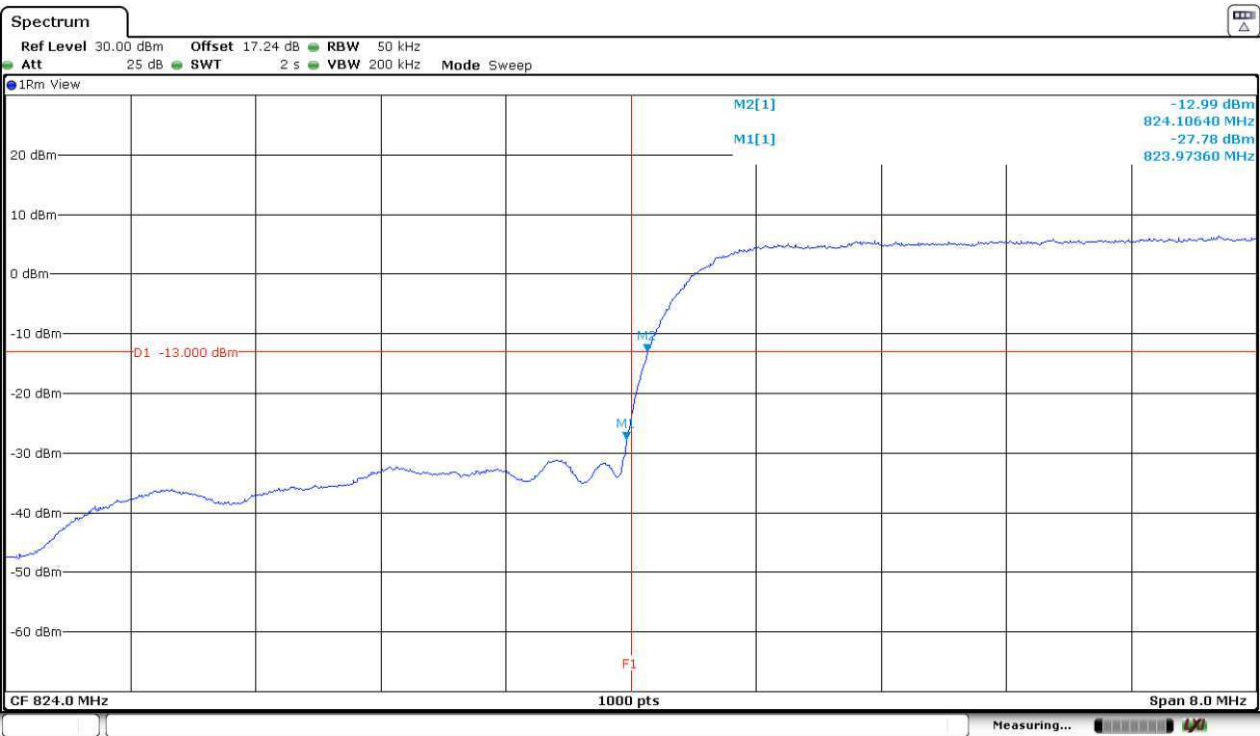


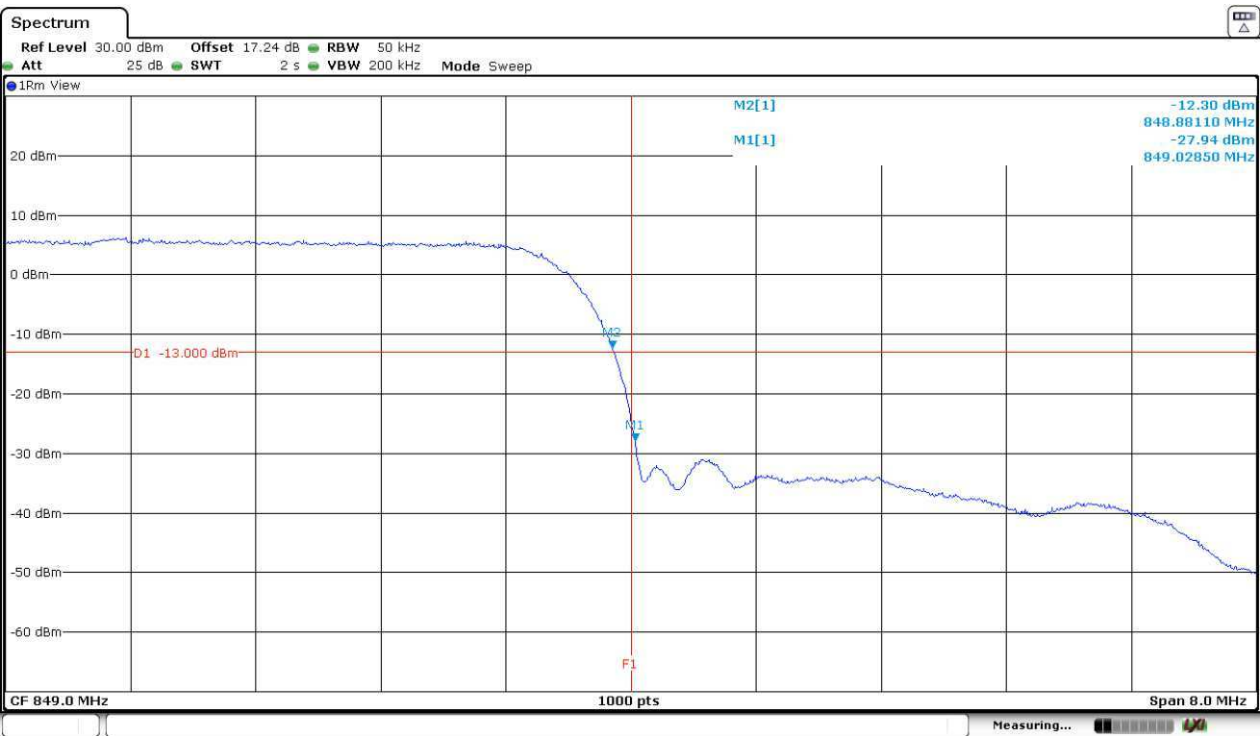
3G Band V. WCDMA MODULATION.

Lowest Channel:



The equipment transmits at the maximum output power

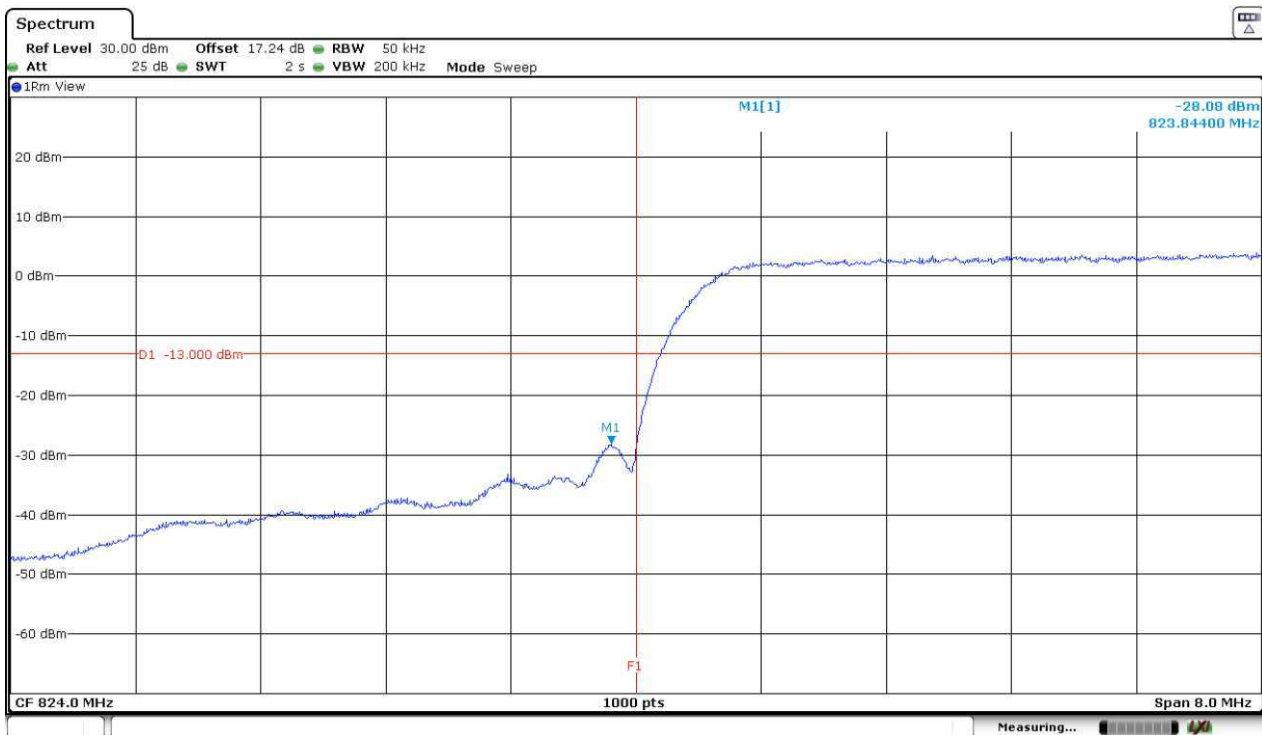
Highest Channel:



The equipment transmits at the maximum output power

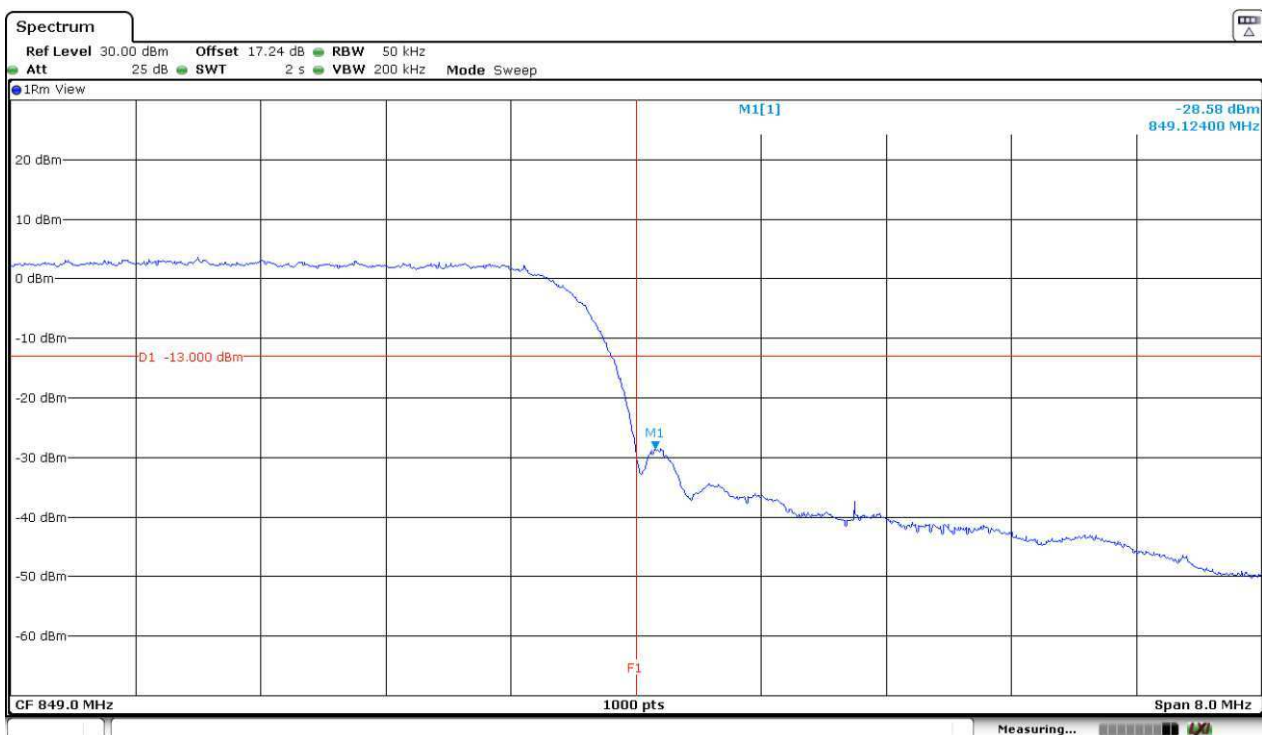
3G Band V. HSUPA MODULATION.

Lowest Channel:



The equipment transmits at the maximum output power

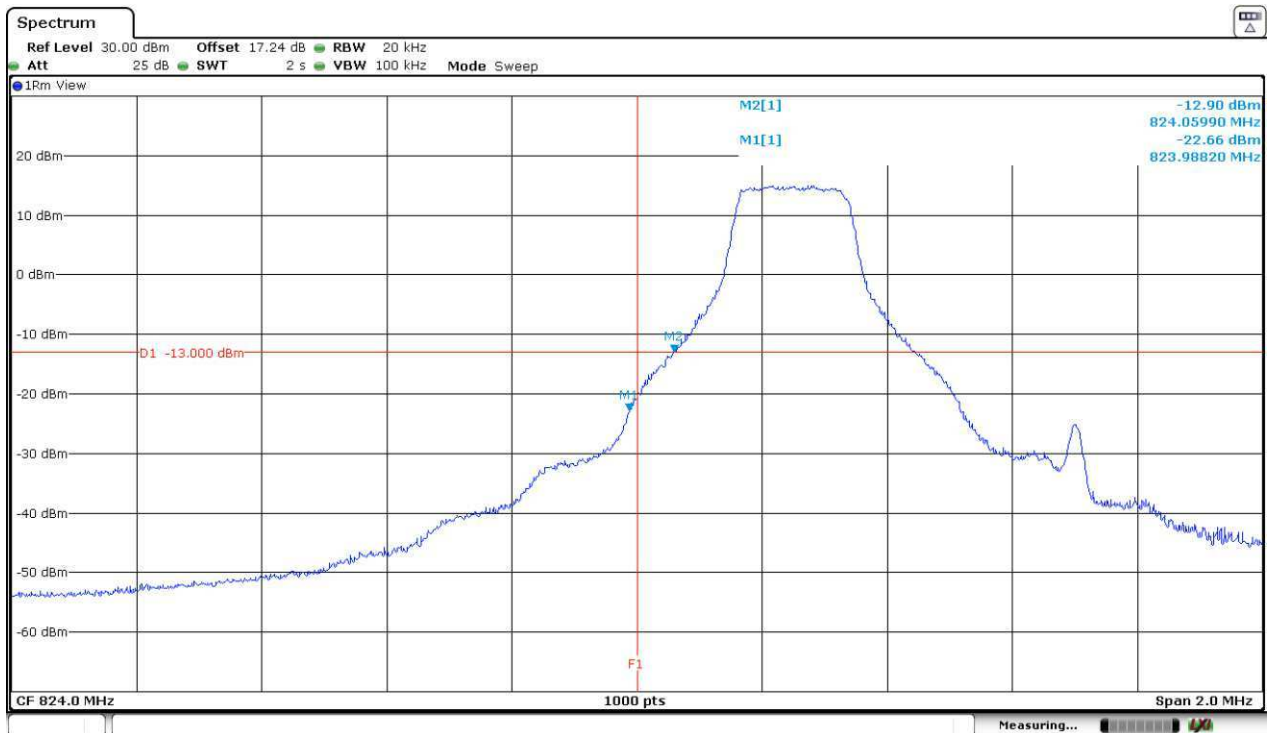
Highest Channel:



The equipment transmits at the maximum output power

LTE Band 5. BW=1.4 MHz. QPSK MODULATION. RB=1. Offset = 0. Lowest Block Edge:

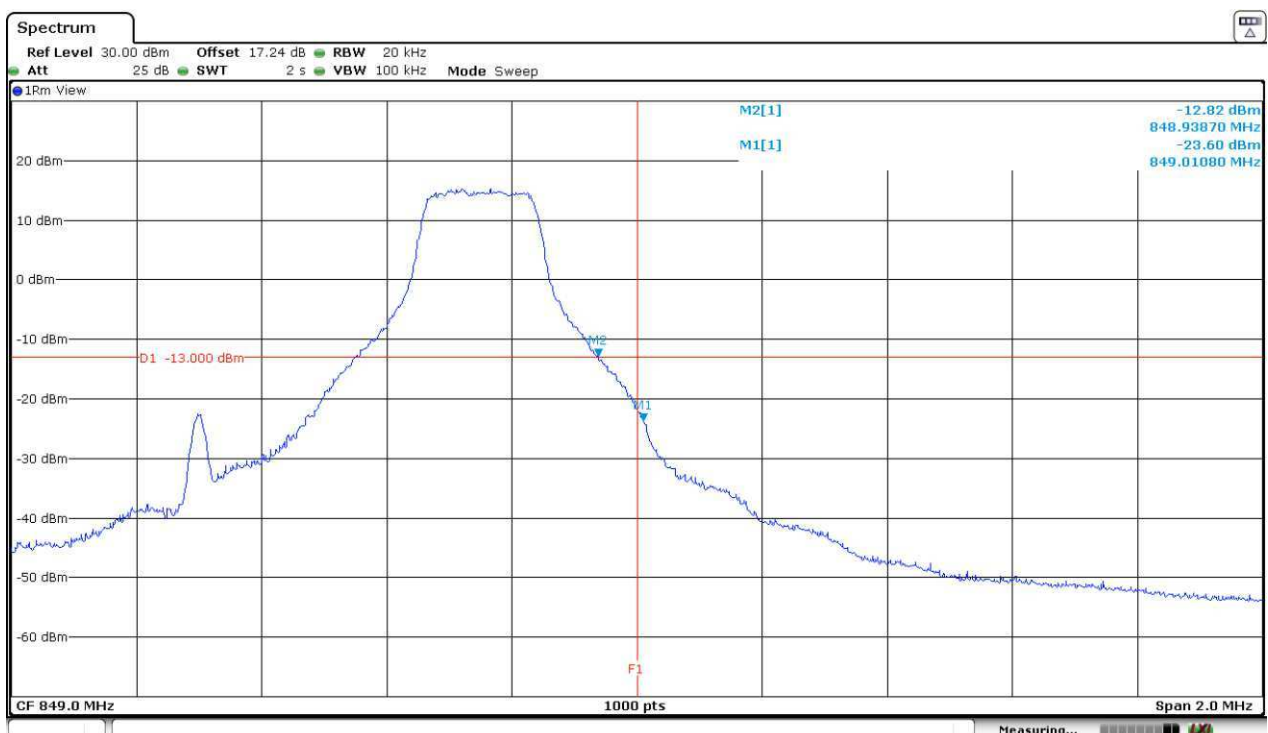
Lowest Channel:



The equipment transmits at the maximum output power

LTE Band 5. BW=1.4 MHz. QPSK MODULATION. RB=1. Offset = Max. Highest Block Edge:

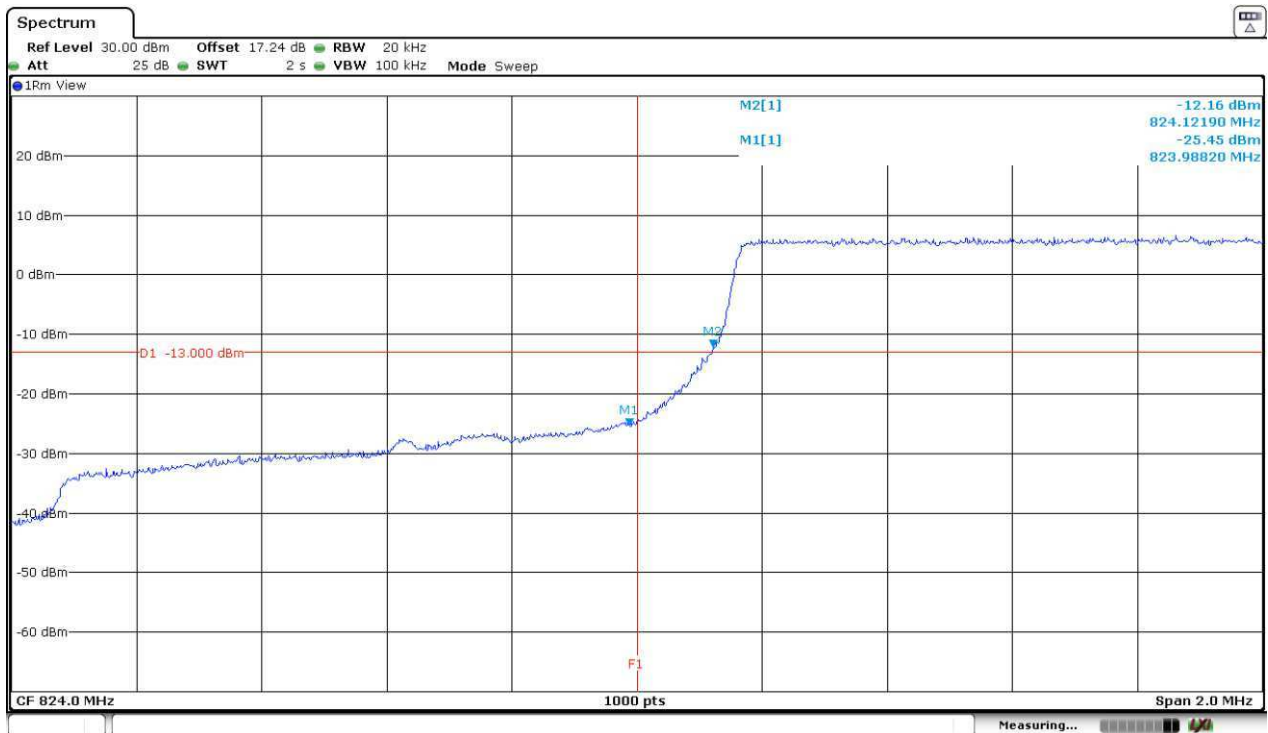
Highest Channel:



The equipment transmits at the maximum output power

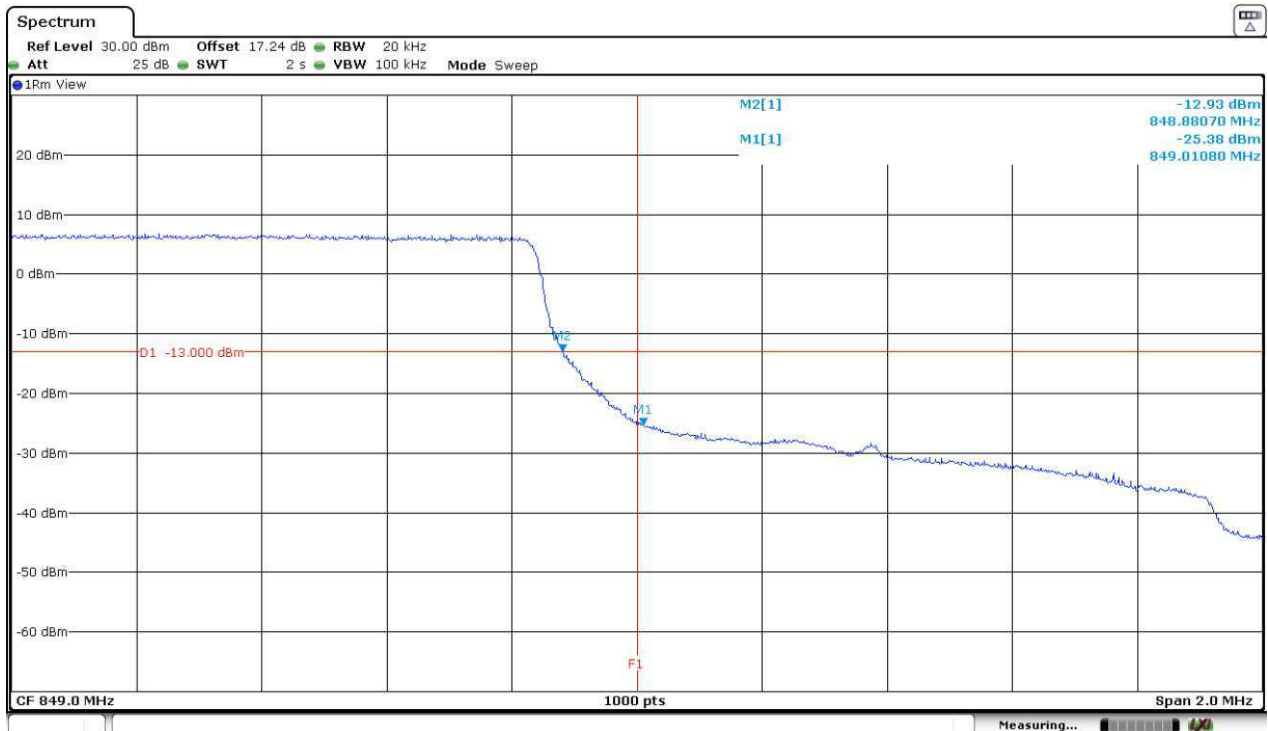
LTE Band 5. BW=1.4 MHz. QPSK MODULATION. RB = All, Offset = 0. Lowest and Highest Block Edges:

Lowest Channel:



The equipment transmits at the maximum output power

Highest Channel:

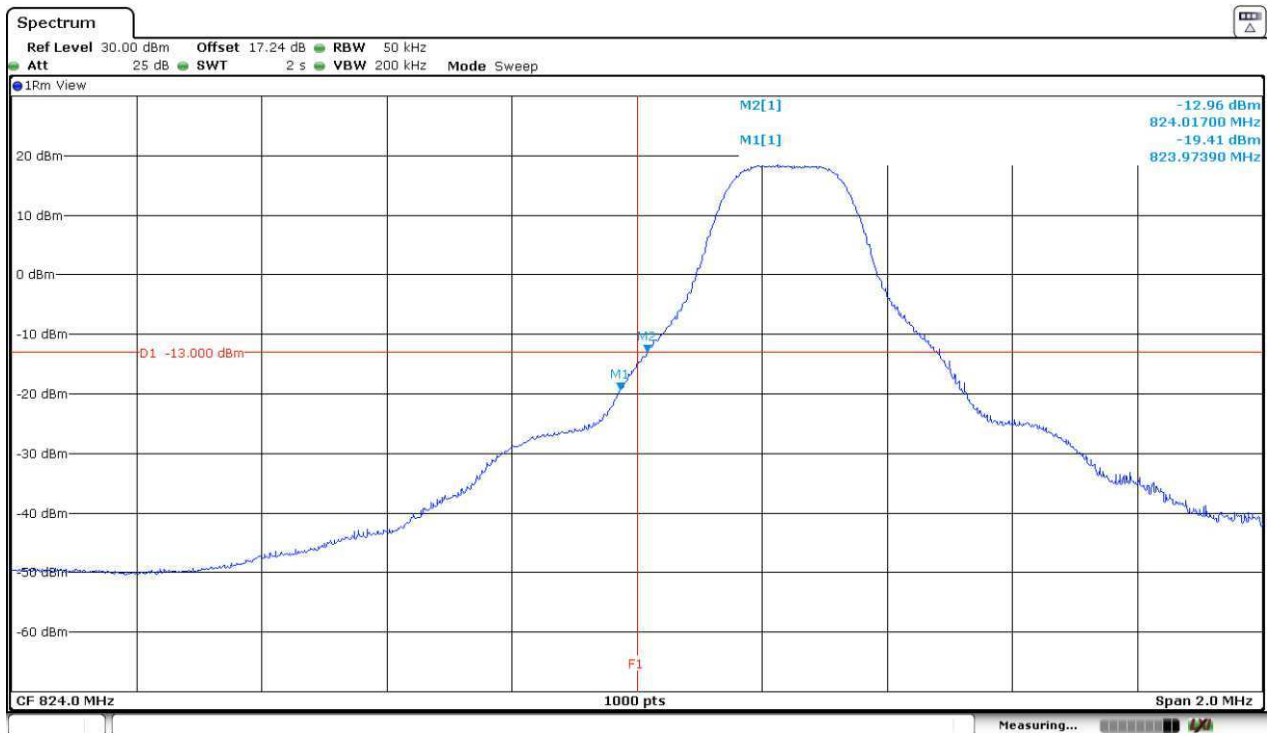


The equipment transmits at the maximum output power

Verdict: PASS

LTE Band 5. BW=3 MHz. QPSK MODULATION. RB = 1. Offset = 0. Lowest Block Edge:

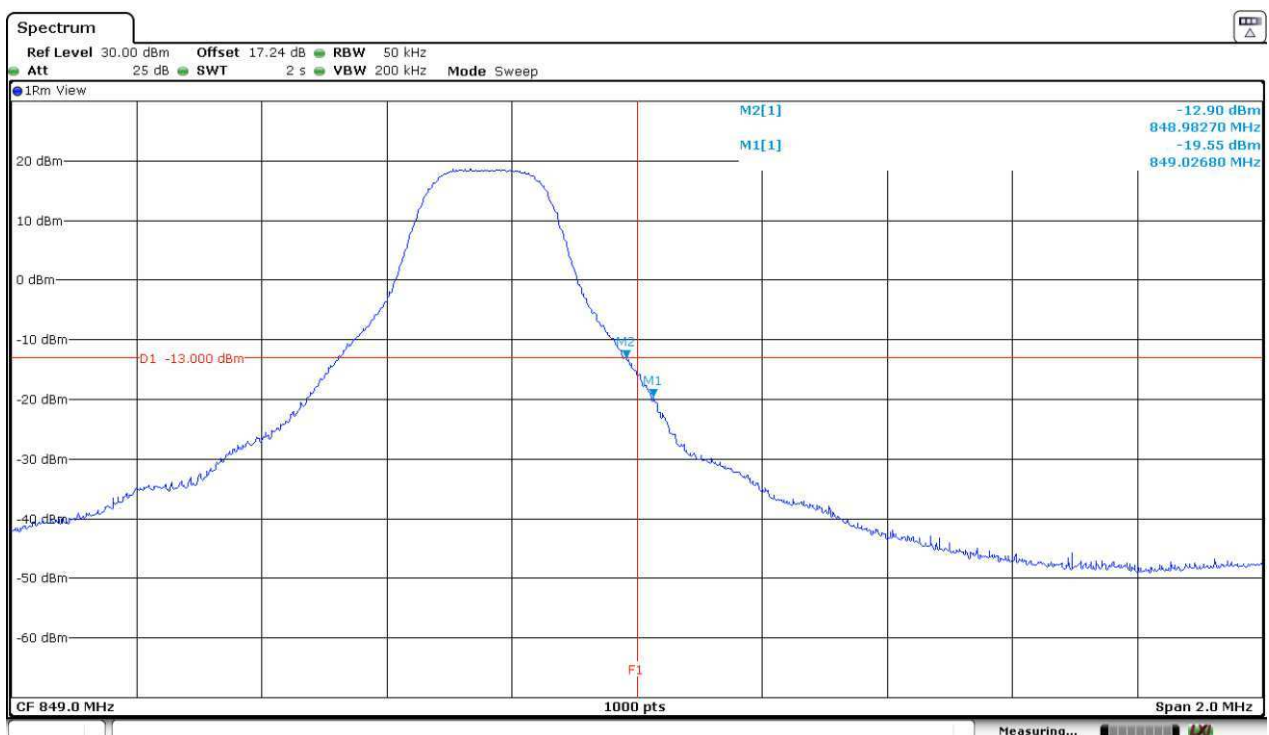
Lowest Channel:



The equipment transmits at the maximum output power

LTE Band 5. BW=3 MHz. QPSK MODULATION. RB = 1. Offset = Max. Highest Block Edge:

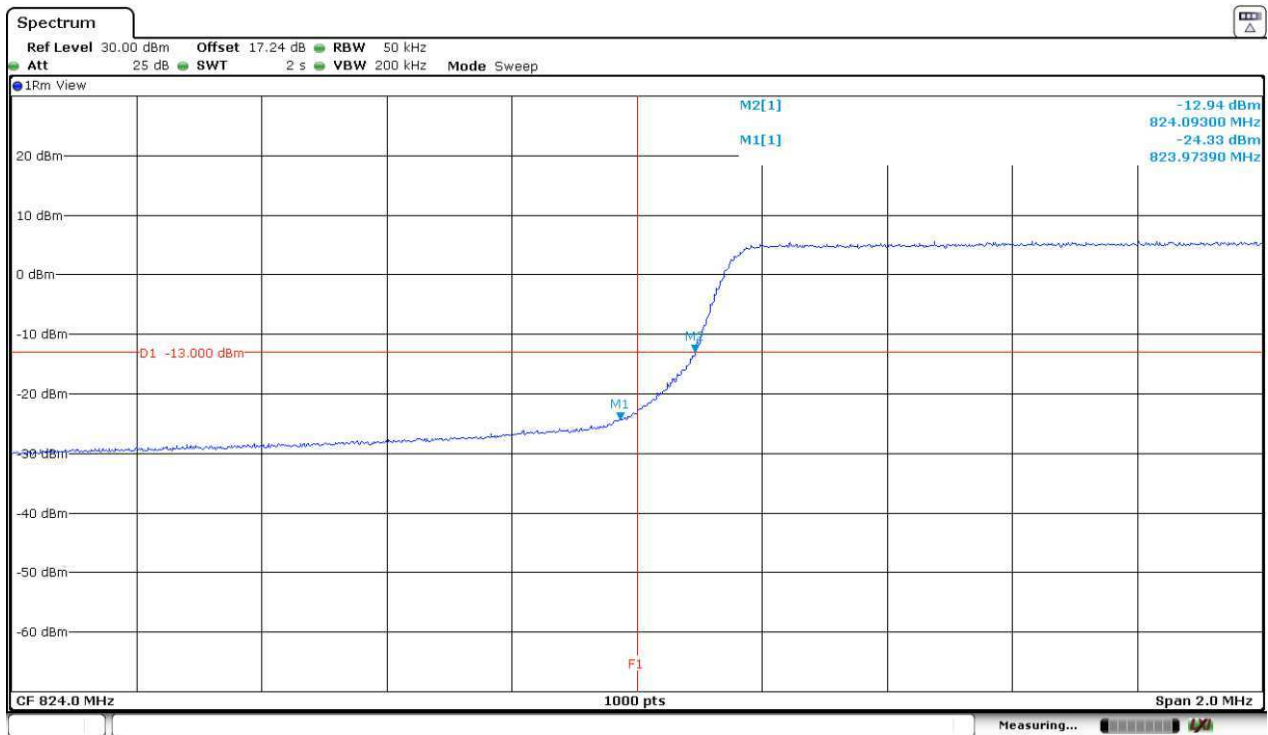
Highest Channel:



The equipment transmits at the maximum output power

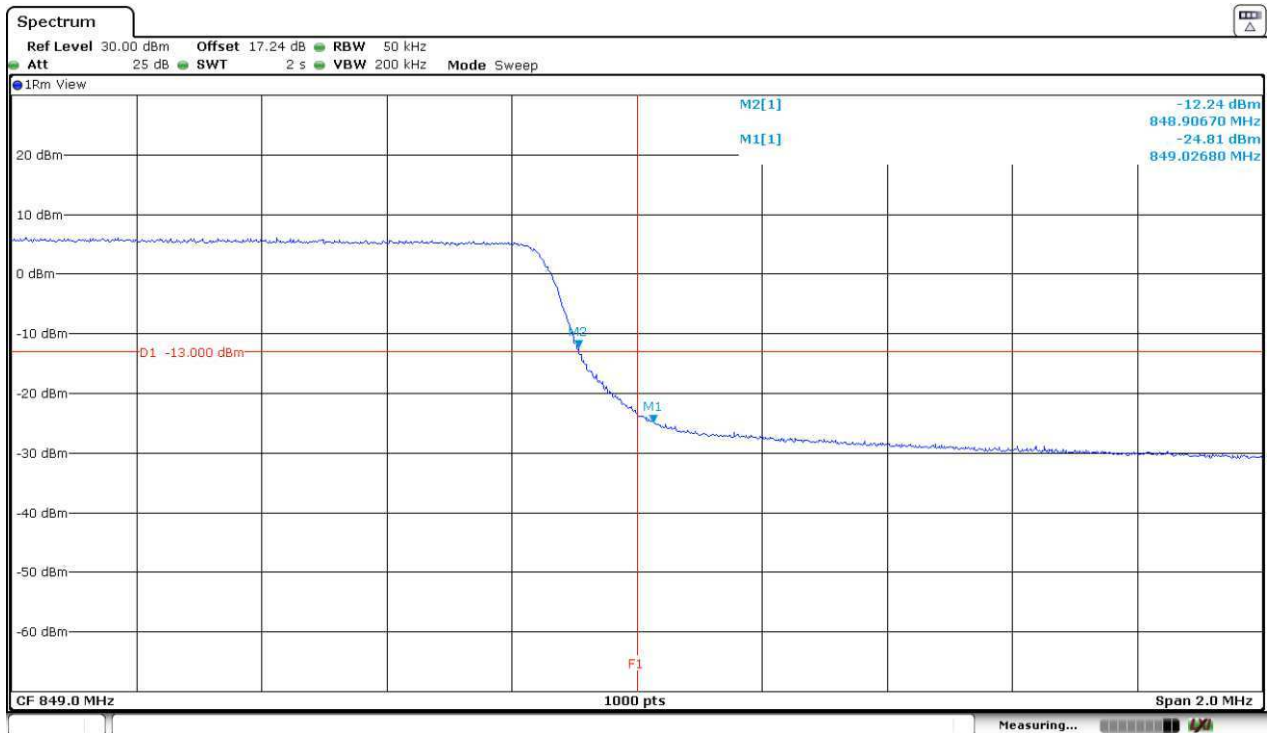
LTE Band 5. BW=3 MHz. QPSK MODULATION. RB = All. Offset = 0. Lowest and Highest Block Edges:

Lowest Channel:



The equipment transmits at the maximum output power

Highest Channel:

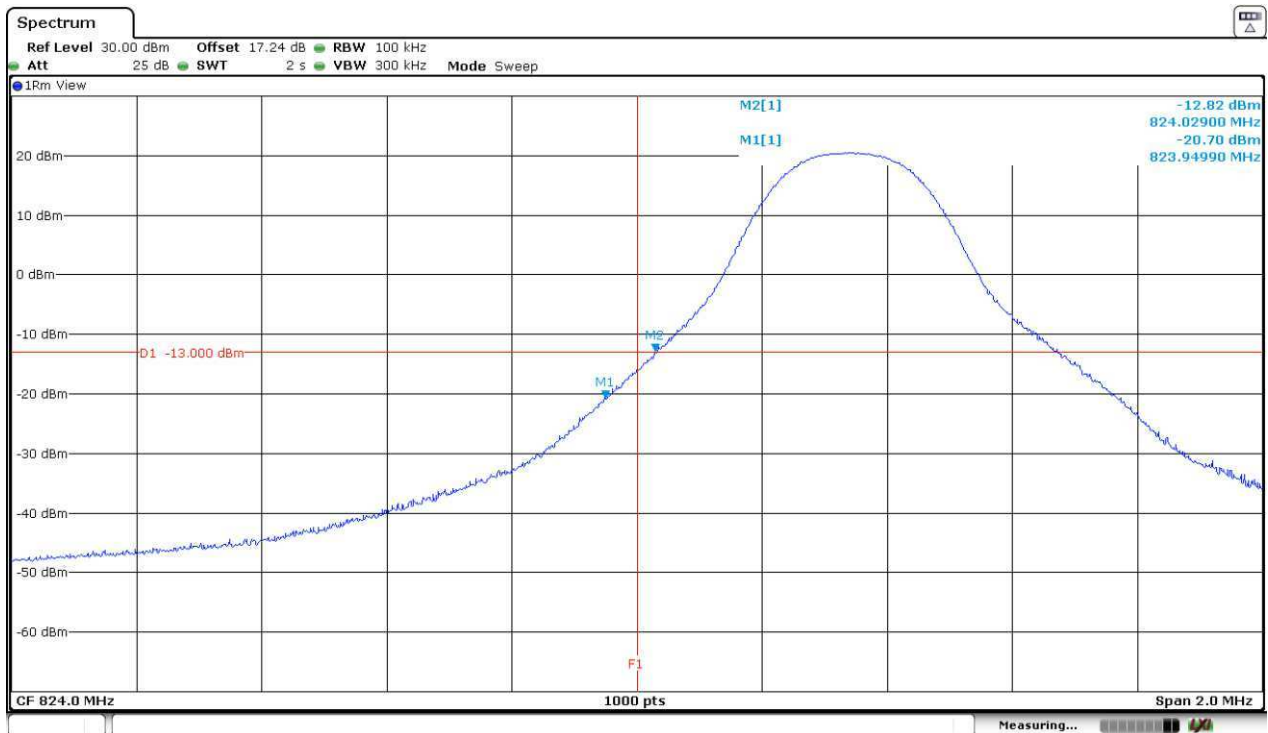


The equipment transmits at the maximum output power

Verdict: PASS

LTE Band 5. BW=5 MHz. QPSK MODULATION. RB = 1. Offset = 0. Lowest Block Edge:

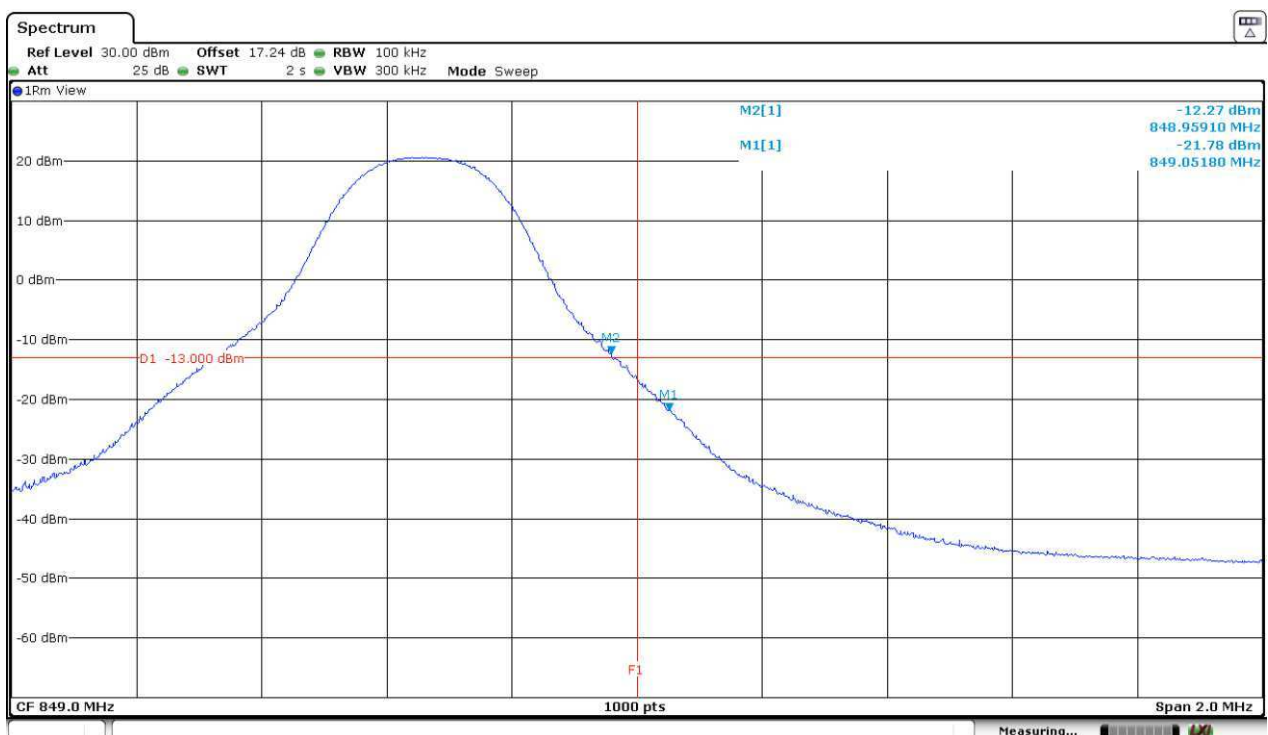
Lowest Channel:



The equipment transmits at the maximum output power

LTE Band 5. BW=5 MHz. QPSK MODULATION. RB = 1. Offset = Max. Highest Block Edge:

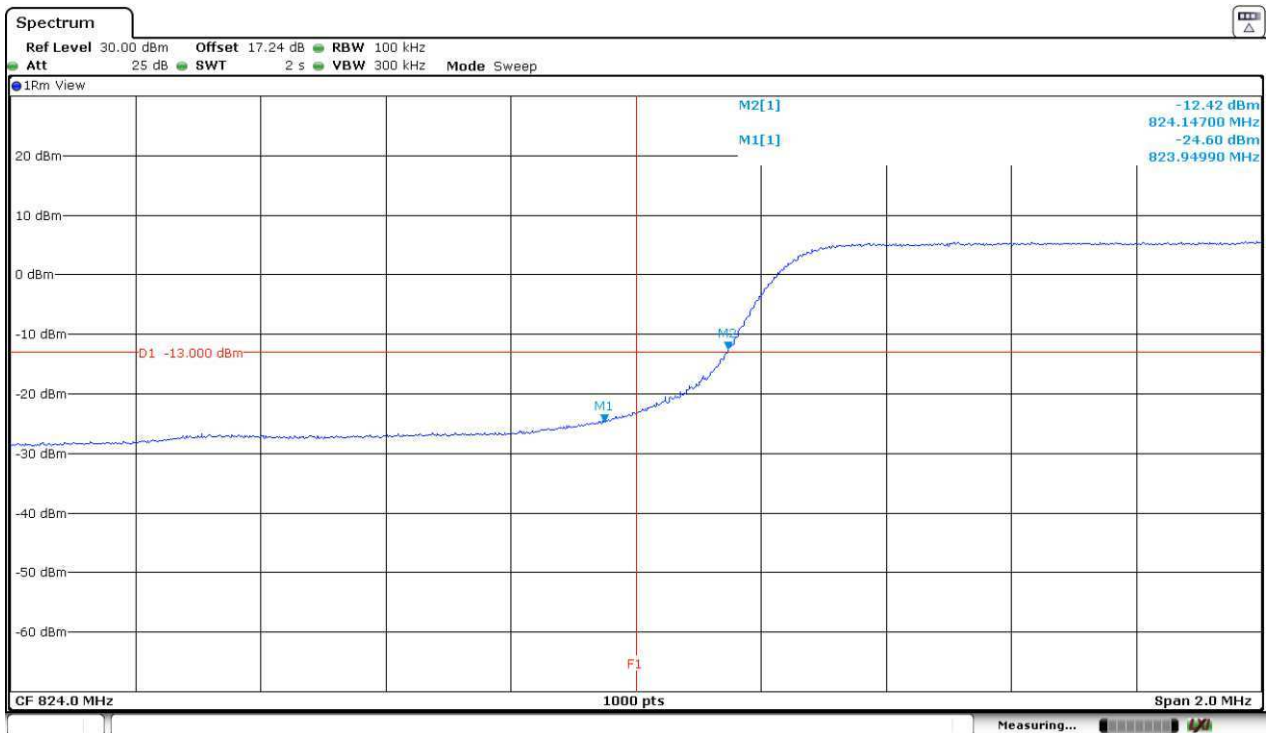
Highest Channel:



The equipment transmits at the maximum output power

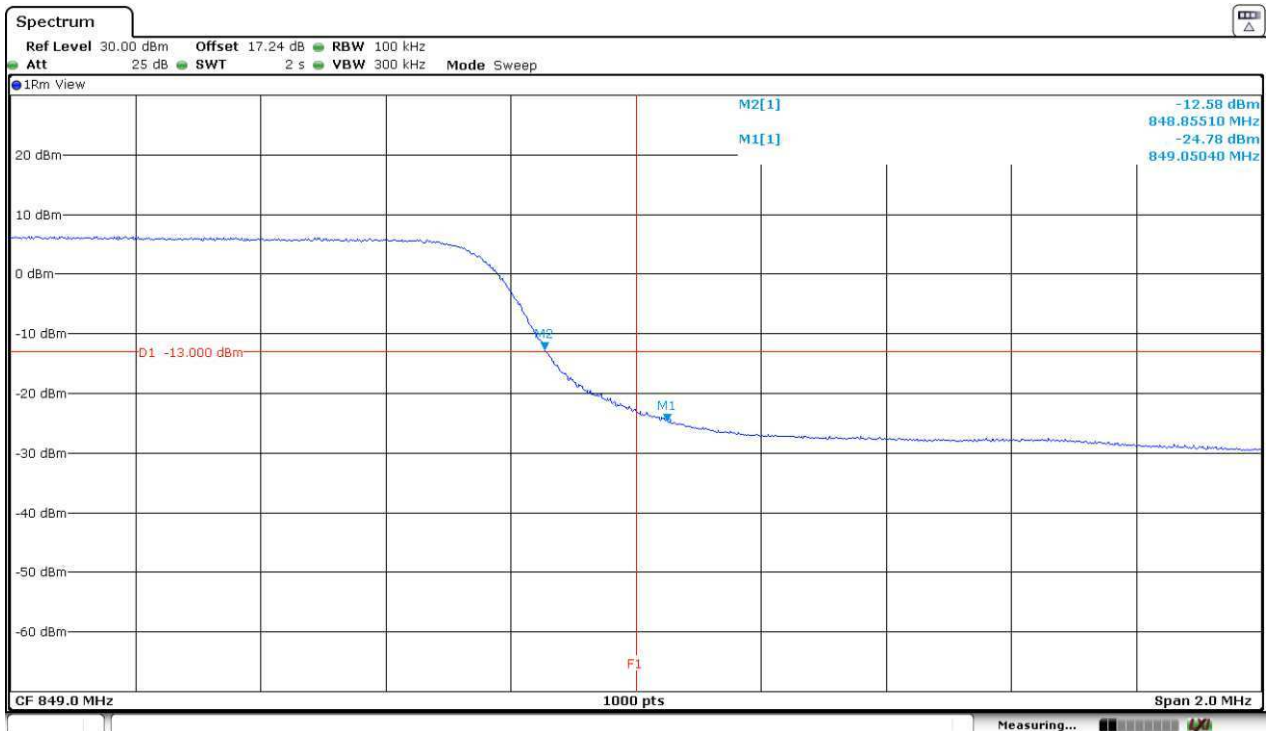
LTE Band 5. BW=5 MHz. QPSK MODULATION. RB = All. Offset = 0. Lowest and Highest Block Edges:

Lowest Channel:



The equipment transmits at the maximum output power

Highest Channel:

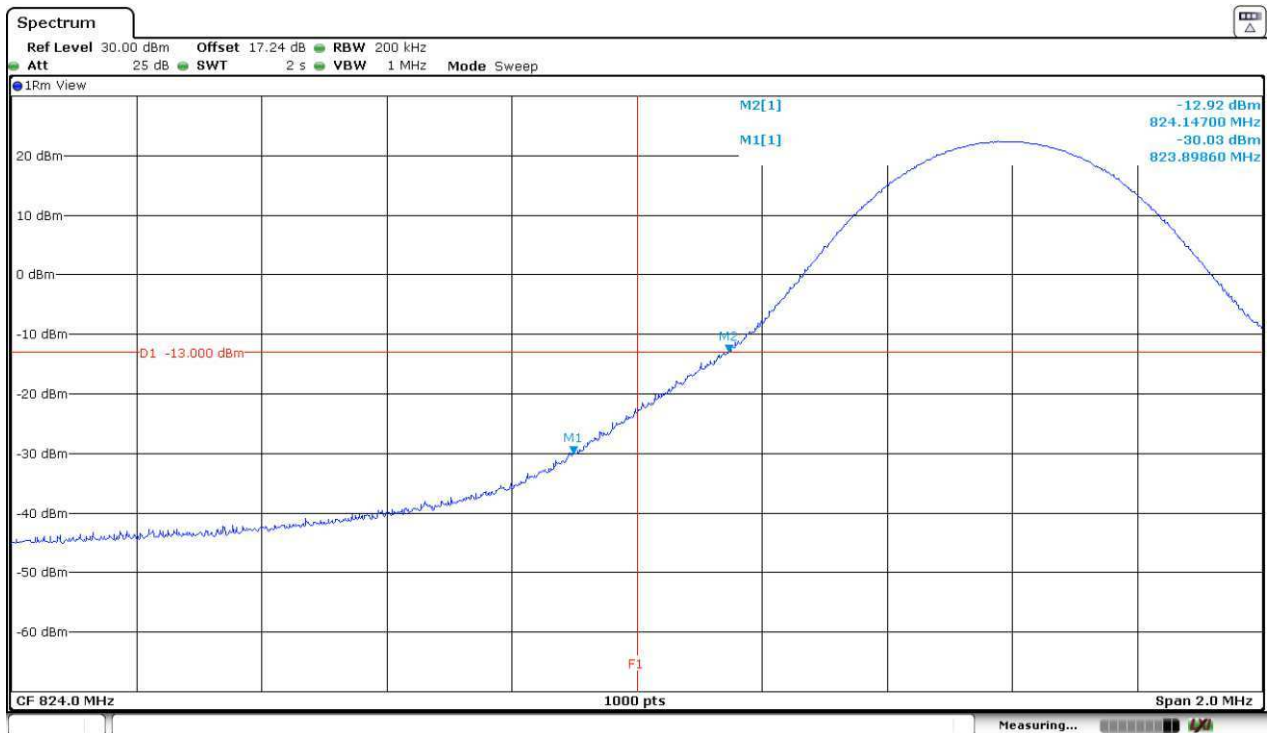


The equipment transmits at the maximum output power

Verdict: PASS

LTE Band 5. BW=10 MHz. QPSK MODULATION. RB = 1. Offset = 0. Lowest Block Edge:

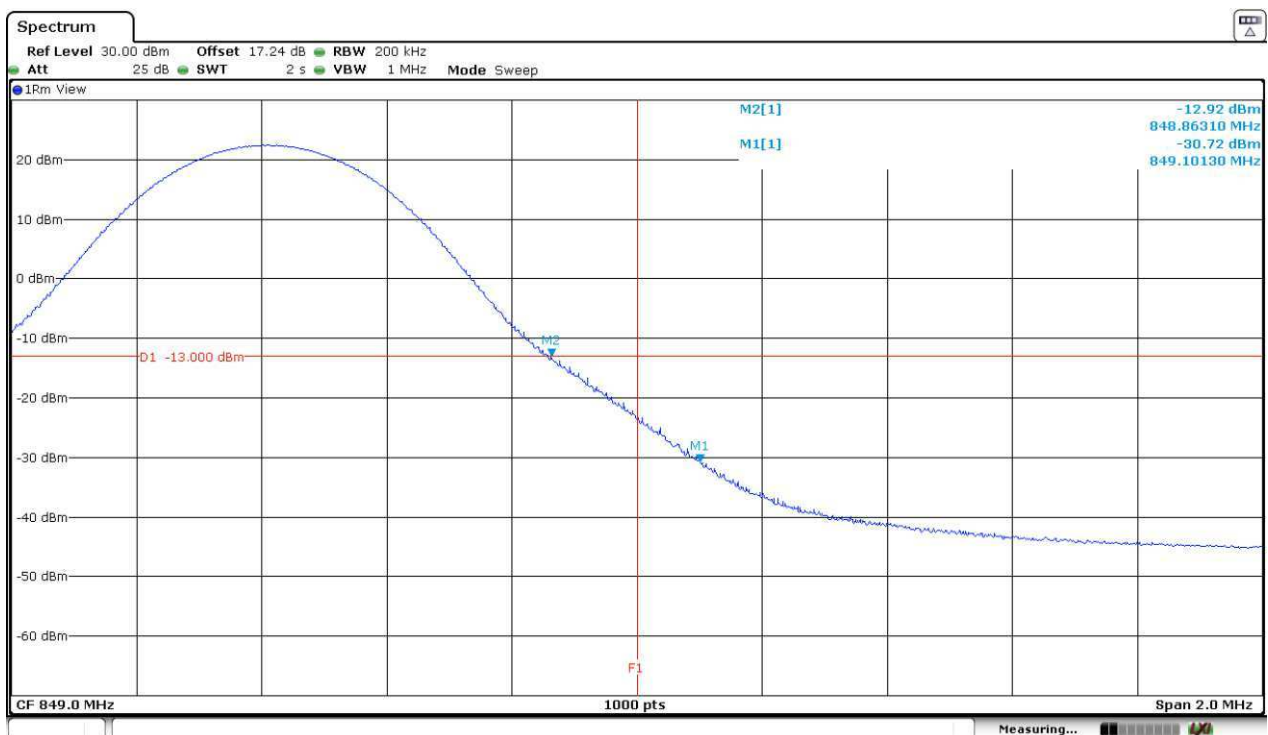
Lowest Channel:



The equipment transmits at the maximum output power

LTE Band 5. BW=10 MHz. QPSK MODULATION. RB = 1. Offset = Max. Highest Block Edge:

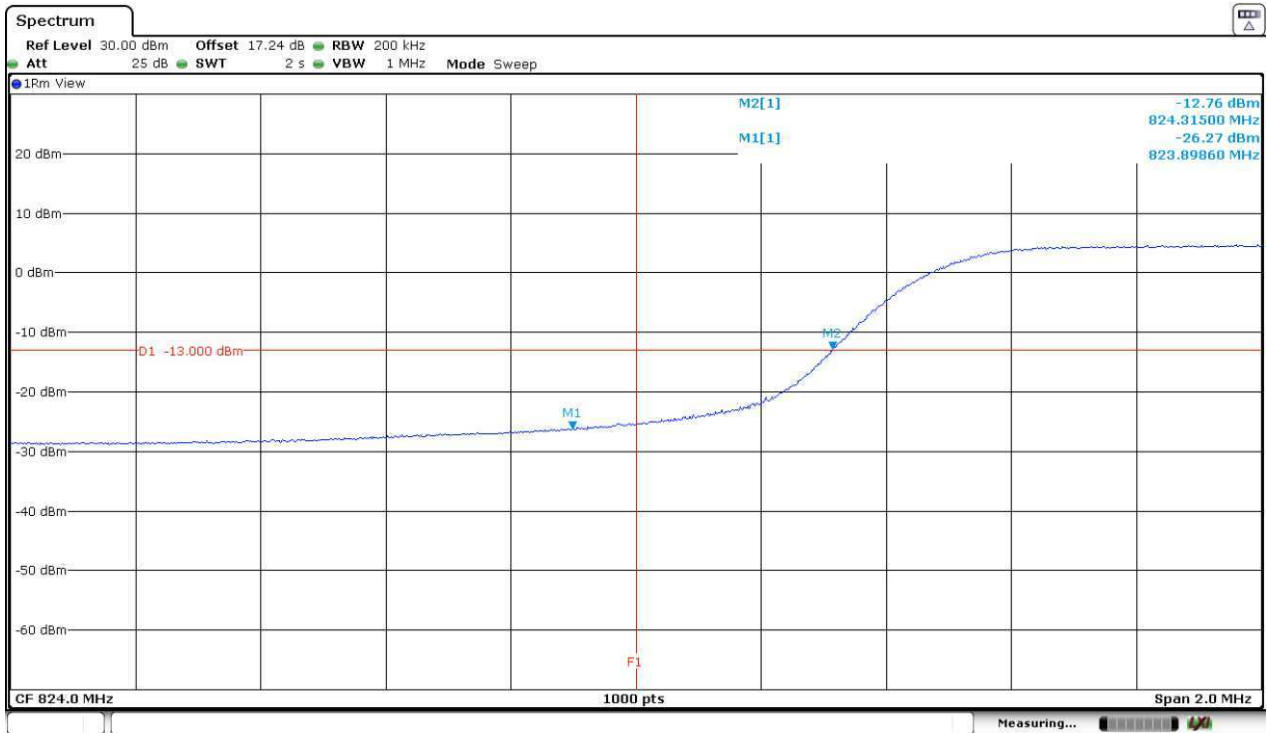
Highest Channel:



The equipment transmits at the maximum output power

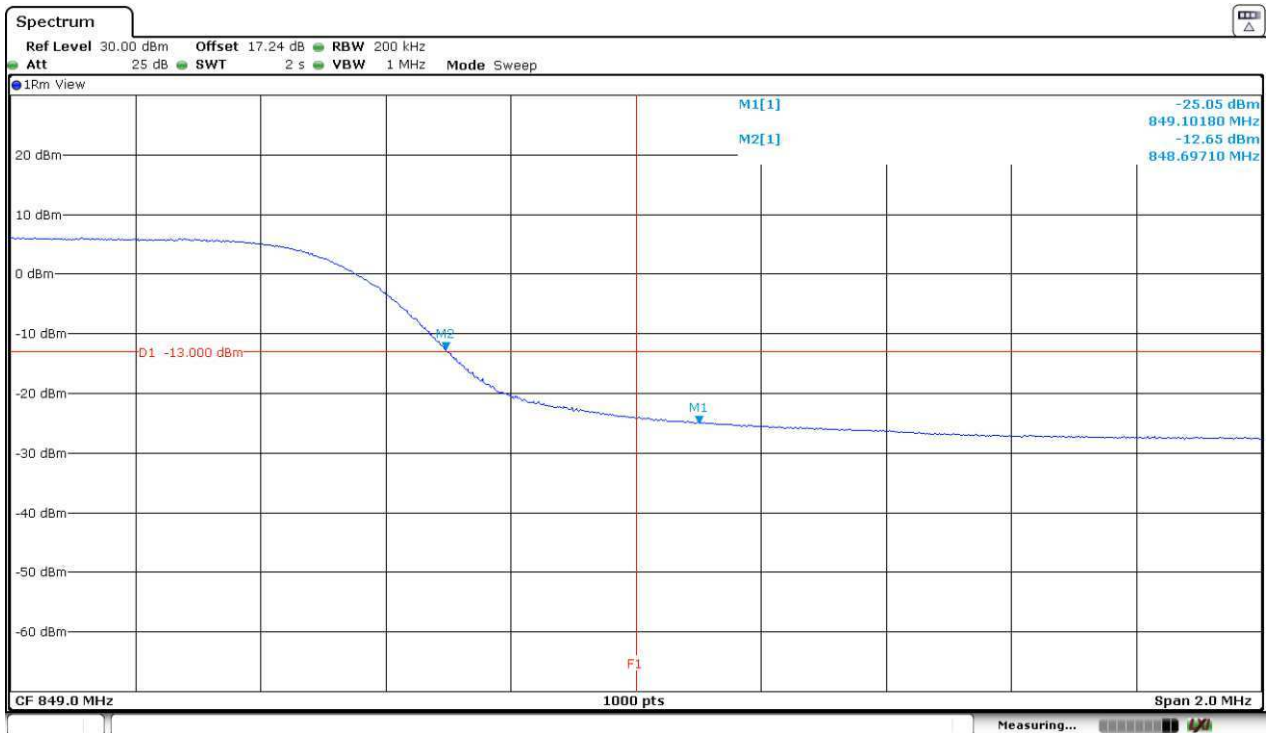
LTE Band 5. BW=10 MHz. QPSK MODULATION. RB = All. Offset = 0. Lowest and Highest Block Edges:

Lowest Channel:



The equipment transmits at the maximum output power

Highest Channel:



The equipment transmits at the maximum output power

Verdict: PASS

Radiated emissions

SPECIFICATION:

FCC §22.917:

RSS-132. Clause 5.5:

The power of emissions shall be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB. P in watts.

METHOD:

The measurement was performed with the EUT inside an anechoic chamber. The spectrum was scanned from 30 MHz to at least the 10th harmonic of the highest frequency generated within the equipment.

The EUT was placed on a 1 meter high non-conductive stand at a 3 meter distance from the measuring antenna.

Detected emissions were maximized at each frequency by rotating the EUT and adjusting the measuring antenna height and polarization. The maximum field strength (dBμV/m) is measured and recorded.

The maximum field strength (dBμV/m) of each detected emission at less than 20 dB respect to the limit is converted to an equivalent EIRP level (dBm) according to ANSI C63.26 with the formula:

$EIRP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m. D = 3 m

Measurement Limit:

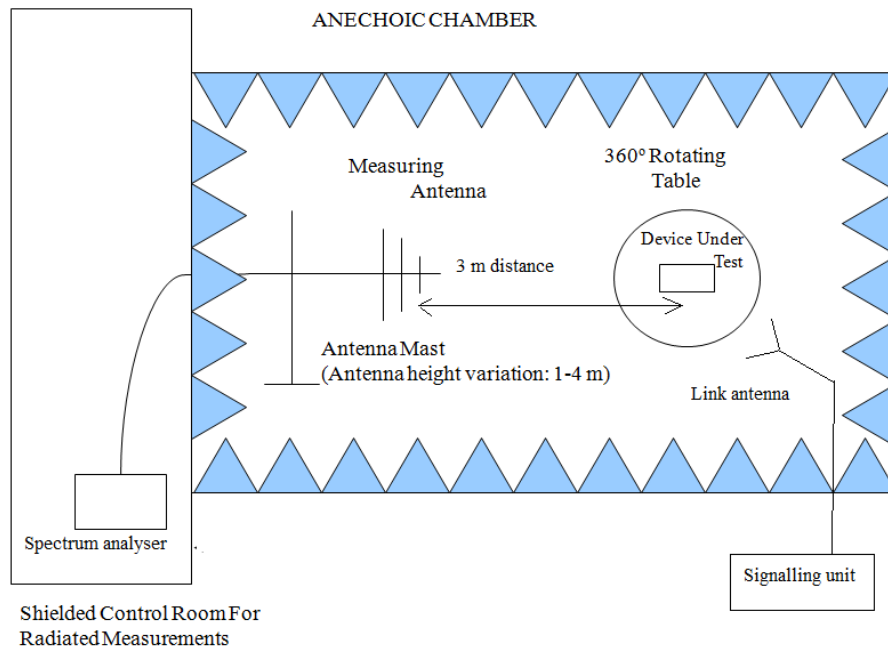
According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB. P in watts.

At P_o transmitting power, the specified minimum attenuation becomes $43+10\log (P_o)$, and the level in dBm relative P_o becomes:

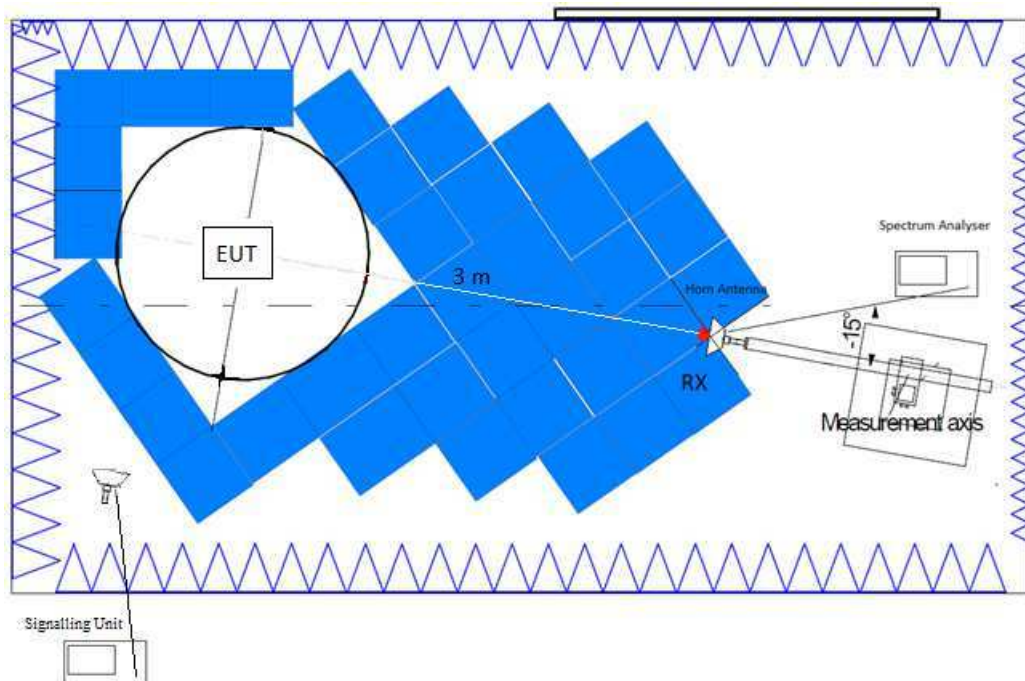
$$P_o (dBm) - [43 + 10 \log (P_o \text{ in mwatts}) - 30] = - 13 \text{ dBm}$$

TEST SETUP:

Radiated measurements below 1 GHz.



Radiated measurements above 1 GHz.



RESULTS:

2G Band 850 MHz:

GPRS and EDGE Modulations:

A preliminary scan determined the Tel1 antenna and the GPRS modulation as the worst case. The following tables and plots show the results for the worst case modulation.

- LOW CHANNEL:

Frequency range 30 MHz - 1 GHz

No spurious frequencies at less than 20 dB below the limit.

Frequency range 1 - 10 GHz

No spurious frequencies at less than 20 dB below the limit.

- MIDDLE CHANNEL:

Frequency range 30 MHz - 1 GHz

No spurious frequencies at less than 20 dB below the limit.

Frequency range 1 - 10 GHz

No spurious frequencies at less than 20 dB below the limit.

- HIGH CHANNEL:

Frequency range 30 MHz - 1 GHz

No spurious frequencies at less than 20 dB below the limit.

Frequency range 1 - 10 GHz

Spurious frequencies detected at less than 20 dB below the limit:

Spurious frequency (MHz)	Detector	E.I.R.P (dBm)	Polarization
1.697567	Peak	-32.24	H

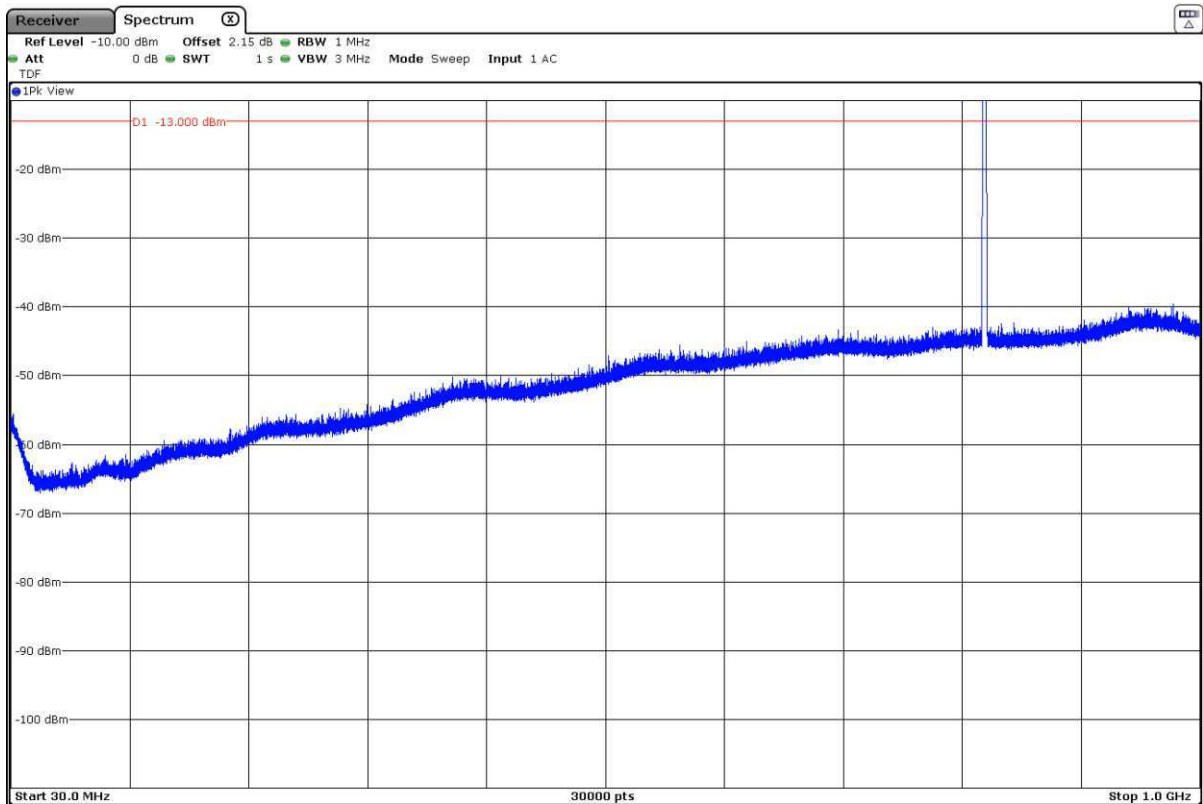
Measurement uncertainty (dB): $< \pm 5.08$ for $f \geq 30$ MHz up to 1 GHz
 $< \pm 5.13$ for $f \geq 1$ GHz up to 10 GHz

Verdict: PASS

FREQUENCY RANGE 30 MHz - 1 GHz

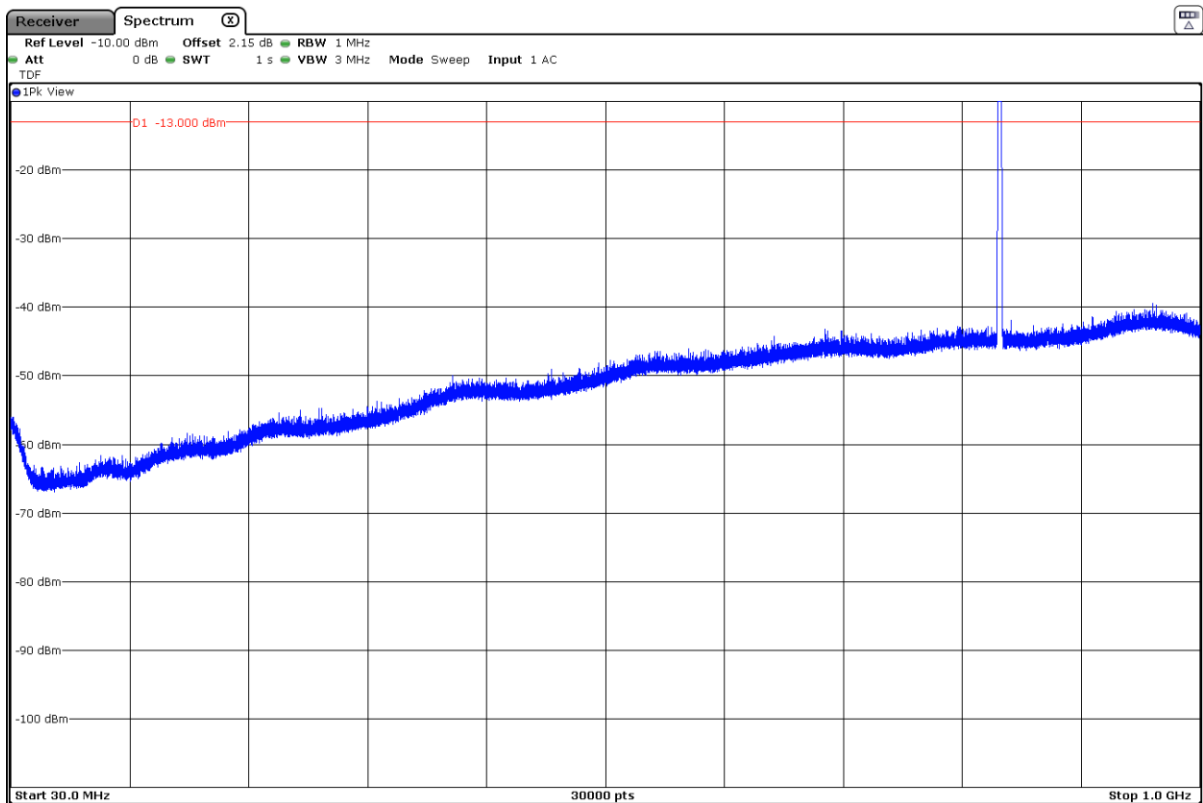
GPRS MODULATION.

