00	48.59	Horizontal

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

9.5.6.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
63.693333	-81.72	-13.00	68.72	Vertical
339.726667	-77.17	-13.00	64.17	Vertical
1703.500000	-64.33	-13.00	51.33	Vertical
2631.000000	-57.78	-13.00	44.78	Vertical
4339.162500	-66.72	-13.00	53.72	Vertical
7041.862500	-63.62	-13.00	50.62	Vertical
62.713333	-77.15	-13.00	64.15	Horizontal
347.333333	-80.95	-13.00	67.95	Horizontal
1685.000000	-64.63	-13.00	51.63	Horizontal
2681.000000	-57.44	-13.00	44.44	Horizontal
4301.137500	-66.43	-13.00	53.43	Horizontal
9279.487500	-61.81	-13.00	48.81	Horizontal

9.5.6.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.066667	-81.31	-13.00	68.31	Vertical
351.906667	-78.31	-13.00	65.31	Vertical
1664.000000	-63.77	-13.00	50.77	Vertical
2662.000000	-57.21	-13.00	44.21	Vertical
4420.087500	-67.10	-13.00	54.10	Vertical
8505.337500	-62.86	-13.00	49.86	Vertical
63.226667	-77.28	-13.00	64.28	Horizontal
345.793333	-79.11	-13.00	66.11	Horizontal
1781.000000	-63.66	-13.00	50.66	Horizontal
2692.000000	-57.23	-13.00	44.23	Horizontal
4291.875000	-66.53	-13.00	53.53	Horizontal
9291.187500	-61.77	-13.00	48.77	Horizontal

9.5.6.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.626667	-81.15	-13.00	68.15	Vertical
338.186667	-77.17	-13.00	64.17	Vertical
1825.000000	-63.04	-13.00	50.04	Vertical
2650.500000	-57.47	-13.00	44.47	Vertical
5003.137500	-66.19	-13.00	53.19	Vertical
9295.087500	-61.73	-13.00	48.73	Vertical
63.460000	-76.84	-13.00	63.84	Horizontal
315.413333	-81.88	-13.00	68.88	Horizontal
1793.500000	-63.33	-13.00	50.33	Horizontal
2681.000000	-57.47	-13.00	44.47	Horizontal
4314.300000	-66.50	-13.00	53.50	Horizontal
7997.850000	-63.35	-13.00	50.35	Horizontal

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9.5.7. Radiated Spurious Emission Measurement Result: LTE-Band 7 (The Worst Case)

9.5.7.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.450000	-81.31	-25.00	56.31	Vertical
341.150000	-74.82	-25.00	49.82	Vertical
5020.200000	-57.33	-25.00	32.33	Vertical
7530.175000	-62.16	-25.00	37.16	Vertical
10040.475000	-61.51	-25.00	36.51	Vertical
12550.775000	-59.86	-25.00	34.86	Vertical
61.900000	-77.88	-25.00	52.88	Horizontal
344.050000	-83.14	-25.00	58.14	Horizontal
5020.200000	-52.88	-25.00	27.88	Horizontal
7530.500000	-60.15	-25.00	35.15	Horizontal
10040.475000	-59.70	-25.00	34.70	Horizontal
12550.450000	-58.11	-25.00	33.11	Horizontal

9.5.7.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.050000	-81.47	-36.00	45.47	Vertical
104.250000	-82.17	-36.00	46.17	Vertical
345.900000	-74.66	-36.00	38.66	Vertical
5119.975000	-57.97	-30.00	27.97	Vertical
7680.325000	-62.63	-30.00	32.63	Vertical
11297.575000	-62.06	-30.00	32.06	Vertical
62.150000	-77.51	-36.00	41.51	Horizontal
104.250000	-81.80	-36.00	45.80	Horizontal
341.600000	-80.39	-36.00	44.39	Horizontal
5119.975000	-52.86	-30.00	22.86	Horizontal
7680.000000	-58.47	-30.00	28.47	Horizontal
10240.350000	-58.89	-30.00	28.89	Horizontal

9.5.7.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
63.800000	-81.54	-25.00	56.54	Vertical
337.950000	-78.67	-25.00	53.67	Vertical
5102.100000	-56.69	-25.00	31.69	Vertical
7653.350000	-62.97	-25.00	37.97	Vertical
10204.275000	-61.32	-25.00	36.32	Vertical
12166.950000	-62.20	-25.00	37.20	Vertical
63.100000	-77.17	-25.00	52.17	Horizontal
104.250000	-81.82	-25.00	56.82	Horizontal
345.550000	-79.68	-25.00	54.68	Horizontal
5102.100000	-51.66	-25.00	26.66	Horizontal
7653.350000	-61.28	-25.00	36.28	Horizontal
10204.275000	-58.41	-25.00	33.41	Horizontal

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9.5.8. Radiated Spurious Emission Measurement Result: LTE-Band 41 (The Worst Case)

9.5.8.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
55.950000	-80.79	-25.00	55.79	Vertical
350.200000	-77.24	-25.00	52.24	Vertical
5072.200000	-54.73	-25.00	29.73	Vertical
7607.850000	-63.61	-25.00	38.61	Vertical
10144.150000	-62.67	-25.00	37.67	Vertical
12680.450000	-61.67	-25.00	36.67	Vertical
62.500000	-77.14	-25.00	52.14	Horizontal
331.950000	-81.25	-25.00	56.25	Horizontal
5071.875000	-49.34	-25.00	24.34	Horizontal
7608.175000	-60.26	-25.00	35.26	Horizontal
10144.475000	-60.92	-25.00	35.92	Horizontal
12680.775000	-58.93	-25.00	33.93	Horizontal

9.5.8.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.000000	-81.49	-25.00	56.49	Vertical
341.150000	-76.81	-25.00	51.81	Vertical
5168.075000	-57.61	-25.00	32.61	Vertical
7751.825000	-62.40	-25.00	37.40	Vertical
11285.875000	-62.24	-25.00	37.24	Vertical
62.700000	-77.09	-25.00	52.09	Horizontal
104.250000	-80.43	-25.00	55.43	Horizontal
347.100000	-79.29	-25.00	54.29	Horizontal
5168.400000	-56.07	-25.00	31.07	Horizontal
7752.150000	-62.10	-25.00	37.10	Horizontal
10336.225000	-59.62	-25.00	34.62	Horizontal

9.5.8.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
63.750000	-81.63	-25.00	56.63	Vertical
104.250000	-81.78	-25.00	56.78	Vertical
345.750000	-75.99	-25.00	50.99	Vertical
5272.075000	-56.70	-25.00	31.70	Vertical
7908.475000	-62.48	-25.00	37.48	Vertical
10544.225000	-62.12	-25.00	37.12	Vertical
62.500000	-77.07	-25.00	52.07	Horizontal
104.300000	-83.50	-25.00	58.50	Horizontal
347.300000	-80.21	-25.00	55.21	Horizontal
5272.400000	-57.01	-25.00	32.01	Horizontal
7908.150000	-60.92	-25.00	35.92	Horizontal
10544.550000	-58.11	-25.00	33.11	Horizontal

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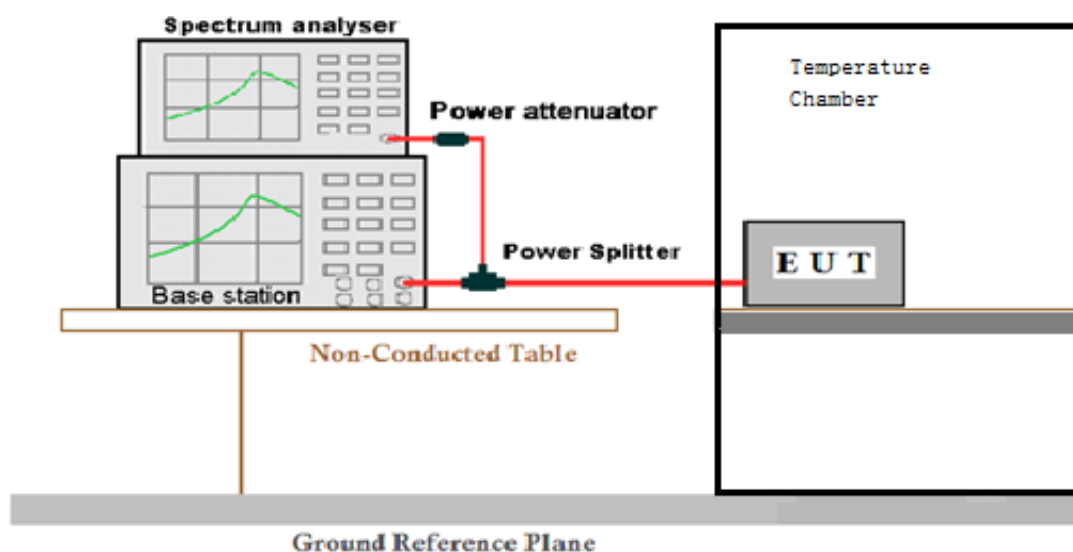
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10. FREQUENCY STABILITY MEASUREMENT

10.1. Standard Applicabl

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

10.2. Test Set-up



Note: Measurement setup for testing on Antenna connector

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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.

10.4. Measurement Equipment Used

RF conducted test					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date	Cal. Due date
				(yyyy-mm-dd)	(yyyy-mm-dd)
Dual Output Mobile Communication DC Source	Agilent Technologies Inc	66311B	W009-09	2018/9/15	2019/9/15
Signal Analyzer	Rohde & Schwarz	FSV	W025-05	2018/3/13	2019/3/12
Coaxial Cable	SGS	N/A	SEM031-01	2018/7/12	2019/7/11
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2018/9/2	2019/9/2
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	HTC-1	W006-17	2018/9/10	2019/9/10
Temperature Chamber	GIANT FORCE	ICT-150-40-CP-AR	W027-03	2017/12/4	2018/12/4
Wideband Radio Communication Tester	Anristu	MT8821C	6201462742	2018/5/2	2019/5/1
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	W005-02	2018/3/13	2019/3/12

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10.5. Measurement Result

10.5.1. Frequency Stability Measurement Result: GSM Band

10.5.1.1. Frequency Error Vs Voltage

Voltage							
BAND	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM850	128	VL	TN	-9.49	-0.011517	2.5	PASS
GSM850	128	VN	TN	-8.59	-0.010420	2.5	PASS
GSM850	128	VH	TN	-11.78	-0.014298	2.5	PASS
GSM850	190	VL	TN	-10.33	-0.012349	2.5	PASS
GSM850	190	VN	TN	-8.33	-0.009957	2.5	PASS
GSM850	190	VH	TN	-5.88	-0.007024	2.5	PASS
GSM850	251	VL	TN	-10.72	-0.012628	2.5	PASS
GSM850	251	VN	TN	-10.88	-0.012818	2.5	PASS
GSM850	251	VH	TN	-10.65	-0.012552	2.5	PASS
EGPRS850	128	VL	TN	-3.91	-0.004740	2.5	PASS
EGPRS850	128	VN	TN	3.26	0.003956	2.5	PASS
EGPRS850	128	VH	TN	-1.07	-0.001293	2.5	PASS
EGPRS850	190	VL	TN	0.42	0.000502	2.5	PASS
EGPRS850	190	VN	TN	0.06	0.000077	2.5	PASS
EGPRS850	190	VH	TN	-1.49	-0.001775	2.5	PASS
EGPRS850	251	VL	TN	6.26	0.007379	2.5	PASS
EGPRS850	251	VN	TN	5.36	0.006314	2.5	PASS
EGPRS850	251	VH	TN	8.75	0.010308	2.5	PASS
GSM1900	512	VL	TN	8.52	0.004607	2.5	PASS
GSM1900	512	VN	TN	11.75	0.006352	2.5	PASS
GSM1900	512	VH	TN	10.20	0.005514	2.5	PASS
GSM1900	661	VL	TN	4.10	0.002181	2.5	PASS
GSM1900	661	VN	TN	3.91	0.002078	2.5	PASS
GSM1900	661	VH	TN	5.17	0.002748	2.5	PASS
GSM1900	810	VL	TN	-0.23	-0.000118	2.5	PASS
GSM1900	810	VN	TN	0.65	0.000338	2.5	PASS
GSM1900	810	VH	TN	-0.39	-0.000203	2.5	PASS
EGPRS1900	512	VL	TN	13.62	0.007364	2.5	PASS
EGPRS1900	512	VN	TN	10.78	0.005828	2.5	PASS
EGPRS1900	512	VH	TN	2.20	0.001187	2.5	PASS
EGPRS1900	661	VL	TN	4.13	0.002198	2.5	PASS
EGPRS1900	661	VN	TN	5.39	0.002868	2.5	PASS
EGPRS1900	661	VH	TN	0.87	0.000464	2.5	PASS
EGPRS1900	810	VL	TN	6.62	0.003466	2.5	PASS
EGPRS1900	810	VN	TN	0.29	0.000152	2.5	PASS
EGPRS1900	810	VH	TN	6.52	0.003415	2.5	PASS

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10.5.1.2.Frequency Error Vs Temperature

Temperature							
BAND	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GSM850	128	VN	-30	-11.49	-0.013945	2.5	PASS
GSM850	128	VN	-20	-11.72	-0.014220	2.5	PASS
GSM850	128	VN	-10	-11.59	-0.014063	2.5	PASS
GSM850	128	VN	0	-11.69	-0.014180	2.5	PASS
GSM850	128	VN	10	-9.72	-0.011791	2.5	PASS
GSM850	128	VN	20	-9.01	-0.010929	2.5	PASS
GSM850	128	VN	30	-9.30	-0.011282	2.5	PASS
GSM850	128	VN	40	-11.46	-0.013906	2.5	PASS
GSM850	128	VN	50	-9.91	-0.012026	2.5	PASS
GSM850	190	VN	-30	-10.69	-0.012774	2.5	PASS
GSM850	190	VN	-20	-9.30	-0.011114	2.5	PASS
GSM850	190	VN	-10	-9.59	-0.011462	2.5	PASS
GSM850	190	VN	0	-7.14	-0.008529	2.5	PASS
GSM850	190	VN	10	-5.07	-0.006059	2.5	PASS
GSM850	190	VN	20	-7.46	-0.008915	2.5	PASS
GSM850	190	VN	30	-7.88	-0.009416	2.5	PASS
GSM850	190	VN	40	-9.94	-0.011886	2.5	PASS
GSM850	190	VN	50	-8.59	-0.010265	2.5	PASS
GSM850	251	VN	-30	-6.52	-0.007683	2.5	PASS
GSM850	251	VN	-20	-9.46	-0.011145	2.5	PASS
GSM850	251	VN	-10	-5.13	-0.006048	2.5	PASS
GSM850	251	VN	0	-5.29	-0.006238	2.5	PASS
GSM850	251	VN	10	-4.16	-0.004907	2.5	PASS
GSM850	251	VN	20	-8.27	-0.009737	2.5	PASS
GSM850	251	VN	30	-7.10	-0.008368	2.5	PASS
GSM850	251	VN	40	-6.07	-0.007151	2.5	PASS
GSM850	251	VN	50	-6.72	-0.007912	2.5	PASS
EGPRS850	128	VN	-30	-5.13	-0.006228	2.5	PASS
EGPRS850	128	VN	-20	0.71	0.000862	2.5	PASS
EGPRS850	128	VN	-10	-5.91	-0.007169	2.5	PASS
EGPRS850	128	VN	0	-2.42	-0.002938	2.5	PASS
EGPRS850	128	VN	10	-0.42	-0.000509	2.5	PASS
EGPRS850	128	VN	20	6.26	0.007599	2.5	PASS
EGPRS850	128	VN	30	4.88	0.005915	2.5	PASS
EGPRS850	128	VN	40	3.26	0.003956	2.5	PASS
EGPRS850	128	VN	50	4.97	0.006033	2.5	PASS
EGPRS850	190	VN	-30	3.97	0.004747	2.5	PASS
EGPRS850	190	VN	-20	2.81	0.003357	2.5	PASS
EGPRS850	190	VN	-10	-0.32	-0.000386	2.5	PASS
EGPRS850	190	VN	0	3.45	0.004129	2.5	PASS
EGPRS850	190	VN	10	6.30	0.007525	2.5	PASS
EGPRS850	190	VN	20	-0.55	-0.000656	2.5	PASS
EGPRS850	190	VN	30	6.81	0.008143	2.5	PASS
EGPRS850	190	VN	40	6.78	0.008104	2.5	PASS

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EGPRS850	190	VN	50	4.29	0.005133	2.5	PASS
EGPRS850	251	VN	-30	4.39	0.005173	2.5	PASS
EGPRS850	251	VN	-20	5.29	0.006238	2.5	PASS
EGPRS850	251	VN	-10	6.10	0.007189	2.5	PASS
EGPRS850	251	VN	0	7.17	0.008444	2.5	PASS
EGPRS850	251	VN	10	5.75	0.006771	2.5	PASS
EGPRS850	251	VN	20	5.07	0.005972	2.5	PASS
EGPRS850	251	VN	30	7.91	0.009319	2.5	PASS
EGPRS850	251	VN	40	6.20	0.007303	2.5	PASS
EGPRS850	251	VN	50	6.78	0.007988	2.5	PASS
GSM1900	512	VN	-30	13.75	0.007434	2.5	PASS
GSM1900	512	VN	-20	5.20	0.002809	2.5	PASS
GSM1900	512	VN	-10	5.75	0.003106	2.5	PASS
GSM1900	512	VN	0	7.65	0.004136	2.5	PASS
GSM1900	512	VN	10	12.37	0.006683	2.5	PASS
GSM1900	512	VN	20	23.08	0.012477	2.5	PASS
GSM1900	512	VN	30	18.60	0.010051	2.5	PASS
GSM1900	512	VN	40	20.70	0.011185	2.5	PASS
GSM1900	512	VN	50	10.46	0.005654	2.5	PASS
GSM1900	661	VN	-30	9.36	0.004980	2.5	PASS
GSM1900	661	VN	-20	6.59	0.003503	2.5	PASS
GSM1900	661	VN	-10	4.00	0.002129	2.5	PASS
GSM1900	661	VN	0	1.74	0.000927	2.5	PASS
GSM1900	661	VN	10	10.46	0.005564	2.5	PASS
GSM1900	661	VN	20	2.16	0.001151	2.5	PASS
GSM1900	661	VN	30	14.01	0.007453	2.5	PASS
GSM1900	661	VN	40	12.49	0.006646	2.5	PASS
GSM1900	661	VN	50	18.69	0.009943	2.5	PASS
GSM1900	810	VN	-30	0.81	0.000423	2.5	PASS
GSM1900	810	VN	-20	0.94	0.000490	2.5	PASS
GSM1900	810	VN	-10	-2.13	-0.001116	2.5	PASS
GSM1900	810	VN	0	0.45	0.000237	2.5	PASS
GSM1900	810	VN	10	4.84	0.002536	2.5	PASS
GSM1900	810	VN	20	7.43	0.003888	2.5	PASS
GSM1900	810	VN	30	5.20	0.002722	2.5	PASS
GSM1900	810	VN	40	5.42	0.002840	2.5	PASS
GSM1900	810	VN	50	6.65	0.003483	2.5	PASS
EGPRS1900	512	VN	-30	6.68	0.003612	2.5	PASS
EGPRS1900	512	VN	-20	6.62	0.003577	2.5	PASS
EGPRS1900	512	VN	-10	6.49	0.003507	2.5	PASS
EGPRS1900	512	VN	0	8.65	0.004677	2.5	PASS
EGPRS1900	512	VN	10	5.97	0.003228	2.5	PASS
EGPRS1900	512	VN	20	2.42	0.001309	2.5	PASS
EGPRS1900	512	VN	30	7.59	0.004101	2.5	PASS
EGPRS1900	512	VN	40	-0.42	-0.000227	2.5	PASS
EGPRS1900	512	VN	50	-3.03	-0.001640	2.5	PASS
EGPRS1900	661	VN	-30	4.00	0.002129	2.5	PASS
EGPRS1900	661	VN	-20	2.13	0.001133	2.5	PASS

