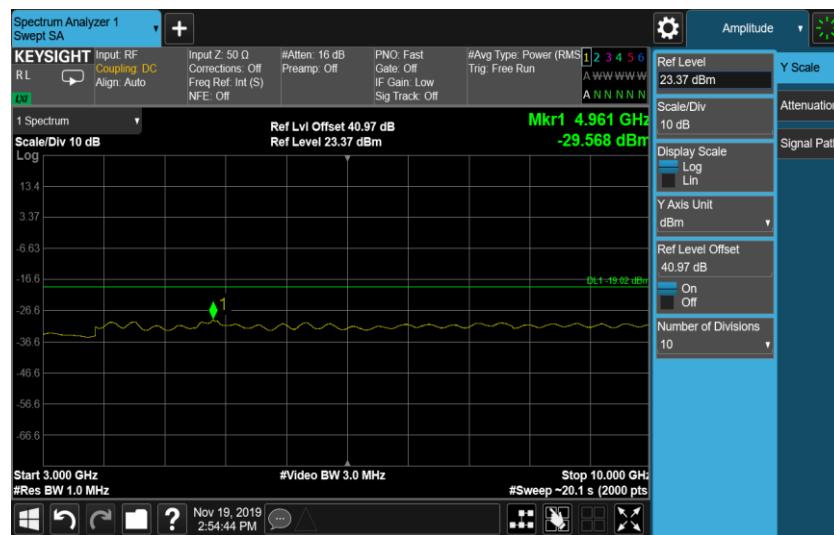




### Port A, Channel Position M, LTE 5.0 MHz





## Configuration WCDMA+LTE+NB-IoT-MC-1 (1WCDMA QPSK+1LTE QPSK+1SA QPSK)

Channel Bandwidth	RBW (MHz)	Limit (dBm)
NB: 250 KHz W: 5.0 MHz L:1.4 MHz	1.0	-19.02
NB: 250 KHz W: 5.0 MHz L:5.0 MHz	1.0	-19.02

Port A, Channel Position M, LTE 1.4 MHz





Port A, Channel Position M, LTE 5.0 MHz





Configuration WCDMA+LTE+NB-IoT-MC-2 (1WCDMA QPSK+2LTE QPSK+1SA QPSK)

Channel Bandwidth	RBW (MHz)	Limit (dBm)
NB: 250 KHz		
W: 5.0 MHz	1.0	-19.02
L:1.4 MHz		

Port A, Channel Position M, LTE 1.4 MHz





Configuration WCDMA+LTE+NB-IoT-MC-3 (2WCDMA QPSK+1LTE QPSK+1SA QPSK)

Channel Bandwidth	RBW (MHz)	Limit (dBm)
NB: 250 KHz W: 5.0 MHz L:5.0 MHz	1.0	-19.02

## Port A, Channel Position M, LTE 5.0 MHz



## **A.5 Radiated Spurious Emission**

### **A.5.1 Reference**

FCC CFR 47 Part 2, Clause 2.1053

FCC CFR 47 Part 24, Clause 24.238

RSS-133, Clause 6.5

### **A.5.2 Method of measurement**

The measurements procedures in TIA-603-E: 2016 are used. This measurement is carried out in semi-anechoic chamber.

A preliminary profile of the Spurious Radiated Emissions was obtained by operating the EUT on a remotely controlled turntable within the chamber. Measurements of emissions from the EUT were obtained with the measurement antenna in both horizontal and vertical polarizations.

The measurements in the frequency range 30 to 1000MHz was performed with a RBW of 100kHz except in the frequency bands 769 to 775MHz and 799 to 805 MHz where a RBW of 10kHz was used.

The measurements in the frequency range 1 to 8GHz was performed with a RBW of 1MHz except in the frequency band 1559 to 1610MHz where a RBW of 10kHz was used.

Emissions identified within the range 30MHz to 8GHz were then formally measured using a peak detector as the worst case.