- Lowest Channel:



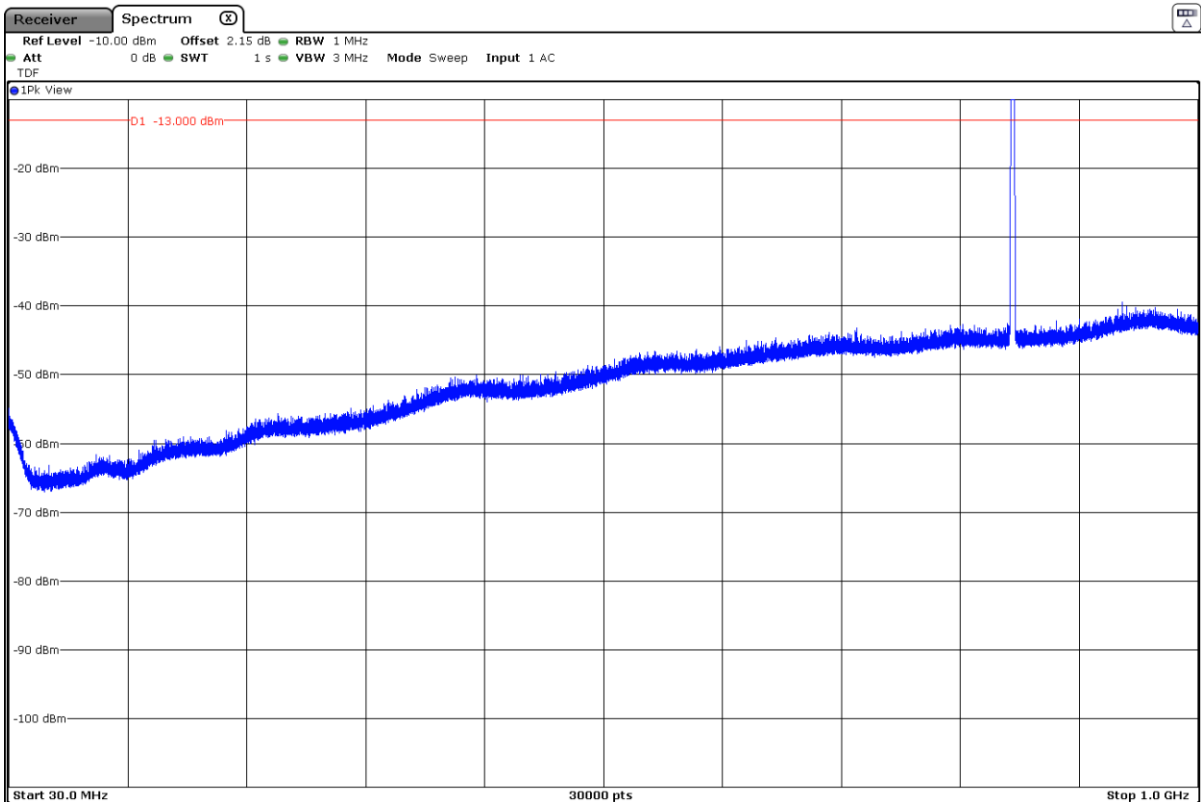
The peak above the limit is the carrier frequency.

- Middle Channel:



The peak above the limit is the carrier frequency.

- Highest Channel:

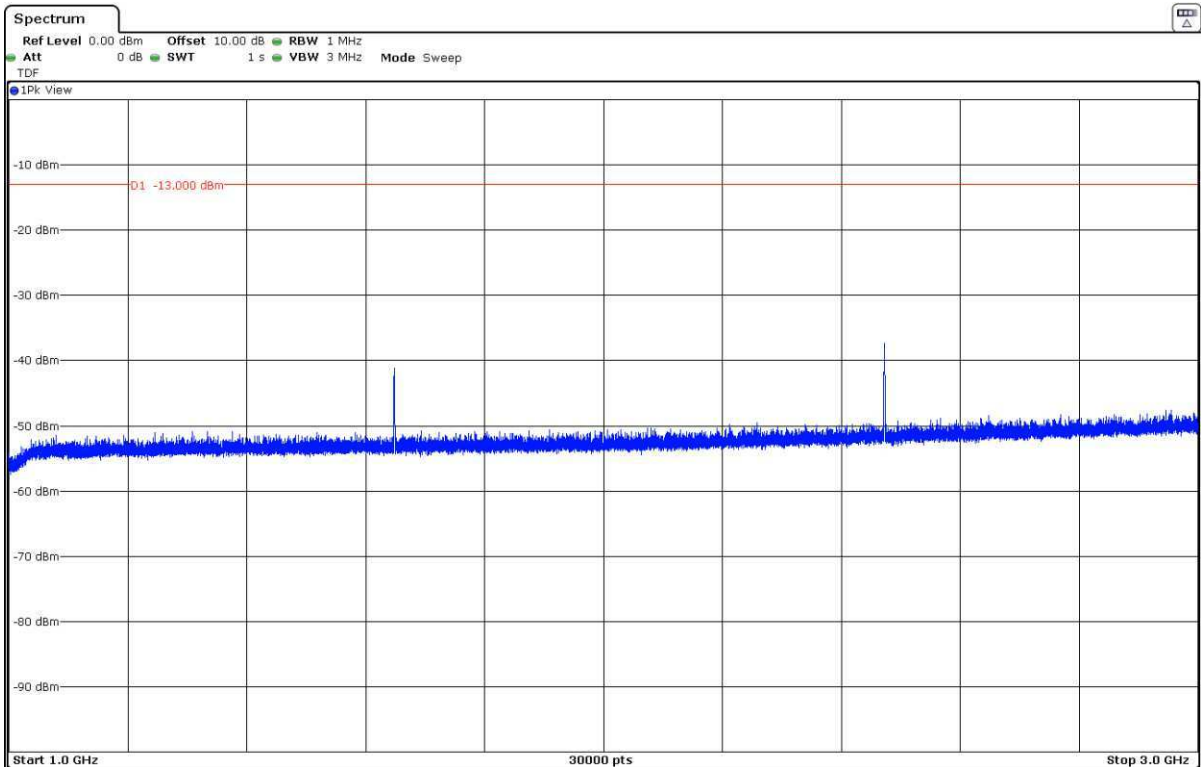


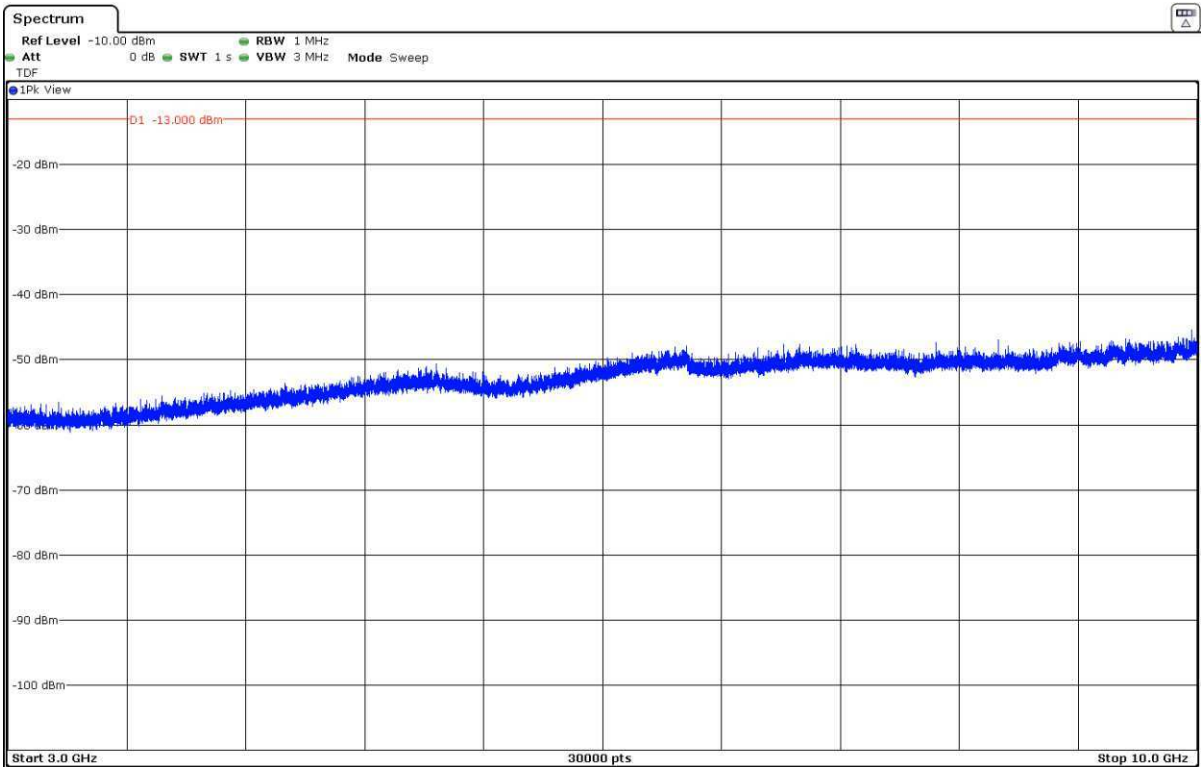
The peak above the limit is the carrier frequency.

FREQUENCY RANGE 1 - 10 GHz

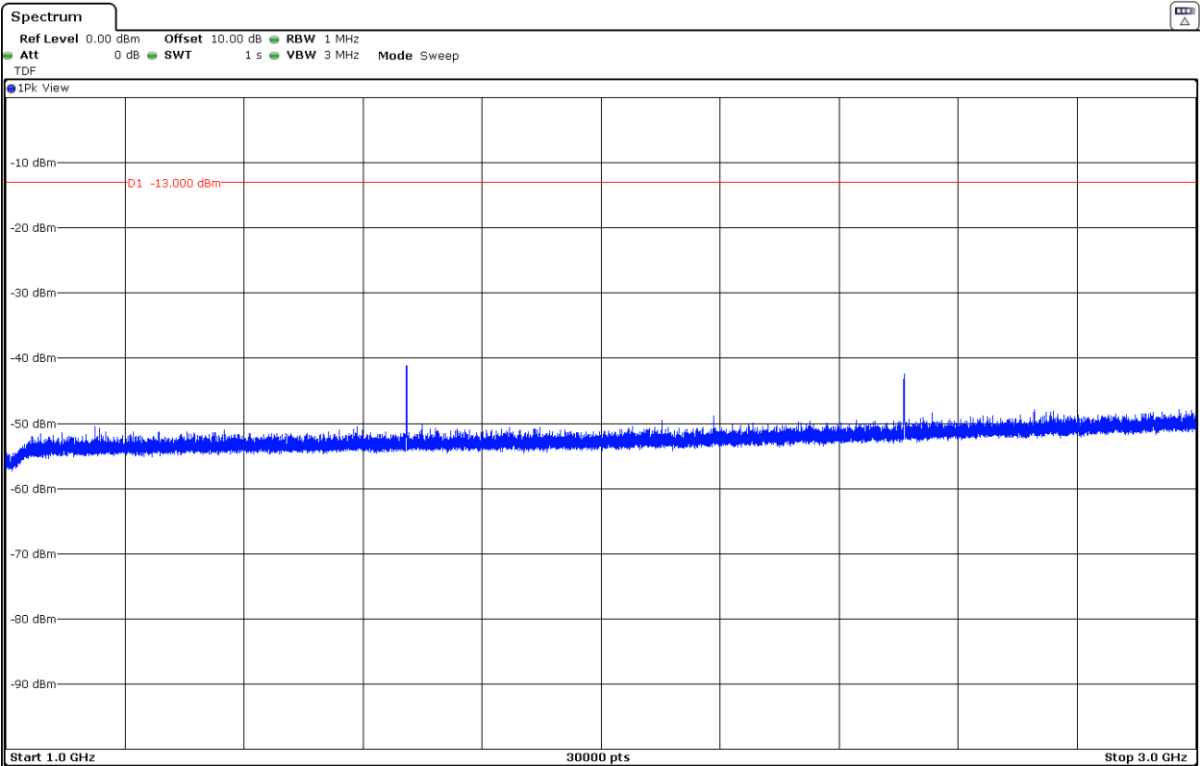
GPRS MODULATION.

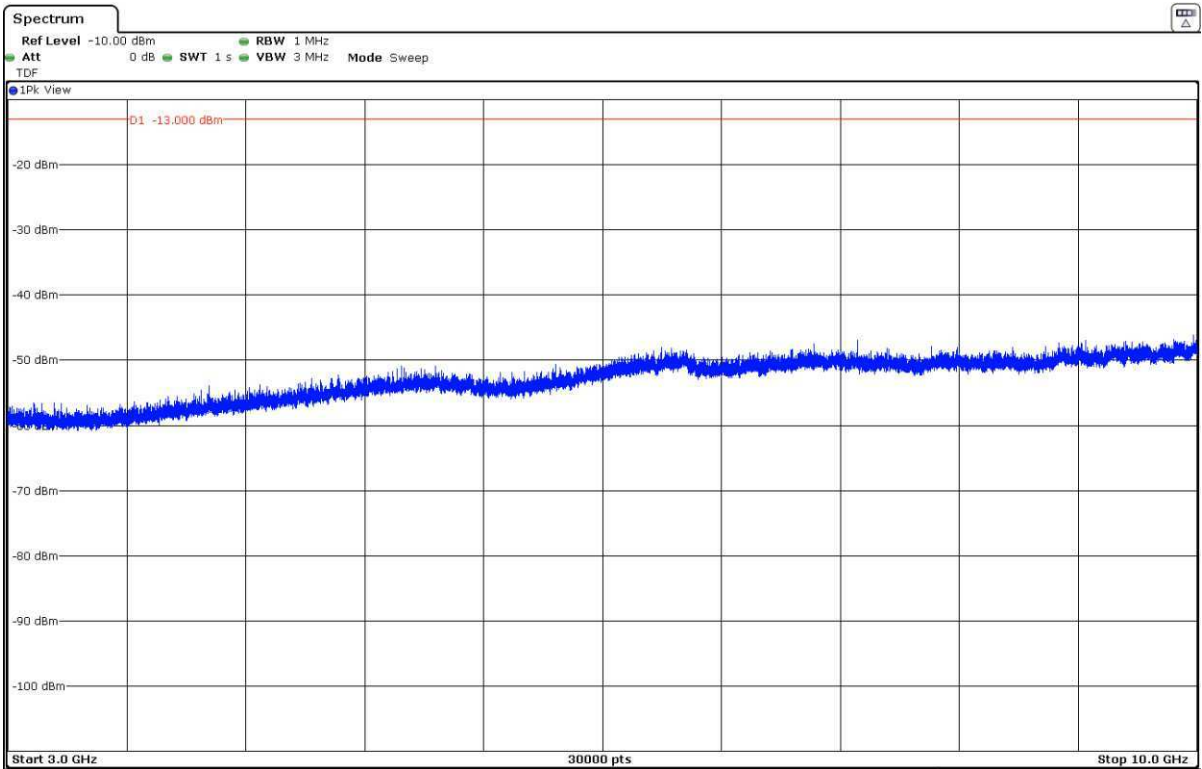
- Lowest Channel:



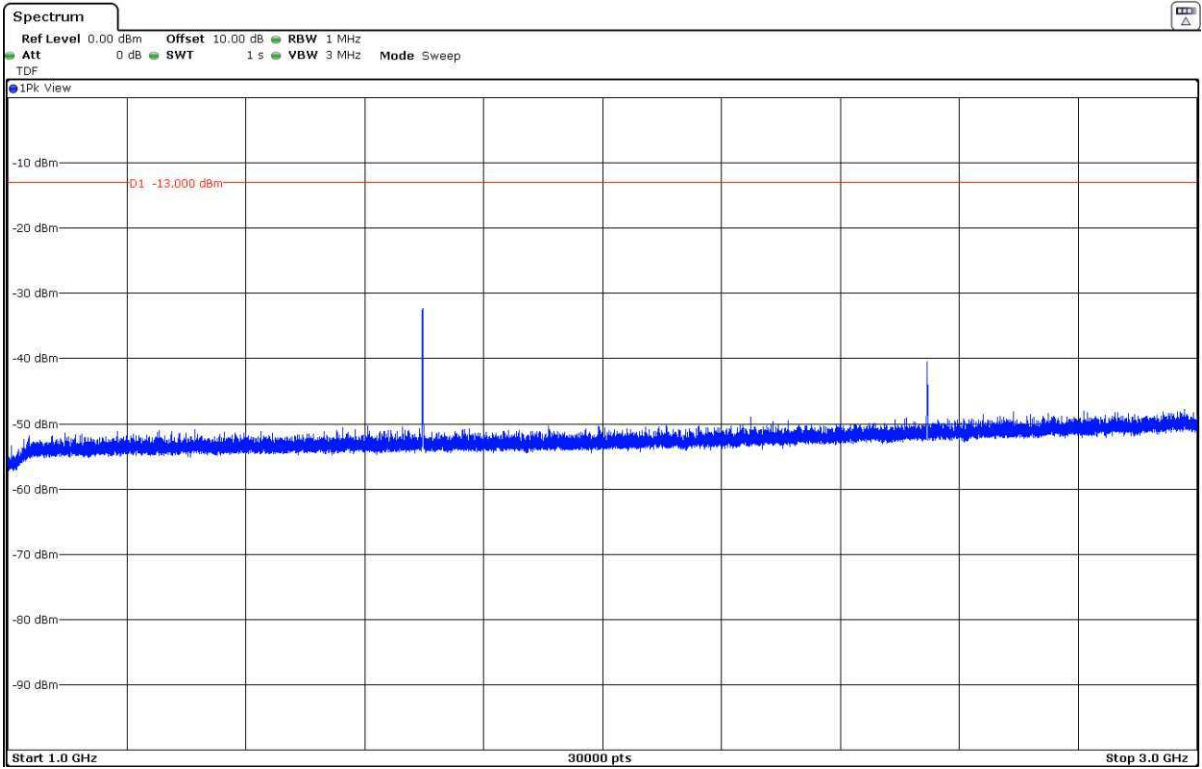


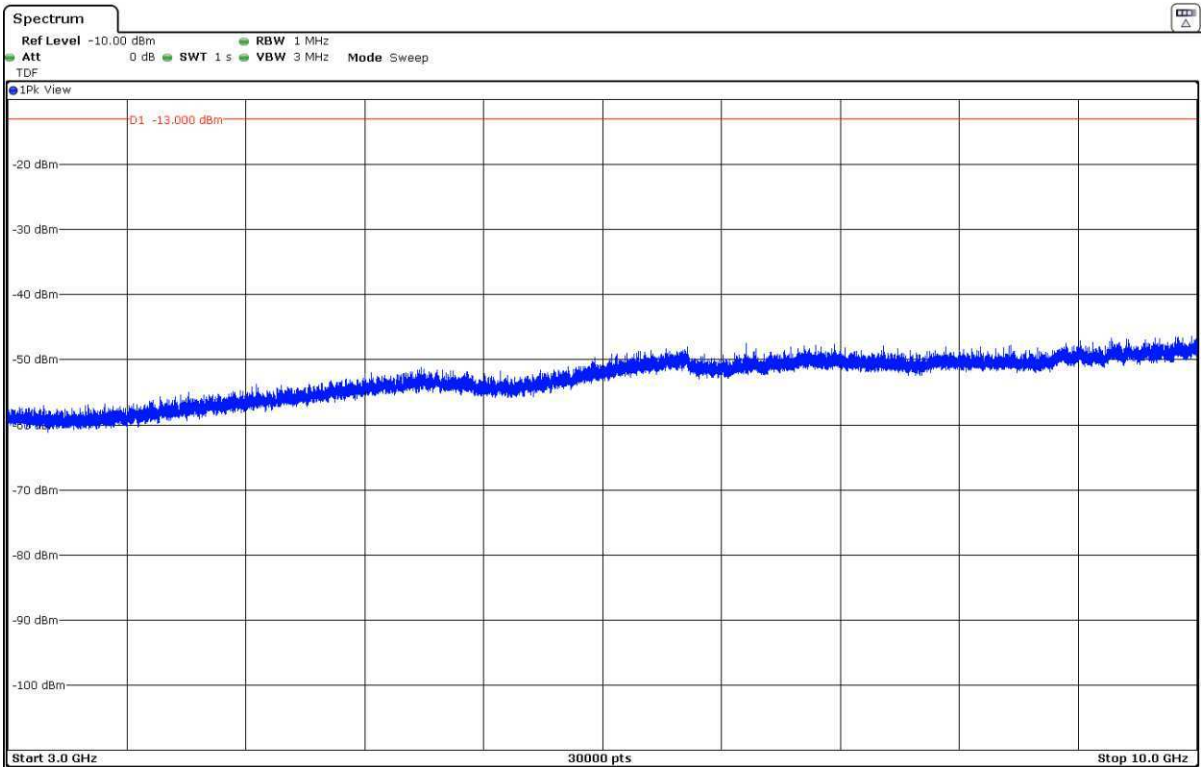
- Middle Channel:





- Highest Channel:





3G Band V:

WCDMA and HSUPA Modulations:

A preliminary scan determined Tel1 antenna and the WCDMA modulation as the worst case. The following tables and plots show the results for the worst case modulation.

- LOW CHANNEL:

Frequency range 30 MHz - 1 GHz

No spurious frequencies at less than 20 dB below the limit.

Frequency range 1 - 10 GHz

No spurious frequencies at less than 20 dB below the limit.

- MIDDLE CHANNEL:

Frequency range 30 MHz - 1 GHz

No spurious frequencies at less than 20 dB below the limit.

Frequency range 1 - 10 GHz

No spurious frequencies at less than 20 dB below the limit.

- HIGH CHANNEL:

Frequency range 30 MHz - 1 GHz

No spurious frequencies at less than 20 dB below the limit.

Frequency range 1 - 10 GHz

No spurious frequencies at less than 20 dB below the limit.

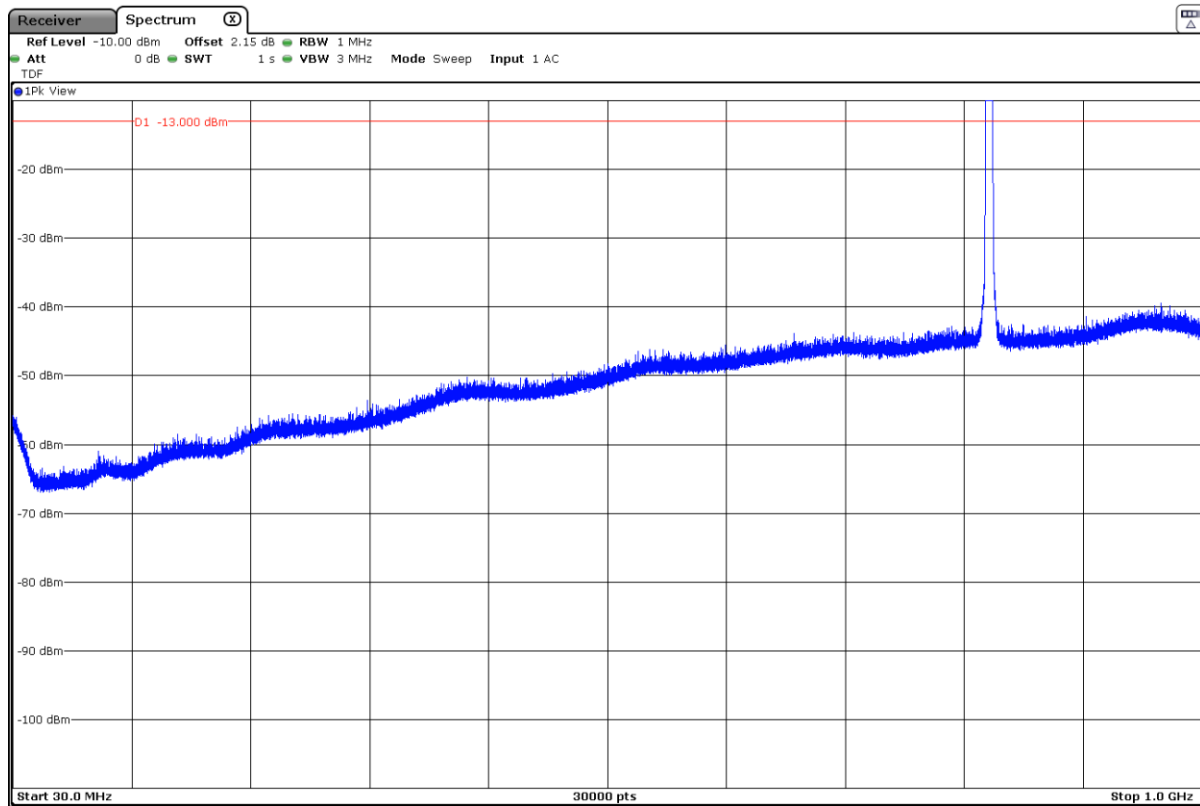
Measurement uncertainty (dB): $<\pm 5.08$ for $f \geq 30$ MHz up to 1 GHz
 $<\pm 5.13$ for $f \geq 1$ GHz up to 10 GHz

Verdict: PASS

FREQUENCY RANGE 30 MHz - 1 GHz

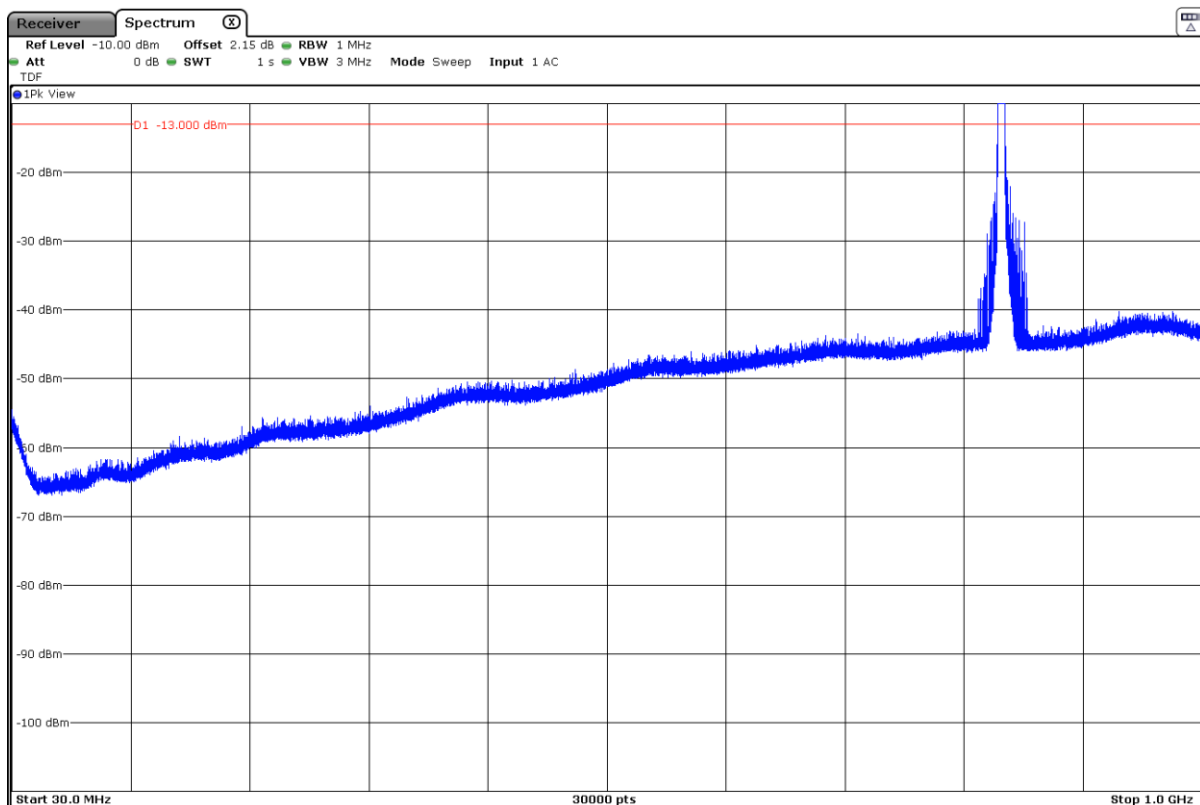
WCDMA.

- Lowest Channel:



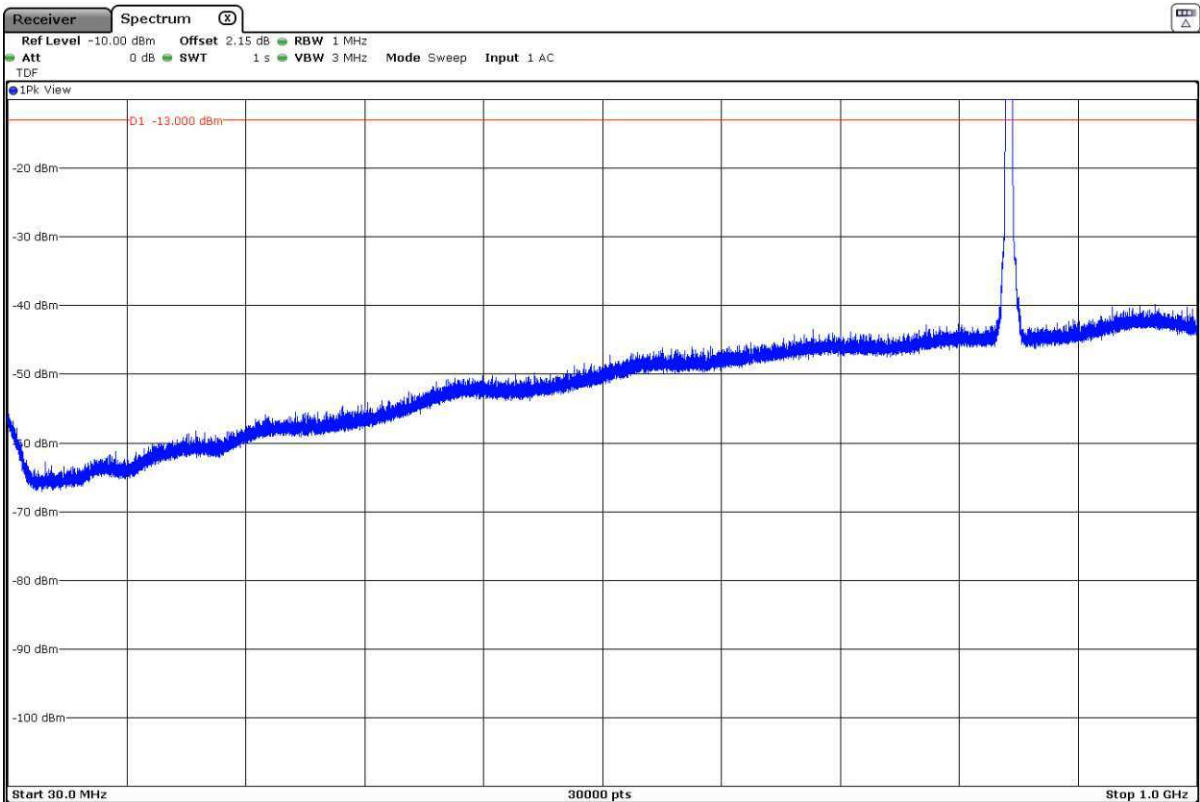
The peak above the limit is the carrier frequency.

- Middle Channel:



The peak above the limit is the carrier frequency.

- Highest Channel:

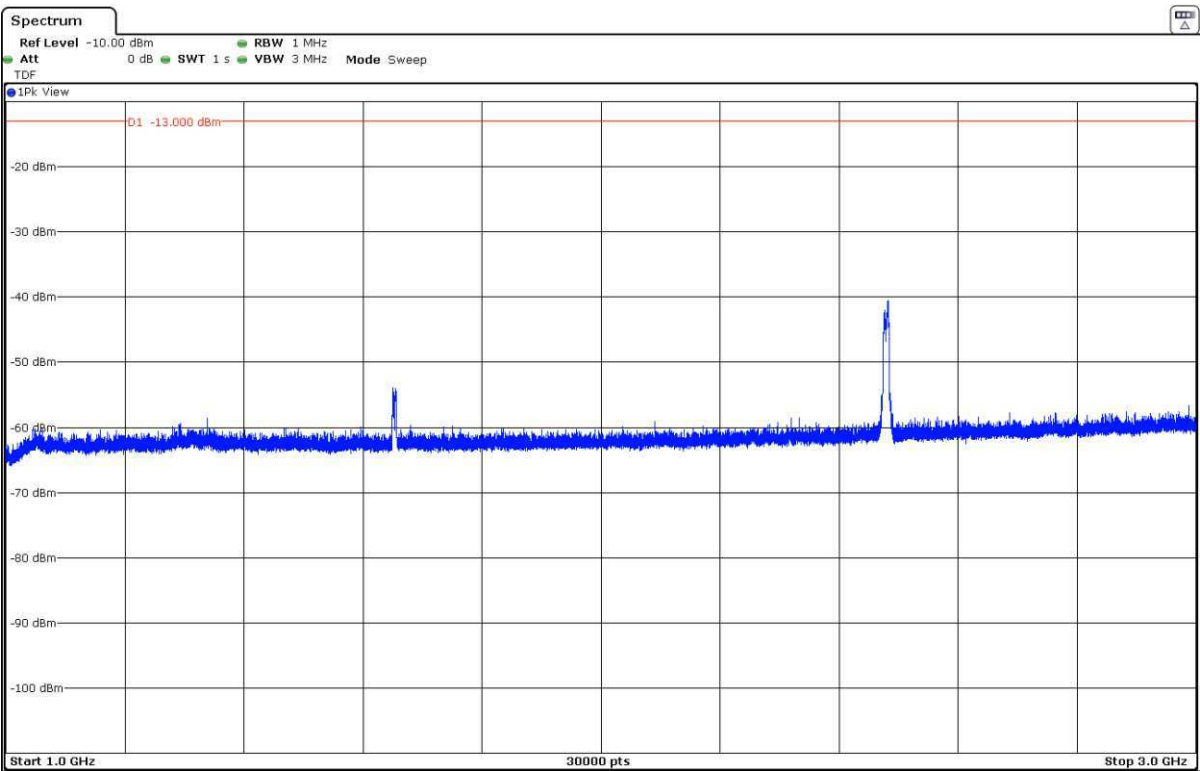


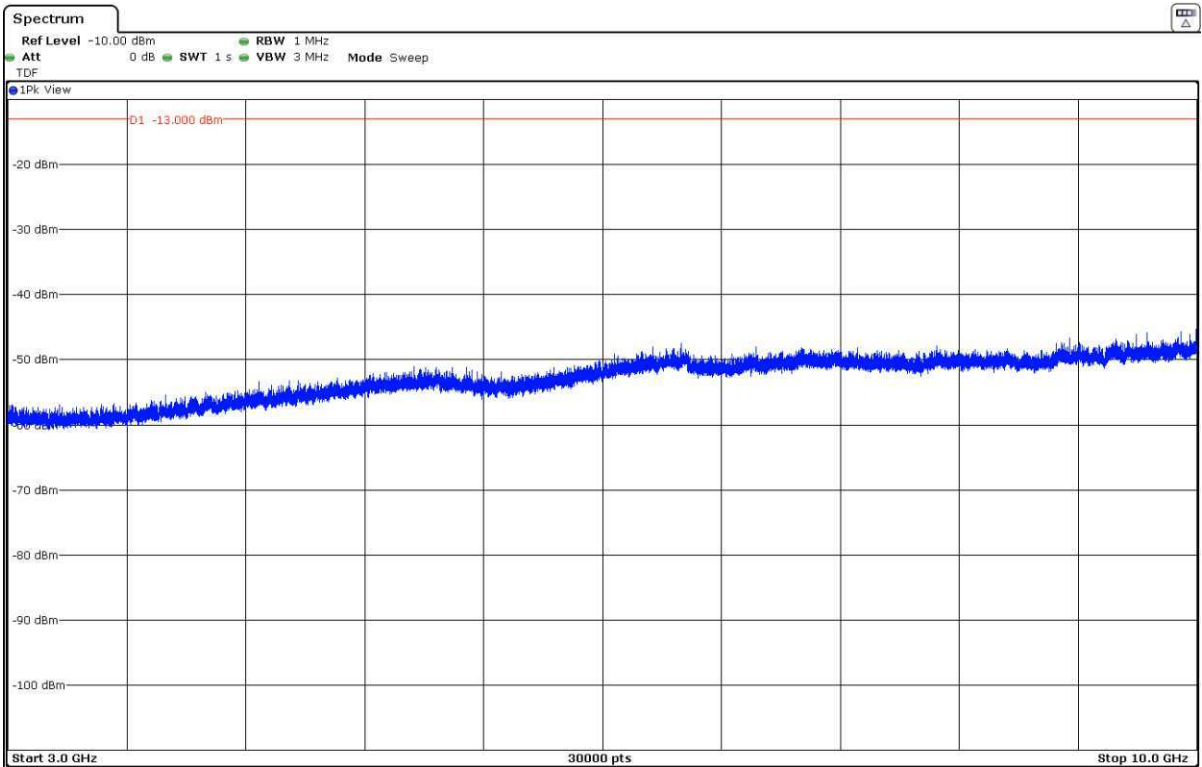
The peak above the limit is the carrier frequency.