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EGPRS1900	661	VN	-10	7.88	0.004190	2.5	PASS
EGPRS1900	661	VN	0	6.10	0.003246	2.5	PASS
EGPRS1900	661	VN	10	-1.16	-0.000618	2.5	PASS
EGPRS1900	661	VN	20	14.98	0.007968	2.5	PASS
EGPRS1900	661	VN	30	23.31	0.012399	2.5	PASS
EGPRS1900	661	VN	40	23.54	0.012519	2.5	PASS
EGPRS1900	661	VN	50	26.86	0.014288	2.5	PASS
EGPRS1900	810	VN	-30	-1.68	-0.000879	2.5	PASS
EGPRS1900	810	VN	-20	4.04	0.002113	2.5	PASS
EGPRS1900	810	VN	-10	-0.87	-0.000456	2.5	PASS
EGPRS1900	810	VN	0	6.88	0.003601	2.5	PASS
EGPRS1900	810	VN	10	5.59	0.002925	2.5	PASS
EGPRS1900	810	VN	20	3.94	0.002062	2.5	PASS
EGPRS1900	810	VN	30	11.62	0.006086	2.5	PASS
EGPRS1900	810	VN	40	15.01	0.007861	2.5	PASS
EGPRS1900	810	VN	50	12.04	0.006306	2.5	PASS

10.5.2. Frequency Stability Measurement Result: WCDMA Band

10.5.2.1. Frequency Vs Voltage

Voltage								
BAND	Modulation	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band II	QPSK	9262	VL	TN	-14.42	-0.007784	±2.5	PASS
Band II	QPSK	9262	VN	TN	-19.75	-0.010661	±2.5	PASS
Band II	QPSK	9262	VH	TN	-12.43	-0.006711	±2.5	PASS
Band II	QPSK	9400	VL	TN	-12.30	-0.006540	±2.5	PASS
Band II	QPSK	9400	VN	TN	-11.03	-0.005867	±2.5	PASS
Band II	QPSK	9400	VH	TN	-8.44	-0.004489	±2.5	PASS
Band II	QPSK	9538	VL	TN	-10.15	-0.005321	±2.5	PASS
Band II	QPSK	9538	VN	TN	-13.48	-0.007068	±2.5	PASS
Band II	QPSK	9538	VH	TN	-16.37	-0.008583	±2.5	PASS
Band II	16QAM	9262	VL	TN	-14.94	-0.008066	±2.5	PASS
Band II	16QAM	9262	VN	TN	-14.18	-0.007657	±2.5	PASS
Band II	16QAM	9262	VH	TN	-17.85	-0.009634	±2.5	PASS
Band II	16QAM	9400	VL	TN	-12.48	-0.015103	±2.5	PASS
Band II	16QAM	9400	VN	TN			±2.5	PASS
Band II	16QAM	9400	VH	TN			±2.5	PASS
Band II	16QAM	9538	VL	TN			±2.5	PASS
Band II	16QAM	9538	VN	TN			±2.5	PASS
Band II	16QAM	9538	VH	TN			±2.5	PASS
Band V	QPSK	4132	VL	TN	-9.06	-0.010957	±2.5	PASS
Band V	QPSK	4132	VN	TN	-9.52	-0.011520	±2.5	PASS
Band V	QPSK	4132	VH	TN	-8.25	-0.009988	±2.5	PASS
Band V	QPSK	4182	VL	TN	-9.14	-0.010929	±2.5	PASS
Band V	QPSK	4182	VN	TN	-6.47	-0.007731	±2.5	PASS
Band V	QPSK	4182	VH	TN	-5.29	-0.006328	±2.5	PASS

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Band V	QPSK	4233	VL	TN	-10.78	-0.012732	±2.5	PASS
Band V	QPSK	4233	VN	TN	-9.76	-0.011532	±2.5	PASS
Band V	QPSK	4233	VH	TN	-12.01	-0.014185	±2.5	PASS
Band V	16QAM	4132	VL	TN	-13.70	-0.007398	±2.5	PASS
Band V	16QAM	4132	VN	TN	-15.06	-0.008132	±2.5	PASS
Band V	16QAM	4132	VH	TN	-17.53	-0.009464	±2.5	PASS
Band V	16QAM	4182	VL	TN			±2.5	PASS
Band V	16QAM	4182	VN	TN			±2.5	PASS
Band V	16QAM	4182	VH	TN			±2.5	PASS
Band V	16QAM	4233	VL	TN			±2.5	PASS
Band V	16QAM	4233	VN	TN			±2.5	PASS
Band V	16QAM	4233	VH	TN			±2.5	PASS

10.5.2.2.Frequency Vs Temperature

BAND	Modulation	Channel	Voltage (Vdc)	Temperature		Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
				Temperature (°C)					
Band II	QPSK	9262	VN	-30		-14.48	-0.007819	±2.5	PASS
Band II	QPSK	9262	VN	-20		-11.87	-0.006406	±2.5	PASS
Band II	QPSK	9262	VN	-10		-11.17	-0.006031	±2.5	PASS
Band II	QPSK	9262	VN	0		-9.65	-0.005209	±2.5	PASS
Band II	QPSK	9262	VN	10		-9.61	-0.005190	±2.5	PASS
Band II	QPSK	9262	VN	20		-11.84	-0.006390	±2.5	PASS
Band II	QPSK	9262	VN	30		-11.18	-0.006035	±2.5	PASS
Band II	QPSK	9262	VN	40		-16.20	-0.008746	±2.5	PASS
Band II	QPSK	9262	VN	50		-15.18	-0.008197	±2.5	PASS
Band II	QPSK	9400	VN	-30		-17.88	-0.009511	±2.5	PASS
Band II	QPSK	9400	VN	-20		-8.20	-0.004360	±2.5	PASS
Band II	QPSK	9400	VN	-10		-13.75	-0.007312	±2.5	PASS
Band II	QPSK	9400	VN	0		-10.96	-0.005832	±2.5	PASS
Band II	QPSK	9400	VN	10		-8.25	-0.004390	±2.5	PASS
Band II	QPSK	9400	VN	20		-15.90	-0.008458	±2.5	PASS
Band II	QPSK	9400	VN	30		-9.76	-0.005193	±2.5	PASS
Band II	QPSK	9400	VN	40		-7.53	-0.004006	±2.5	PASS
Band II	QPSK	9400	VN	50		-15.29	-0.008134	±2.5	PASS
Band II	QPSK	9538	VN	-30		-13.57	-0.007113	±2.5	PASS
Band II	QPSK	9538	VN	-20		-14.05	-0.007368	±2.5	PASS
Band II	QPSK	9538	VN	-10		-5.81	-0.003045	±2.5	PASS
Band II	QPSK	9538	VN	0		-12.17	-0.006378	±2.5	PASS
Band II	QPSK	9538	VN	10		-8.54	-0.004477	±2.5	PASS
Band II	QPSK	9538	VN	20		-13.69	-0.007177	±2.5	PASS
Band II	QPSK	9538	VN	30		-15.52	-0.008136	±2.5	PASS
Band II	QPSK	9538	VN	40		-9.27	-0.004859	±2.5	PASS
Band II	QPSK	9538	VN	50		-13.55	-0.007102	±2.5	PASS
Band II	16QAM	9262	VN	-30		-13.60	-0.007339	±2.5	PASS
Band II	16QAM	9262	VN	-20		-10.52	-0.005678	±2.5	PASS
Band II	16QAM	9262	VN	-10		-10.18	-0.005493	±2.5	PASS

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Band II	16QAM	9262	VN	0	-15.21	-0.008210	±2.5	PASS
Band II	16QAM	9262	VN	10	-9.14	-0.004936	±2.5	PASS
Band II	16QAM	9262	VN	20	-17.99	-0.009712	±2.5	PASS
Band II	16QAM	9262	VN	30	-19.97	-0.010780	±2.5	PASS
Band II	16QAM	9262	VN	40	-12.55	-0.006775	±2.5	PASS
Band II	16QAM	9262	VN	50	-13.79	-0.007443	±2.5	PASS
Band II	16QAM	9400	VN	-30	-16.48	-0.008768	±2.5	PASS
Band II	16QAM	9400	VN	-20	-18.34	-0.009756	±2.5	PASS
Band II	16QAM	9400	VN	-10	-9.82	-0.005223	±2.5	PASS
Band II	16QAM	9400	VN	0	-10.00	-0.005320	±2.5	PASS
Band II	16QAM	9400	VN	10	-17.94	-0.009545	±2.5	PASS
Band II	16QAM	9400	VN	20	-12.42	-0.006608	±2.5	PASS
Band II	16QAM	9400	VN	30	-17.37	-0.009239	±2.5	PASS
Band II	16QAM	9400	VN	40	-8.04	-0.004276	±2.5	PASS
Band II	16QAM	9400	VN	50	-18.18	-0.009670	±2.5	PASS
Band II	16QAM	9538	VN	-30	-9.48	-0.004969	±2.5	PASS
Band II	16QAM	9538	VN	-20	-8.80	-0.004611	±2.5	PASS
Band II	16QAM	9538	VN	-10	-9.61	-0.005036	±2.5	PASS
Band II	16QAM	9538	VN	0	-19.95	-0.010457	±2.5	PASS
Band II	16QAM	9538	VN	10	-14.13	-0.007409	±2.5	PASS
Band II	16QAM	9538	VN	20	-11.03	-0.005782	±2.5	PASS
Band II	16QAM	9538	VN	30	-9.49	-0.004973	±2.5	PASS
Band II	16QAM	9538	VN	40	-17.39	-0.009117	±2.5	PASS
Band II	16QAM	9538	VN	50	-9.52	-0.004990	±2.5	PASS
Band V	QPSK	4132	VN	-30	-6.53	-0.007902	±2.5	PASS
Band V	QPSK	4132	VN	-20	-9.47	-0.011459	±2.5	PASS
Band V	QPSK	4132	VN	-10	-14.00	-0.016947	±2.5	PASS
Band V	QPSK	4132	VN	0	-12.89	-0.015596	±2.5	PASS
Band V	QPSK	4132	VN	10	-8.73	-0.010568	±2.5	PASS
Band V	QPSK	4132	VN	20	-7.89	-0.009547	±2.5	PASS
Band V	QPSK	4132	VN	30	-9.90	-0.011979	±2.5	PASS
Band V	QPSK	4132	VN	40	-12.12	-0.014662	±2.5	PASS
Band V	QPSK	4132	VN	50	-10.11	-0.012230	±2.5	PASS
Band V	QPSK	4182	VN	-30	-5.74	-0.006867	±2.5	PASS
Band V	QPSK	4182	VN	-20	-3.36	-0.004019	±2.5	PASS
Band V	QPSK	4182	VN	-10	-10.91	-0.013050	±2.5	PASS
Band V	QPSK	4182	VN	0	-10.04	-0.012006	±2.5	PASS
Band V	QPSK	4182	VN	10	-8.35	-0.009980	±2.5	PASS
Band V	QPSK	4182	VN	20	-5.62	-0.006722	±2.5	PASS
Band V	QPSK	4182	VN	30	-4.65	-0.005559	±2.5	PASS
Band V	QPSK	4182	VN	40	-11.44	-0.013674	±2.5	PASS
Band V	QPSK	4182	VN	50	-10.88	-0.013007	±2.5	PASS
Band V	QPSK	4233	VN	-30	-4.13	-0.004883	±2.5	PASS
Band V	QPSK	4233	VN	-20	-7.67	-0.009065	±2.5	PASS
Band V	QPSK	4233	VN	-10	-6.72	-0.007942	±2.5	PASS
Band V	QPSK	4233	VN	0	-9.68	-0.011431	±2.5	PASS
Band V	QPSK	4233	VN	10	-5.09	-0.006015	±2.5	PASS
Band V	QPSK	4233	VN	20	-11.16	-0.013180	±2.5	PASS

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Band V	QPSK	4233	VN	30	-4.92	-0.005813	±2.5	PASS
Band V	QPSK	4233	VN	40	-7.42	-0.008761	±2.5	PASS
Band V	QPSK	4233	VN	50	-10.48	-0.012377	±2.5	PASS
Band V	16QAM	4132	VN	-30	-14.41	-0.017432	±2.5	PASS
Band V	16QAM	4132	VN	-20	-15.82	-0.019145	±2.5	PASS
Band V	16QAM	4132	VN	-10	-10.58	-0.012798	±2.5	PASS
Band V	16QAM	4132	VN	0	-9.14	-0.011059	±2.5	PASS
Band V	16QAM	4132	VN	10	-12.77	-0.015453	±2.5	PASS
Band V	16QAM	4132	VN	20	-10.05	-0.012162	±2.5	PASS
Band V	16QAM	4132	VN	30	-10.49	-0.012692	±2.5	PASS
Band V	16QAM	4132	VN	40	-10.03	-0.012131	±2.5	PASS
Band V	16QAM	4132	VN	50	-8.98	-0.010870	±2.5	PASS
Band V	16QAM	4182	VN	-30	-12.30	-0.014709	±2.5	PASS
Band V	16QAM	4182	VN	-20	-16.92	-0.020231	±2.5	PASS
Band V	16QAM	4182	VN	-10	-15.14	-0.018101	±2.5	PASS
Band V	16QAM	4182	VN	0	-17.46	-0.020879	±2.5	PASS
Band V	16QAM	4182	VN	10	-10.91	-0.013043	±2.5	PASS
Band V	16QAM	4182	VN	20	-17.15	-0.020508	±2.5	PASS
Band V	16QAM	4182	VN	30	-18.46	-0.022071	±2.5	PASS
Band V	16QAM	4182	VN	40	-14.85	-0.017752	±2.5	PASS
Band V	16QAM	4182	VN	50	-11.74	-0.014031	±2.5	PASS
Band V	16QAM	4233	VN	-30	-10.32	-0.012189	±2.5	PASS
Band V	16QAM	4233	VN	-20	-9.06	-0.010699	±2.5	PASS
Band V	16QAM	4233	VN	-10	-17.72	-0.020933	±2.5	PASS
Band V	16QAM	4233	VN	0	-15.63	-0.018457	±2.5	PASS
Band V	16QAM	4233	VN	10	-15.78	-0.018643	±2.5	PASS
Band V	16QAM	4233	VN	20	-12.06	-0.014240	±2.5	PASS
Band V	16QAM	4233	VN	30	-19.85	-0.023449	±2.5	PASS
Band V	16QAM	4233	VN	40	-15.01	-0.017726	±2.5	PASS
Band V	16QAM	4233	VN	50	-8.54	-0.010091	±2.5	PASS

10.5.3. Frequency Stability Measurement Result: LTE-Band 2

10.5.3.1. Frequency Vs Voltage

Voltage										
BAND	Bandwidth	Modulation	Channel	RB Config-ure	Volt-age [Vdc]	Tempera-ture (°C)	Devia-tion (Hz)	Deviation (ppm)	Limit (ppm)	Ver-dict
Band2	20MHz	QPSK	18700	100RB#0	VL	NT	-4.50	-0.002419	±2.5	PASS
Band2	20MHz	QPSK	18700	100RB#0	VN	NT	-3.50	-0.001882	±2.5	PASS
Band2	20MHz	QPSK	18700	100RB#0	VH	NT	-7.10	-0.003817	±2.5	PASS
Band2	20MHz	QPSK	18900	100RB#0	VL	NT	-5.90	-0.003138	±2.5	PASS
Band2	20MHz	QPSK	18900	100RB#0	VN	NT	-7.20	-0.003830	±2.5	PASS
Band2	20MHz	QPSK	18900	100RB#0	VH	NT	-2.90	-0.001543	±2.5	PASS
Band2	20MHz	QPSK	19100	100RB#0	VL	NT	-6.50	-0.003421	±2.5	PASS
Band2	20MHz	QPSK	19100	100RB#0	VN	NT	-9.90	-0.005211	±2.5	PASS
Band2	20MHz	QPSK	19100	100RB#0	VH	NT	-6.30	-0.003316	±2.5	PASS

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Band2	20MHz	16QAM	18700	100RB#0	VL	NT	-3.20	-0.001720	±2.5	PASS
Band2	20MHz	16QAM	18700	100RB#0	VN	NT	-4.90	-0.002634	±2.5	PASS
Band2	20MHz	16QAM	18700	100RB#0	VH	NT	0.20	0.000108	±2.5	PASS
Band2	20MHz	16QAM	18900	100RB#0	VL	NT	-11.90	-0.006330	±2.5	PASS
Band2	20MHz	16QAM	18900	100RB#0	VN	NT	-9.20	-0.004894	±2.5	PASS
Band2	20MHz	16QAM	18900	100RB#0	VH	NT	-9.10	-0.004840	±2.5	PASS
Band2	20MHz	16QAM	19100	100RB#0	VL	NT	-7.00	-0.003684	±2.5	PASS
Band2	20MHz	16QAM	19100	100RB#0	VN	NT	-6.00	-0.003158	±2.5	PASS
Band2	20MHz	16QAM	19100	100RB#0	VH	NT	-10.60	-0.005579	±2.5	PASS