The limits for outside a licensee's frequency band(s) of operation the power of the spurious emissions have been calculated, as shown below using the following formula:

$$\text{Field Strength of Carrier} = (43 + 10\log(P)) \text{ dB}$$

Where:

Field Strength is measured in dB $\mu$ V/m

P is measured Transmitter Power in Watts

The EUT was measured with the antenna height varied between 1 and 4 m with the turntable rotated between 0 and 360 degrees. The emission of any outside a licensee's frequencies within 20dB of the limit were measured with the substitution method used according to the standard.

The measurements were performed at a 3m distance unless otherwise stated.

### **A.5.3 Measurement limit**

The field strength of the carrier has been calculated assuming that the power is to be fed to a half-wave tuned dipoles as per 2.1053 (a).

$$E_{(\text{V/m})} = (30 \times G_i \times P_o)^{0.5} / d$$

Where

$G_i$  is the antenna gain of ideal half-wave dipoles,

$P_o$  is the power out of the transceiver in W,

d is the measurement distance in meter.

Therefore at 3m measurement distance the field strength using the lowest transceiver output power would be:

$$E_{(\text{V/m})} = (30 \times 1.64 \times 16.56)^{0.5} / 3 = 9.51 \text{V/m} = 139.57 \text{ dB}\mu\text{V/m}$$

As per 90.543 (e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance

with the following:

(1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than  $76 + 10 \log (P)$  dB in a 6.25 kHz band segment, for base and fixed stations.

this gives:

$$76 + 10\log(16.56) = 88.19 \text{ dB}$$

Therefore the limit at 3m measurement distance is:

$$139.57 - 88.19 = 51.4 \text{ dB}\mu\text{V/m}$$

(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than  $65 + 10 \log (P)$  dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least  $43 + 10 \log (P)$  dB.

this gives:

$$43 + 10\log(16.56) = 55.19 \text{ dB}$$

Therefore the limit at 3m measurement distance is:

$$139.57 - 55.19 = 84.4 \text{ dB}\mu\text{V/m}$$

(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to  $-70 \text{ dBW/MHz}$  equivalent isotropically radiated power (EIRP) for wideband signals, and  $-80 \text{ dBW}$  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.

These limits have been used to determine Pass or Fail for the harmonics measured and detailed in the following results.

#### A.5.4 Measurement results

##### Configuration WCDMA-1C; QPSK;

Channel Position	Channel Frequencies
Channel Position B	1932.4MHz
Channel Position M	1962.4MHz
Channel Position T	1992.6MHz

Channel Position B

No emissions were detected within 20dB of the limit.

Channel Position M

No emissions were detected within 20dB of the limit.

Channel Position T

No emissions were detected within 20dB of the limit.

##### Configuration WCDMA-1C; 16QAM;

Channel Position	Channel Frequencies
Channel Position B	1932.4MHz
Channel Position M	1962.4MHz
Channel Position T	1992.6MHz

Channel Position B

No emissions were detected within 20dB of the limit.

Channel Position M

No emissions were detected within 20dB of the limit.

Channel Position T

No emissions were detected within 20dB of the limit.

##### Configuration WCDMA-1C; 64QAM;

Channel Position	Channel Frequencies
Channel Position B	1932.4MHz
Channel Position M	1962.4MHz
Channel Position T	1992.6MHz

Channel Position B

No emissions were detected within 20dB of the limit.

Channel Position M

No emissions were detected within 20dB of the limit.

Channel Position T

No emissions were detected within 20dB of the limit.

##### Configuration WCDMA-3C; QPSK;

Channel Position	Channel Frequencies
Channel Position M	1932.4MHz+1937.4MHz+1992.6MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA-6C; QPSK;**

Channel Position	Channel Frequencies
Channel Position M	1932.4MHz+1937.4MHz+1942.4MHz+1982.6MHz +1987.6MHz+1992.6MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration NB-IoT-InBand-5.0M-1C; QPSK;**

Channel Position	Channel Frequencies
Channel Position B	1932.5MHz
Channel Position M	1962.5MHz
Channel Position T	1992.5MHz

Channel Position B

No emissions were detected within 20dB of the limit.