FREQUENCY RANGE 1 - 10 GHz

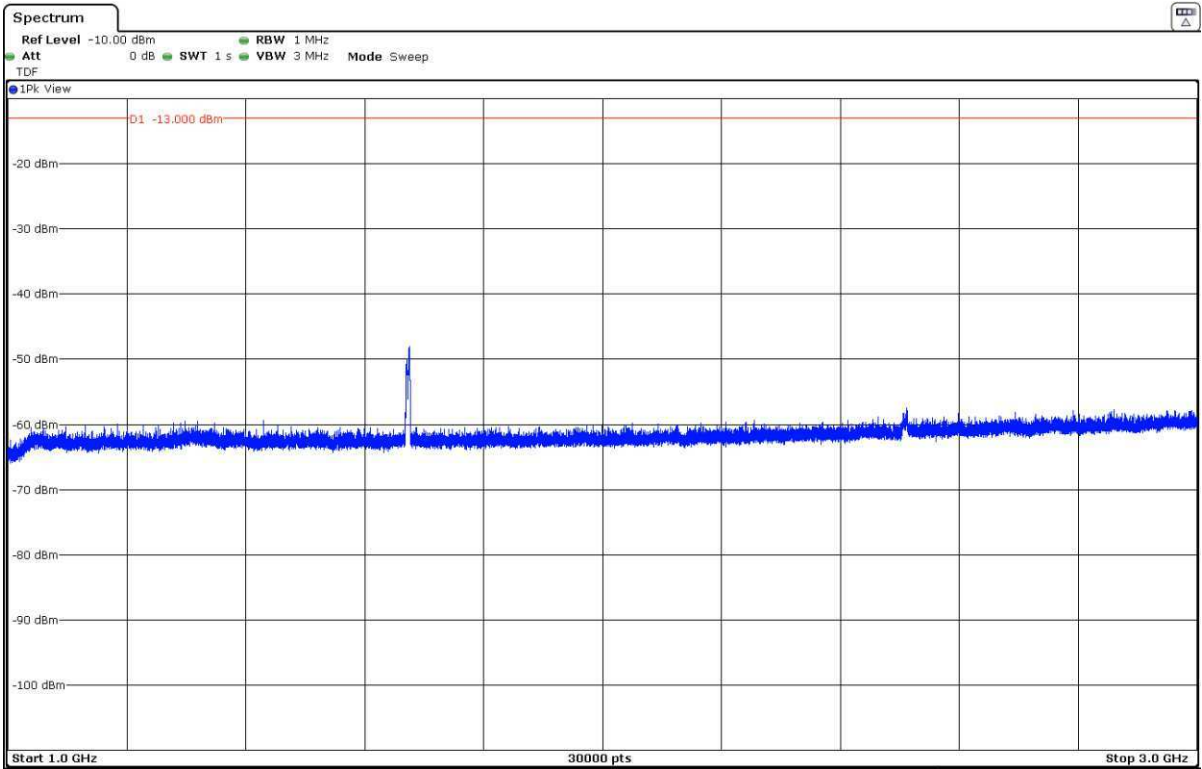
WCDMA.

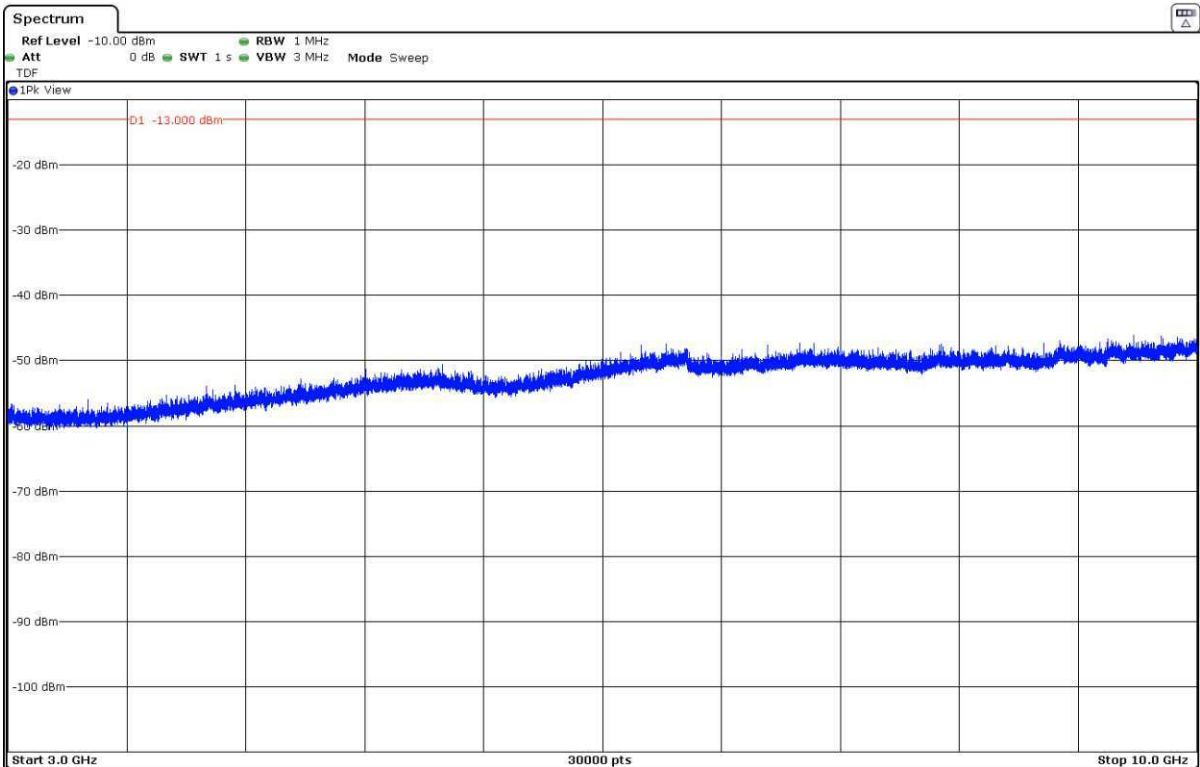
- Lowest Channel:



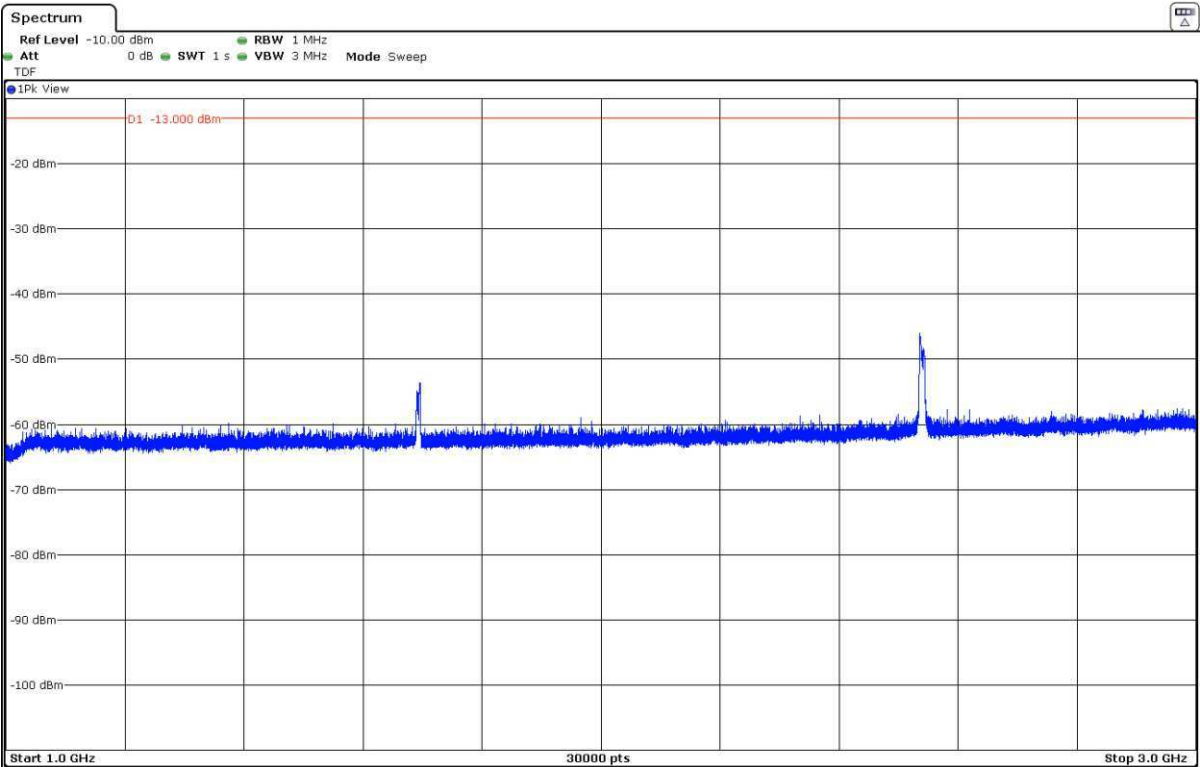


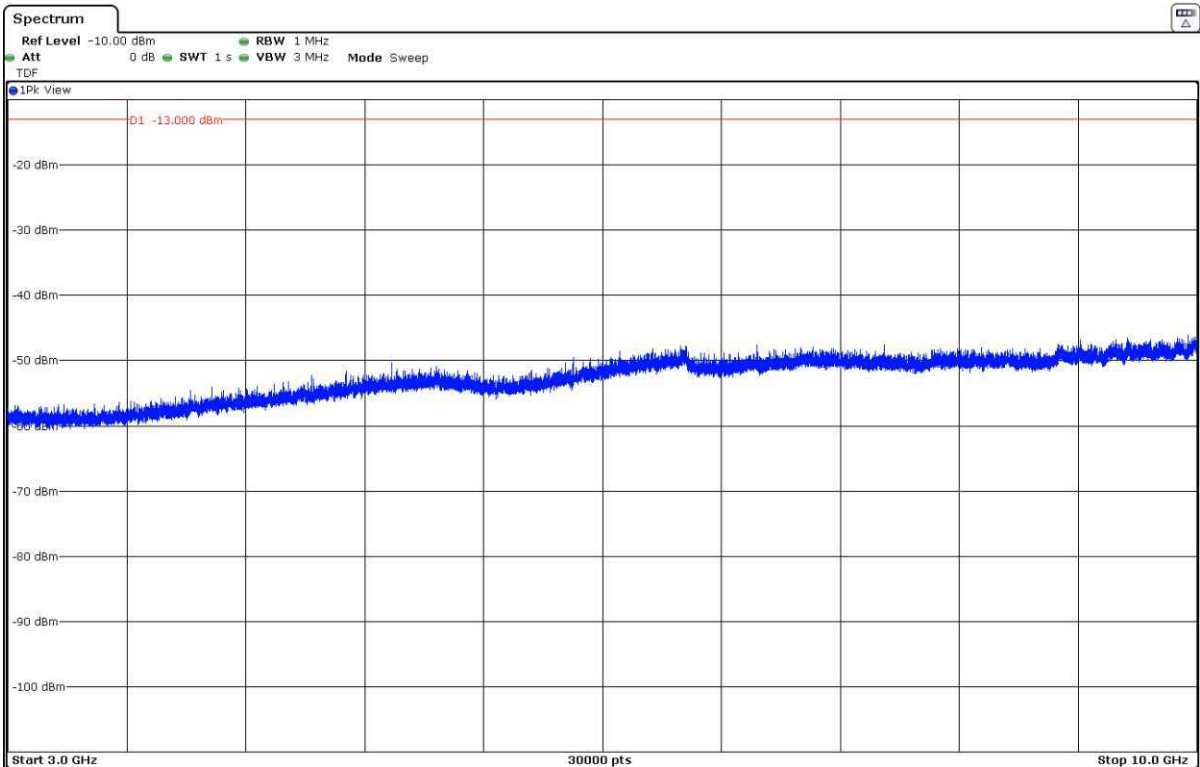
- Middle Channel:





- Highest Channel:





LTE Band 5:

QPSK and 16QAM Modulations:

A preliminary scan determined the Tel1 antenna QPSK modulation, BW=10 MHz, RB Size=1, RB Offset=49 as the worst case. The following tables and plots show the results for the worst case modulation.

- LOW CHANNEL:

Frequency range 30 MHz - 1 GHz

No spurious frequencies at less than 20 dB below the limit.

Frequency range 1 - 10 GHz

Spurious frequencies at less than 20 dB below the limit:

Spurious frequency (MHz)	Detector	E.I.R.P (dBm)	Polarization
1.6669	Peak	-21.49	H
2.5001	Peak	-31.19	H

- MIDDLE CHANNEL:

Frequency range 30 MHz - 1 GHz

No spurious frequencies at less than 20 dB below the limit.

Frequency range 1 - 10 GHz

Spurious frequencies at less than 20 dB below the limit:

Spurious frequency (MHz)	Detector	E.I.R.P (dBm)	Polarization
1.6819	Peak	-22.4	H
2.5228330	Peak	-32.08	H

- HIGH CHANNEL:

Frequency range 30 MHz - 1 GHz

No spurious frequencies at less than 20 dB below the limit.

Frequency range 1 - 10 GHz

Spurious frequencies at less than 20 dB below the limit:

Spurious frequency (MHz)	Detector	E.I.R.P (dBm)	Polarization
1.696967	Peak	-23.56	H
2.545233	Peak	-31.99	H

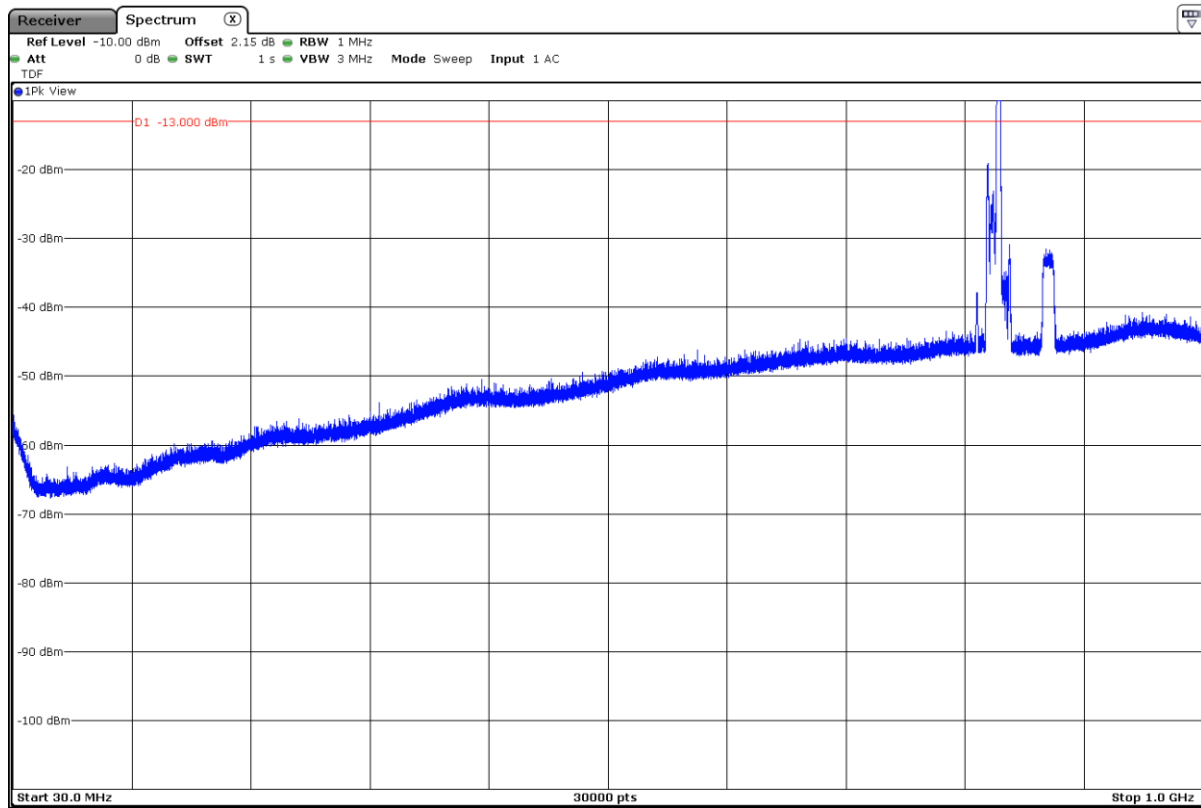
Measurement uncertainty (dB): $<\pm 5.08$ for $f \geq 30$ MHz up to 1 GHz
 $<\pm 5.13$ for $f \geq 1$ GHz up to 10 GHz