10.5.3.2.Frequency Vs Temperature

Temperature										
BAND	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	20MHz	QPSK	18700	100RB#0	NV	-30	-4.50	-0.002419	±2.5	PASS
Band2	20MHz	QPSK	18700	100RB#0	NV	-20	-4.80	-0.002581	±2.5	PASS
Band2	20MHz	QPSK	18700	100RB#0	NV	0	-4.60	-0.002473	±2.5	PASS
Band2	20MHz	QPSK	18700	100RB#0	NV	10	-1.10	-0.000591	±2.5	PASS
Band2	20MHz	QPSK	18700	100RB#0	NV	20	-4.20	-0.002258	±2.5	PASS
Band2	20MHz	QPSK	18700	100RB#0	NV	30	-6.30	-0.003387	±2.5	PASS
Band2	20MHz	QPSK	18700	100RB#0	NV	40	-2.00	-0.001075	±2.5	PASS
Band2	20MHz	QPSK	18700	100RB#0	NV	50	-0.10	-0.000054	±2.5	PASS
Band2	20MHz	QPSK	18900	100RB#0	NV	-30	-6.40	-0.003404	±2.5	PASS
Band2	20MHz	QPSK	18900	100RB#0	NV	-20	-9.60	-0.005106	±2.5	PASS
Band2	20MHz	QPSK	18900	100RB#0	NV	0	-7.60	-0.004043	±2.5	PASS
Band2	20MHz	QPSK	18900	100RB#0	NV	10	-7.90	-0.004202	±2.5	PASS
Band2	20MHz	QPSK	18900	100RB#0	NV	20	-10.00	-0.005319	±2.5	PASS
Band2	20MHz	QPSK	18900	100RB#0	NV	30	-8.70	-0.004628	±2.5	PASS
Band2	20MHz	QPSK	18900	100RB#0	NV	40	-5.70	-0.003032	±2.5	PASS
Band2	20MHz	QPSK	18900	100RB#0	NV	50	-12.70	-0.006755	±2.5	PASS
Band2	20MHz	QPSK	19100	100RB#0	NV	-30	-5.80	-0.003053	±2.5	PASS
Band2	20MHz	QPSK	19100	100RB#0	NV	-20	-5.20	-0.002737	±2.5	PASS
Band2	20MHz	QPSK	19100	100RB#0	NV	0	-5.60	-0.002947	±2.5	PASS
Band2	20MHz	QPSK	19100	100RB#0	NV	10	-6.10	-0.003211	±2.5	PASS
Band2	20MHz	QPSK	19100	100RB#0	NV	20	-6.60	-0.003474	±2.5	PASS
Band2	20MHz	QPSK	19100	100RB#0	NV	30	-7.00	-0.003684	±2.5	PASS
Band2	20MHz	QPSK	19100	100RB#0	NV	40	-10.10	-0.005316	±2.5	PASS
Band2	20MHz	QPSK	19100	100RB#0	NV	50	-7.80	-0.004105	±2.5	PASS
Band2	20MHz	16QAM	18700	100RB#0	NV	-30	-2.60	-0.001398	±2.5	PASS
Band2	20MHz	16QAM	18700	100RB#0	NV	-20	-2.50	-0.001344	±2.5	PASS
Band2	20MHz	16QAM	18700	100RB#0	NV	0	-3.30	-0.001774	±2.5	PASS
Band2	20MHz	16QAM	18700	100RB#0	NV	10	-5.40	-0.002903	±2.5	PASS
Band2	20MHz	16QAM	18700	100RB#0	NV	20	-2.10	-0.001129	±2.5	PASS
Band2	20MHz	16QAM	18700	100RB#0	NV	30	-1.00	-0.000538	±2.5	PASS
Band2	20MHz	16QAM	18700	100RB#0	NV	40	-1.10	-0.000591	±2.5	PASS
Band2	20MHz	16QAM	18700	100RB#0	NV	50	-3.20	-0.001720	±2.5	PASS
Band2	20MHz	16QAM	18900	100RB#0	NV	-30	-10.80	-0.005745	±2.5	PASS

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Band2	20MHz	16QAM	18900	100RB#0	NV	-20	-7.60	-0.004043	±2.5	PASS
Band2	20MHz	16QAM	18900	100RB#0	NV	0	-13.10	-0.006968	±2.5	PASS
Band2	20MHz	16QAM	18900	100RB#0	NV	10	-9.10	-0.004840	±2.5	PASS
Band2	20MHz	16QAM	18900	100RB#0	NV	20	-9.80	-0.005213	±2.5	PASS
Band2	20MHz	16QAM	18900	100RB#0	NV	30	-10.40	-0.005532	±2.5	PASS
Band2	20MHz	16QAM	18900	100RB#0	NV	40	-8.50	-0.004521	±2.5	PASS
Band2	20MHz	16QAM	18900	100RB#0	NV	50	-7.30	-0.003883	±2.5	PASS
Band2	20MHz	16QAM	19100	100RB#0	NV	-30	-6.00	-0.003158	±2.5	PASS
Band2	20MHz	16QAM	19100	100RB#0	NV	-20	-0.90	-0.000474	±2.5	PASS
Band2	20MHz	16QAM	19100	100RB#0	NV	0	1.70	0.000895	±2.5	PASS
Band2	20MHz	16QAM	19100	100RB#0	NV	10	-8.20	-0.004316	±2.5	PASS
Band2	20MHz	16QAM	19100	100RB#0	NV	20	-3.80	-0.002000	±2.5	PASS
Band2	20MHz	16QAM	19100	100RB#0	NV	30	-1.20	-0.000632	±2.5	PASS
Band2	20MHz	16QAM	19100	100RB#0	NV	40	-5.10	-0.002684	±2.5	PASS
Band2	20MHz	16QAM	19100	100RB#0	NV	50	-5.80	-0.003053	±2.5	PASS

10.5.4. Frequency Stability Measurement Result: LTE-Band 5

10.5.4.1. Frequency Vs Voltage

Voltage										
BAND	Bandwidth	Modulation	Channel	RB Config-ure	Volt-age [Vdc]	Tempera-ture (°C)	Devia-tion (Hz)	Deviation (ppm)	Limit (ppm)	Ver-dict
Band5	10MHz	QPSK	20450	50RB#0	VL	NT	-7.30	-0.008806	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	VN	NT	-4.30	-0.005187	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	VH	NT	-8.40	-0.010133	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	VL	NT	-3.70	-0.004423	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	VN	NT	-3.40	-0.004065	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	VH	NT	-3.60	-0.004304	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	VL	NT	-2.90	-0.003436	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	VN	NT	-3.20	-0.003791	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	VH	NT	-2.70	-0.003199	±2.5	PASS
Band5	10MHz	16QAM	20450	50RB#0	VL	NT	-4.80	-0.005790	±2.5	PASS
Band5	10MHz	16QAM	20450	50RB#0	VN	NT	-8.20	-0.009891	±2.5	PASS
Band5	10MHz	16QAM	20450	50RB#0	VH	NT	-4.90	-0.005911	±2.5	PASS
Band5	10MHz	16QAM	20525	50RB#0	VL	NT	-5.10	-0.006097	±2.5	PASS
Band5	10MHz	16QAM	20525	50RB#0	VN	NT	-9.40	-0.011237	±2.5	PASS
Band5	10MHz	16QAM	20525	50RB#0	VH	NT	-5.40	-0.006455	±2.5	PASS
Band5	10MHz	16QAM	20600	50RB#0	VL	NT	-3.90	-0.004621	±2.5	PASS
Band5	10MHz	16QAM	20600	50RB#0	VN	NT	-6.60	-0.007820	±2.5	PASS
Band5	10MHz	16QAM	20600	50RB#0	VH	NT	-4.10	-0.004858	±2.5	PASS

10.5.4.2. Frequency Vs Temperature

Temperature										
BAND	Bandwidth	Modulation	Channel	RB Configure	Volt-age [Vdc]	Tempera-ture (°C)	Devia-tion (Hz)	Deviation (ppm)	Limit (ppm)	Ver-dict
Band5	10MHz	QPSK	20450	50RB#0	NV	-30	-10.70	-0.012907	±2.5	PASS

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Band5	10MHz	QPSK	20450	50RB#0	NV	-20	-11.90	-0.014355	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	NV	0	-10.60	-0.012786	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	NV	10	-4.60	-0.005549	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	NV	20	-5.40	-0.006514	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	NV	30	-5.50	-0.006634	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	NV	40	-6.20	-0.007479	±2.5	PASS
Band5	10MHz	QPSK	20450	50RB#0	NV	50	-8.70	-0.010495	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	-30	-4.00	-0.004782	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	-20	-2.90	-0.003467	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	0	-3.20	-0.003825	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	10	-3.20	-0.003825	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	20	-7.60	-0.009085	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	30	-3.90	-0.004662	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	40	-4.40	-0.005260	±2.5	PASS
Band5	10MHz	QPSK	20525	50RB#0	NV	50	-7.70	-0.009205	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	-30	-2.30	-0.002725	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	-20	-2.50	-0.002962	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	0	-7.80	-0.009242	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	10	-7.60	-0.009005	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	20	-7.90	-0.009360	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	30	-8.50	-0.010071	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	40	-7.50	-0.008886	±2.5	PASS
Band5	10MHz	QPSK	20600	50RB#0	NV	50	-5.10	-0.006043	±2.5	PASS
Band5	10MHz	16QAM	20450	50RB#0	NV	-30	-5.00	-0.006031	±2.5	PASS
Band5	10MHz	16QAM	20450	50RB#0	NV	-20	-5.20	-0.006273	±2.5	PASS
Band5	10MHz	16QAM	20450	50RB#0	NV	0	-1.10	-0.001327	±2.5	PASS
Band5	10MHz	16QAM	20450	50RB#0	NV	10	-4.60	-0.005549	±2.5	PASS
Band5	10MHz	16QAM	20450	50RB#0	NV	20	-5.10	-0.006152	±2.5	PASS
Band5	10MHz	16QAM	20450	50RB#0	NV	30	-4.80	-0.005790	±2.5	PASS
Band5	10MHz	16QAM	20450	50RB#0	NV	40	-5.60	-0.006755	±2.5	PASS
Band5	10MHz	16QAM	20450	50RB#0	NV	50	-5.60	-0.006755	±2.5	PASS
Band5	10MHz	16QAM	20525	50RB#0	NV	-30	-1.10	-0.001315	±2.5	PASS
Band5	10MHz	16QAM	20525	50RB#0	NV	-20	-2.80	-0.003347	±2.5	PASS
Band5	10MHz	16QAM	20525	50RB#0	NV	0	-2.80	-0.003347	±2.5	PASS
Band5	10MHz	16QAM	20525	50RB#0	NV	10	-1.50	-0.001793	±2.5	PASS
Band5	10MHz	16QAM	20525	50RB#0	NV	20	-10.10	-0.012074	±2.5	PASS
Band5	10MHz	16QAM	20525	50RB#0	NV	30	-5.20	-0.006216	±2.5	PASS
Band5	10MHz	16QAM	20525	50RB#0	NV	40	-6.80	-0.008129	±2.5	PASS
Band5	10MHz	16QAM	20525	50RB#0	NV	50	-1.10	-0.001315	±2.5	PASS
Band5	10MHz	16QAM	20600	50RB#0	NV	-30	0.70	0.000829	±2.5	PASS
Band5	10MHz	16QAM	20600	50RB#0	NV	-20	-1.60	-0.001896	±2.5	PASS
Band5	10MHz	16QAM	20600	50RB#0	NV	0	-4.80	-0.005687	±2.5	PASS
Band5	10MHz	16QAM	20600	50RB#0	NV	10	-9.50	-0.011256	±2.5	PASS
Band5	10MHz	16QAM	20600	50RB#0	NV	20	-1.80	-0.002133	±2.5	PASS
Band5	10MHz	16QAM	20600	50RB#0	NV	30	-5.40	-0.006398	±2.5	PASS
Band5	10MHz	16QAM	20600	50RB#0	NV	40	-1.40	-0.001659	±2.5	PASS
Band5	10MHz	16QAM	20600	50RB#0	NV	50	-1.50	-0.001777	±2.5	PASS

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10.5.5. Frequency Stability Measurement Result: LTE-Band 7

10.5.5.1. Frequency Vs Voltage

Voltage										
BAND	Bandwidth	Modulation	Channel	RB Config-ure	Volt-age [Vdc]	Tempera-ture (°C)	Devia-tion (Hz)	Deviation (ppm)	Limit (ppm)	Ver-dict
Band7	20MHz	QPSK	20850	100RB#0	VL	NT	-4.30	-0.001713	±2.5	PASS
Band7	20MHz	QPSK	20850	100RB#0	VN	NT	-10.20	-0.004064	±2.5	PASS
Band7	20MHz	QPSK	20850	100RB#0	VH	NT	-10.80	-0.004303	±2.5	PASS
Band7	20MHz	QPSK	21100	100RB#0	VL	NT	-2.00	-0.000789	±2.5	PASS
Band7	20MHz	QPSK	21100	100RB#0	VN	NT	-3.50	-0.001381	±2.5	PASS
Band7	20MHz	QPSK	21100	100RB#0	VH	NT	-3.00	-0.001183	±2.5	PASS
Band7	20MHz	QPSK	21350	100RB#0	VL	NT	-12.40	-0.004844	±2.5	PASS
Band7	20MHz	QPSK	21350	100RB#0	VN	NT	-12.20	-0.004766	±2.5	PASS
Band7	20MHz	QPSK	21350	100RB#0	VH	NT	-9.70	-0.003789	±2.5	PASS
Band7	20MHz	16QAM	20850	100RB#0	VL	NT	-6.10	-0.002430	±2.5	PASS
Band7	20MHz	16QAM	20850	100RB#0	VN	NT	-9.40	-0.003745	±2.5	PASS
Band7	20MHz	16QAM	20850	100RB#0	VH	NT	-6.50	-0.002590	±2.5	PASS
Band7	20MHz	16QAM	21100	100RB#0	VL	NT	4.20	0.001657	±2.5	PASS
Band7	20MHz	16QAM	21100	100RB#0	VN	NT	0.20	0.000079	±2.5	PASS
Band7	20MHz	16QAM	21100	100RB#0	VH	NT	2.40	0.000947	±2.5	PASS
Band7	20MHz	16QAM	21350	100RB#0	VL	NT	-10.10	-0.003945	±2.5	PASS
Band7	20MHz	16QAM	21350	100RB#0	VN	NT	-9.90	-0.003867	±2.5	PASS
Band7	20MHz	16QAM	21350	100RB#0	VH	NT	-9.40	-0.003672	±2.5	PASS

10.5.5.2. Frequency Vs Temperature

Temperature										
BAND	Bandwidth	Modulation	Channel	RB Configure	Volt-age [Vdc]	Tempera-ture (°C)	Devia-tion (Hz)	Deviation (ppm)	Limit (ppm)	Ver-dict
Band7	20MHz	QPSK	20850	100RB#0	NV	-30	-8.00	-0.003187	±2.5	PASS
Band7	20MHz	QPSK	20850	100RB#0	NV	-20	-8.10	-0.003227	±2.5	PASS
Band7	20MHz	QPSK	20850	100RB#0	NV	0	-5.70	-0.002271	±2.5	PASS
Band7	20MHz	QPSK	20850	100RB#0	NV	10	-8.60	-0.003426	±2.5	PASS
Band7	20MHz	QPSK	20850	100RB#0	NV	20	-4.10	-0.001633	±2.5	PASS
Band7	20MHz	QPSK	20850	100RB#0	NV	30	-9.80	-0.003904	±2.5	PASS
Band7	20MHz	QPSK	20850	100RB#0	NV	40	-10.20	-0.004064	±2.5	PASS
Band7	20MHz	QPSK	20850	100RB#0	NV	50	-13.00	-0.005179	±2.5	PASS
Band7	20MHz	QPSK	21100	100RB#0	NV	-30	-9.30	-0.003669	±2.5	PASS
Band7	20MHz	QPSK	21100	100RB#0	NV	-20	-0.90	-0.000355	±2.5	PASS
Band7	20MHz	QPSK	21100	100RB#0	NV	0	-1.60	-0.000631	±2.5	PASS
Band7	20MHz	QPSK	21100	100RB#0	NV	10	-2.30	-0.000907	±2.5	PASS
Band7	20MHz	QPSK	21100	100RB#0	NV	20	0.40	0.000158	±2.5	PASS
Band7	20MHz	QPSK	21100	100RB#0	NV	30	-1.20	-0.000473	±2.5	PASS
Band7	20MHz	QPSK	21100	100RB#0	NV	40	-3.90	-0.001538	±2.5	PASS
Band7	20MHz	QPSK	21100	100RB#0	NV	50	-5.40	-0.002130	±2.5	PASS
Band7	20MHz	QPSK	21350	100RB#0	NV	-30	-12.80	-0.005000	±2.5	PASS

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Band7	20MHz	QPSK	21350	100RB#0	NV	-20	-9.20	-0.003594	±2.5	PASS
Band7	20MHz	QPSK	21350	100RB#0	NV	0	-6.60	-0.002578	±2.5	PASS
Band7	20MHz	QPSK	21350	100RB#0	NV	10	-9.40	-0.003672	±2.5	PASS
Band7	20MHz	QPSK	21350	100RB#0	NV	20	-6.10	-0.002383	±2.5	PASS
Band7	20MHz	QPSK	21350	100RB#0	NV	30	-9.90	-0.003867	±2.5	PASS
Band7	20MHz	QPSK	21350	100RB#0	NV	40	-4.50	-0.001758	±2.5	PASS
Band7	20MHz	QPSK	21350	100RB#0	NV	50	-10.20	-0.003984	±2.5	PASS
Band7	20MHz	16QAM	20850	100RB#0	NV	-30	-5.70	-0.002271	±2.5	PASS
Band7	20MHz	16QAM	20850	100RB#0	NV	-20	-8.50	-0.003386	±2.5	PASS
Band7	20MHz	16QAM	20850	100RB#0	NV	0	-4.60	-0.001833	±2.5	PASS
Band7	20MHz	16QAM	20850	100RB#0	NV	10	-5.40	-0.002151	±2.5	PASS
Band7	20MHz	16QAM	20850	100RB#0	NV	20	-8.90	-0.003546	±2.5	PASS
Band7	20MHz	16QAM	20850	100RB#0	NV	30	-7.60	-0.003028	±2.5	PASS
Band7	20MHz	16QAM	20850	100RB#0	NV	40	-3.80	-0.001514	±2.5	PASS
Band7	20MHz	16QAM	20850	100RB#0	NV	50	-3.90	-0.001554	±2.5	PASS
Band7	20MHz	16QAM	21100	100RB#0	NV	-30	2.00	0.000789	±2.5	PASS
Band7	20MHz	16QAM	21100	100RB#0	NV	-20	-3.60	-0.001420	±2.5	PASS
Band7	20MHz	16QAM	21100	100RB#0	NV	0	-6.60	-0.002604	±2.5	PASS
Band7	20MHz	16QAM	21100	100RB#0	NV	10	-4.30	-0.001696	±2.5	PASS
Band7	20MHz	16QAM	21100	100RB#0	NV	20	-7.30	-0.002880	±2.5	PASS
Band7	20MHz	16QAM	21100	100RB#0	NV	30	-2.20	-0.000868	±2.5	PASS
Band7	20MHz	16QAM	21100	100RB#0	NV	40	1.70	0.000671	±2.5	PASS
Band7	20MHz	16QAM	21100	100RB#0	NV	50	-5.50	-0.002170	±2.5	PASS
Band7	20MHz	16QAM	21350	100RB#0	NV	-30	-7.00	-0.002734	±2.5	PASS
Band7	20MHz	16QAM	21350	100RB#0	NV	-20	-8.30	-0.003242	±2.5	PASS
Band7	20MHz	16QAM	21350	100RB#0	NV	0	-4.70	-0.001836	±2.5	PASS
Band7	20MHz	16QAM	21350	100RB#0	NV	10	-3.30	-0.001289	±2.5	PASS
Band7	20MHz	16QAM	21350	100RB#0	NV	20	-5.40	-0.002109	±2.5	PASS
Band7	20MHz	16QAM	21350	100RB#0	NV	30	-0.90	-0.000352	±2.5	PASS
Band7	20MHz	16QAM	21350	100RB#0	NV	40	-5.40	-0.002109	±2.5	PASS
Band7	20MHz	16QAM	21350	100RB#0	NV	50	-13.30	-0.005195	±2.5	PASS

10.5.6. Frequency Stability Measurement Result: LTE-Band 41

10.5.6.1. Frequency Vs Voltage

BAND	Bandwidth	Modulation	Channel	RB Config-ure	Voltage					
					Volt-age [Vdc]	Tempera-ture (°C)	Devia-tion (Hz)	Deviation (ppm)	Limit (ppm)	Ver-dict
Band41	20MHz	QPSK	40140	100RB#0	VL	NT	-4.30	-0.001690	±2.5	PASS
Band41	20MHz	QPSK	40140	100RB#0	VN	NT	-2.40	-0.000943	±2.5	PASS
Band41	20MHz	QPSK	40140	100RB#0	VH	NT	-3.50	-0.001375	±2.5	PASS
Band41	20MHz	QPSK	40640	100RB#0	VL	NT	-3.50	-0.001349	±2.5	PASS
Band41	20MHz	QPSK	40640	100RB#0	VN	NT	-4.00	-0.001541	±2.5	PASS
Band41	20MHz	QPSK	40640	100RB#0	VH	NT	1.50	0.000578	±2.5	PASS
Band41	20MHz	QPSK	41140	100RB#0	VL	NT	-8.80	-0.003327	±2.5	PASS
Band41	20MHz	QPSK	41140	100RB#0	VN	NT	0.60	0.000227	±2.5	PASS

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Band41	20MHz	QPSK	41140	100RB#0	VH	NT	-2.20	-0.000832	±2.5	PASS
Band41	20MHz	16QAM	40140	100RB#0	VL	NT	-4.40	-0.001729	±2.5	PASS
Band41	20MHz	16QAM	40140	100RB#0	VN	NT	-2.70	-0.001061	±2.5	PASS
Band41	20MHz	16QAM	40140	100RB#0	VH	NT	0.40	0.000157	±2.5	PASS
Band41	20MHz	16QAM	40640	100RB#0	VL	NT	-4.40	-0.001696	±2.5	PASS
Band41	20MHz	16QAM	40640	100RB#0	VN	NT	-2.30	-0.000886	±2.5	PASS
Band41	20MHz	16QAM	40640	100RB#0	VH	NT	-5.70	-0.002197	±2.5	PASS
Band41	20MHz	16QAM	41140	100RB#0	VL	NT	-6.00	-0.002268	±2.5	PASS
Band41	20MHz	16QAM	41140	100RB#0	VN	NT	-3.30	-0.001248	±2.5	PASS
Band41	20MHz	16QAM	41140	100RB#0	VH	NT	-0.60	-0.000227	±2.5	PASS

10.5.6.2.Frequency Vs Temperature

Temperature										
BAND	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band41	20MHz	QPSK	40140	100RB#0	NV	-30	-1.40	-0.000550	±2.5	PASS
Band41	20MHz	QPSK	40140	100RB#0	NV	-20	-0.10	-0.000039	±2.5	PASS
Band41	20MHz	QPSK	40140	100RB#0	NV	0	-1.70	-0.000668	±2.5	PASS
Band41	20MHz	QPSK	40140	100RB#0	NV	10	-3.70	-0.001454	±2.5	PASS
Band41	20MHz	QPSK	40140	100RB#0	NV	20	-8.60	-0.003379	±2.5	PASS
Band41	20MHz	QPSK	40140	100RB#0	NV	30	-6.60	-0.002593	±2.5	PASS
Band41	20MHz	QPSK	40140	100RB#0	NV	40	-5.60	-0.002200	±2.5	PASS
Band41	20MHz	QPSK	40140	100RB#0	NV	50	-5.00	-0.001965	±2.5	PASS
Band41	20MHz	QPSK	40640	100RB#0	NV	-30	-3.20	-0.001233	±2.5	PASS
Band41	20MHz	QPSK	40640	100RB#0	NV	-20	6.20	0.002389	±2.5	PASS
Band41	20MHz	QPSK	40640	100RB#0	NV	0	-3.10	-0.001195	±2.5	PASS
Band41	20MHz	QPSK	40640	100RB#0	NV	10	-1.10	-0.000424	±2.5	PASS
Band41	20MHz	QPSK	40640	100RB#0	NV	20	1.60	0.000617	±2.5	PASS
Band41	20MHz	QPSK	40640	100RB#0	NV	30	-4.90	-0.001888	±2.5	PASS
Band41	20MHz	QPSK	40640	100RB#0	NV	40	-5.60	-0.002158	±2.5	PASS
Band41	20MHz	QPSK	40640	100RB#0	NV	50	1.80	0.000694	±2.5	PASS
Band41	20MHz	QPSK	41140	100RB#0	NV	-30	1.20	0.000454	±2.5	PASS
Band41	20MHz	QPSK	41140	100RB#0	NV	-20	3.10	0.001172	±2.5	PASS
Band41	20MHz	QPSK	41140	100RB#0	NV	0	0.50	0.000189	±2.5	PASS
Band41	20MHz	QPSK	41140	100RB#0	NV	10	2.40	0.000907	±2.5	PASS
Band41	20MHz	QPSK	41140	100RB#0	NV	20	3.20	0.001210	±2.5	PASS
Band41	20MHz	QPSK	41140	100RB#0	NV	30	-5.30	-0.002004	±2.5	PASS
Band41	20MHz	QPSK	41140	100RB#0	NV	40	-7.80	-0.002949	±2.5	PASS
Band41	20MHz	QPSK	41140	100RB#0	NV	50	-4.00	-0.001512	±2.5	PASS
Band41	20MHz	16QAM	40140	100RB#0	NV	-30	-1.40	-0.000550	±2.5	PASS
Band41	20MHz	16QAM	40140	100RB#0	NV	-20	-0.50	-0.000196	±2.5	PASS
Band41	20MHz	16QAM	40140	100RB#0	NV	0	-3.30	-0.001297	±2.5	PASS
Band41	20MHz	16QAM	40140	100RB#0	NV	10	-4.90	-0.001925	±2.5	PASS
Band41	20MHz	16QAM	40140	100RB#0	NV	20	-3.90	-0.001532	±2.5	PASS
Band41	20MHz	16QAM	40140	100RB#0	NV	30	0.80	0.000314	±2.5	PASS
Band41	20MHz	16QAM	40140	100RB#0	NV	40	-1.40	-0.000550	±2.5	PASS
Band41	20MHz	16QAM	40140	100RB#0	NV	50	-5.90	-0.002318	±2.5	PASS

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Band41	20MHz	16QAM	40640	100RB#0	NV	-30	2.20	0.000848	±2.5	PASS
Band41	20MHz	16QAM	40640	100RB#0	NV	-20	-2.30	-0.000886	±2.5	PASS
Band41	20MHz	16QAM	40640	100RB#0	NV	0	-1.10	-0.000424	±2.5	PASS
Band41	20MHz	16QAM	40640	100RB#0	NV	10	-0.50	-0.000193	±2.5	PASS
Band41	20MHz	16QAM	40640	100RB#0	NV	20	-3.90	-0.001503	±2.5	PASS
Band41	20MHz	16QAM	40640	100RB#0	NV	30	-2.60	-0.001002	±2.5	PASS
Band41	20MHz	16QAM	40640	100RB#0	NV	40	-2.60	-0.001002	±2.5	PASS
Band41	20MHz	16QAM	40640	100RB#0	NV	50	1.30	0.000501	±2.5	PASS
Band41	20MHz	16QAM	41140	100RB#0	NV	-30	-4.20	-0.001588	±2.5	PASS
Band41	20MHz	16QAM	41140	100RB#0	NV	-20	2.50	0.000945	±2.5	PASS
Band41	20MHz	16QAM	41140	100RB#0	NV	0	-2.70	-0.001021	±2.5	PASS
Band41	20MHz	16QAM	41140	100RB#0	NV	10	-2.70	-0.001021	±2.5	PASS
Band41	20MHz	16QAM	41140	100RB#0	NV	20	-1.80	-0.000681	±2.5	PASS
Band41	20MHz	16QAM	41140	100RB#0	NV	30	2.40	0.000907	±2.5	PASS
Band41	20MHz	16QAM	41140	100RB#0	NV	40	4.90	0.001853	±2.5	PASS
Band41	20MHz	16QAM	41140	100RB#0	NV	50	-4.00	-0.001512	±2.5	PASS

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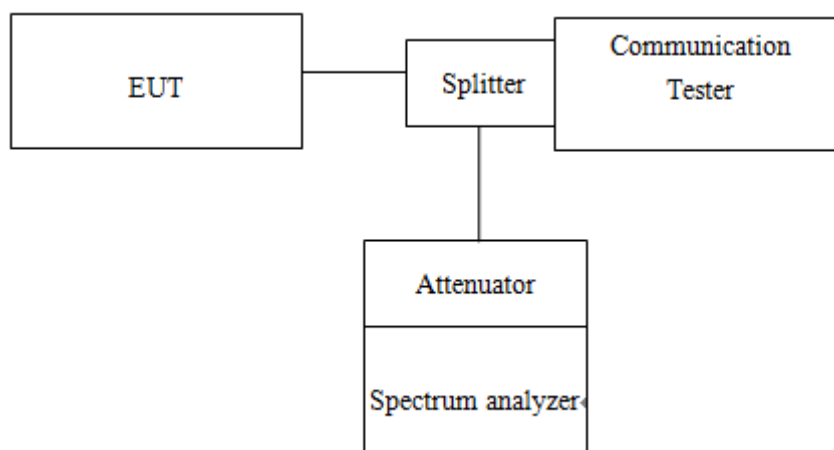
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11. PEAK TO AVERAGE RATIO

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 \geq signal's occupied bandwidth; & internal =1ms
3. Set the number of counts to a value that stabilizes the measured CCDF curve.

11.4. Measurement Equipment Used

RF conducted test					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
Dual Output Mobile Communication DC Source	Agilent Technologies Inc	66311B	W009-09	2018/9/15	2019/9/15
Signal Analyzer	Rohde & Schwarz	FSV	W025-05	2018/3/13	2019/3/12
Coaxial Cable	SGS	N/A	SEM031-01	2018/7/12	2019/7/11
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2018/9/2	2019/9/2
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	HTC-1	W006-17	2018/9/10	2019/9/10
Temperature Chamber	GIANT FORCE	ICT-150-40-CP-AR	W027-03	2017/12/4	2018/12/4
Wideband Radio Communication Tester	Anristu	MT8821C	6201462742	2018/5/2	2019/5/1
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	W005-02	2018/3/13	2019/3/12

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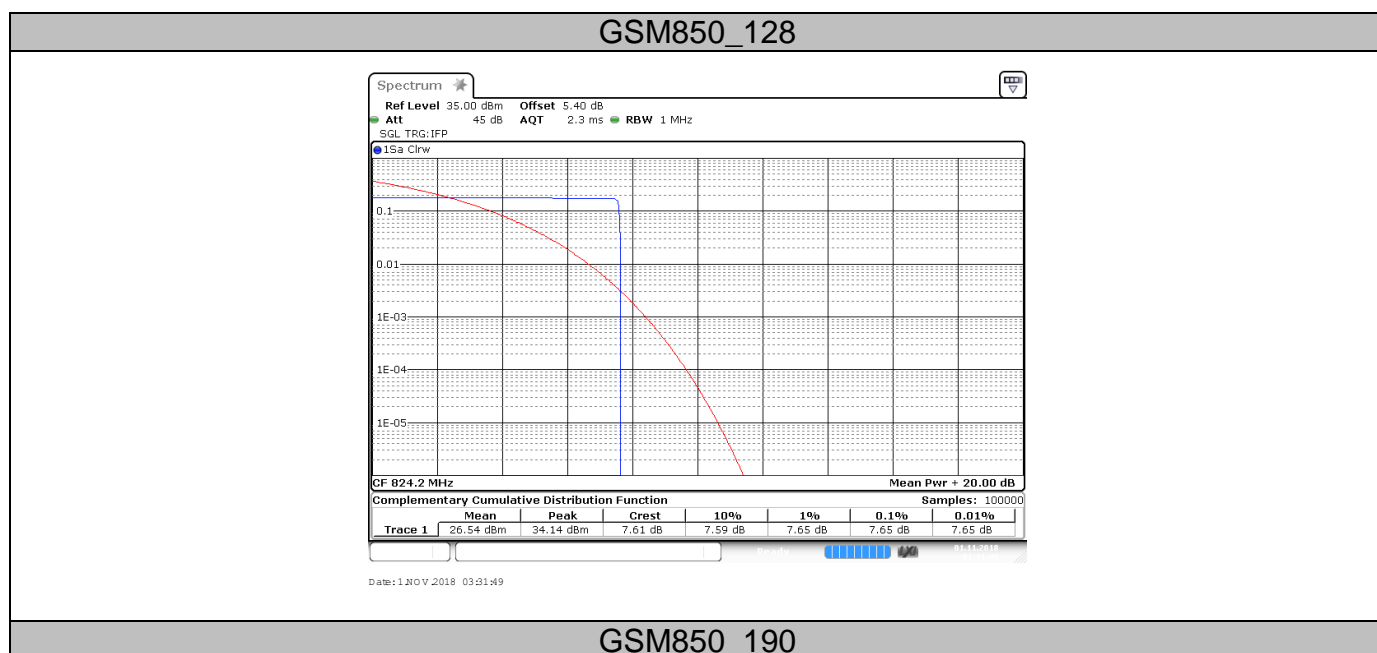
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11.4.1. Peak-to-Average Ratio :GSM

11.4.1.1. Test Result

BAND	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
GSM850	128	7.65	13	PASS
GSM850	190	7.65	13	PASS
GSM850	251	7.71	13	PASS
EGPRS850	128	10.87	13	PASS
EGPRS850	190	10.58	13	PASS
EGPRS850	251	10.96	13	PASS
GSM1900	512	7.65	13	PASS
GSM1900	661	7.71	13	PASS
GSM1900	810	7.68	13	PASS
EGPRS1900	512	10.55	13	PASS
EGPRS1900	661	10.23	13	PASS
EGPRS1900	810	10.26	13	PASS

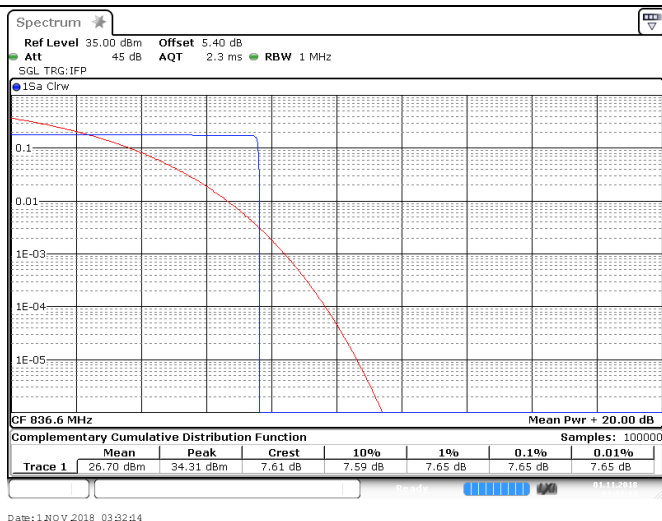
11.4.1.2. Part II - Test Plots



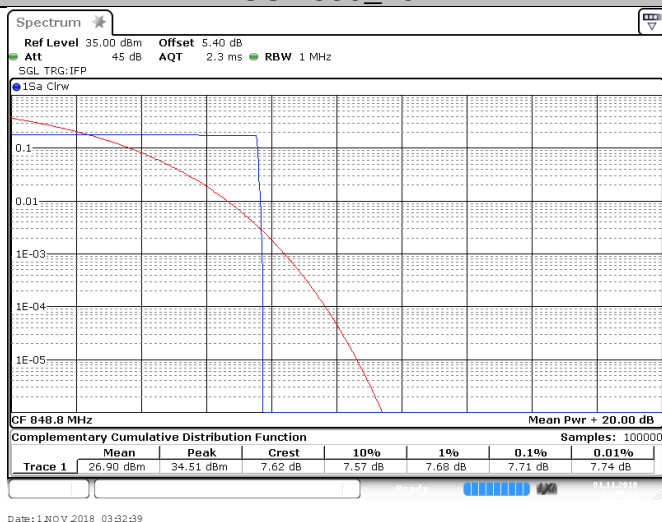
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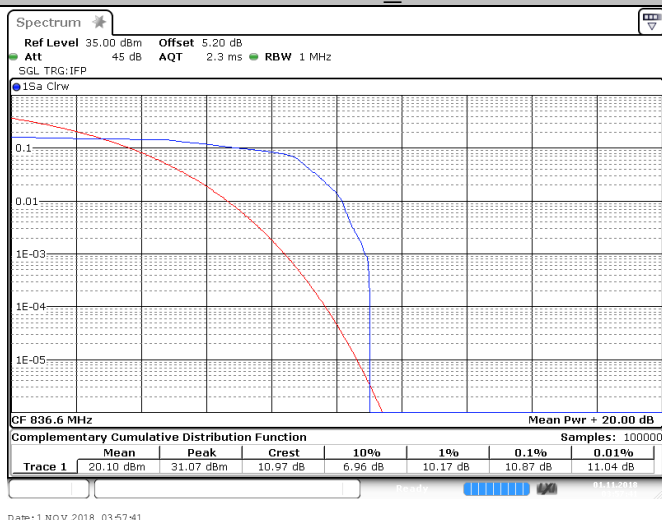
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GSM850_251



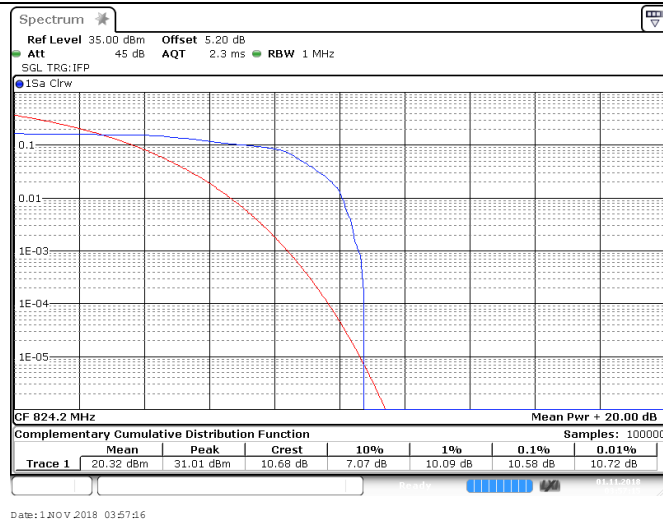
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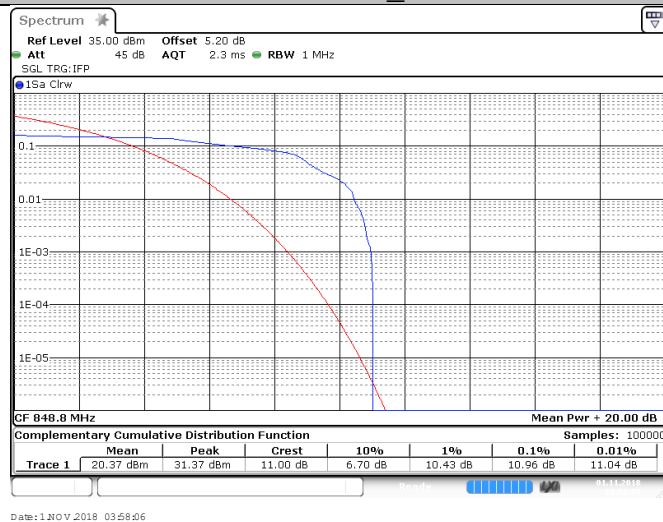
EGPRS850_190

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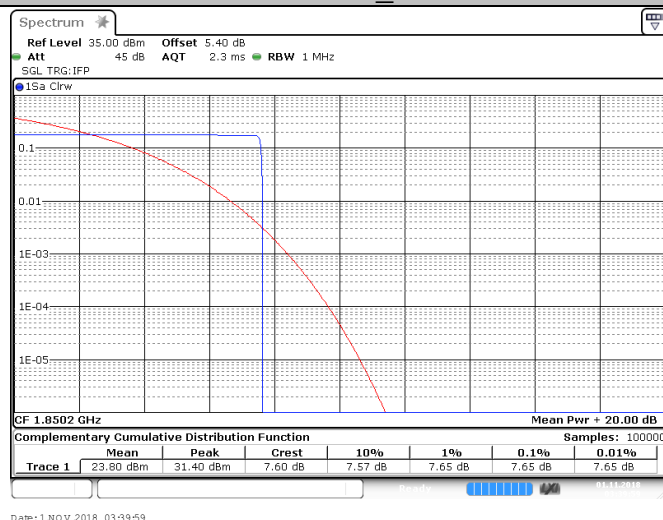
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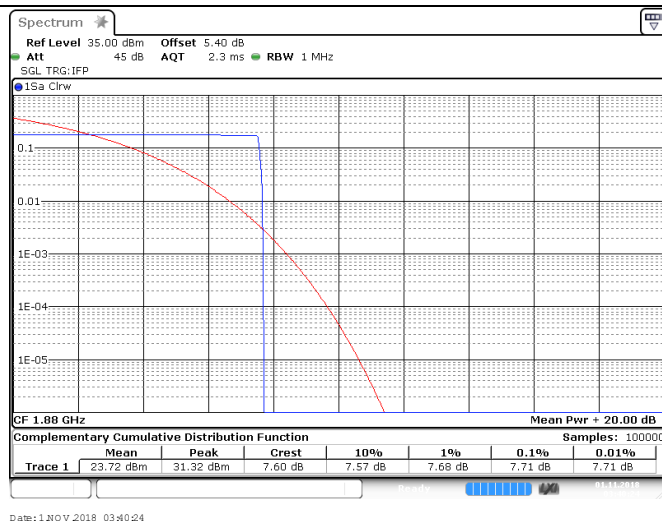
GSM1900_512



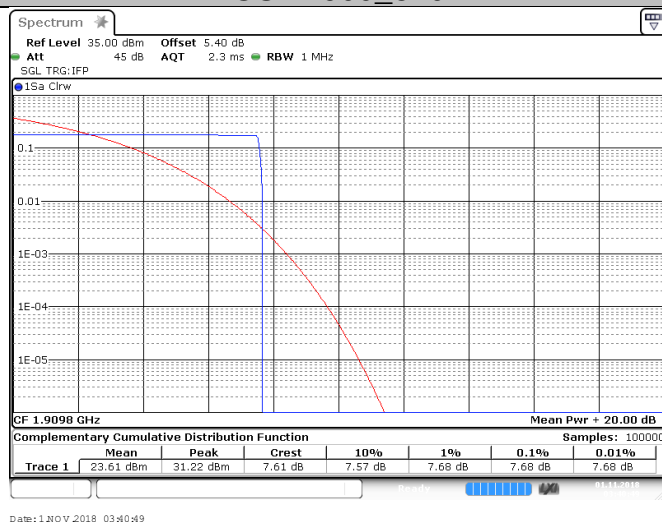
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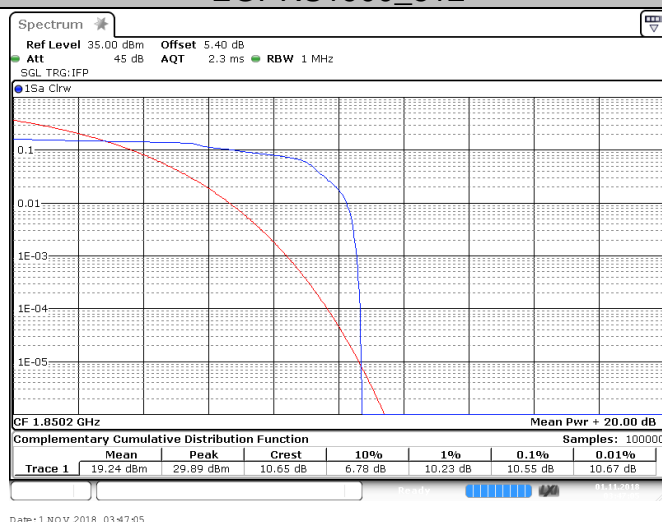
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GSM1900_810



EGPRS1900_512



EGPRS1900_661

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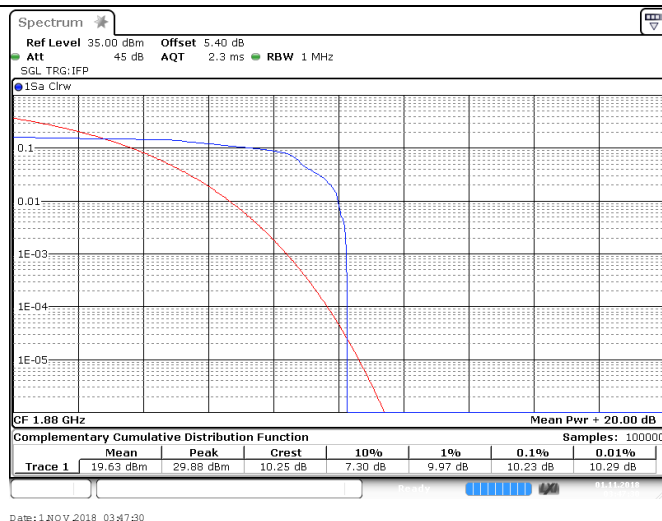
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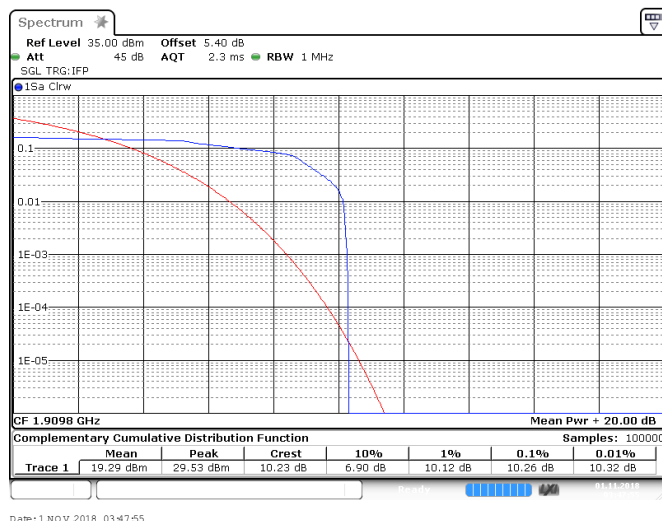
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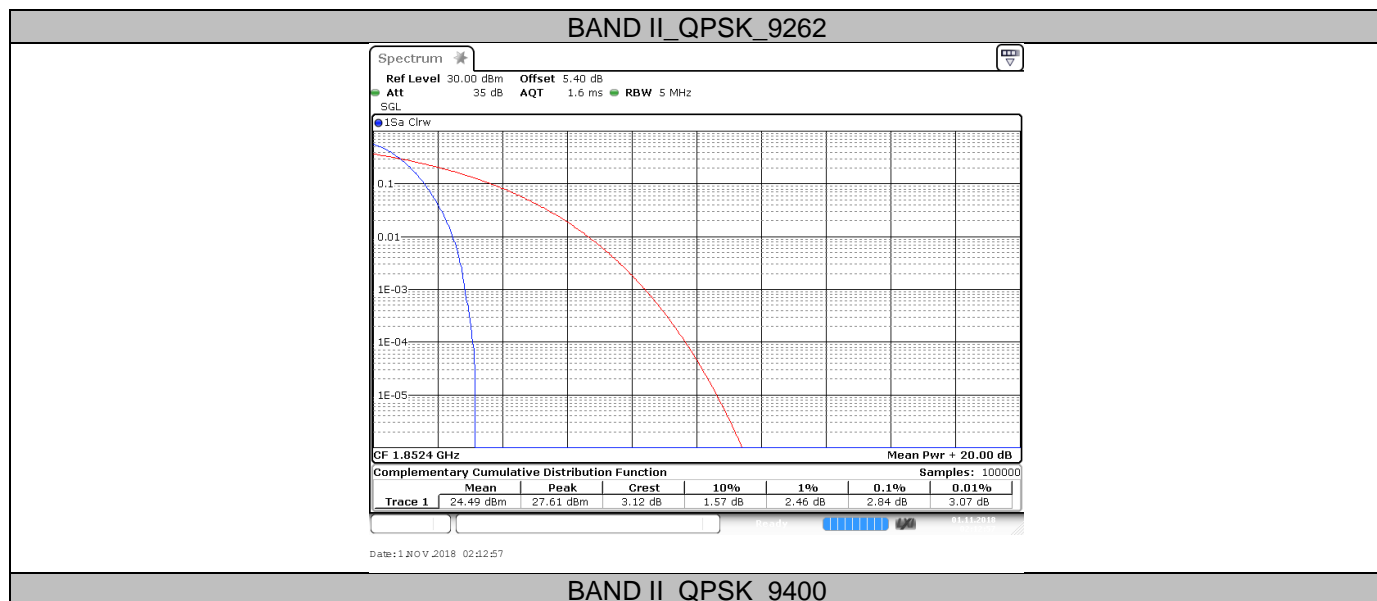
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11.4.2. Peak-to-Average Ratio :WCDMA

11.4.2.1. Test Result

BAND	Modulation	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band II	QPSK	9262	2.84	13	PASS
Band II	QPSK	9400	2.84	13	PASS
Band II	QPSK	9538	2.84	13	PASS
Band II	16QAM	9262	2.87	13	PASS
Band II	16QAM	9400	2.87	13	PASS
Band II	16QAM	9538	2.87	13	PASS
Band V	QPSK	4132	3.19	13	PASS
Band V	QPSK	4182	3.19	13	PASS
Band V	QPSK	4233	3.19	13	PASS
Band V	16QAM	4132	3.22	13	PASS
Band V	16QAM	4182	3.22	13	PASS
Band V	16QAM	4233	3.22	13	PASS

11.4.2.2. Test Plots



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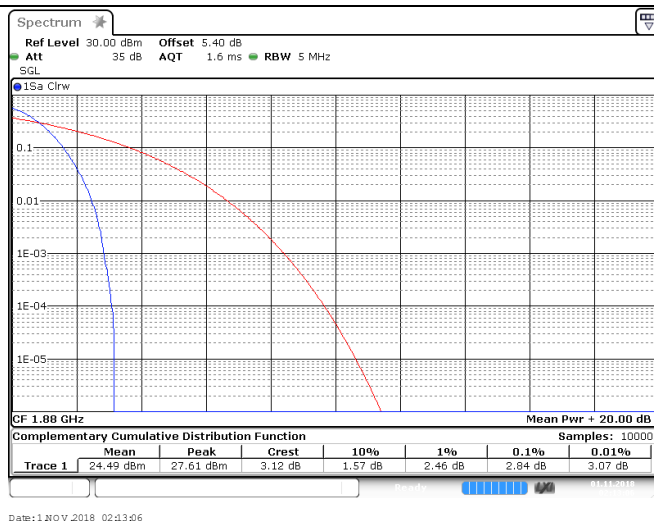
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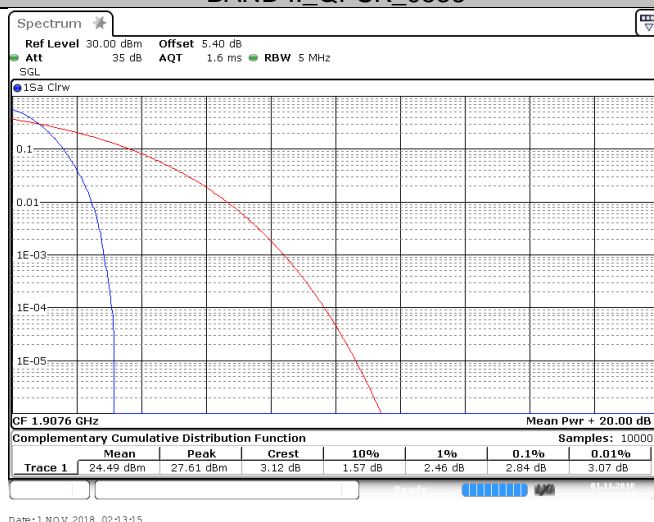
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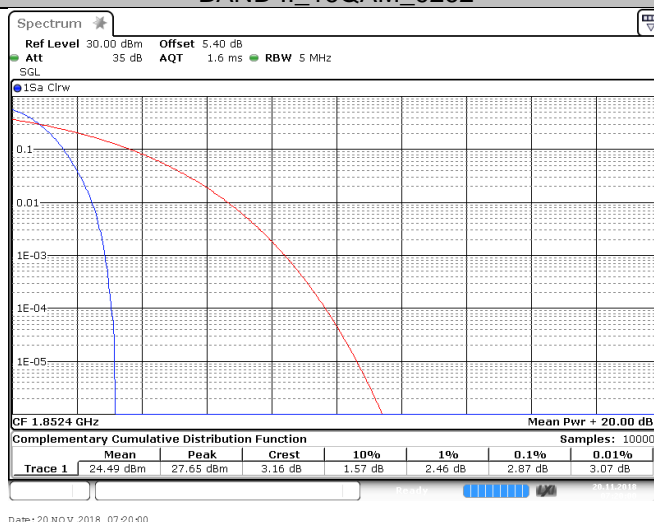
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BAND II_QPSK_9538



BAND II_16QAM_9262



BAND II_16QAM_9400

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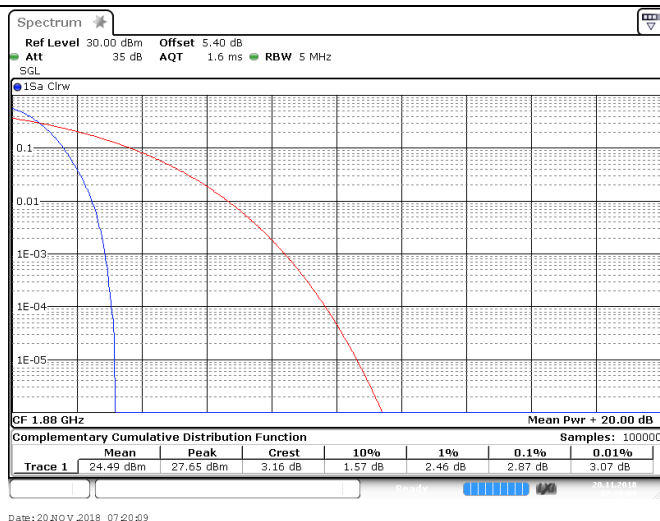
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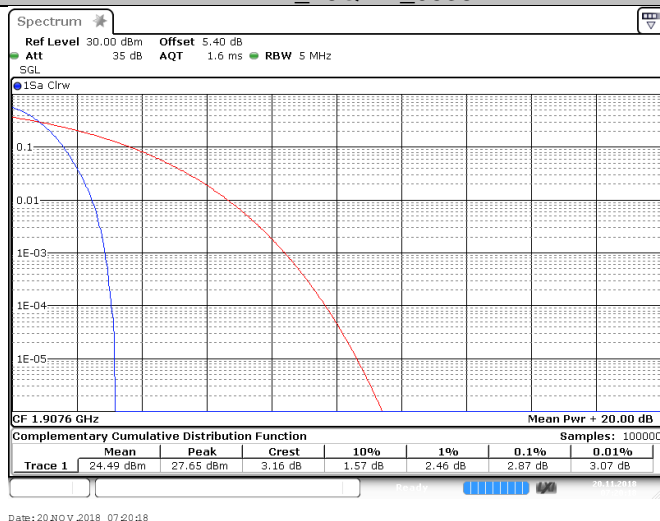
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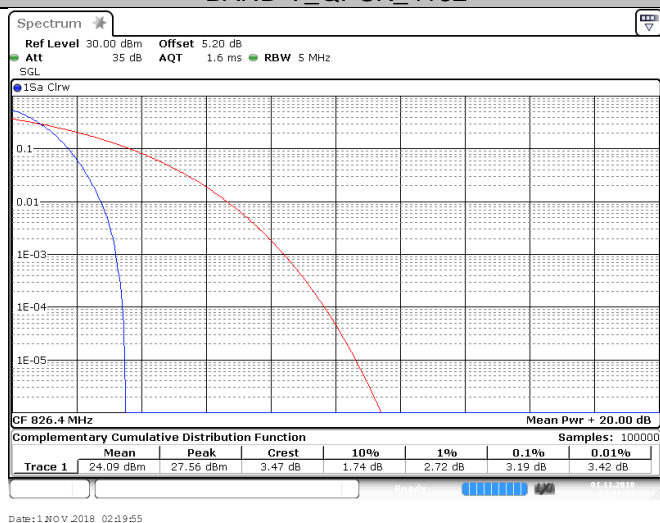
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BAND II_16QAM_9538



BAND V_QPSK_4132



BAND V_QPSK_4182

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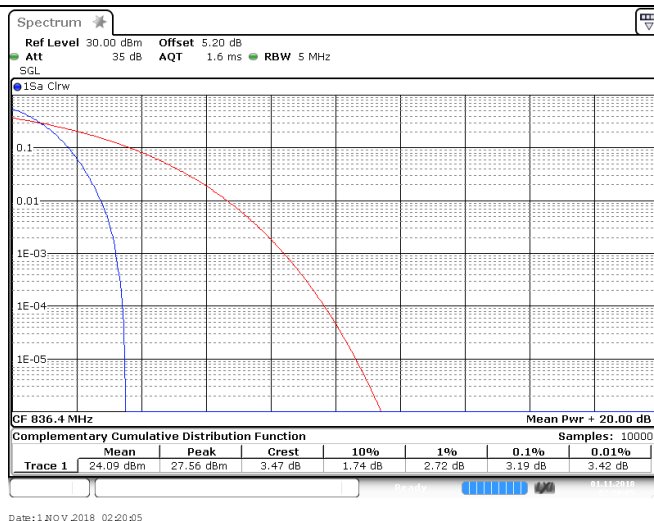
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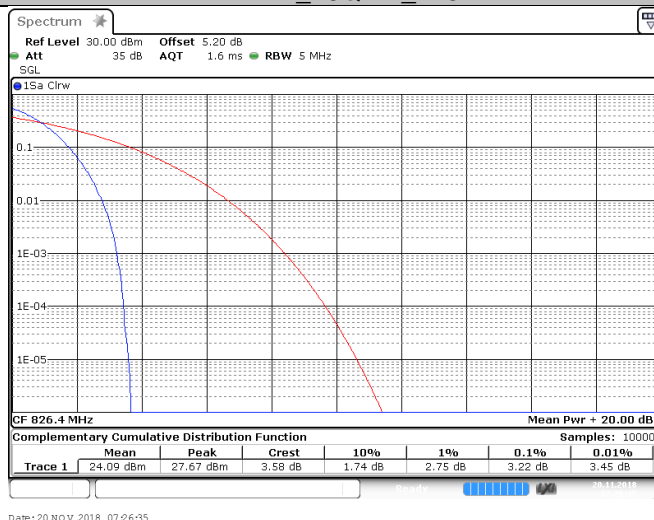
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BAND V_QPSK_4233



BAND V_16QAM_4132



BAND V_16QAM_4182

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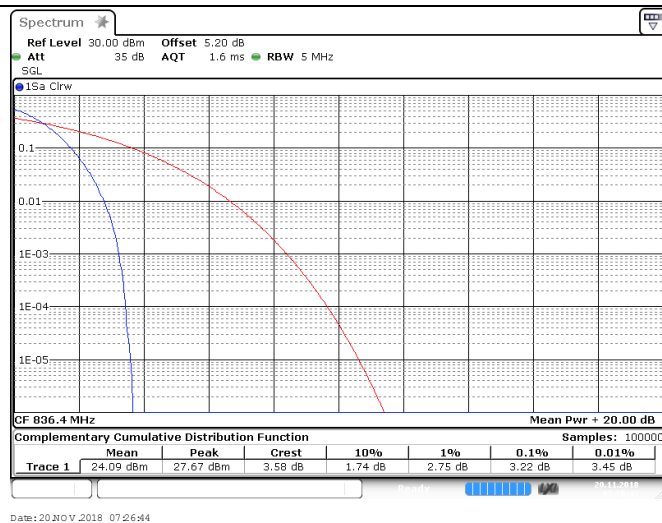
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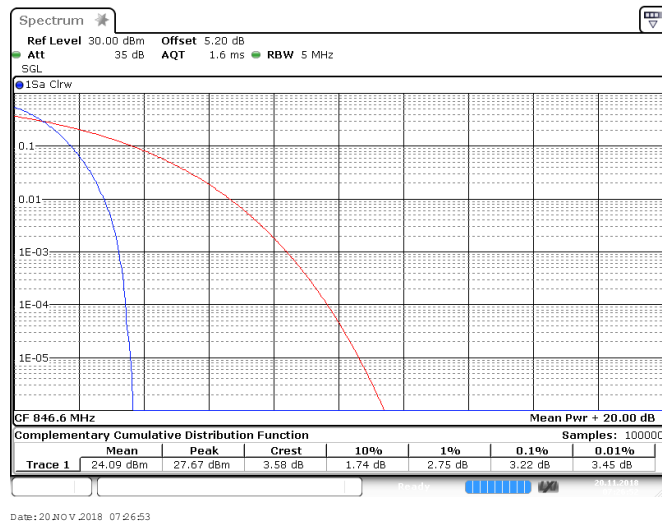
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BAND V_16QAM_4233



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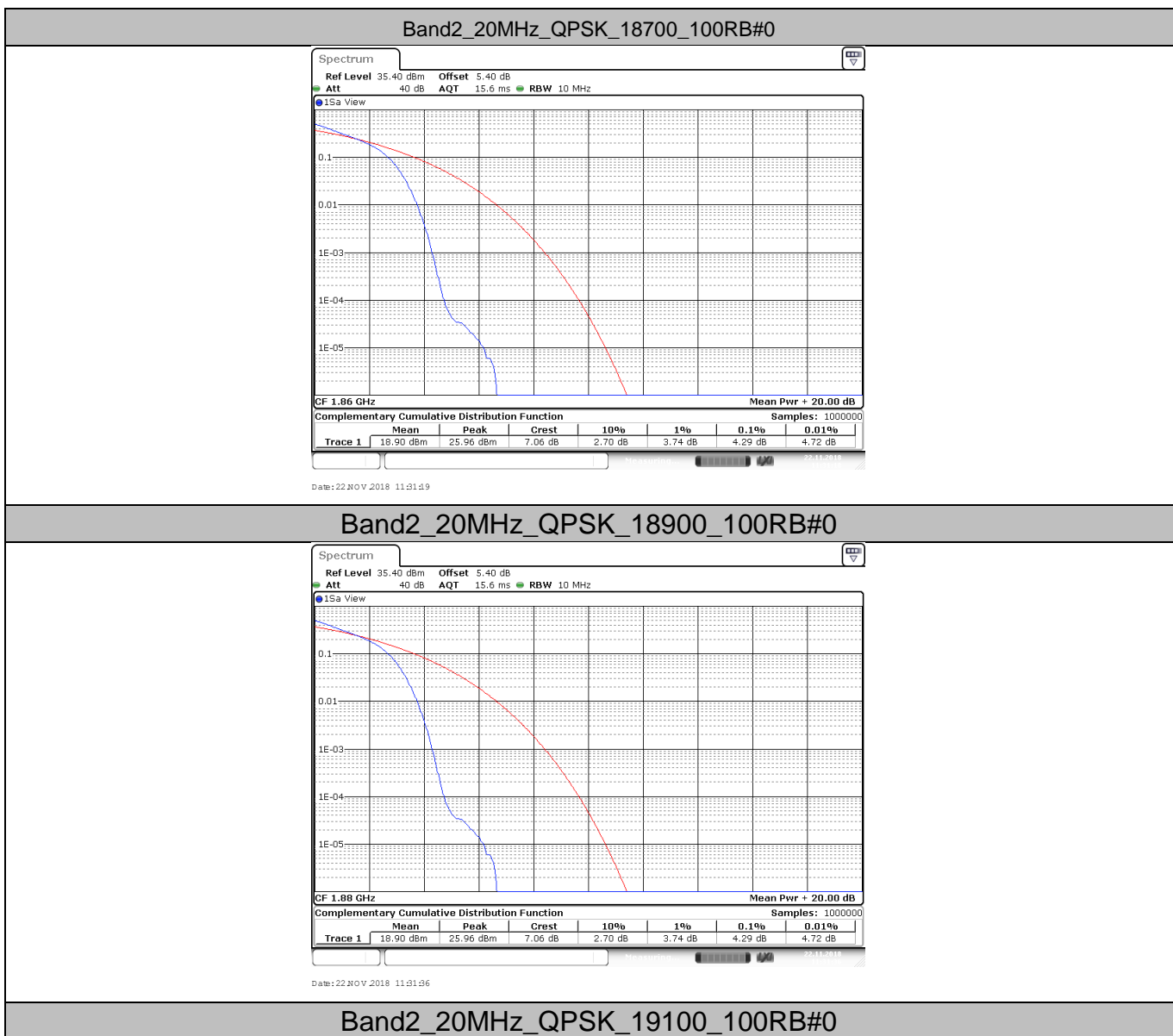
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11.4.3. Peak-to-Average Ratio :LTE Band2

11.4.3.1. Test Result

BAND	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band2	20MHz	QPSK	18700	100RB#0	4.29	13	PASS
Band2	20MHz	QPSK	18900	100RB#0	4.29	13	PASS
Band2	20MHz	QPSK	19100	100RB#0	4.29	13	PASS
Band2	20MHz	16QAM	18700	100RB#0	4.29	13	PASS
Band2	20MHz	16QAM	18900	100RB#0	4.29	13	PASS
Band2	20MHz	16QAM	19100	100RB#0	4.29	13	PASS

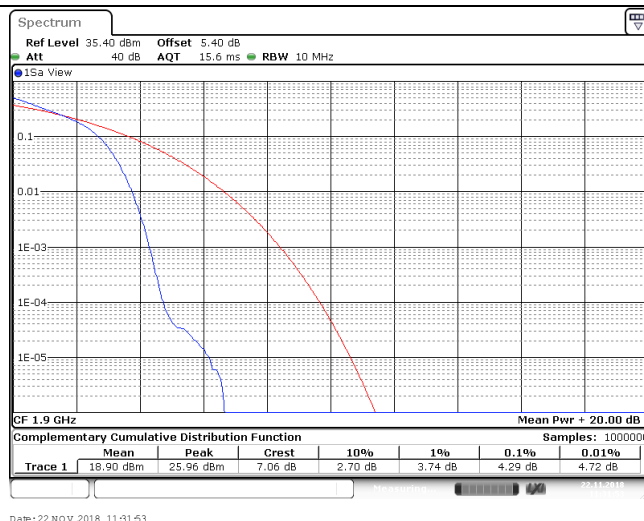
11.4.3.2. Test Plots



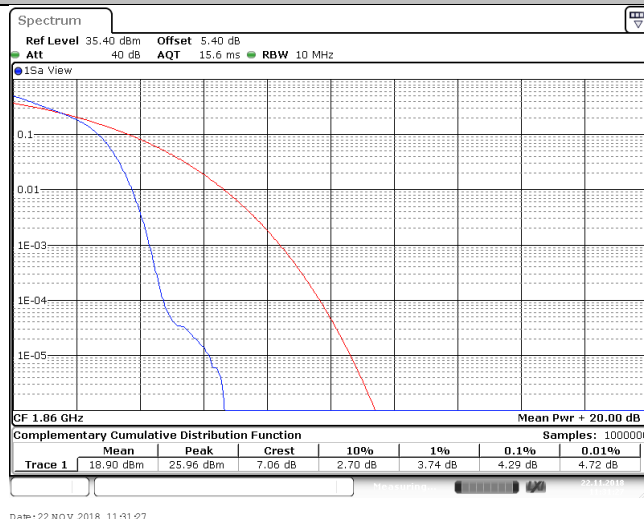
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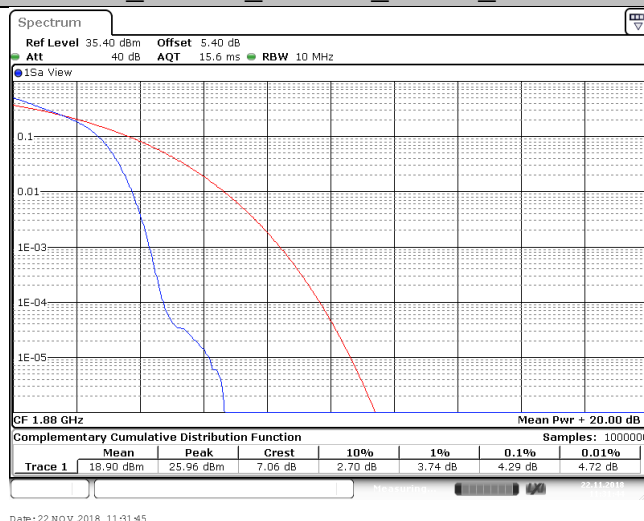
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Band2_20MHz_16QAM_18700_100RB#0



Band2_20MHz_16QAM_18900_100RB#0



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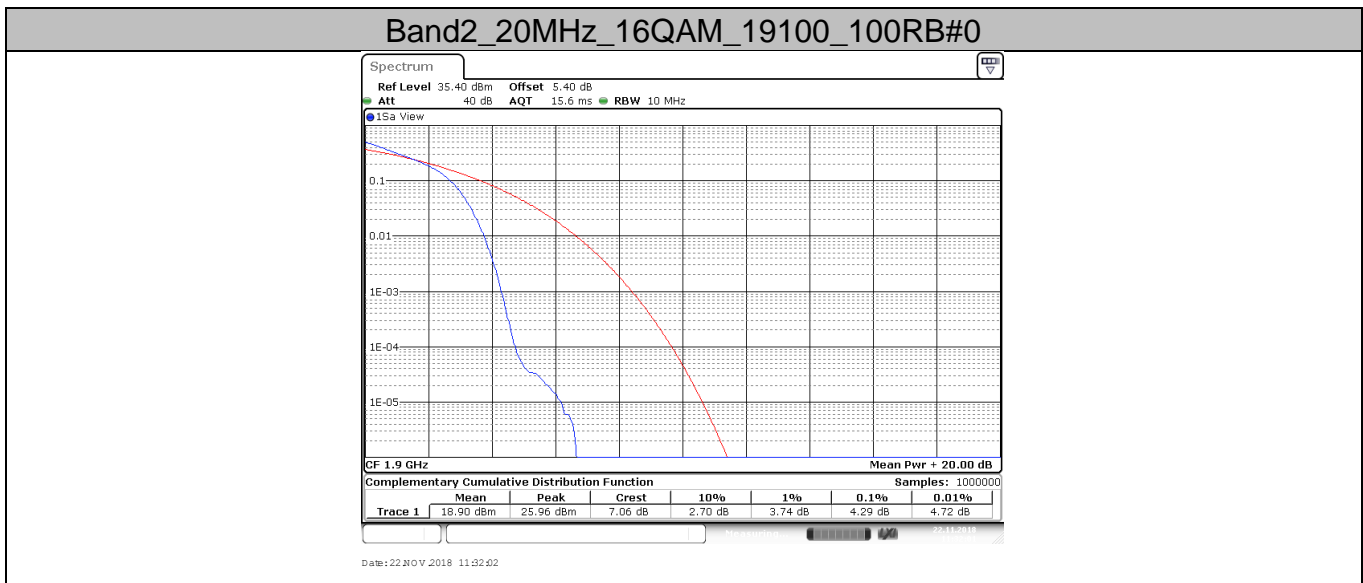
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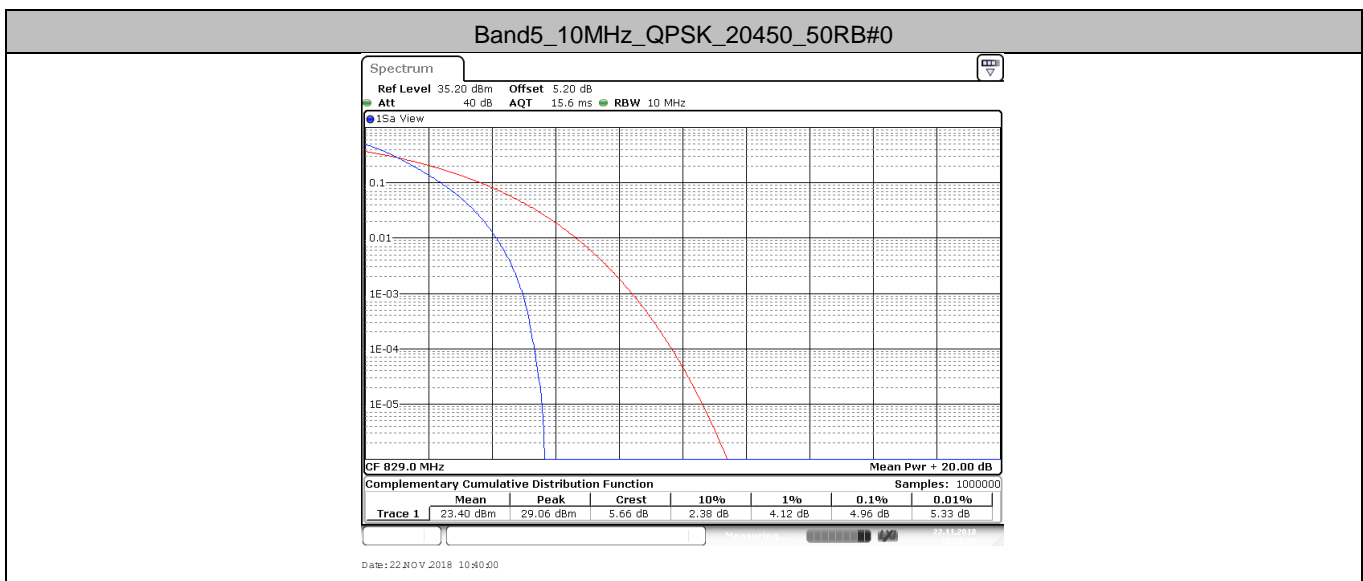


11.4.4. Peak-to-Average Ratio :LTE Band5

11.4.4.1. Test Result

BAND	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band5	10MHz	QPSK	20450	50RB#0	4.96	13	PASS
Band5	10MHz	QPSK	20525	50RB#0	4.96	13	PASS
Band5	10MHz	QPSK	20600	50RB#0	4.96	13	PASS
Band5	10MHz	16QAM	20450	50RB#0	4.96	13	PASS
Band5	10MHz	16QAM	20525	50RB#0	4.96	13	PASS
Band5	10MHz	16QAM	20600	50RB#0	4.96	13	PASS

11.4.4.2. Test Plots



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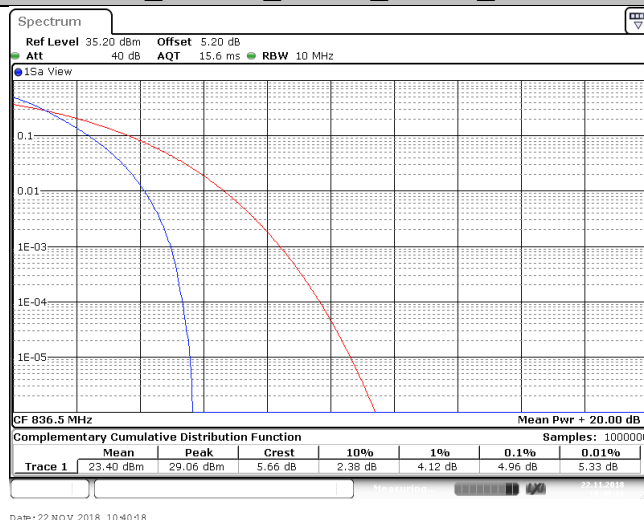
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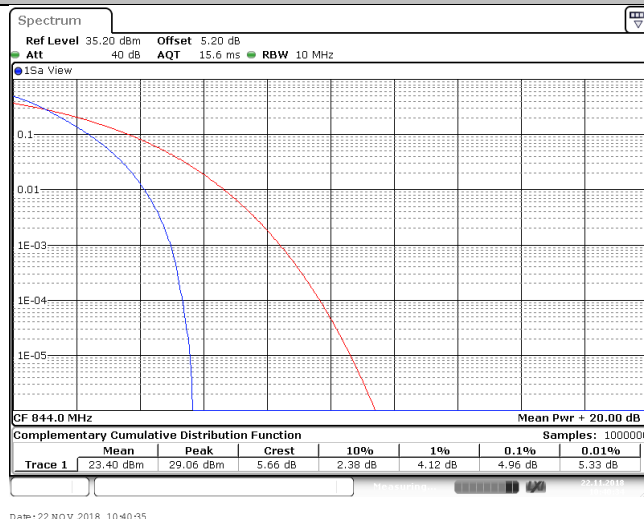
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Band5_10MHz_QPSK_20525_50RB#0



Band5_10MHz_QPSK_20600_50RB#0



Band5_10MHz_16QAM_20450_50RB#0

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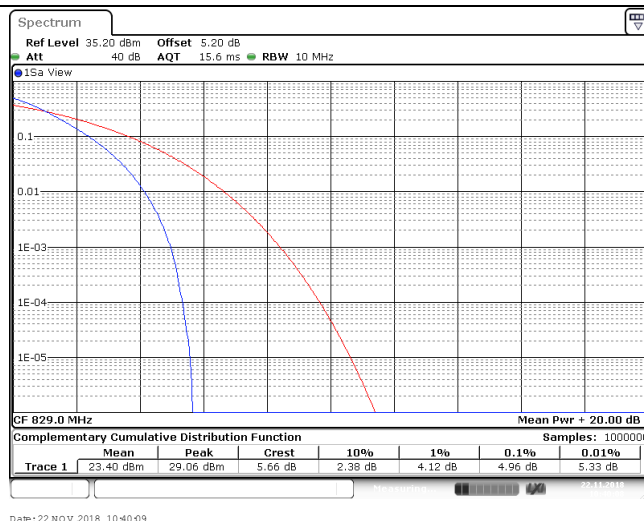
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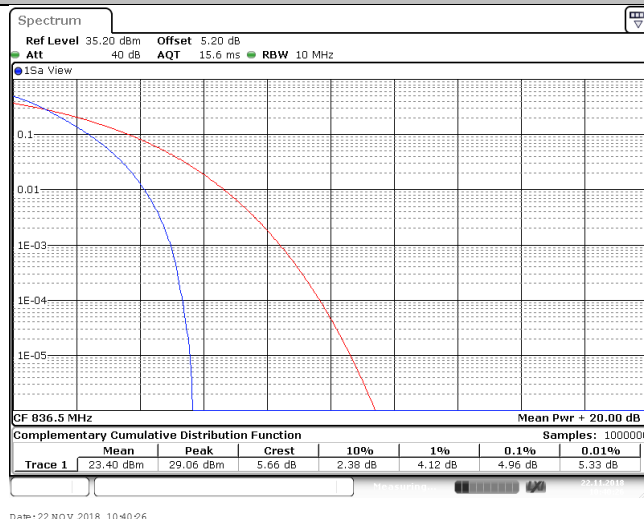
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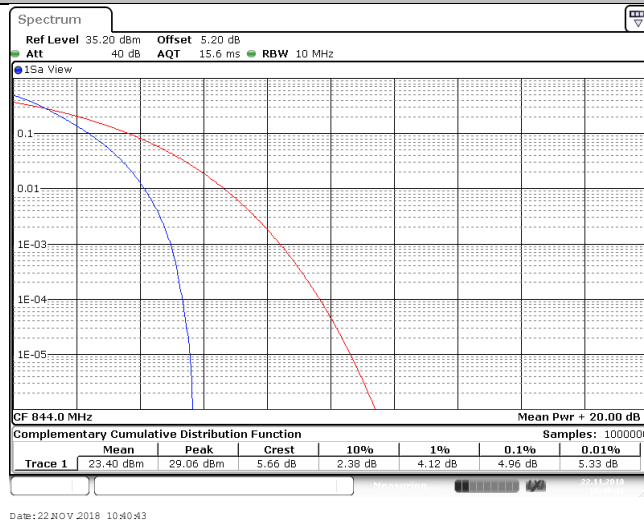
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Band5_10MHz_16QAM_20525_50RB#0



Band5_10MHz_16QAM_20600_50RB#0



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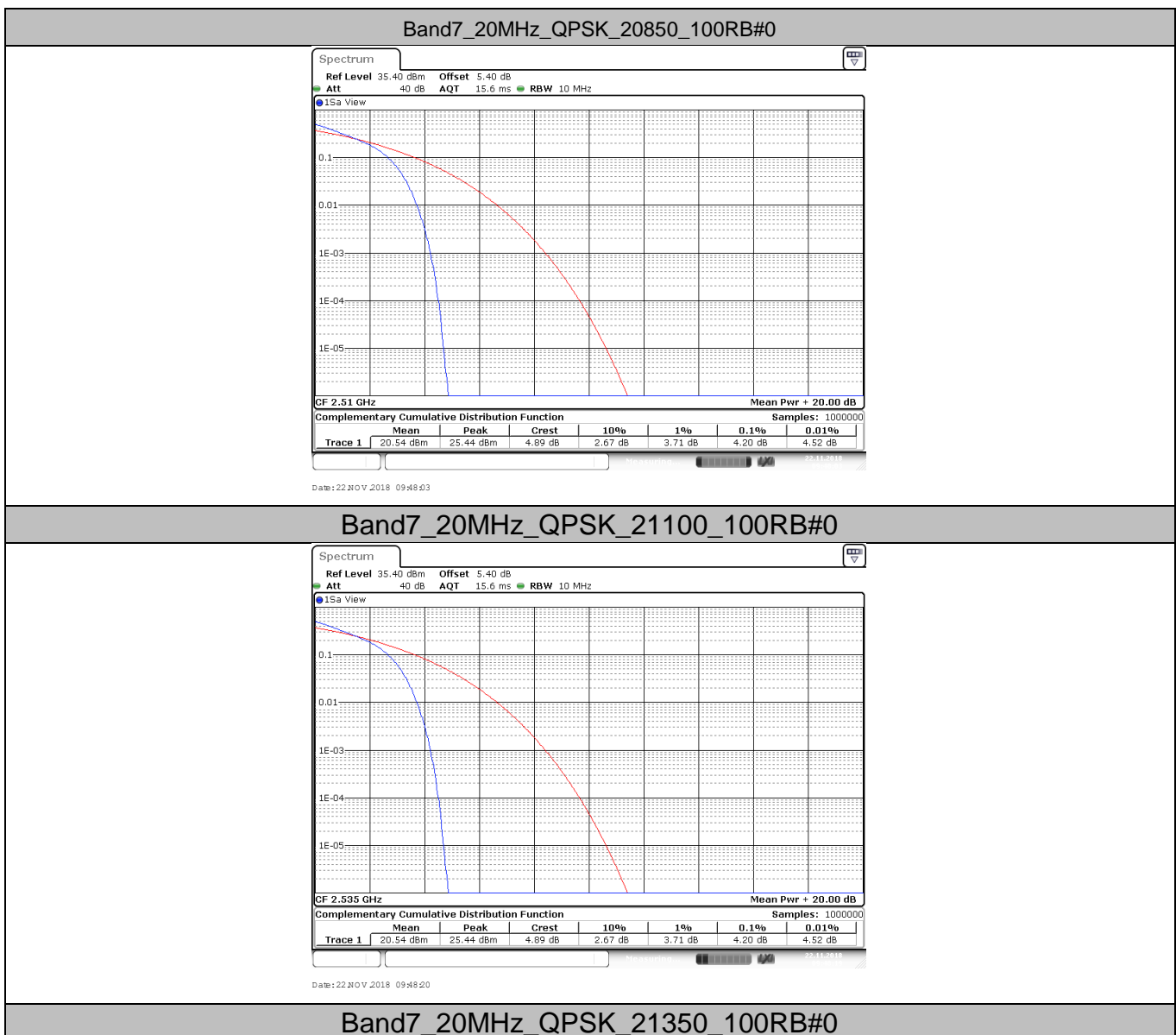
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11.4.5. Peak-to-Average Ratio :LTE Band 7

11.4.5.1. Test Result

BAND	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band7	20MHz	QPSK	20850	100RB#0	4.20	13	PASS
Band7	20MHz	QPSK	21100	100RB#0	4.20	13	PASS
Band7	20MHz	QPSK	21350	100RB#0	4.20	13	PASS
Band7	20MHz	16QAM	20850	100RB#0	4.20	13	PASS
Band7	20MHz	16QAM	21100	100RB#0	4.20	13	PASS
Band7	20MHz	16QAM	21350	100RB#0	4.20	13	PASS

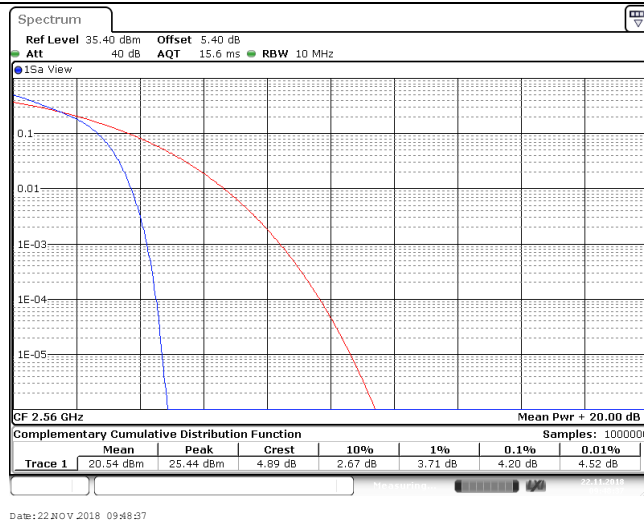
11.4.5.2. Test Plots



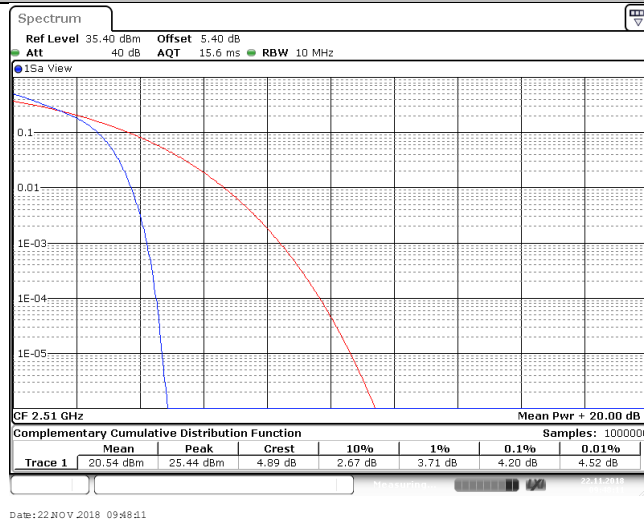
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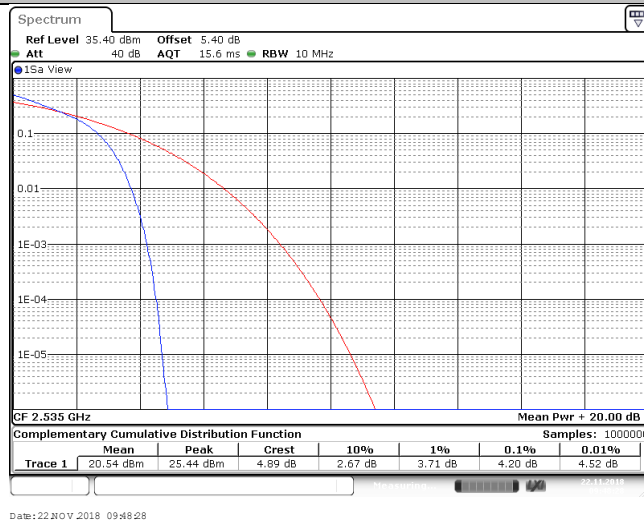
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Band7_20MHz_16QAM_20850_100RB#0



Band7_20MHz_16QAM_21100_100RB#0



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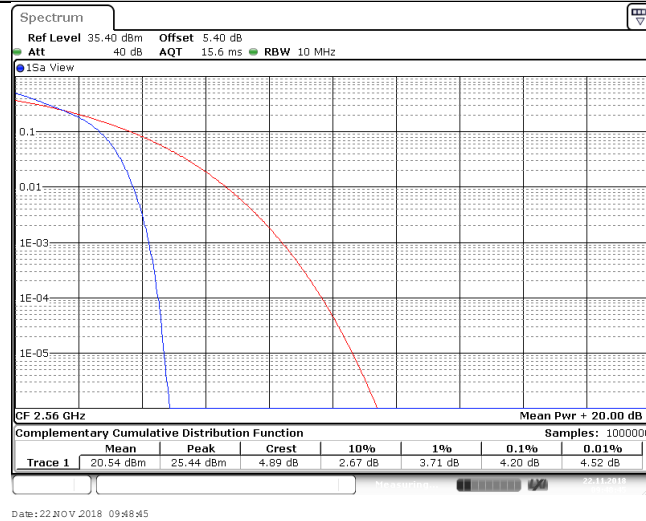
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Band7_20MHz_16QAM_21350_100RB#0



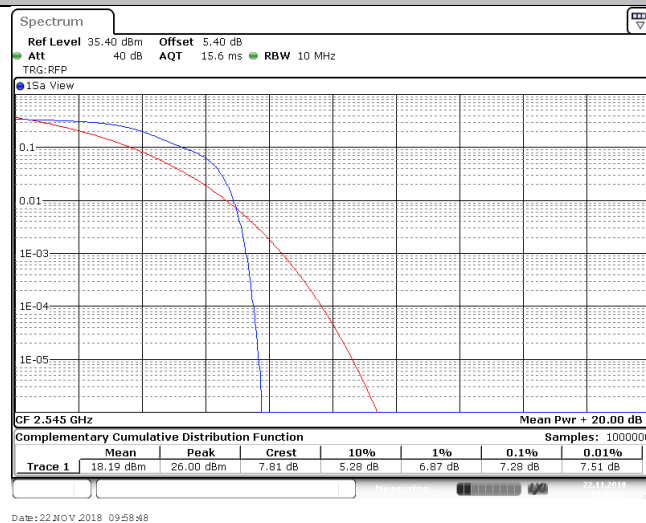
11.4.6. Peak-to-Average Ratio :LTE Band 41

11.4.6.1. Test Result

BAND	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band41	20MHz	QPSK	40140	100RB#0	7.28	13	PASS
Band41	20MHz	QPSK	40640	100RB#0	7.28	13	PASS
Band41	20MHz	QPSK	41140	100RB#0	7.28	13	PASS
Band41	20MHz	16QAM	40140	100RB#0	7.28	13	PASS
Band41	20MHz	16QAM	40640	100RB#0	7.28	13	PASS
Band41	20MHz	16QAM	41140	100RB#0	7.28	13	PASS

11.4.6.2. Test Plots

Band41_20MHz_QPSK_40140_100RB#0



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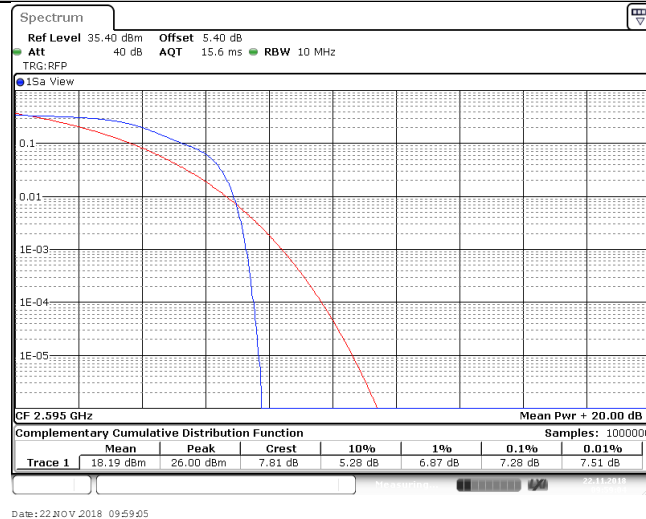
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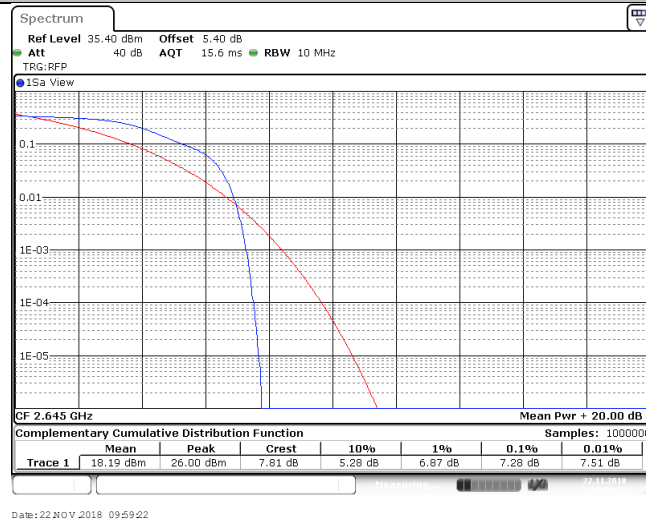
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Band41_20MHz_QPSK_40640_100RB#0



Band41_20MHz_QPSK_41140_100RB#0



Band41_20MHz_16QAM_40140_100RB#0

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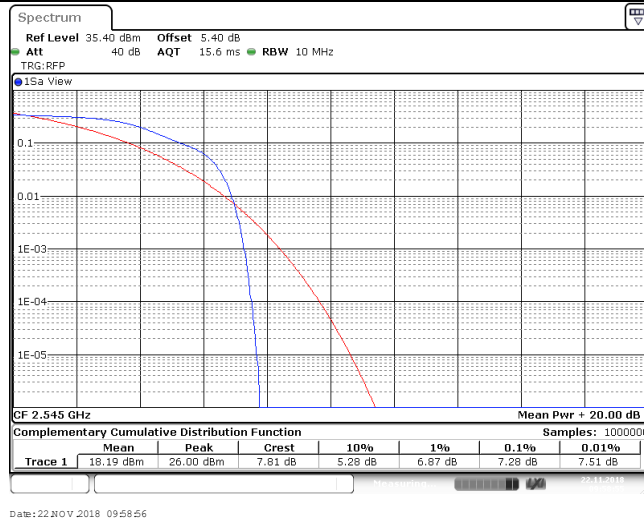
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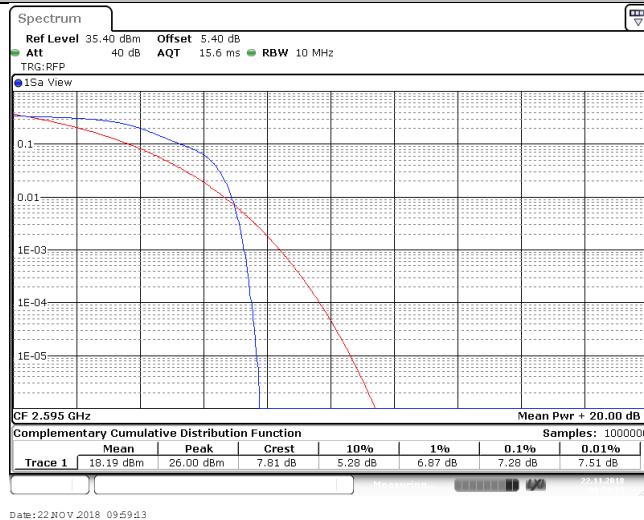
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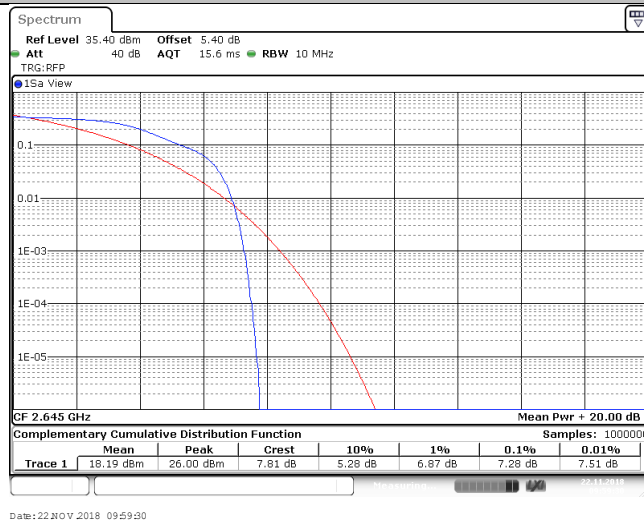
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Band41_20MHz_16QAM_40640_100RB#0



Band41_20MHz_16QAM_41140_100RB#0



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12. Photographs - EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for ZR/2018/A0011.

~ End of Report ~

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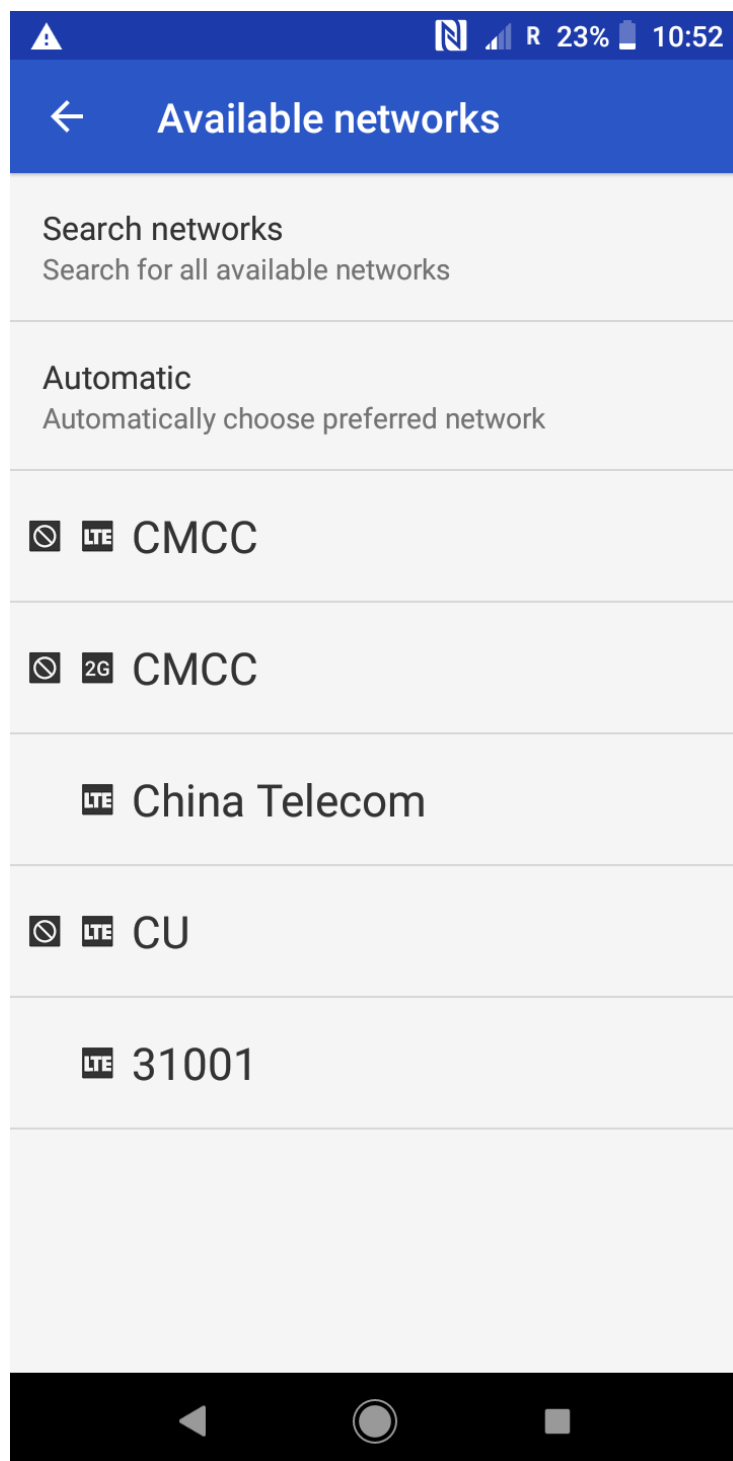
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13. Base station configures US MCC, and sets B38 or B40

13.1. Base station set US MCC & Sample registration information



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14. UE cannot register B38

Phone2 LTE 30.70#038 Phone1 LTE 30.70#038

UL Channel 38000 ch TPC Pattern All +3dB Input Level 30.0 dBm Operation Band B38 BAND This sets the operating band (see Table 2.1.2-4).

Operation Band 38 Channel Bandwidth 10 MHz Output Level -57.2 dBm

MT8821C 2018/11/28 18:07 RF Output : On

UE Power : -20.5 dBm

Common Physical Channel Call Processing TX Measurement RX Measurement Fundamental Measurement Test Parameter Band Definition External Loss System Config

General Base Station Identity Cell ID 0 MCC 310 MNC 01 TAC 0001 Mobile Station Identity Authentication / Integrity RMC Power Control BCCH / PCCH RACH / PUCCH SRS HARQ / CQI / RLC

SequenceMonitor

Off Idle Detach Registration Idle(Register) UE Origination NW Origination Connected Handover UE Release NW Release

UE Report

IMSI(DEC) 001010123456063
IMEI 004402459194120
IMEI (Check Digit) 004402459194126
UE Category 4
UE CategoryDL -----
UE CategoryUL 5
PDN Type IPv4v6

Signaling Trace

U-S	Message	Description	Time at RRC
<--	L2 message	Random Access Response	01:10:59.878 (00:00.001)
-->	RRCConnectionRequest		01:10:59.890 (00:00.012)
---	Setup---		
<--	RRCConnectionSetup		01:10:59.894 (00:00.004)
-->	RRCConnectionSetupComplete		01:10:59.914 (00:00.020)
<--	DLInformationTransfer	AUTHENTICATION REQUEST	01:10:59.915 (00:00.001)
-->	ULInformationTransfer	AUTHENTICATION RESPONSE	01:11:00.032 (00:00.117)
<--	DLInformationTransfer	SECURITY MODE COMMAND	01:11:00.042 (00:00.010)
-->	ULInformationTransfer	SECURITY MODE COMPLETE	01:11:00.054 (00:00.012)
<--	SecurityModeCommand		01:11:00.054 (00:00.000)
-->	SecurityModeComplete		01:11:00.070 (00:00.016)
<--	RRCConnReconfiguration		01:11:00.070 (00:00.000)
-->	RRCConnReconfigurationComplete		01:11:00.090 (00:00.020)
---	Reconfiguration(HO)---		
<--	RRCConnReconfiguration		01:11:28.653 (00:28.563)

Function Measurement Report Off Measurement Report Once Trace Clear UE Capability Information

Home Preset Stop Tx Rx Single Continuous Idle(Register) Start Call End Call Menu

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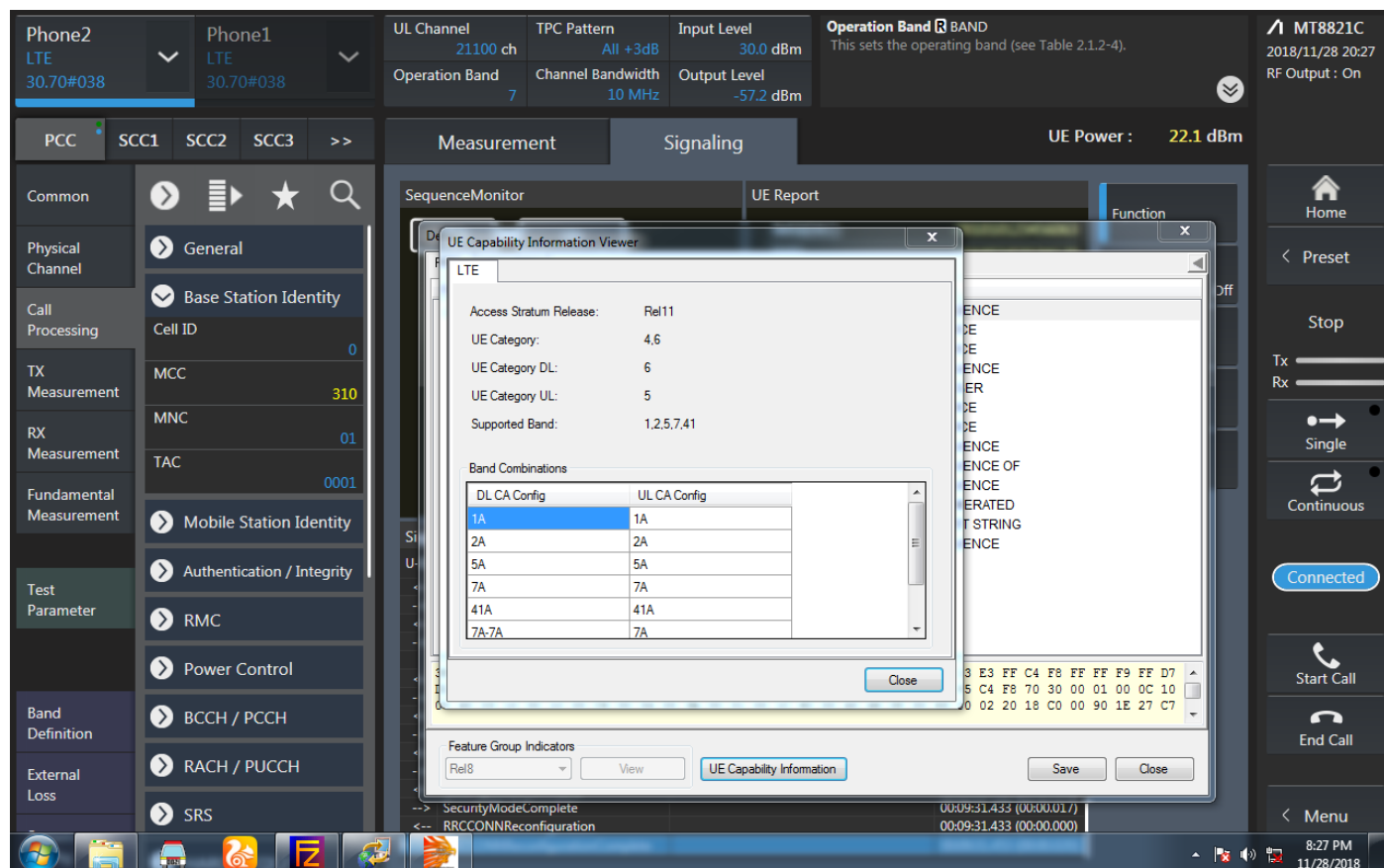
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15. Base station configures US MCC, and sets other bands, UE can register, and call box show UE capability does not have B38/B40



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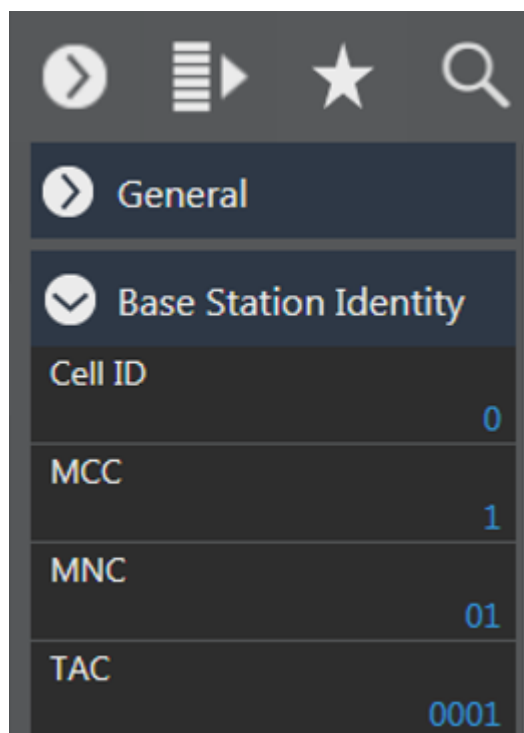
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16. Base station configures non-US MCC



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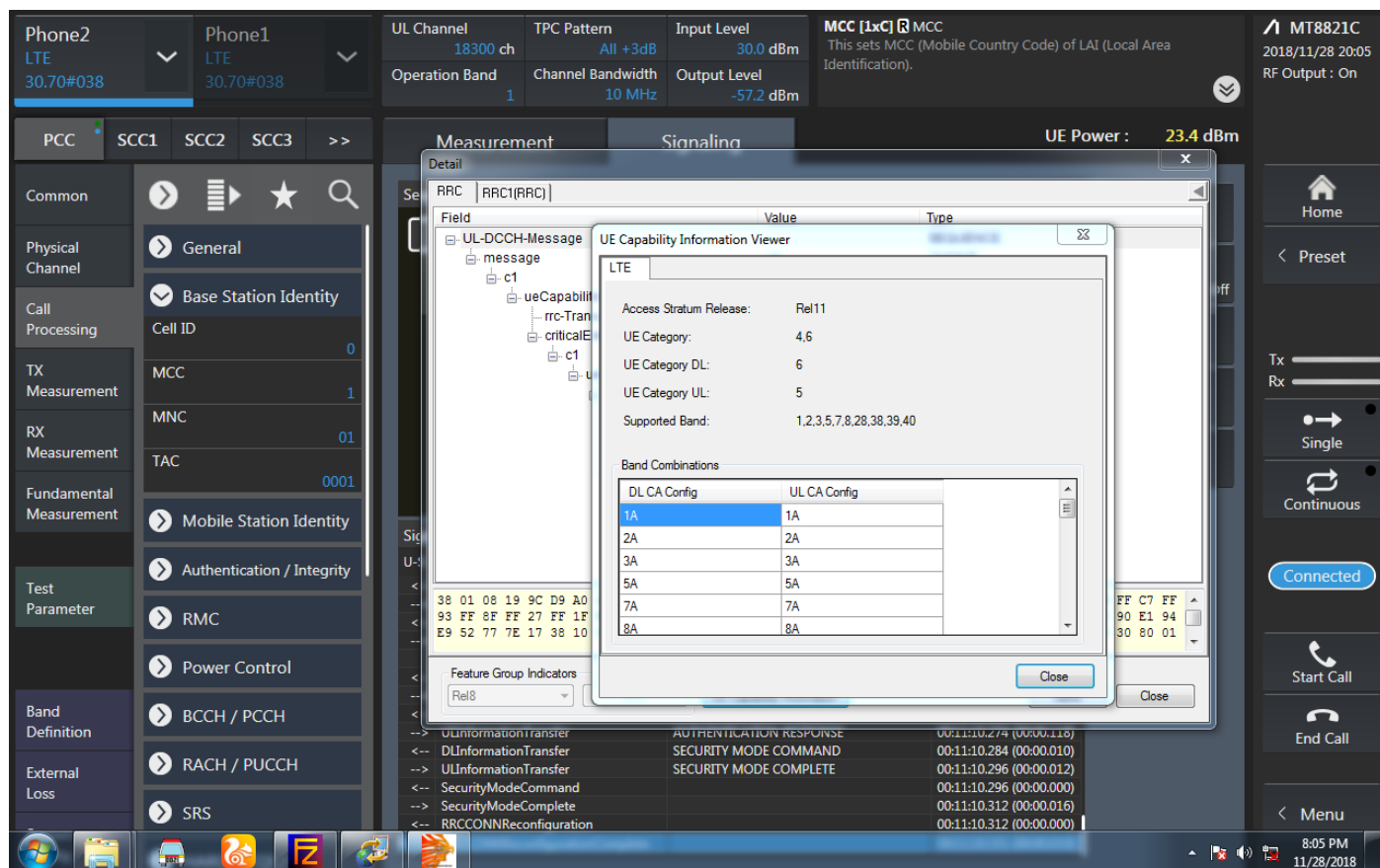
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17. UE registration on, and call box show UE capability does have B38/B40



The screenshot displays the SGS test software interface. At the top, it shows 'Phone2' and 'Phone1' both in LTE mode with frequency 30.70#038. The 'UL Channel' is 18300 ch, 'TPC Pattern' is All +3dB, 'Input Level' is 30.0 dBm, and 'Output Level' is -57.2 dBm. The 'MCC' is 1x1, and the 'MNC' is 01. The 'TAC' is 0001. The 'UE Power' is 23.4 dBm. The 'Measurement' tab is active, showing a list of fields and their values. A 'UE Capability Information Viewer' dialog is open, displaying the following information:

Field	Value	Type
Access Stratum Release	Rel11	
UE Category	4,6	
UE Category DL	6	
UE Category UL	5	
Supported Band	1,2,3,5,7,8,28,38,39,40	

The 'Band Combinations' section shows the following configurations:

DL CA Config	UL CA Config
1A	1A
2A	2A
3A	3A
5A	5A
7A	7A
8A	8A

The 'Call Box' section shows the following information:

Field	Value	Type
UL-DCCH-Message	message	
c1	ueCapability	
rrc-Transfer	criticalE	
c1	ueCapability	

The 'Call Box' section also shows the following information:

Field	Value	Type
UL-DCCH-Message	message	
c1	ueCapability	
rrc-Transfer	criticalE	
c1	ueCapability	

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