Channel Position M

No emissions were detected within 20dB of the limit.

Channel Position T

No emissions were detected within 20dB of the limit.

**Configuration NB-IoT-InBand-20.0M-1C; QPSK;**

Channel Position	Channel Frequencies
Channel Position M	1962.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration NB-IoT-GuardBand-10.0M-1C; QPSK;**

Channel Position	Channel Frequencies
Channel Position B	1935.0MHz
Channel Position M	1962.5MHz
Channel Position T	1990.0MHz

Channel Position B

No emissions were detected within 20dB of the limit.

Channel Position M

No emissions were detected within 20dB of the limit.

Channel Position T

No emissions were detected within 20dB of the limit.

**Configuration NB-IoT-GuardBand-15.0M-1C; QPSK;**

Channel Position	Channel Frequencies
Channel Position M	1962.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration NB-IoT-Standalone-1C; QPSK;**

Channel Position	Channel Frequencies
Channel Position B	1930.2MHz
Channel Position M	1962.5MHz
Channel Position T	1994.8MHz

Channel Position B

No emissions were detected within 20dB of the limit.

Channel Position M

No emissions were detected within 20dB of the limit.

Channel Position T

No emissions were detected within 20dB of the limit.

**Configuration LTE-MIMO-1C 1.4M; QPSK**

Channel Position	Channel Frequencies
Channel Position B	1930.7MHz
Channel Position M	1962.5MHz
Channel Position T	1994.3MHz

Channel Position B

No emissions were detected within 20dB of the limit.

Channel Position M

No emissions were detected within 20dB of the limit.

Channel Position T

No emissions were detected within 20dB of the limit.

**Configuration LTE-MIMO-1C 1.4M; 16QAM**

Channel Position	Channel Frequencies
Channel Position B	1930.7MHz
Channel Position M	1962.5MHz
Channel Position T	1994.3MHz

Channel Position B

No emissions were detected within 20dB of the limit.

Channel Position M

No emissions were detected within 20dB of the limit.

Channel Position T

No emissions were detected within 20dB of the limit.

**Configuration LTE-MIMO-1C 1.4M; 64QAM**

Channel Position	Channel Frequencies
Channel Position B	1930.7MHz
Channel Position M	1962.5MHz
Channel Position T	1994.3MHz

Channel Position B

No emissions were detected within 20dB of the limit.

Channel Position M

No emissions were detected within 20dB of the limit.

Channel Position T

No emissions were detected within 20dB of the limit.

**Configuration LTE-MIMO-1C 1.4M; 256QAM**

Channel Position	Channel Frequencies
Channel Position B	1930.7MHz
Channel Position M	1962.5MHz
Channel Position T	1994.3MHz

Channel Position B

No emissions were detected within 20dB of the limit.

Channel Position M

No emissions were detected within 20dB of the limit.

Channel Position T

No emissions were detected within 20dB of the limit.

**Configuration LTE-MIMO-1C 3.0M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	1962.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE-MIMO-1C 5.0M; QPSK**

Channel Position	Channel Frequencies
Channel Position B	1932.5MHz
Channel Position M	1962.5MHz
Channel Position T	1992.5MHz

Channel Position B

No emissions were detected within 20dB of the limit.

Channel Position M

No emissions were detected within 20dB of the limit.

Channel Position T

No emissions were detected within 20dB of the limit.

**Configuration LTE-MIMO-1C 10.0M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	1962.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE-MIMO-1C 15.0M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	1962.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE-MIMO-1C 20.0M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	1962.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE-MIMO-2C 1.4M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	1953.2 MHz +1971.8MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE-MIMO-2C 5.0M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	1932.5MHz+1992.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE-MIMO-2C 20.0M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	1940.0MHz+1985.0MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE-MIMO-6C 1.4M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	1953.2MHz+1954.6MHz+1956.0MHz+1969.0MHz+1970.4MHz+1971.8MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE-MIMO-6C 5.0M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	1932.5MHz+1937.5MHz+1942.5MHz+1982.5MHz+1987.5MHz+1992.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE-MIMO-6C 10.0M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	1935.0MHz+1945.0MHz+1955.0MHz+1970.0MHz+1980.0MHz+1990.0MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE-MIMO-MC-1 (1WCDMA+1LTE 1.4M); M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	(W)1932.4MHz+(L)1994.3MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE-MIMO-MC-1 (1WCDMA+1LTE 3.0M); M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	(W)1932.4MHz+(L)1993.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE-MIMO-MC-1 (1WCDMA+1LTE 5.0M); M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	(W)1932.4MHz+(L)1992.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE-MIMO-MC-1 (1WCDMA+1LTE 10.0M); M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	(W)1932.4MHz+(L)1990.0MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE-MIMO-MC-1 (1WCDMA+1LTE 20.0M); M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	(W)1932.4MHz+(L)1985.0MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE-MIMO-MC-2 (2WCDMA+1LTE 5.0M); M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	(W)1932.4MHz+1937.4MHz+ (L)1992.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE-MIMO-MC-3 (3WCDMA+3LTE 1.4M); M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	(W)1932.4MHz+1937.4MHz +1942.4MHz +(L)1991.5MHz+1992.9MHz+1994.3MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE-MIMO-MC-3 (3WCDMA+3LTE 5.0M); M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	(W)1932.4MHz+1937.4MHz +1942.4MHz +(L)1982.5MHz+1987.5MHz+1992.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE-MIMO-MC-3 (3WCDMA+3LTE 10.0M); M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	(W)1932.4MHz+1937.4MHz +1942.4MHz +(L)1970.0MHz+1980.0MHz+1990.0MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE-MIMO-MC-3 (3WCDMA+3LTE 15.0M); M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	(W)1932.4MHz+1937.4MHz +1942.4MHz +(L)1957.5MHz+1972.5MHz+1987.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE-MIMO-MC-4 (3WCDMA+2LTE 20.0M); M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	(W)1932.4MHz+1937.4MHz +1942.4MHz +(L)1965.0MHz+1985.0MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+NB-IoT-MC-1 (1WCDMA+1SA); M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	(W)1932.4MHz+(NB)1994.8MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+NB-IoT-MC-2 (2WCDMA+1SA); M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	(W)1932.4MHz+1937.4MHz +(NB)1994.8MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+NB-IoT-MC-4 (5WCDMA+1SA); M; QPSK**

Channel Position	Channel Frequencies
Channel Position M	(W)1932.4MHz+1937.4MHz +1942.4MHz ++1947.4MHz +1952.4MHz (NB)1994.8MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE+NB-IoT-MC-1 (1LTE+1SA 1.4M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1952.7MHz+(L) 1971.8MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE+NB-IoT-MC-1 (1LTE+1SA 3.0M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1952.7MHz+(L) 1971.0MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE+NB-IoT-MC-1 (1LTE+1SA 5.0M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1930.2MHz+(L) 1992.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE+NB-IoT-MC-1 (1LTE+1SA 10.0M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1930.2MHz+(L) 1990.0MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE+NB-IoT-MC-1 (1LTE+1SA 15.0M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1930.2MHz+(L) 1987.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE+NB-IoT-MC-1 (1LTE+1SA 20.0M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1930.2MHz+(L) 1985.0MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE+NB-IoT-MC-2 (2LTE+1SA 1.4M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1952.7MHz+(L) 1970.4MHz+1971.8MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE+NB-IoT-MC-2 (2LTE+1SA 5.0M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1930.2MHz+(L) 1987.5MHz+1992.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE+NB-IoT-MC-2 (2LTE+1SA 20.0M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1930.2MHz+(L) 1985.0MHz+1985.0MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE+NB-IoT-MC-2 (5LTE+1SA 1.4M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1952.7MHz+(L)1966.2MHz+1967.6MHz+1969.0MHz+1970.4MHz+1971.8MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration LTE+NB-IoT-MC-2 (3LTE+1SA 20.0M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1952.7MHz+(L)1945.0MHz+1965.0MHz+1985.0MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE+NB-IoT-MC-1 (1WCDMA+1LTE+1SA 1.4M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1952.7MHz+(L)1971.8MHz+(W)1962.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE+NB-IoT-MC-1 (1WCDMA+1LTE+1SA 5.0M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1930.2MHz+(L)1992.5MHz+(W)1962.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE+NB-IoT-MC-1 (1WCDMA+1LTE+1SA 20.0M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1930.2MHz+(L)1985.0MHz+(W)1962.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE+NB-IoT-MC-2 (1WCDMA+2LTE+1SA 1.4M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1952.7MHz+(L)1963.2MHz+1971.8MHz +(W)1960.0MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE+NB-IoT-MC-3 (2WCDMA+1LTE+1SA 20M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1930.2MHz+(L)1985.0MHz+(W)1960.0MHz+1965.0MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE+NB-IoT-MC-4 (2WCDMA+3LTE+1SA 3M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1952.7MHz+(L)1965.0MHz+1968.0MHz +1971.0MHz+(W)1960.0MHz+1965.0MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE+NB-IoT-MC-5 (3WCDMA+2LTE+1SA 10M); QPSK**

Channel Position	Channel Frequencies
Channel Position M	(NB)1930.2MHz+(L)1980.0MHz+1990.0MHz +(W)1957.5MHz+1962.5MHz+1967.5MHz

Channel Position M

No emissions were detected within 20dB of the limit.

**Configuration WCDMA+LTE+NB-IoT-MC-5 (3WCDMA+2LTE+1SA 15M); QPSK**

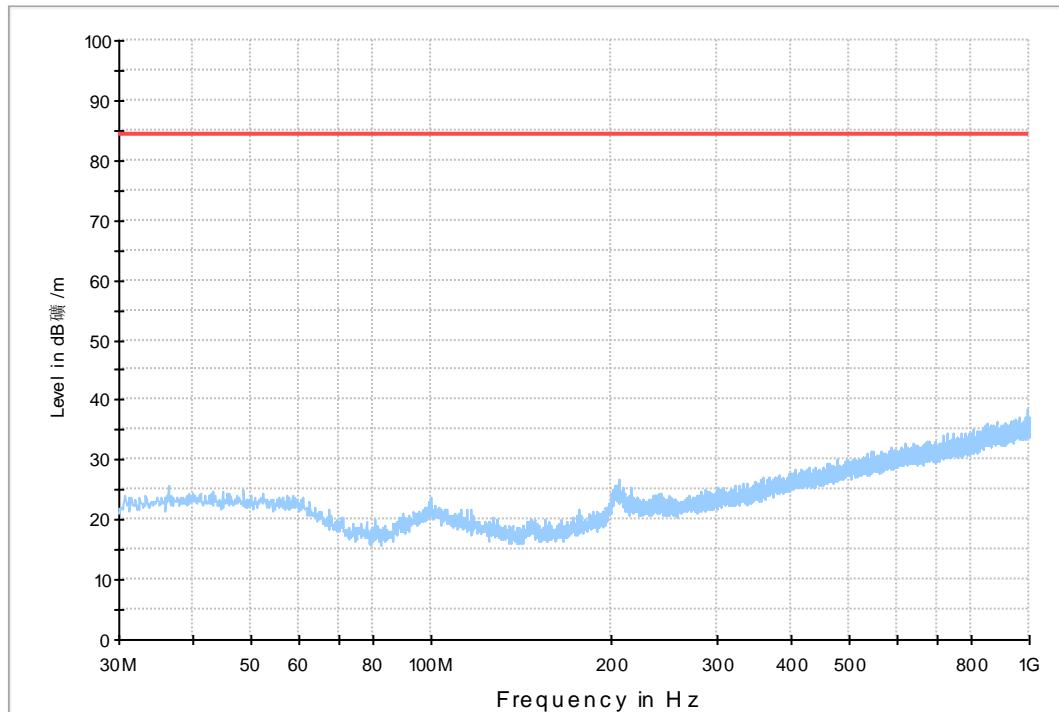
Channel Position	Channel Frequencies
Channel Position M	(NB)1930.2MHz+(L)1972.5MHz+1987.5MHz +(W)1952.5MHz+1957.5MHz+1962.5MHz

Channel Position M

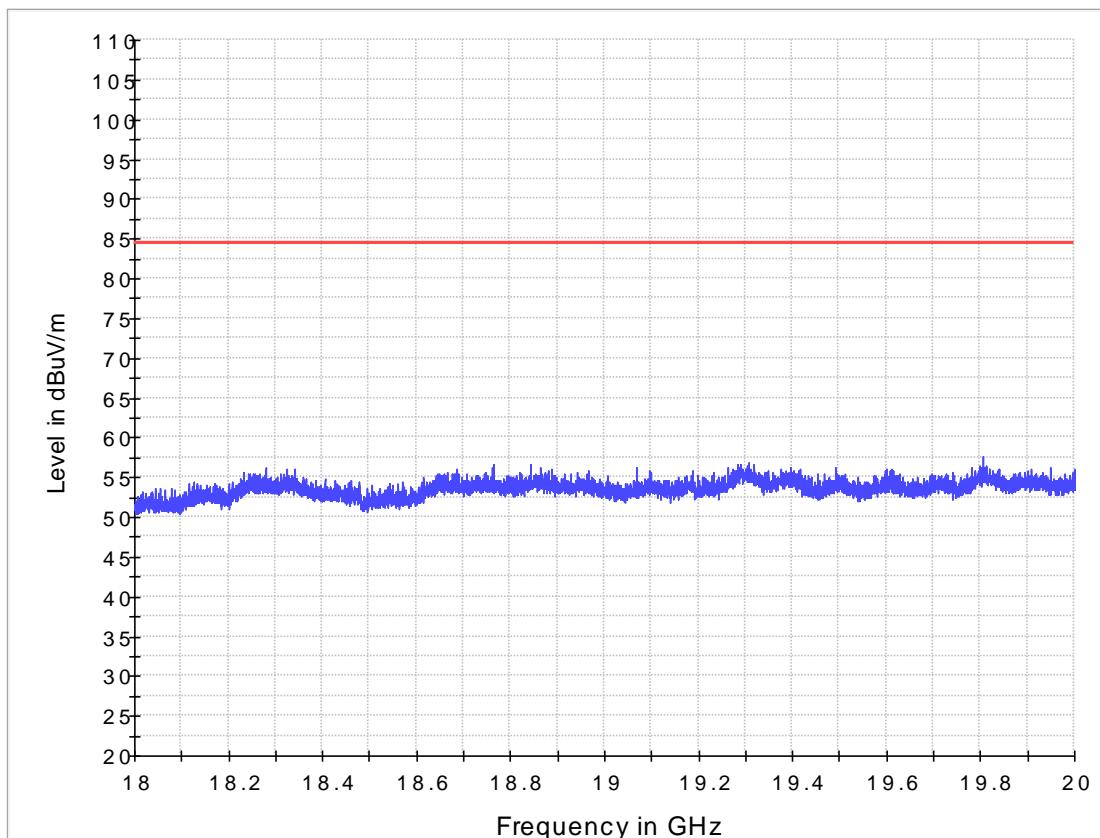
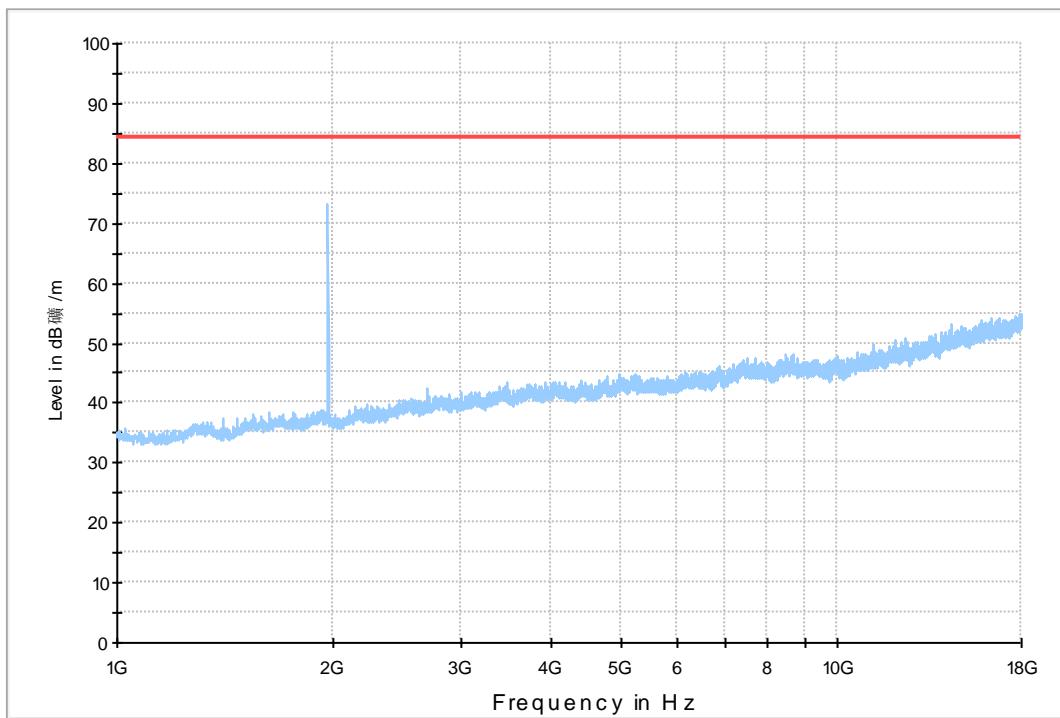
No emissions were detected within 20dB of the limit.

**Final Results****External antenna****Configuration LTE-MIMO-1C 1.4MHz; QPSK; M;**

R SE\_E risson\_30M -1G\_FCC



## RSE\_Erisson\_1-18G\_FCC



## **A.6 Frequency Stability**

### **A.6.1 Reference**

FCC CFR 47 Part 2, Clause 2.1055  
FCC CFR 47 Part 24, Clause 24.235  
RSS-133, Clause 6.3

### **A.6.2 Method of measurement**

#### Temperature Variation

The EUT was tested over the temperature range -30°C to +50°C in 10°C steps with -48 VDC Power Supply. At each temperature step, the Base Station was configured to transmit an[RAT]\* at maximum power on the middle channel of the operating band. After achieving thermal balance, the averages of 200 transmission bursts were measured and the result recorded.

#### Voltage Variation

The EUT was tested at the supplied voltages varied from 85 to 115 percent of the nominal values of -48 VDC. At +20°C, the Base Station was configured to transmit an [RAT]\* at maximum power on the bottom, middle and top channel of the operating band. The average of 200 transmission bursts was measured and the result recorded.

#### [RAT]\*:

WCDMA - Single Carrier with QPSK modulation  
LTE (20.0 MHz) - Test Model E-TM1.1 Single Carrier with QPSK modulation  
NB-IoT - QPSK modulation

### **A.6.3 Measurement limit**

FCC: The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency block.

ISED: ±1.0 ppm

#### A.6.4 Measurement results

Frequency Error – Temperature Variation

Configuration WCDMA-1C,QPSK,Port A

Maximum Output Power 37.0dBm per port, Channel Bandwidth 5MHz

Supply Voltage DC(V)	Temperature	Frequency Stability (Hz)		
		Channel position B	Channel position M	Channel position T
48	-30	-0.62	2.99	1.99
	-20	-2.23	-1.84	2.18
	-10	2.75	-1.61	2.89
	0	-1.82	1.85	2.45
	10	-2.63	-2.31	1.61
	20	2.14	2.14	1.30
	30	2.02	-1.37	2.23
	40	-3.02	-1.81	2.48
	50	-2.03	-1.51	2.87

Configuration LTE-1C,QPSK,Port A

Maximum Output Power 37.0dBm per port, Channel Bandwidth 20MHz

Supply Voltage DC(V)	Temperature	Frequency Stability (Hz)		
		Channel position B	Channel position M	Channel position T
48	-30	1.804	-1.423	2.257
	-20	-2.109	1.772	-3.08
	-10	-2.531	1.282	-1.125
	0	-1.385	-1.490	1.158
	10	1.254	-1.680	1.457
	20	-1.913	1.281	1.981
	30	2.049	-1.907	1.500
	40	-1.231	1.961	-1.570
	50	-1.369	-1.120	1.728

Configuration NB-IoT-Standalone-1C,QPSK,Port A

Maximum Output Power 33.0dBm per port, Channel Bandwidth 200KHz

Supply Voltage DC(V)	Temperature	Frequency Stability (Hz)		
		Channel position B	Channel position M	Channel position T
48	-30	1.999	-2.701	-2.357
	-20	1.276	2.100	1.594
	-10	-1.004	-1.711	2.755
	0	-2.083	-2.281	-1.325
	10	2.354	-2.162	-2.107
	20	1.907	-2.413	-1.265
	30	-2.381	1.653	-1.632
	40	1.615	-1.470	-1.554
	50	-2.190	1.968	-2.081

Frequency Error – Voltage Variation

Configuration WCDMA-1C,QPSK,Port A

Maximum Output Power 37.0dBm per port, Channel Bandwidth 5MHz

Supply Voltage DC(V)	Temperature(°C)	Frequency Stability (Hz)		
		Channel position B	Channel position M	Channel position T
40.8	20	1.34	1.56	1.34
48	20	2.00	-2.10	-1.88
55.2	20	-2.22	2.01	-2.11

Configuration LTE-1C,QPSK,Port A

Maximum Output Power 37.0dBm per port, Channel Bandwidth 1.4MHz

Supply Voltage DC(V)	Temperature(°C)	Frequency Stability (Hz)		
		Channel position B	Channel position M	Channel position T
40.8	20	-1.698	-1.705	-1.551
48	20	1.425	1.906	2.613
55.2	20	1.377	1.782	-1.967

Configuration NB-IoT-Standalone-1C,QPSK,Port A

Maximum Output Power 33.0dBm per port, Channel Bandwidth 200KHz

Supply Voltage DC(V)	Temperature(°C)	Frequency Stability (Hz)		
		Channel position B	Channel position M	Channel position T
40.8	20	-1.368	-1.078	1.820
48	20	1.681	1.507	1.602
55.2	20	1.764	-1.570	1.071

## ANNEX B: Accreditation Certificate

United States Department of Commerce  
National Institute of Standards and Technology



### **Certificate of Accreditation to ISO/IEC 17025:2005**

NVLAP LAB CODE: 600118-0

**Telecommunication Technology Labs, CAICT**

Beijing  
China

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,  
listed on the Scope of Accreditation, for:*

**Electromagnetic Compatibility & Telecommunications**

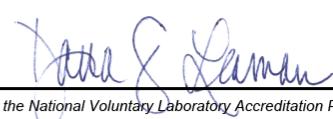
*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.  
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality  
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2019-09-26 through 2020-09-30

Effective Dates



*For the National Voluntary Laboratory Accreditation Program*



**\*\*\*END OF REPORT\*\*\***