Verdict: PASS

FREQUENCY RANGE 30 MHz - 1 GHz

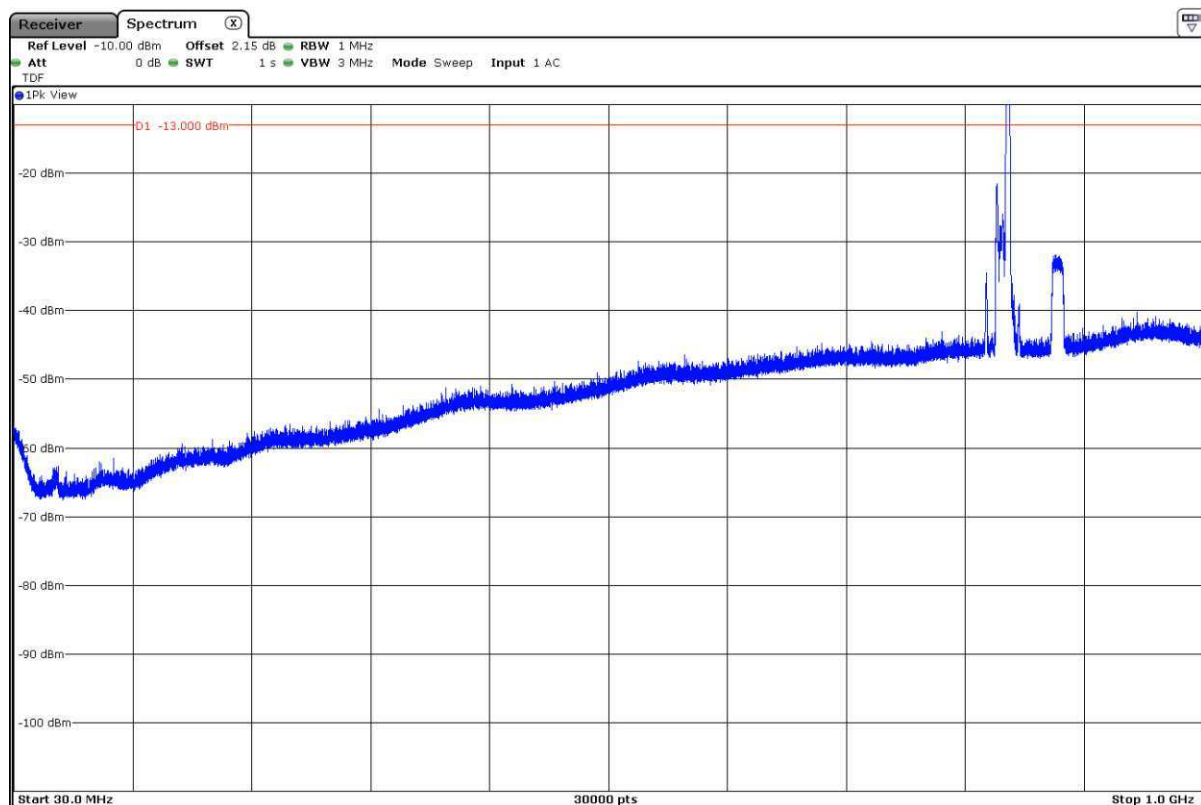
QPSK.

- Lowest Channel:



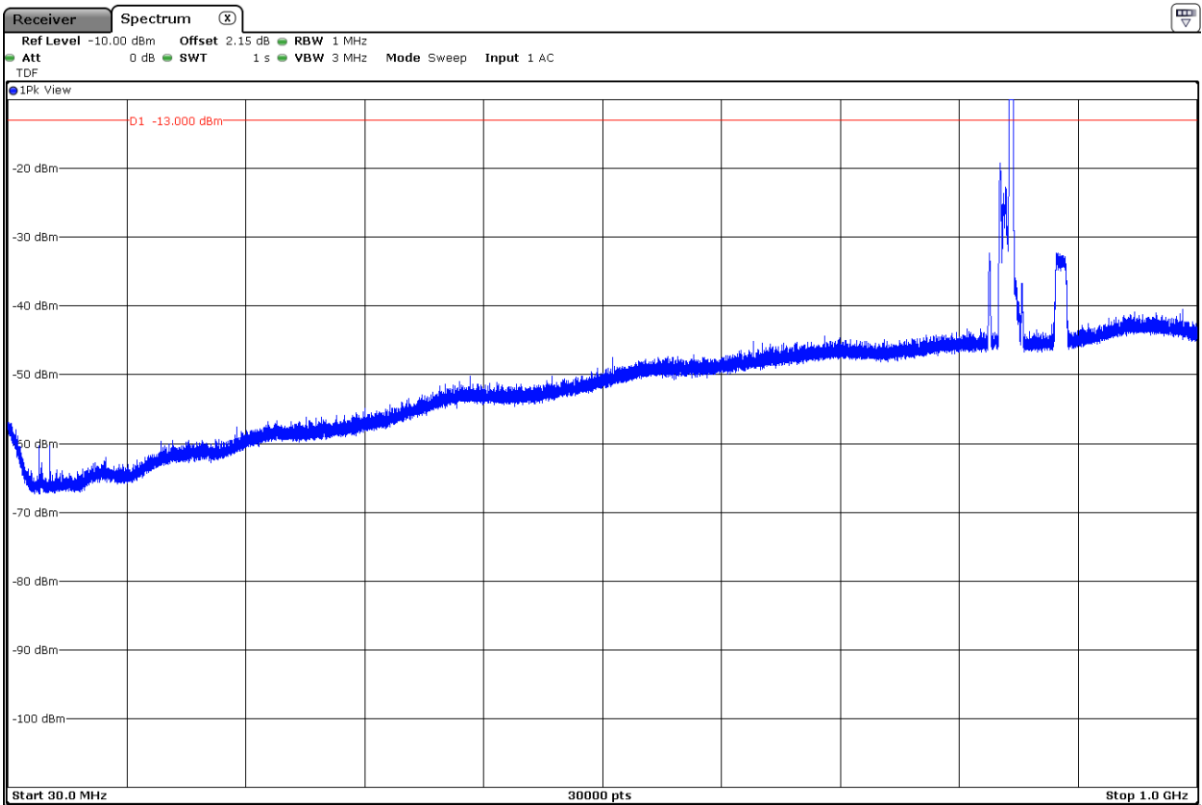
The peak above the limit is the carrier frequency.

- Middle Channel:



The peak above the limit is the carrier frequency.

- Highest Channel:

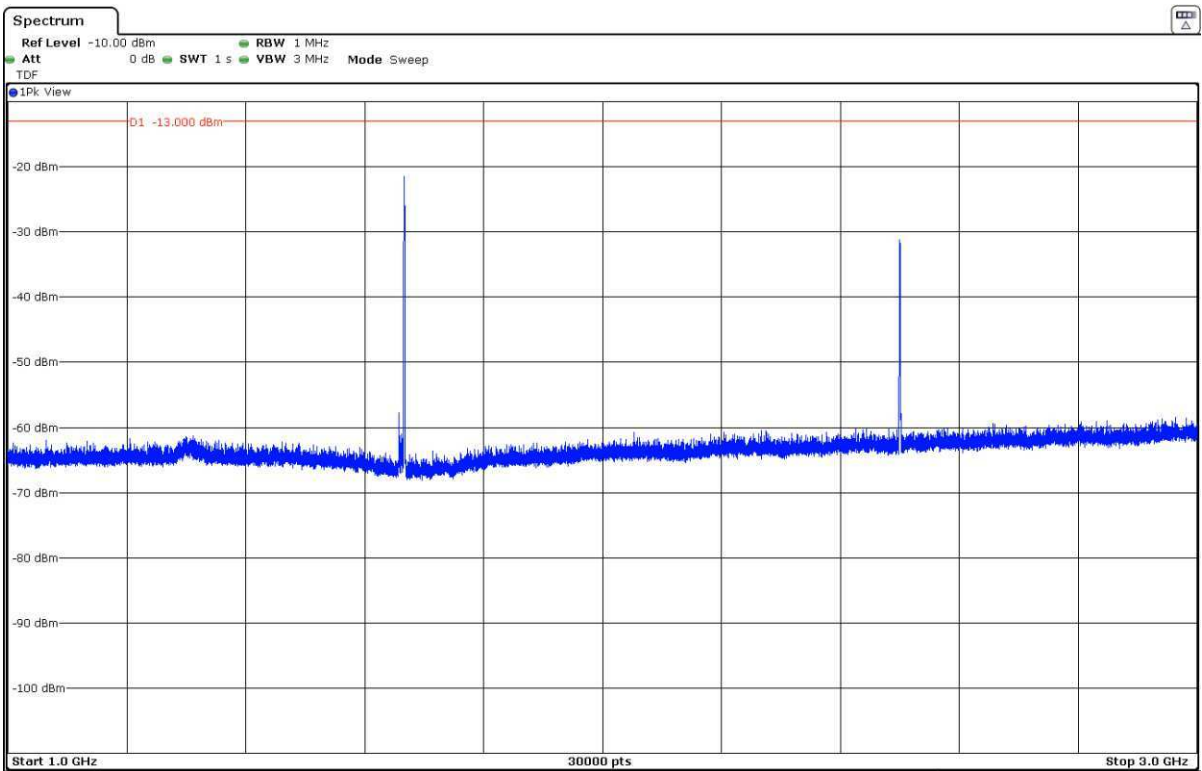


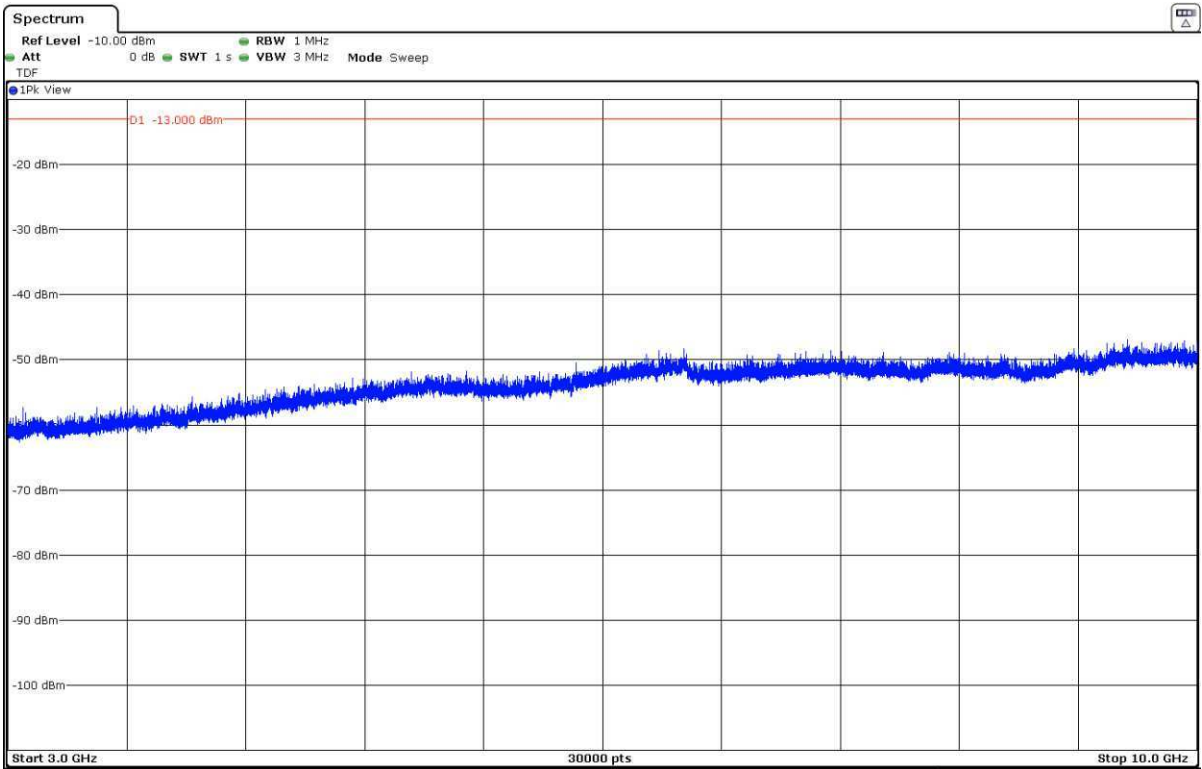
The peak above the limit is the carrier frequency.

FREQUENCY RANGE 1 - 10 GHz

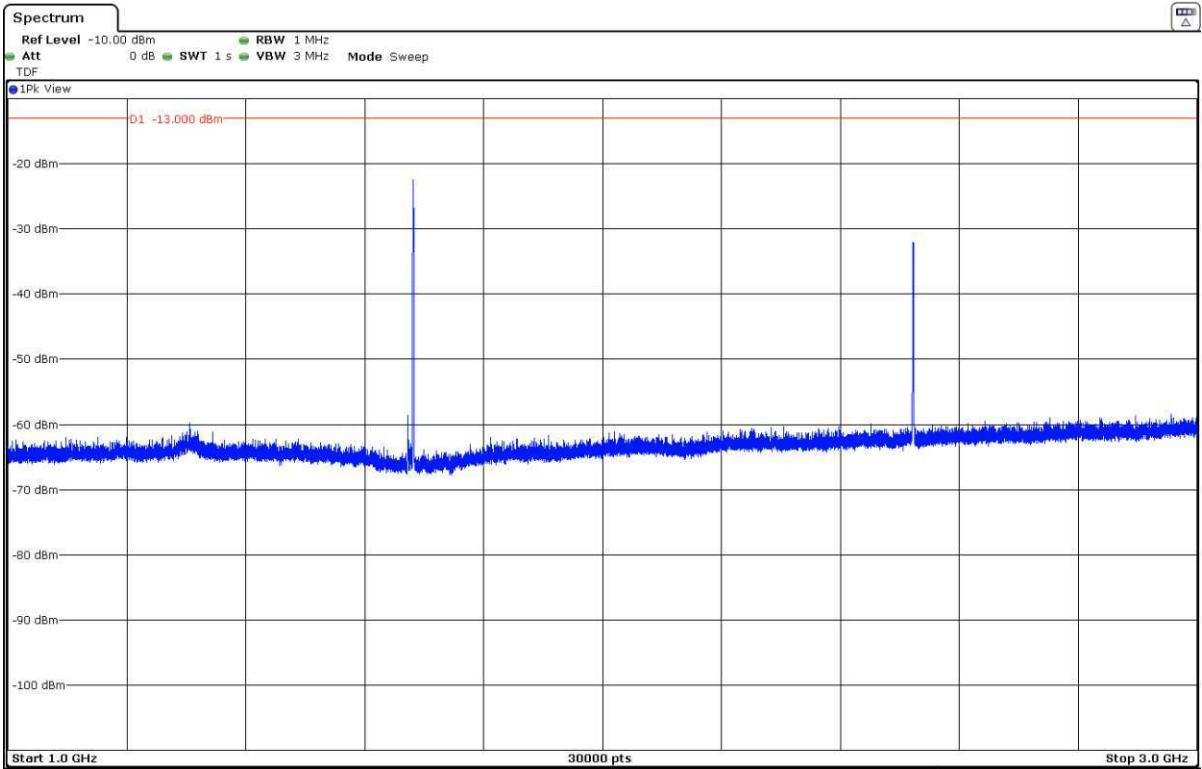
QPSK.

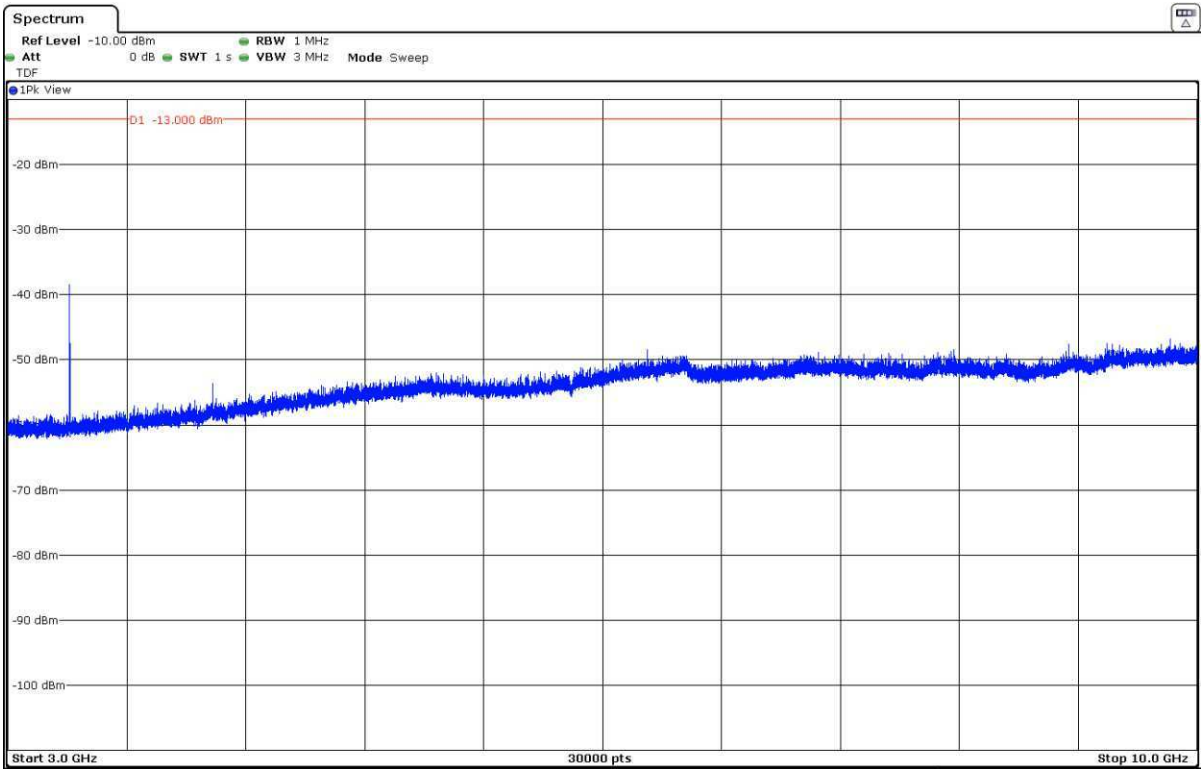
- Lowest Channel:





- Middle Channel:





- Highest Channel:

