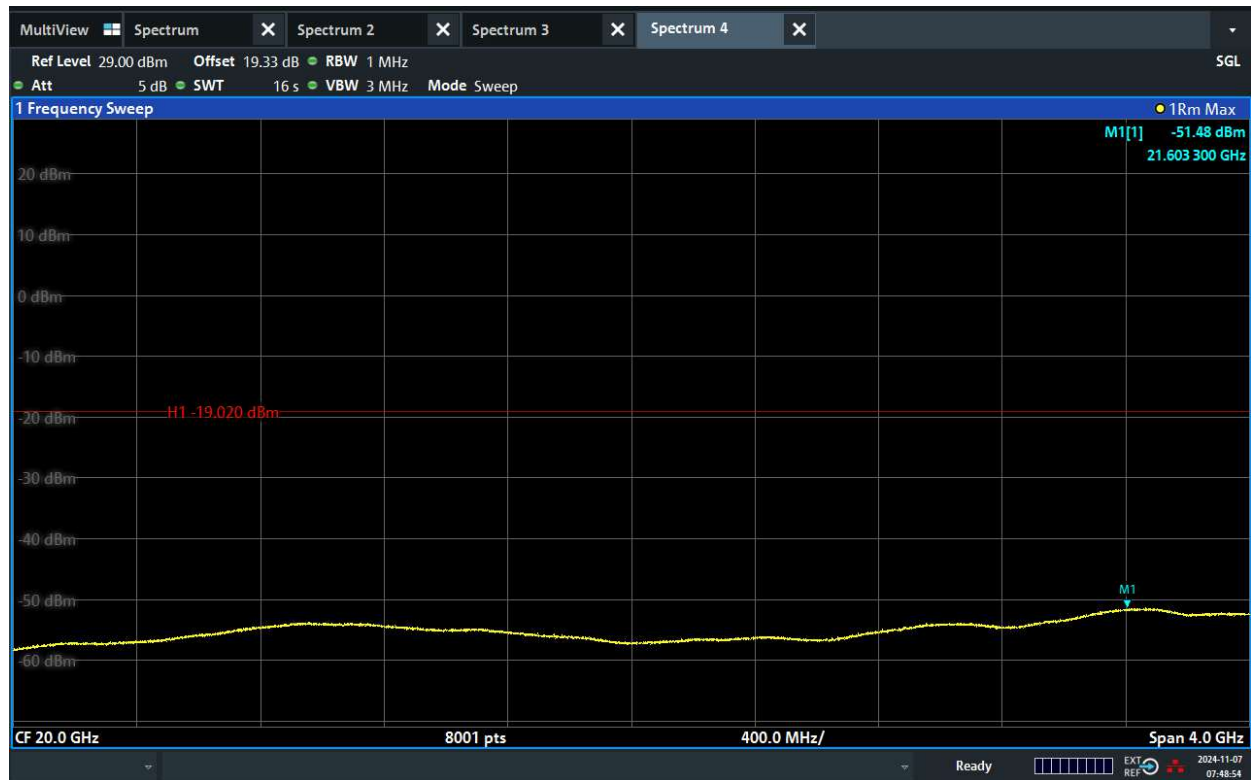
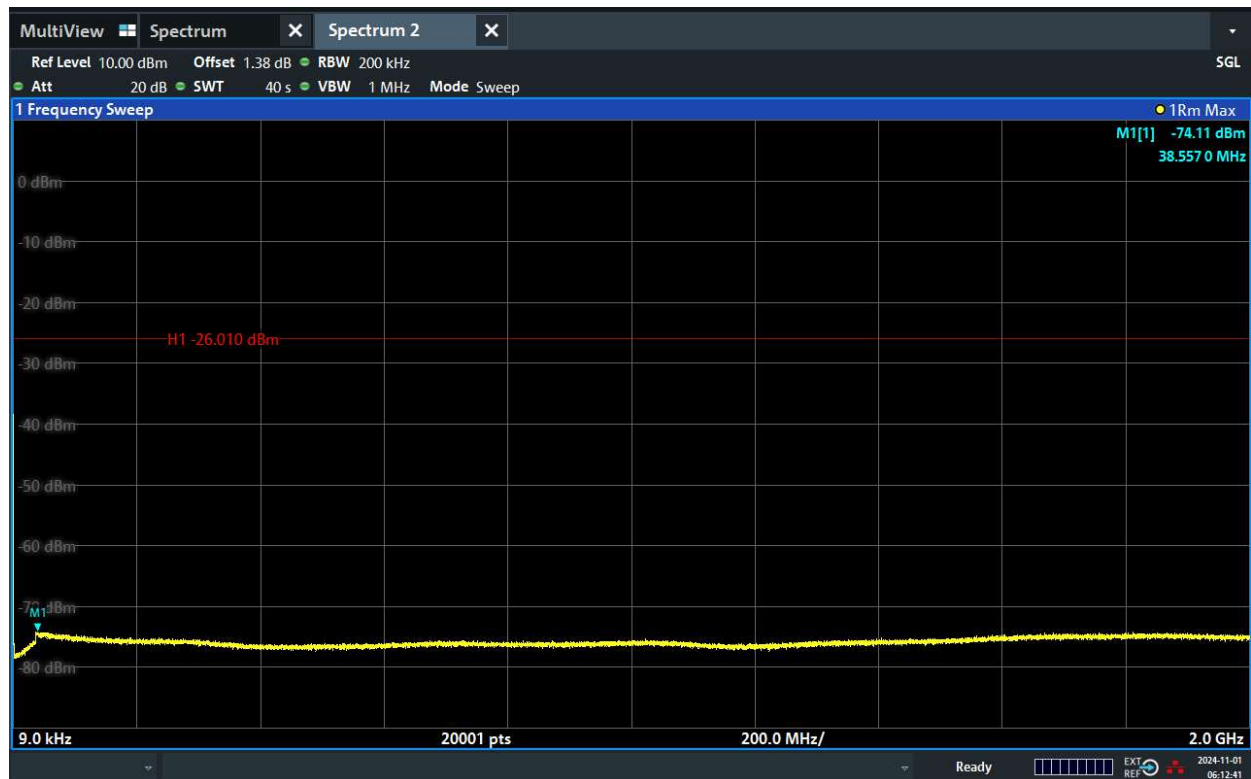


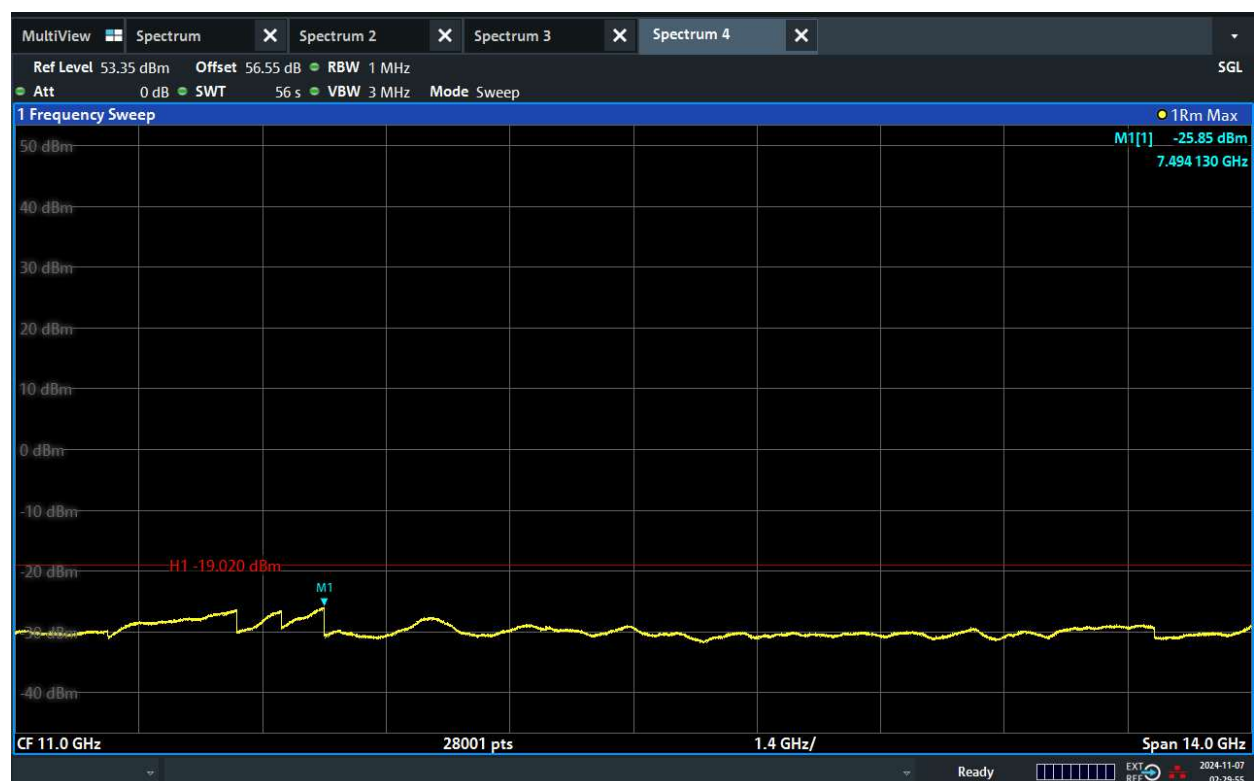
TEST REPORT



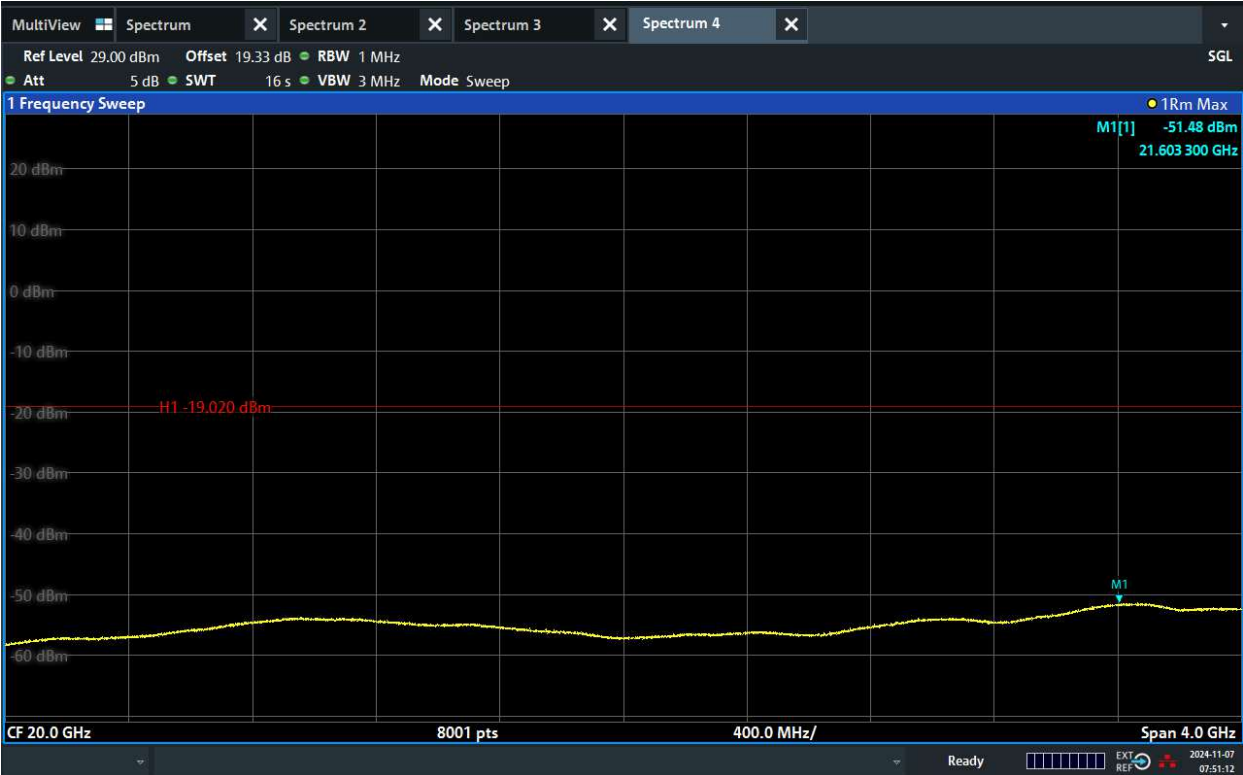
Channel Position T



TEST REPORT

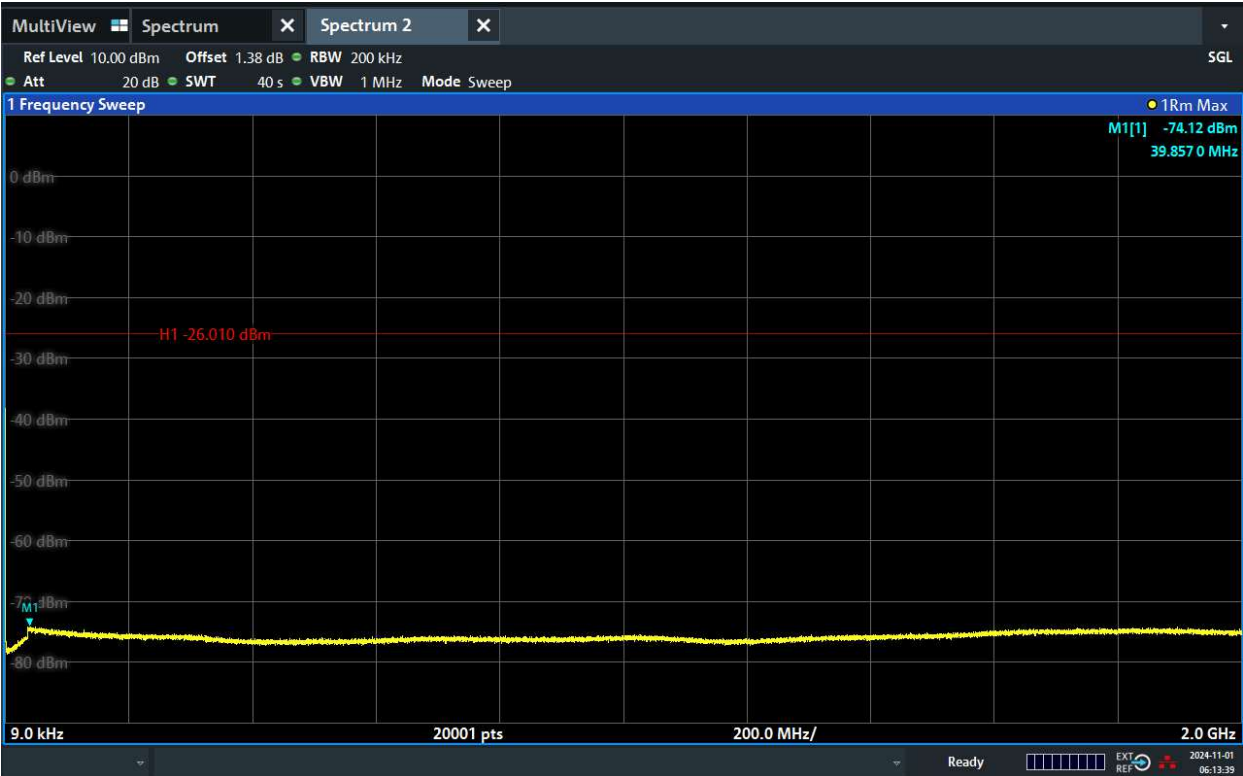


TEST REPORT

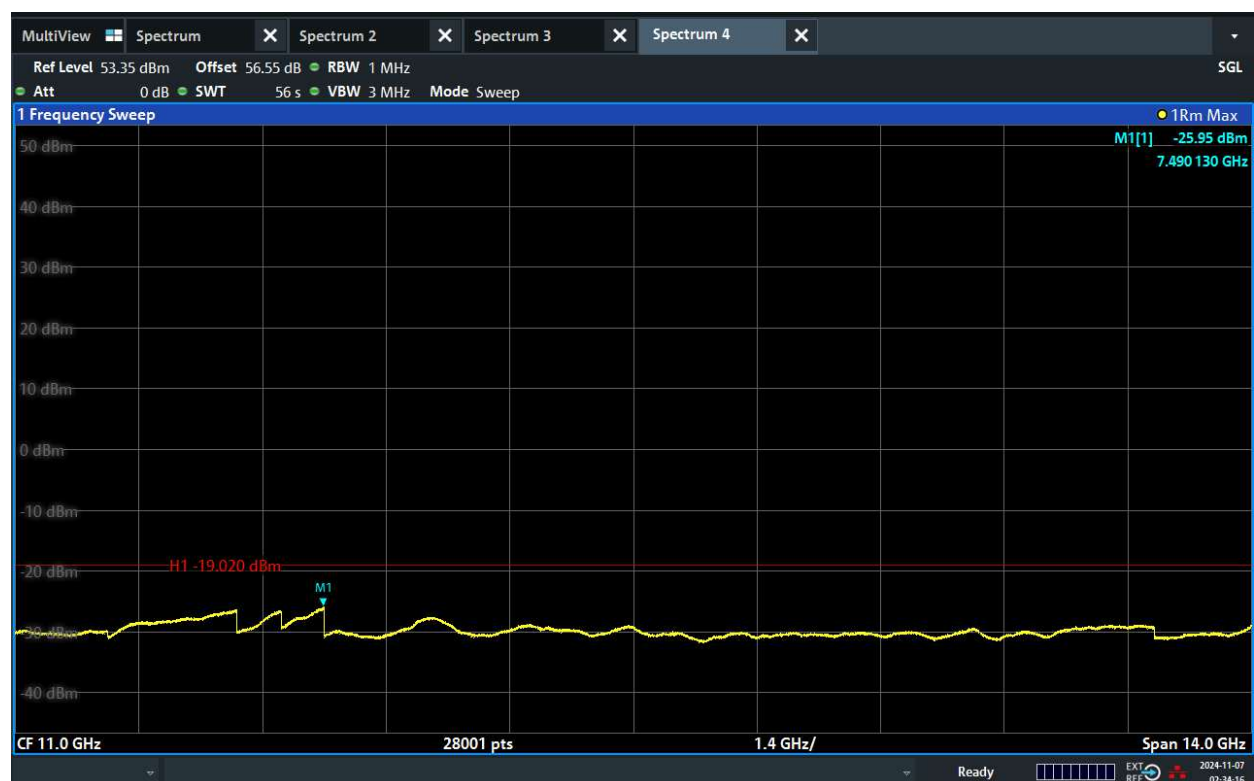


RAT	Antenna Port	Channel Position	L Modulation	L Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
2GB+L	C	B	64QAM	20	1000/200	-19.02/-26.01
2GB+L	C	T	64QAM	20	1000/200	-19.02/-26.01

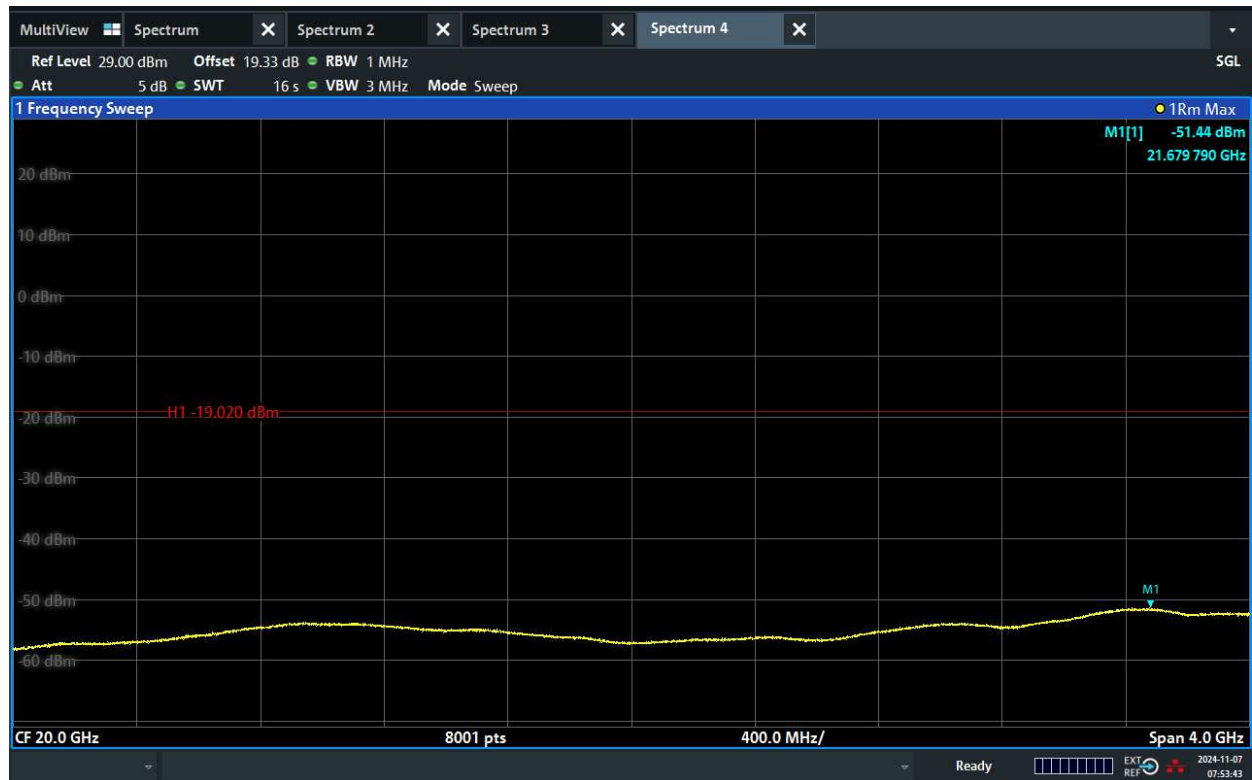
Channel Position B



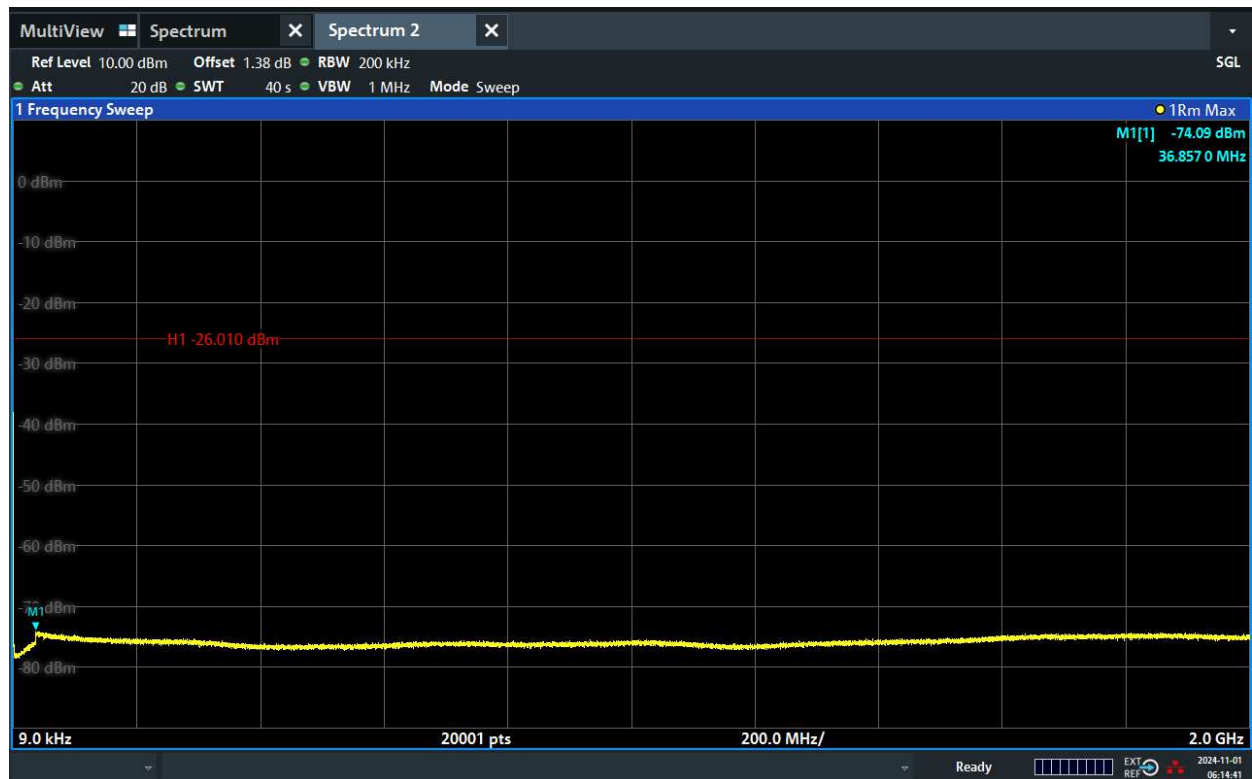
TEST REPORT



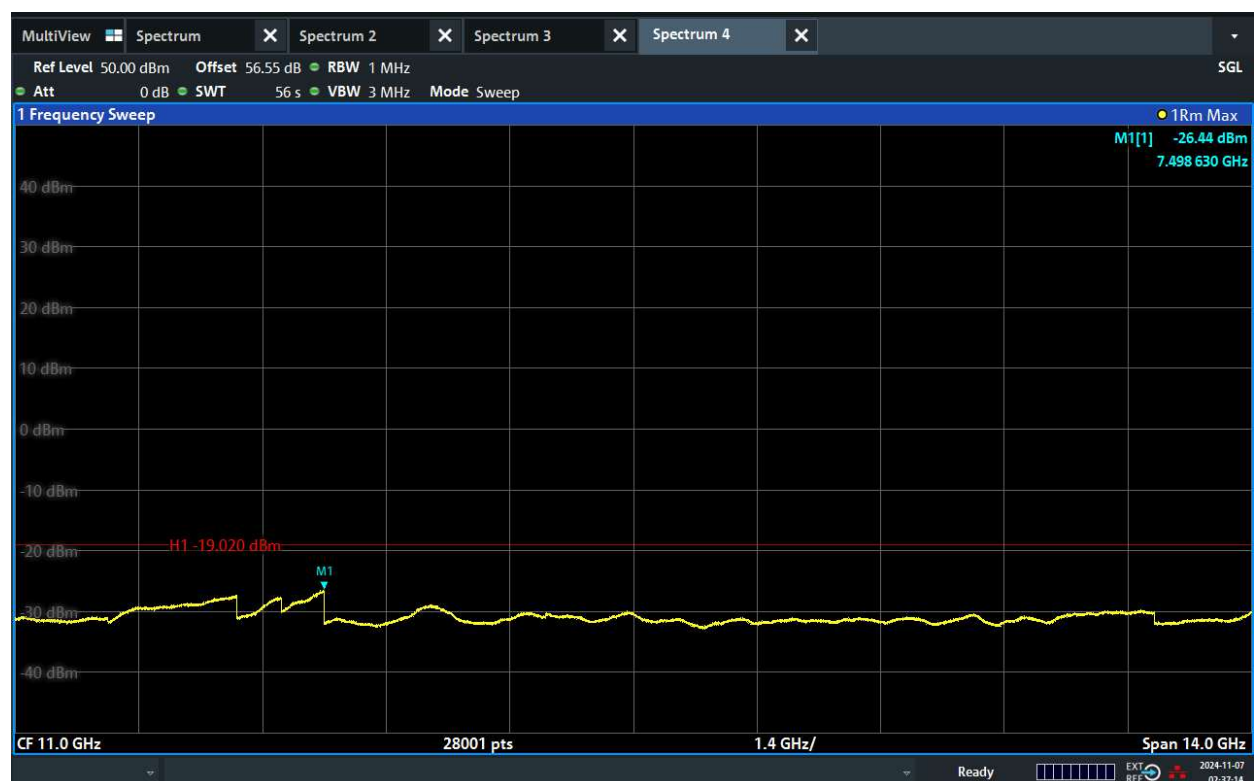
TEST REPORT



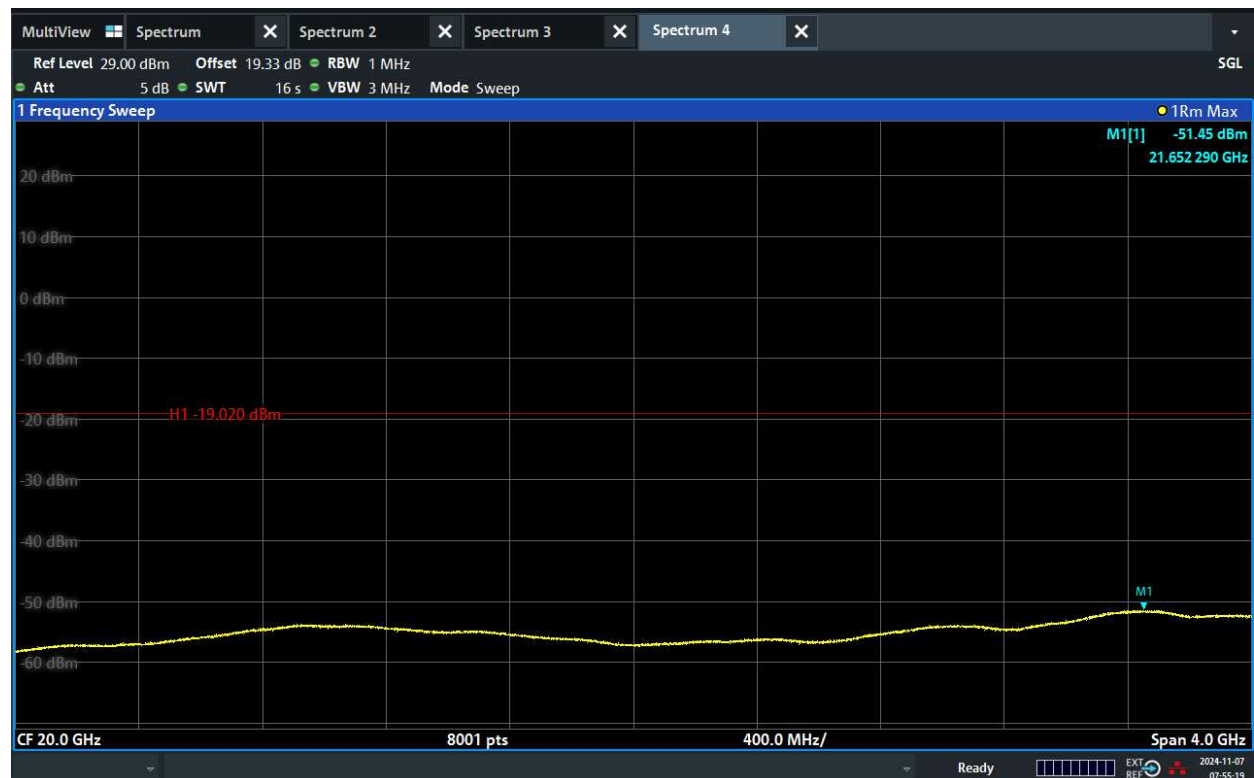
Channel Position T



TEST REPORT

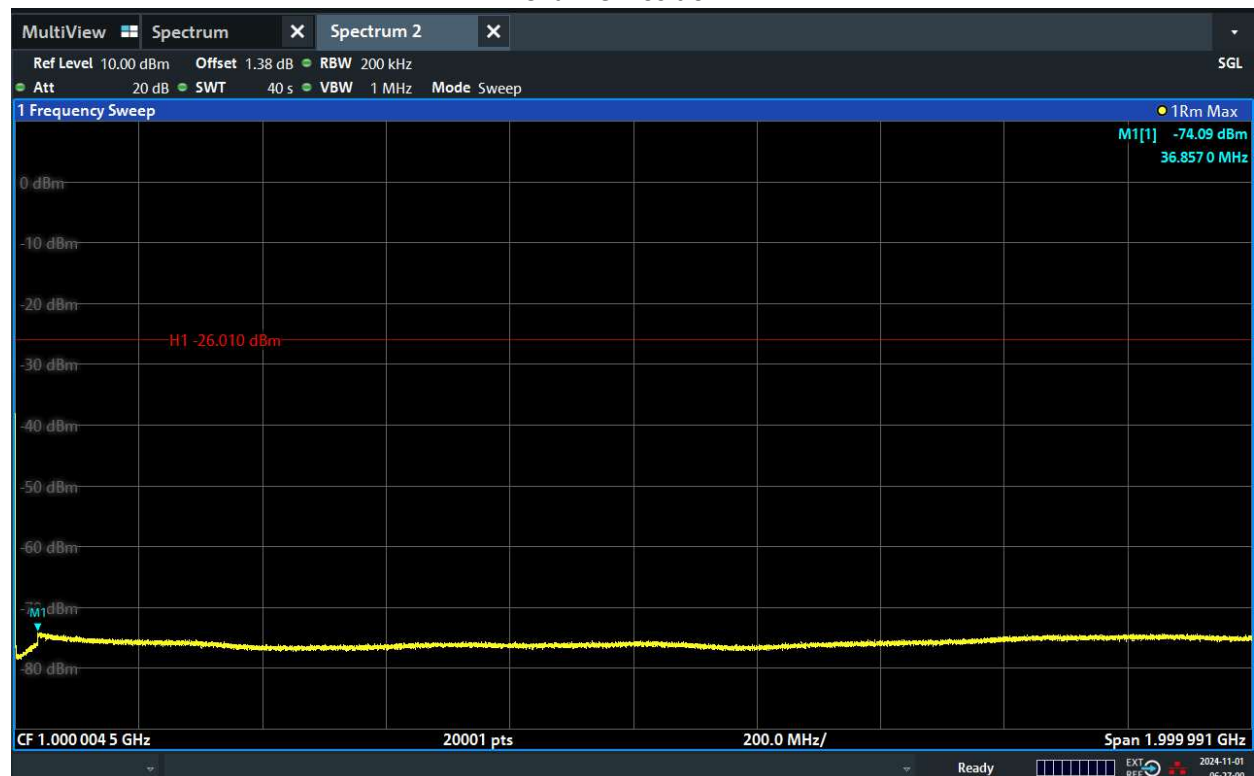


TEST REPORT

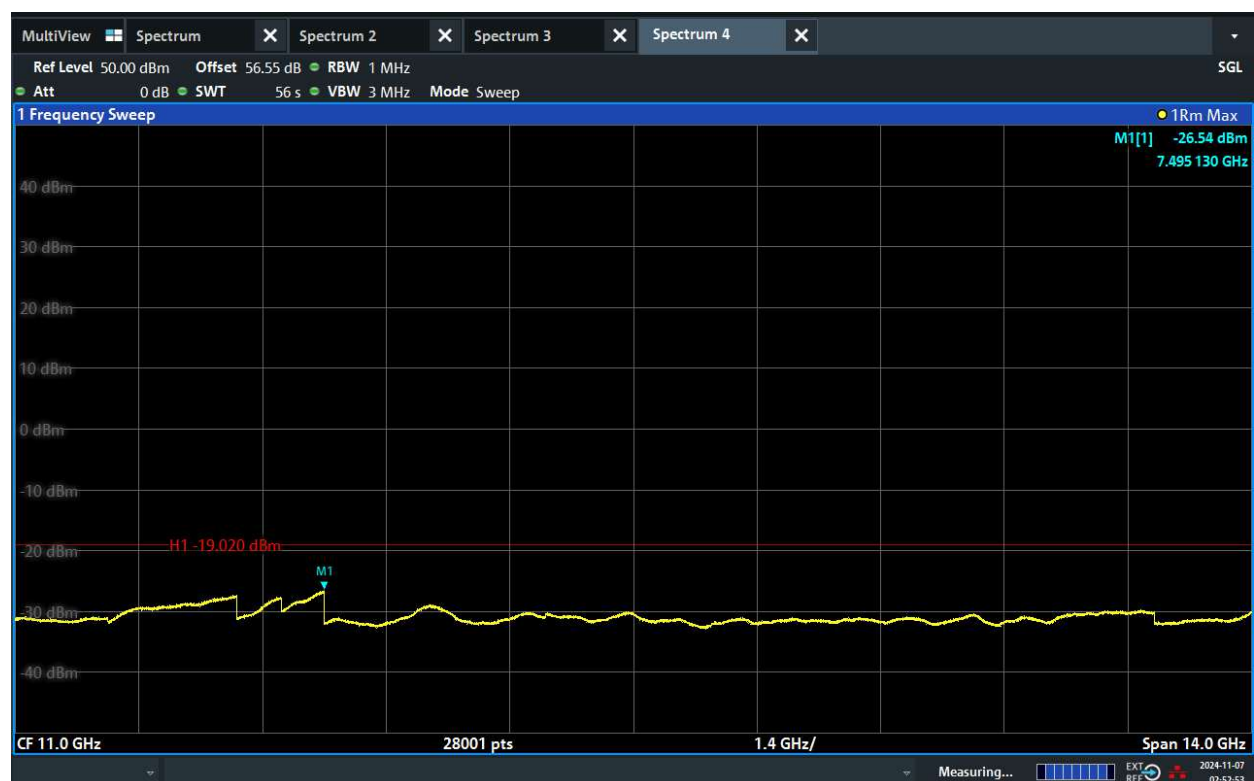
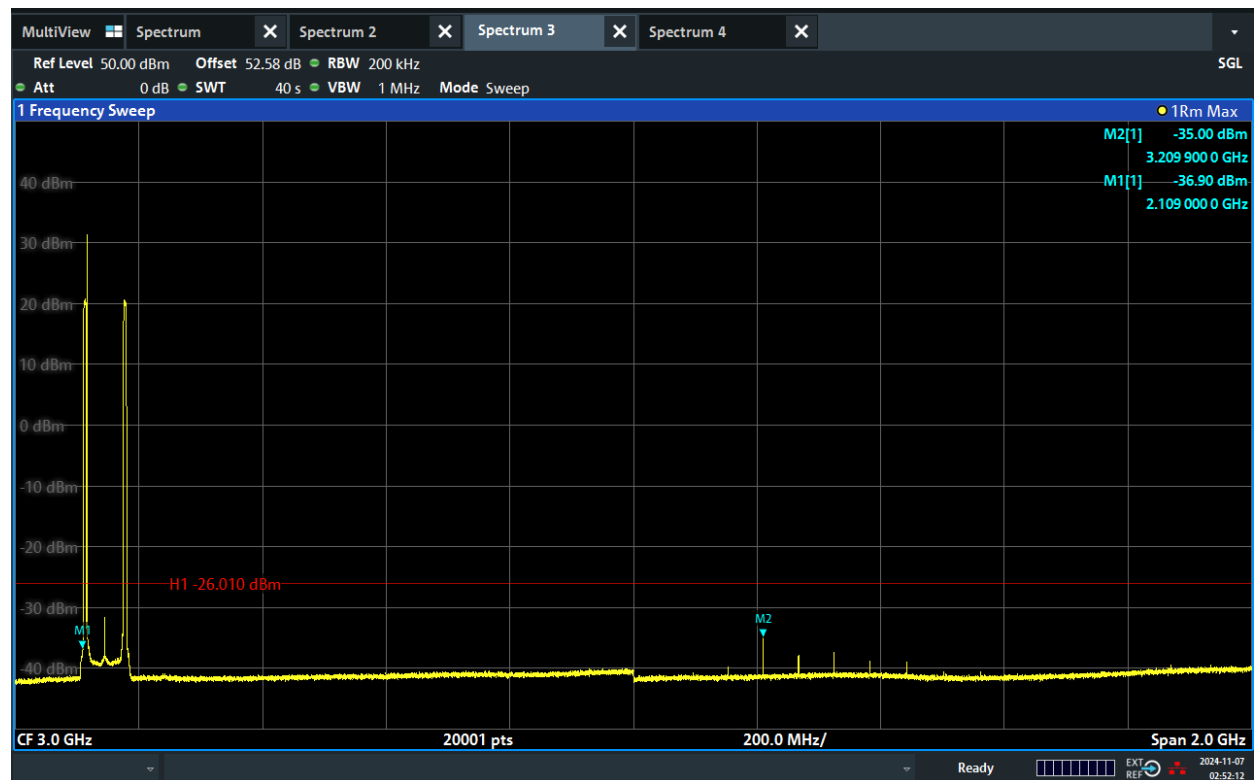


RAT	Antenna Port	Channel Position	W/L Modulation	W/L Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
W+SA+L	C	B	64QAM	10	1000/200	-19.02/-26.01
W+SA+L	C	T	64QAM	10	1000/200	-19.02/-26.01

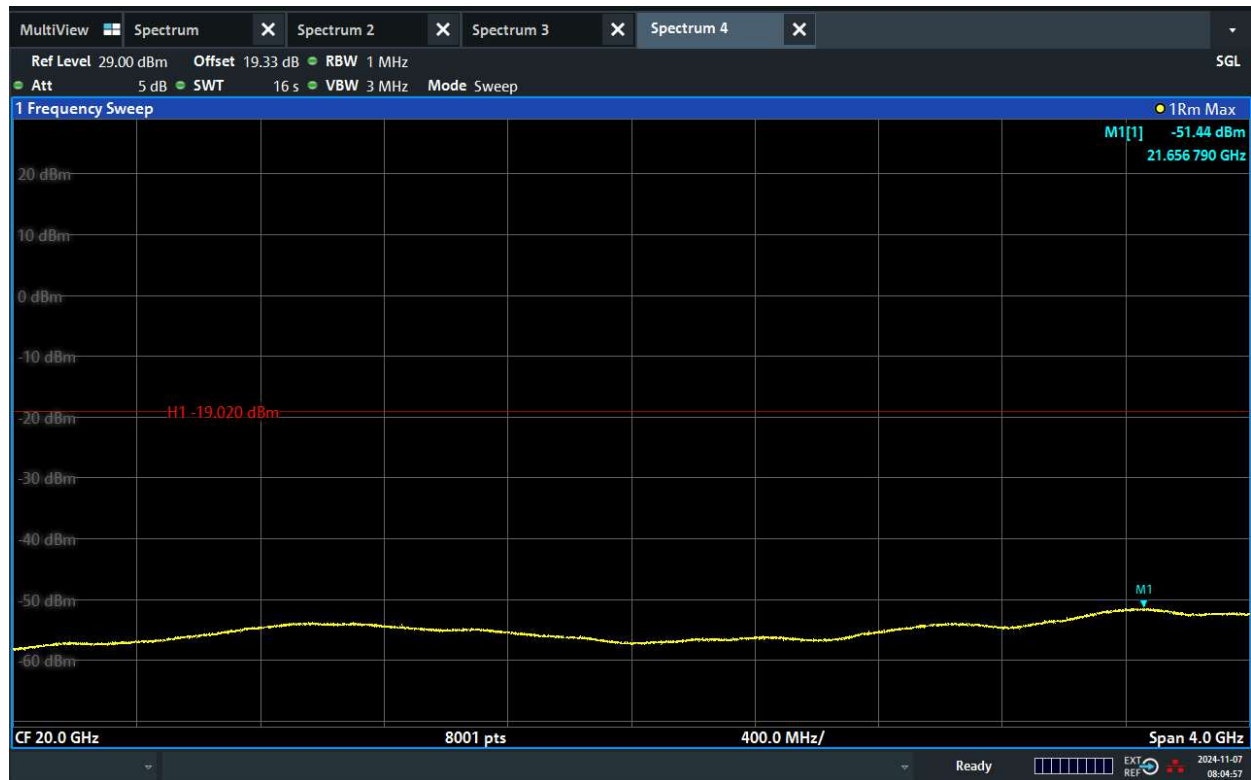
Channel Position B



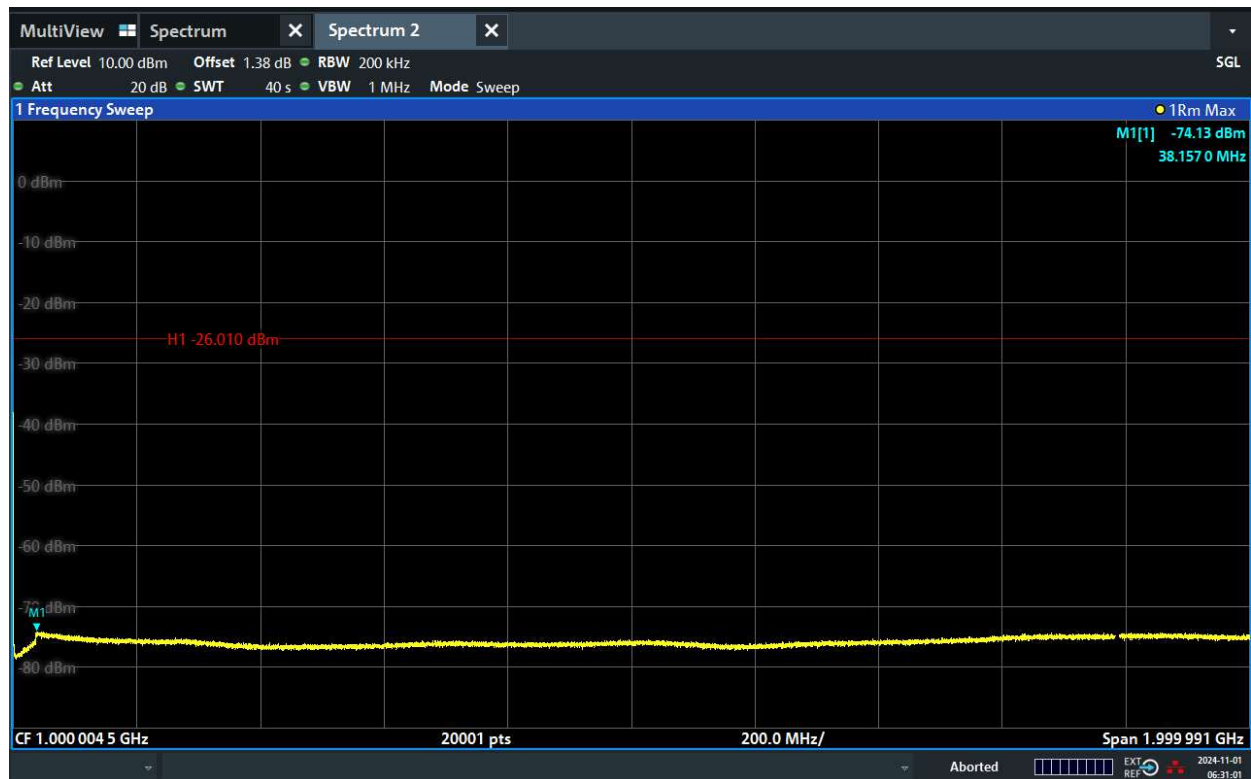
TEST REPORT



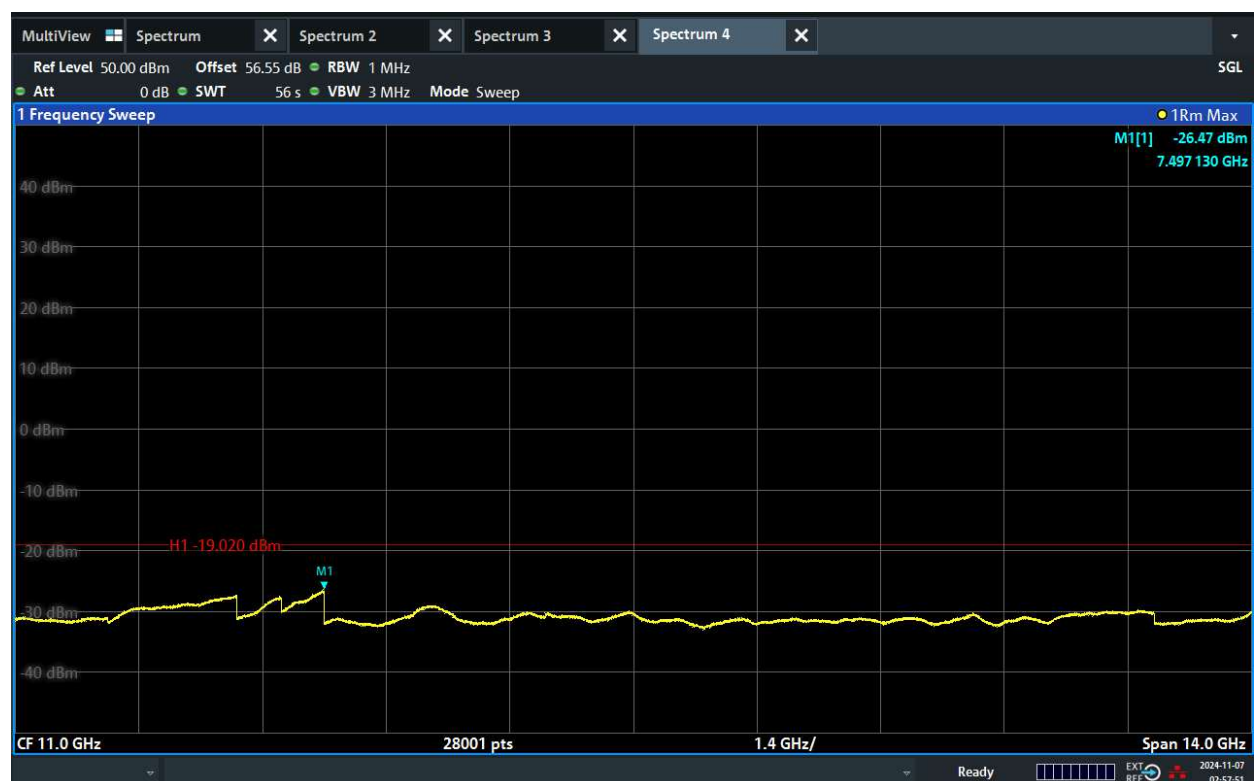
TEST REPORT



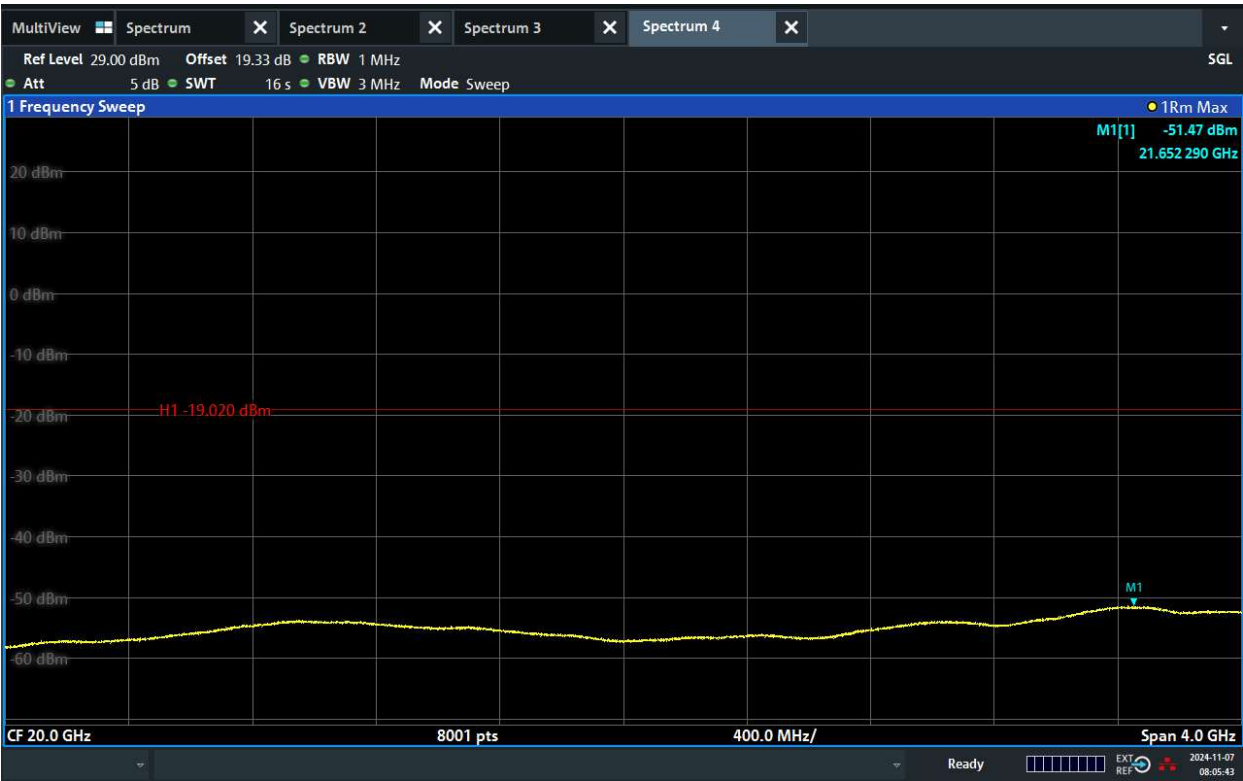
Channel Position T



TEST REPORT

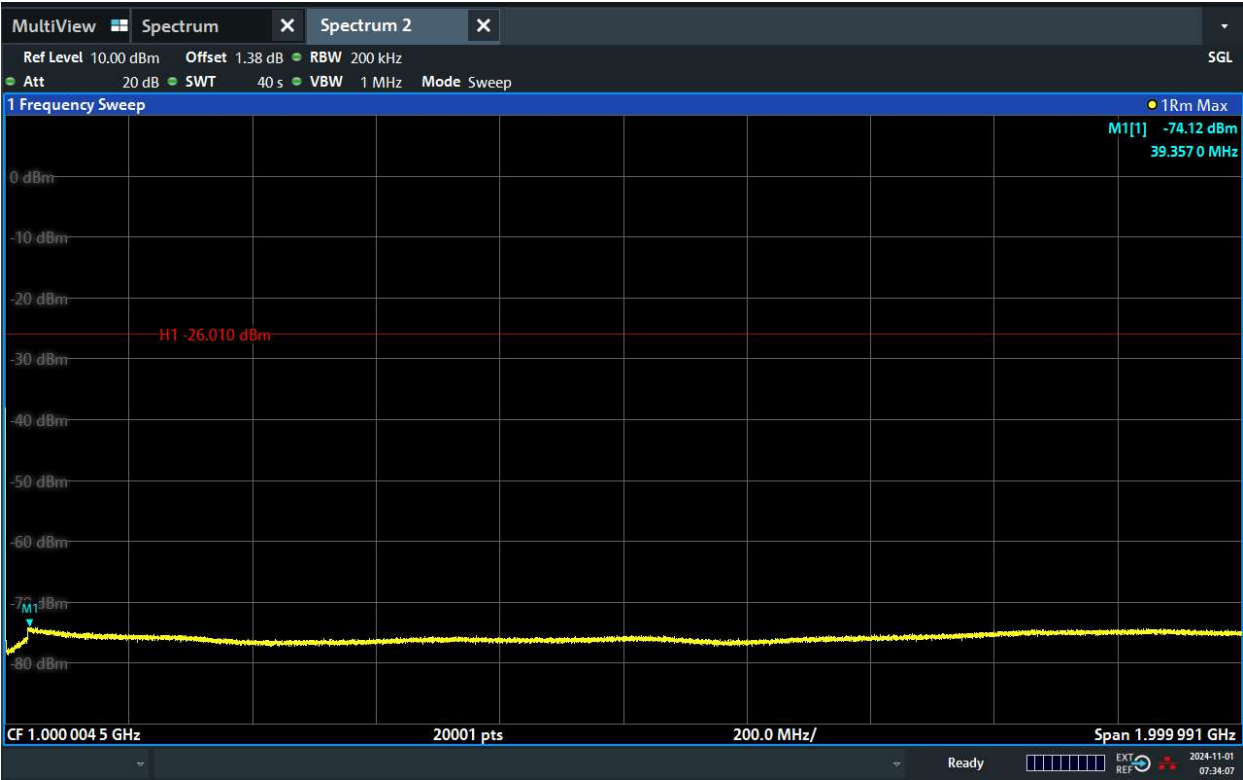


TEST REPORT

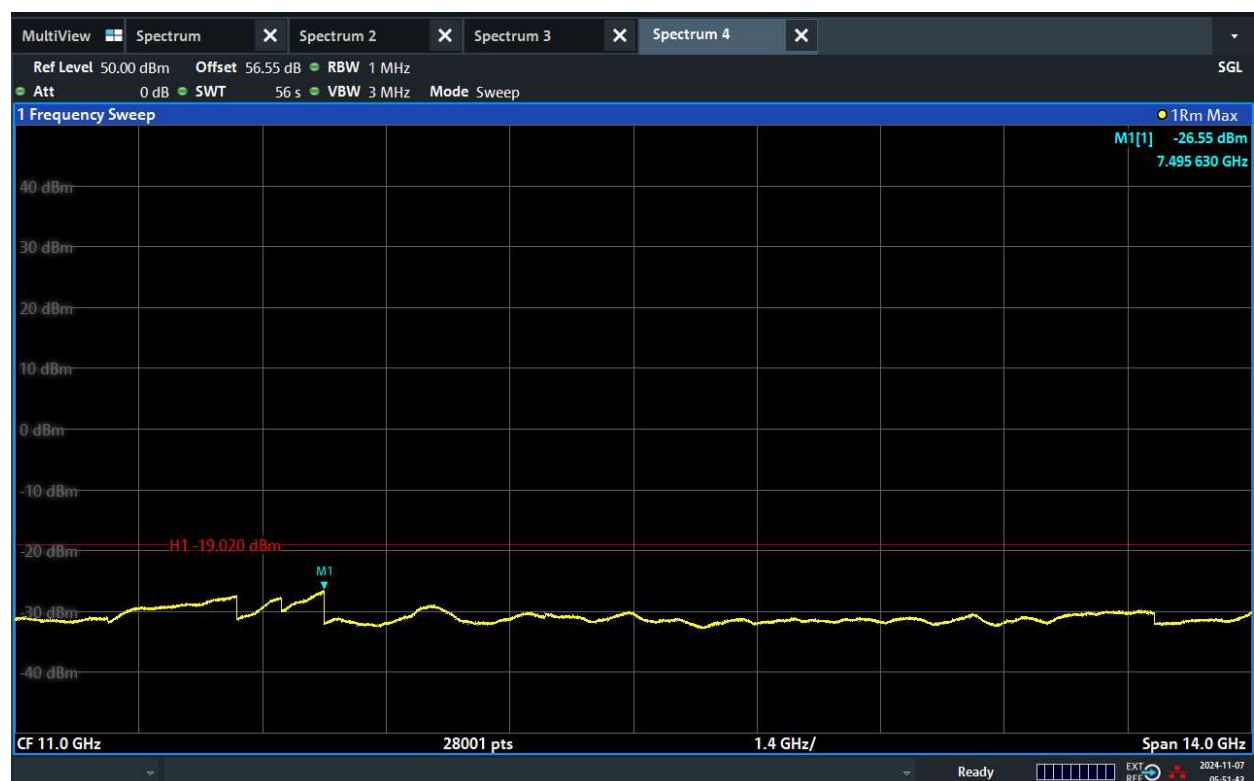


RAT	Antenna Port	Channel Position	NR/L Modulation	NR/L Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
2NR+2L+2SA	C	M	QPSK/64QAM	5	1000/200	-19.02/-26.01

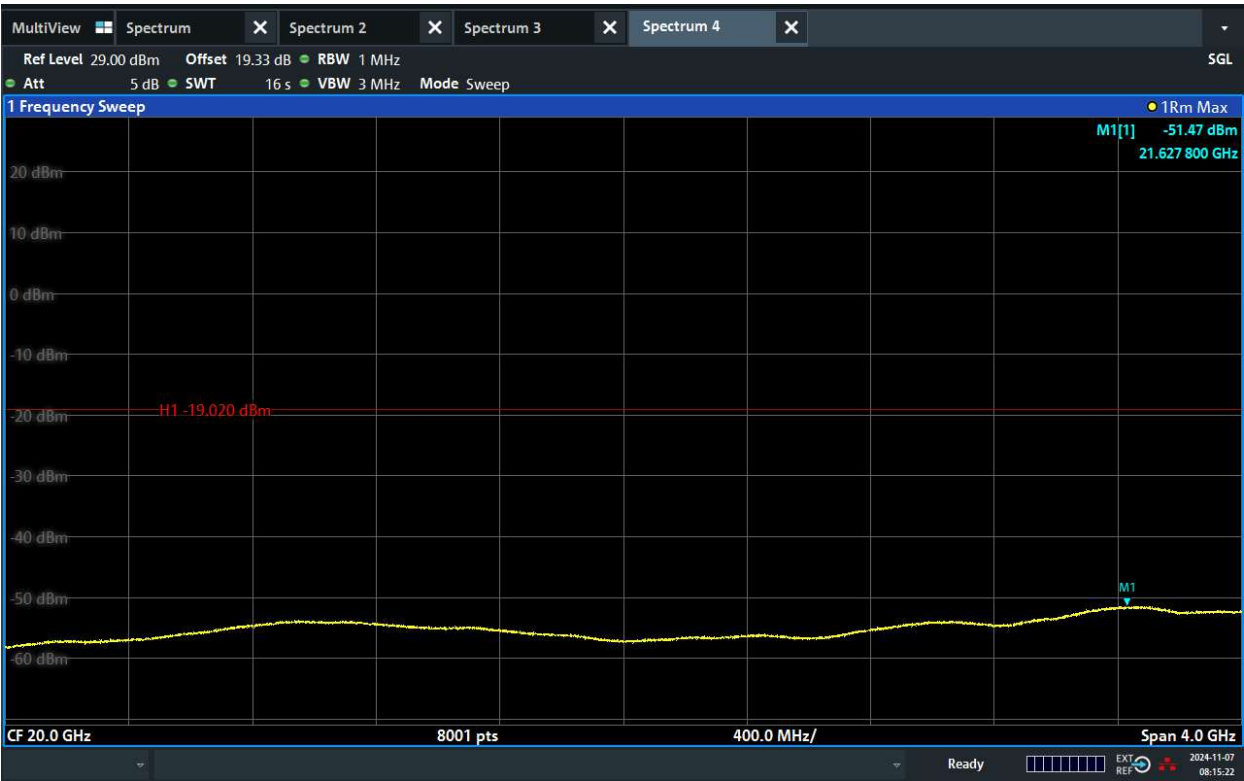
Channel Position M



TEST REPORT

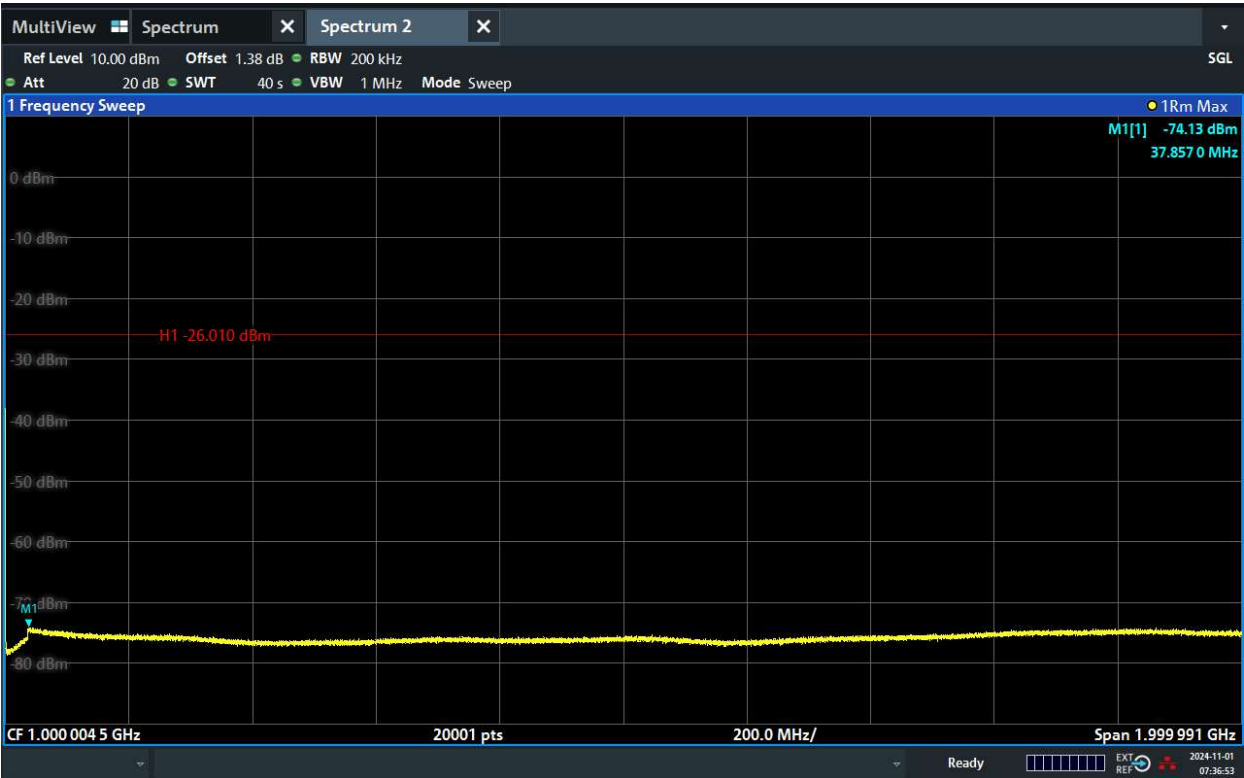


TEST REPORT

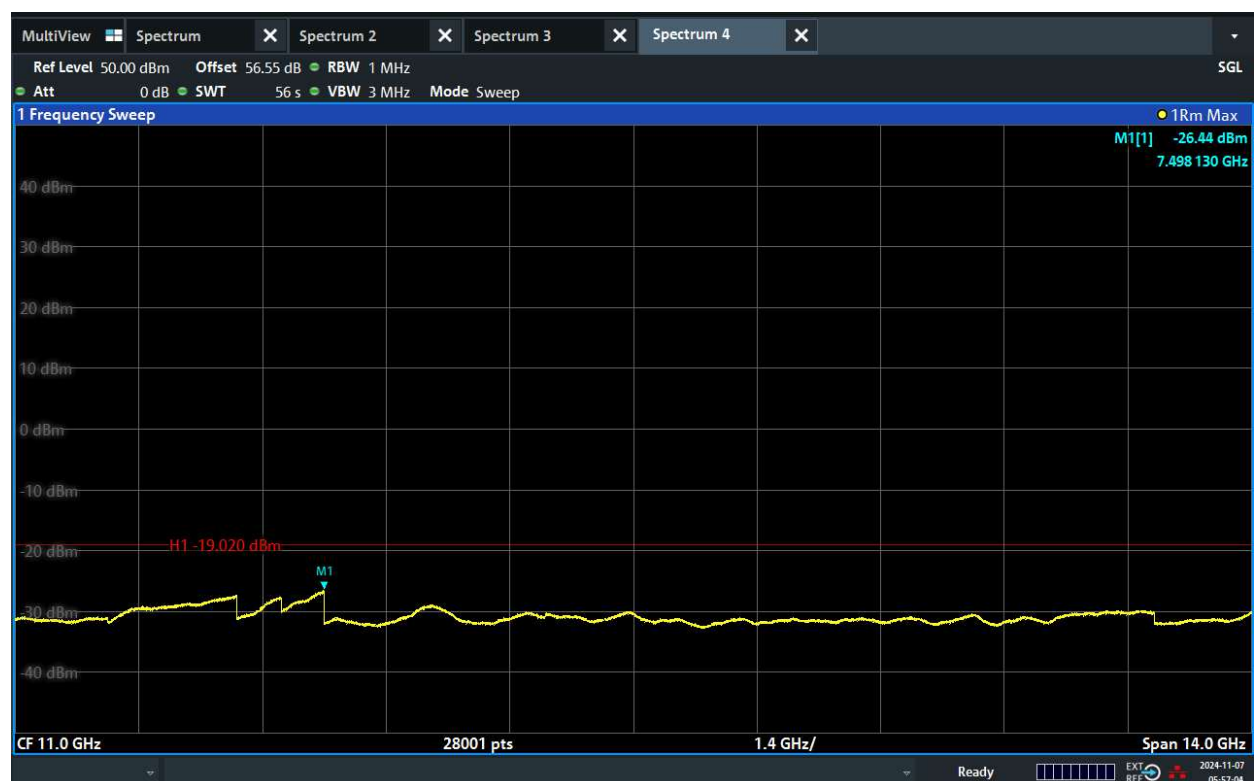
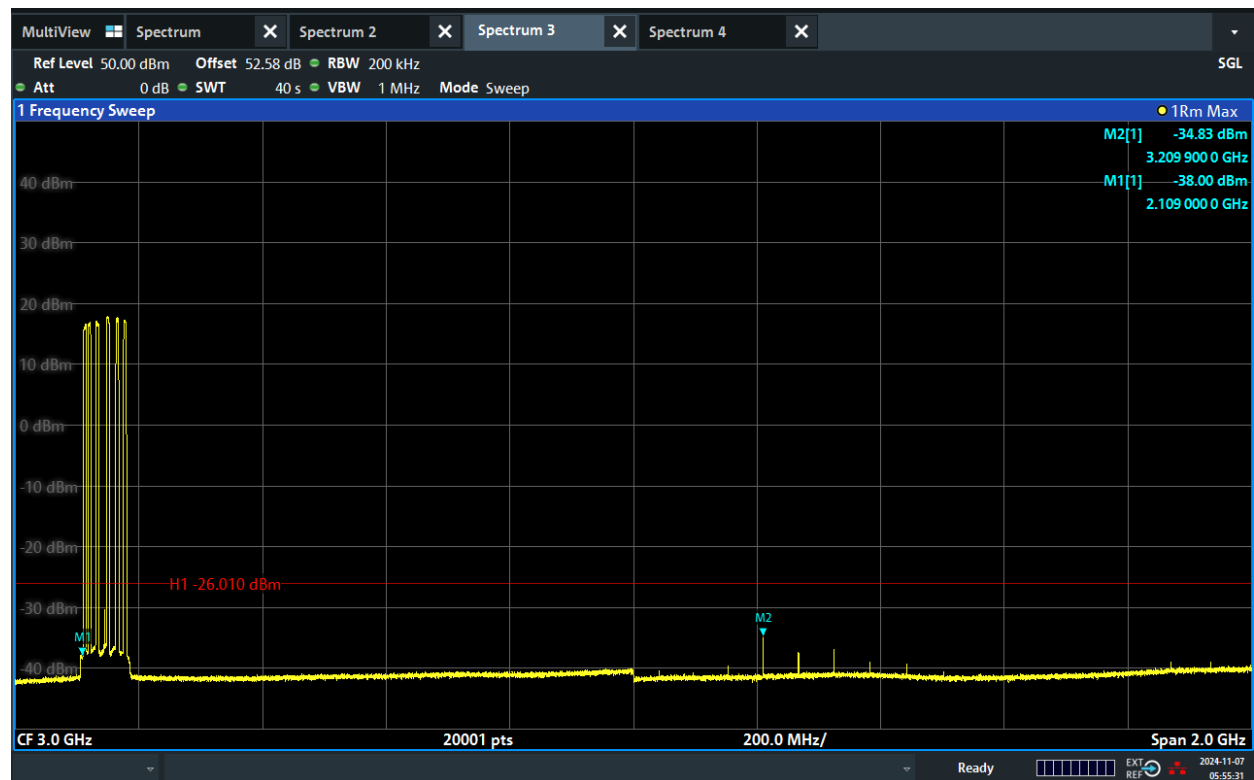


RAT	Antenna Port	Channel Position	NR/L Modulation	NR/L Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
2NR+2W+2L	C	M	QPSK/64QAM	5	1000/200	-19.02/-26.01

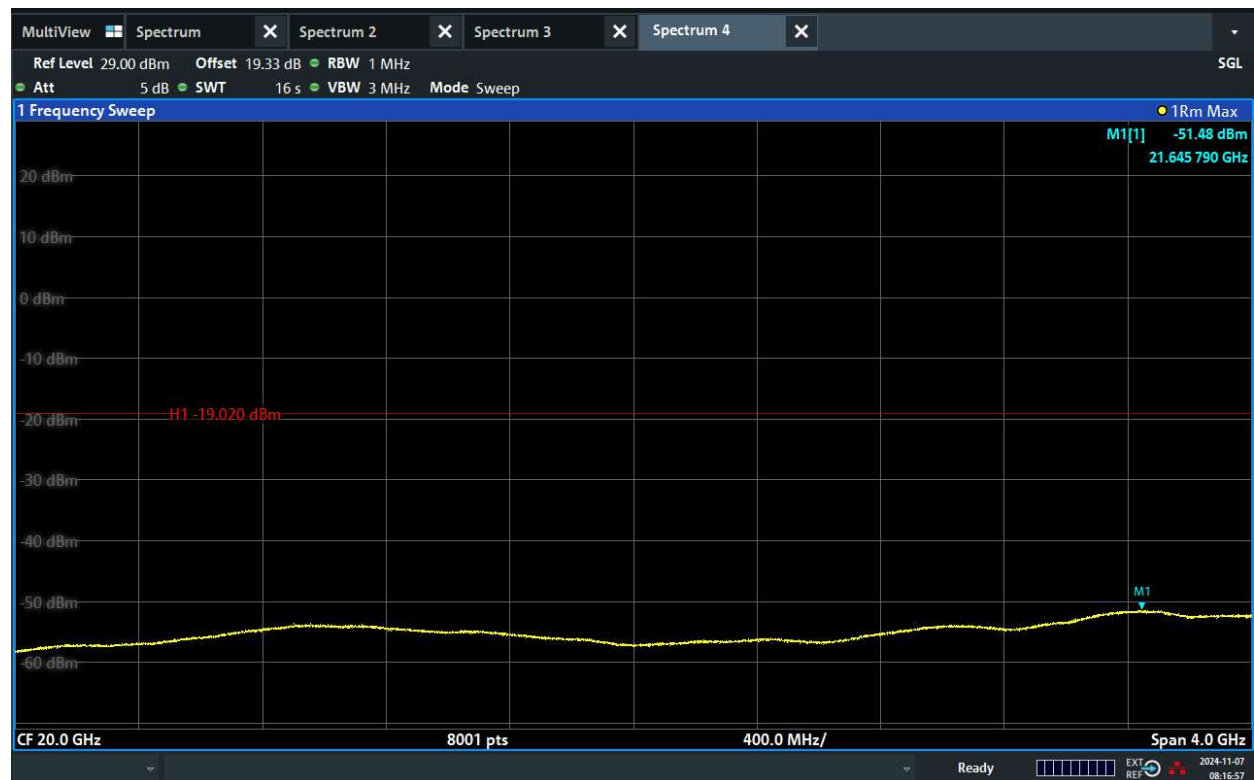
Channel Position M



TEST REPORT



TEST REPORT



TEST REPORT

7 Radiated Unwanted Emission

Test result: Pass

7.1 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).

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

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.

As per FCC Part 27, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

Therefore, the limit at 3m measurement distance is:

$$E(V/m) = 84.4 \text{ dB}\mu\text{V/m}$$

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

7.2 Measurement Procedure

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.

Emissions identified within the range 30MHz to 26.5GHz 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 μ 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.

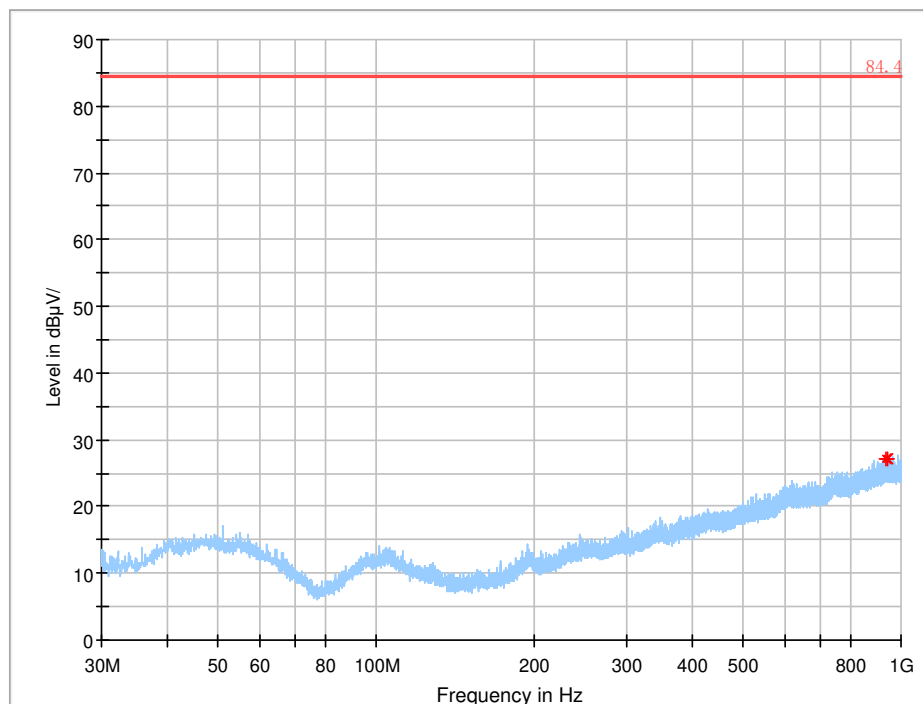
The measurements were performed at a 3m distance unless otherwise stated.

7.3 Measurement result

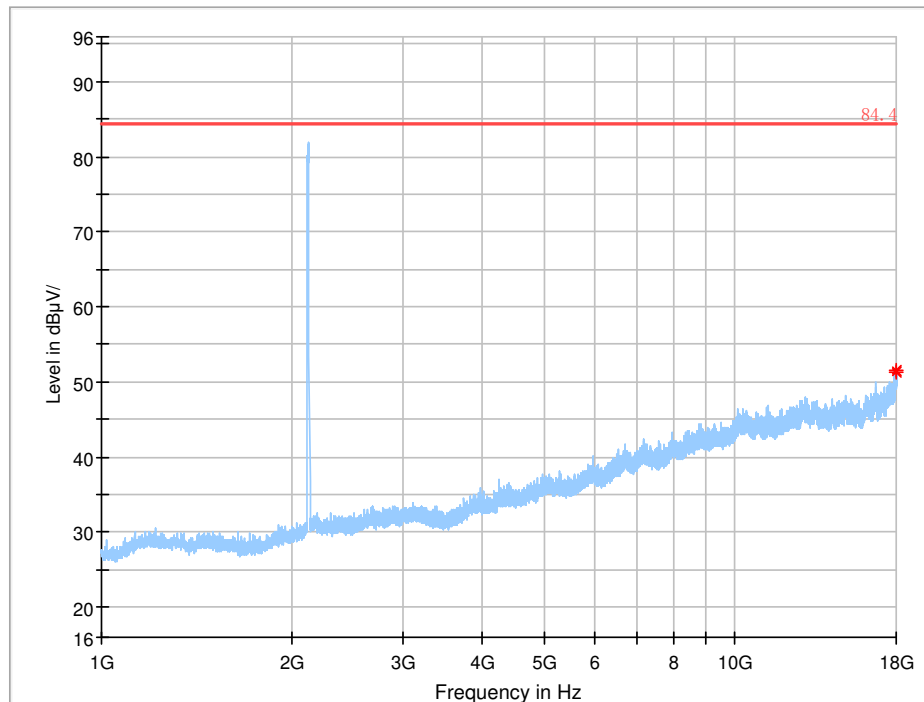
Configuration	Channel Position	Carrier	Carrier Bandwidth	Modulation
LTE-1C	B	1 Carrier	20MHz	64QAM
LTE-1C	T	1 Carrier	20MHz	64QAM

Polarization	Frequency (MHz)	Emission level PK (dBμV/m)	Limits (dBμV/m)	Margin (dBμV/m)
Vertical	939.084000	27.07	84.40	57.33
Horizontal	941.994000	27.05	84.40	57.35
Vertical	17986.200000	51.30	84.40	33.10
Horizontal	17988.600000	51.60	84.40	32.80
Vertical	26170.625000	48.29	84.40	36.11
Horizontal	26179.656250	47.97	84.40	36.43

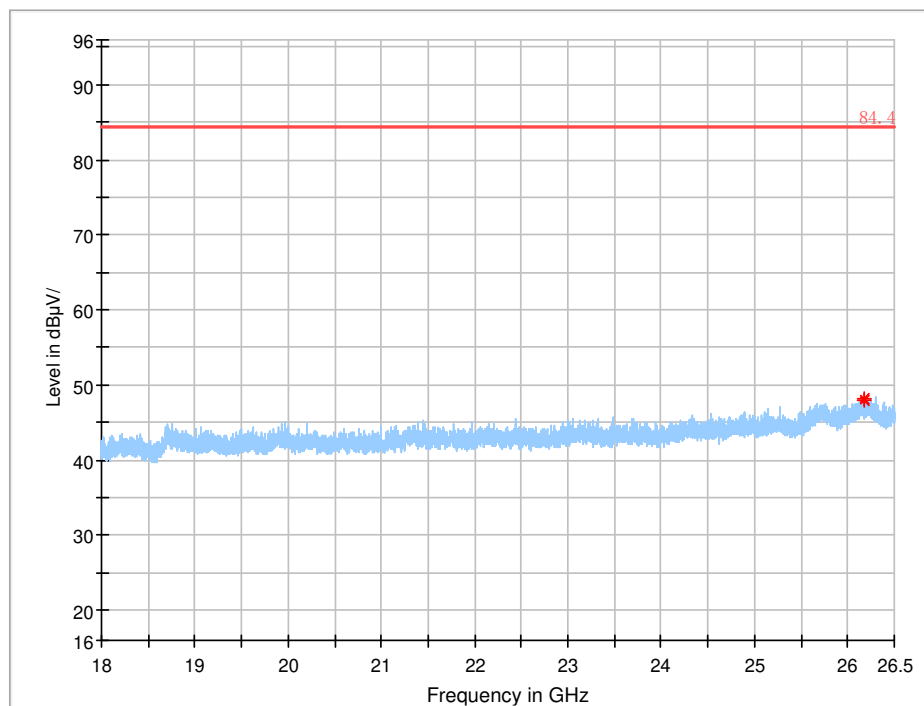
30-1000MHz, Horizontal and Vertical



1-18GHz, Horizontal and Vertical



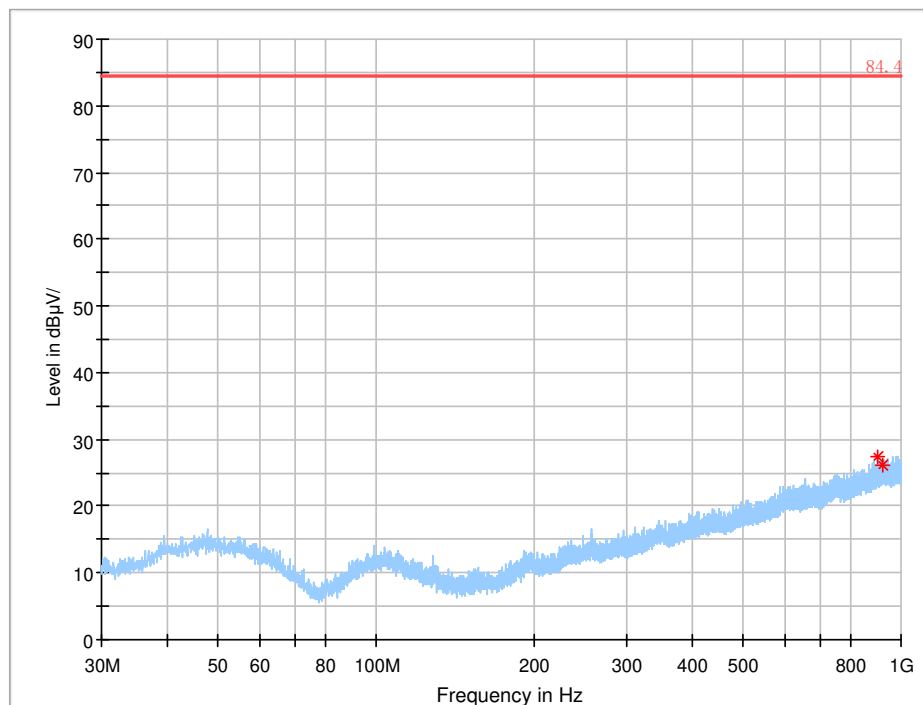
18-26.5GHz, Horizontal and Vertical



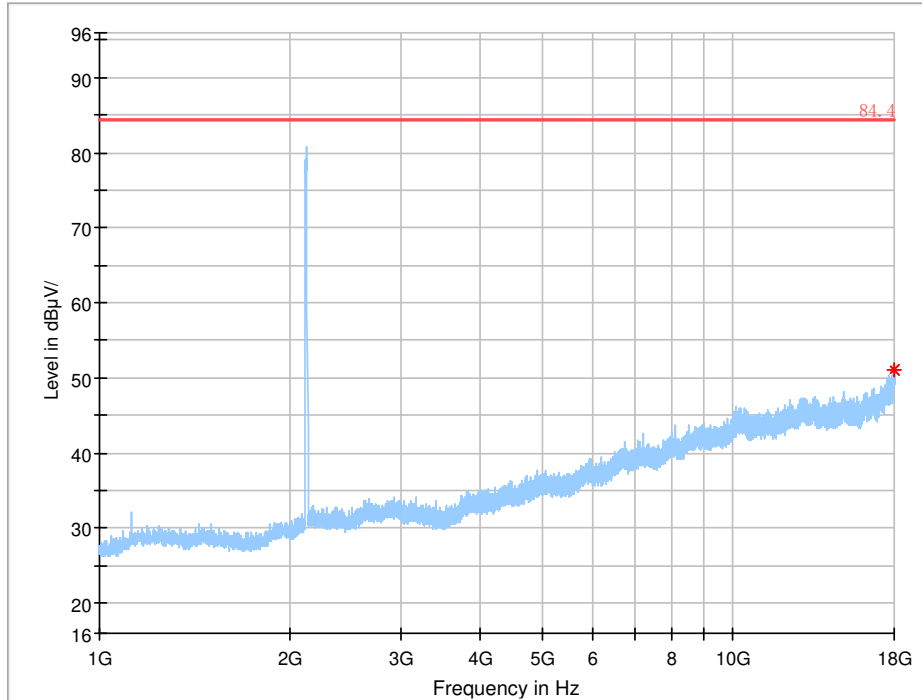
Configuration	Channel Position	Carrier	Carrier Bandwidth	Modulation
LTE-6C	M	6 Carrier	10MHz	64QAM

Polarization	Frequency (MHz)	Emission level PK (dB μ V/m)	Limits (dB μ V/m)	Margin (dB μ V/m)
Vertical	904.018500	27.50	84.40	56.90
Horizontal	921.381500	26.06	84.40	58.34
Vertical	17955.000000	50.99	84.40	33.41
Horizontal	17986.200000	51.00	84.40	33.40
Vertical	26107.406250	47.85	84.40	36.55
Horizontal	26168.500000	48.07	84.40	36.33

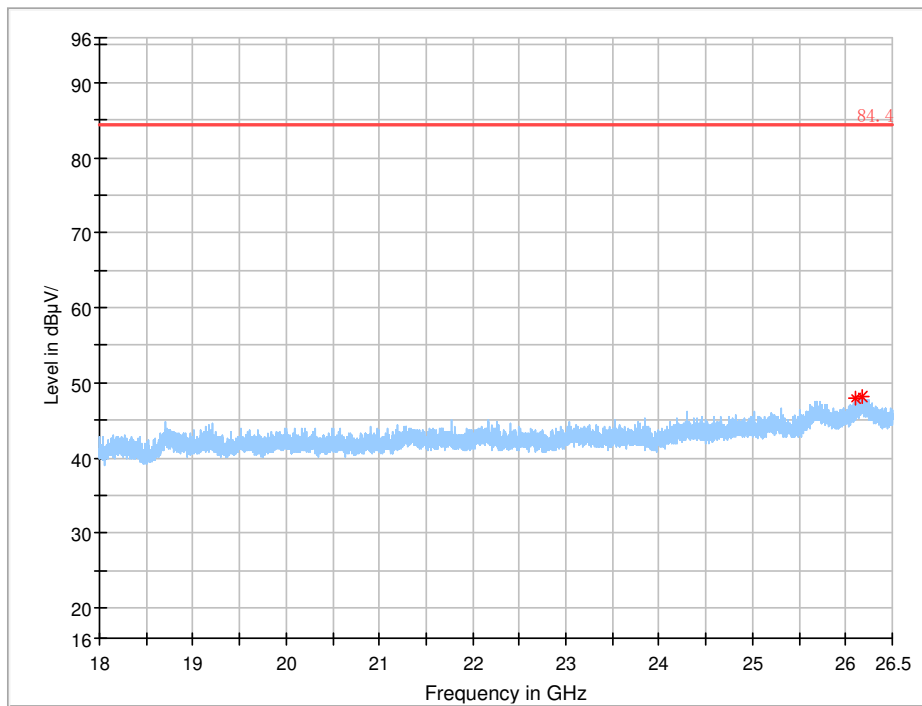
30-1000MHz, Horizontal and Vertical



1-18GHz, Horizontal and Vertical



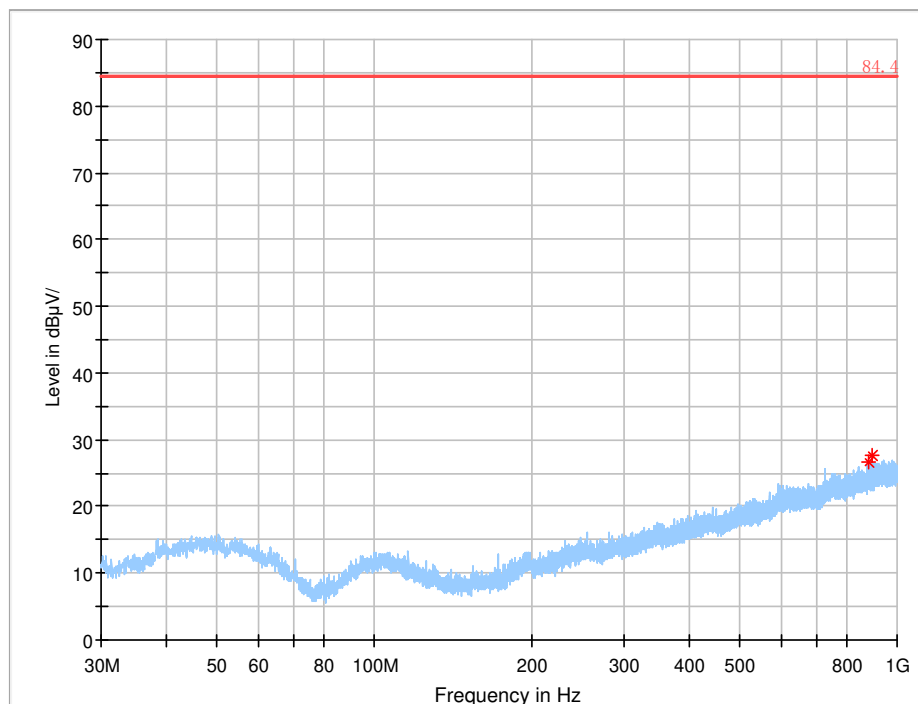
18-26.5GHz, Horizontal and Vertical



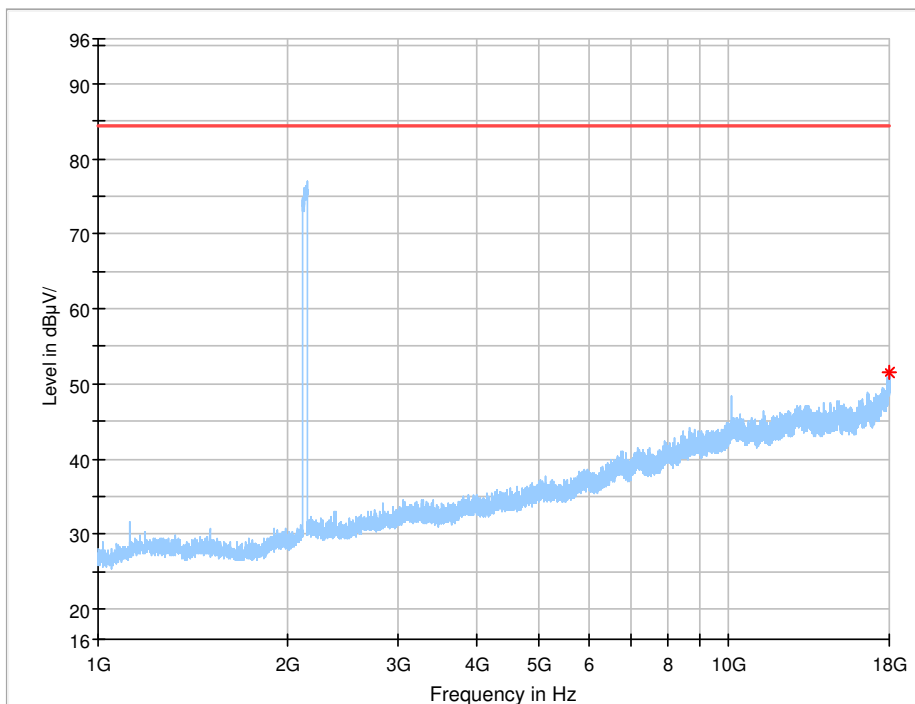
Configuration	Channel Position	Carrier	Carrier Bandwidth	Modulation
NR-1C	B	1 Carrier	40MHz	QPSK
NR-1C	T	1 Carrier	40MHz	QPSK

Polarization	Frequency (MHz)	Emission level PK (dBμV/m)	Limits (dBμV/m)	Margin (dBμV/m)
Vertical	881.466000	26.55	84.40	57.85
Horizontal	898.053000	27.53	84.40	56.87
Vertical	17986.800000	51.43	84.40	32.97
Horizontal	17989.200000	51.63	84.40	32.77
Vertical	26173.812500	48.69	84.40	35.71
Horizontal	26192.937500	47.94	84.40	36.46

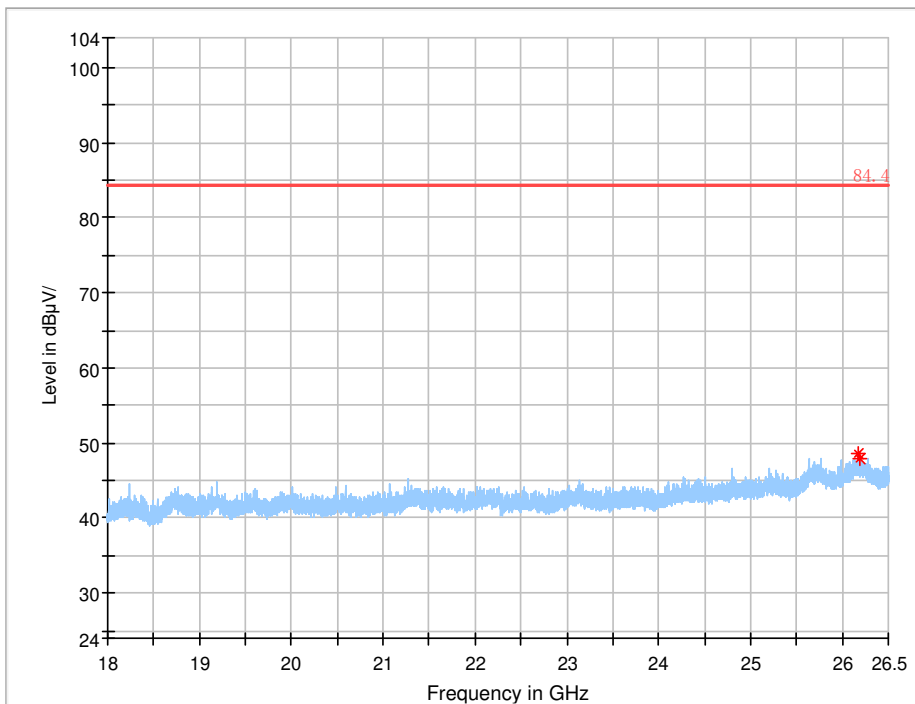
30-1000MHz, Horizontal and Vertical



1-18GHz, Horizontal and Vertical



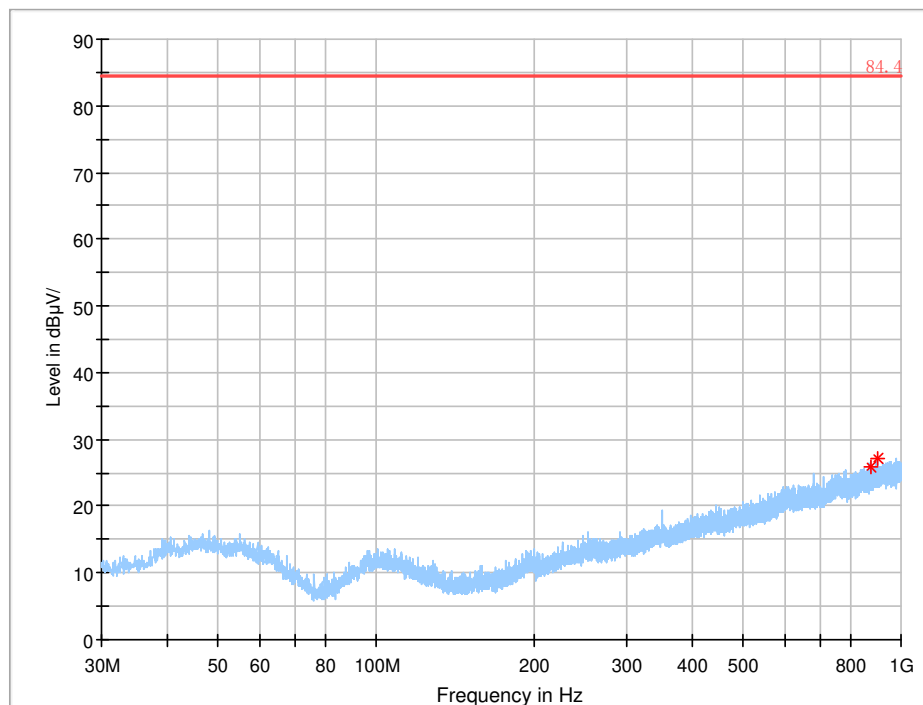
18-26.5GHz, Horizontal and Vertical



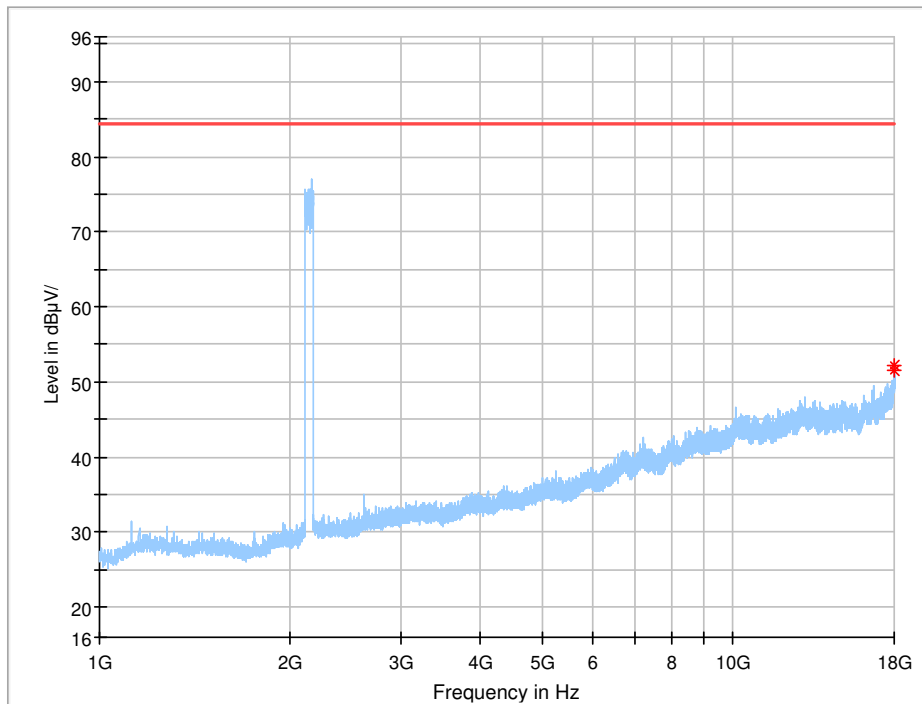
Configuration	Channel Position	Carrier	Carrier Bandwidth	Modulation
NR-6C	M	1 Carrier	10MHz	QPSK

Polarization	Frequency (MHz)	Emission level PK (dBμV/m)	Limits (dBμV/m)	Margin (dBμV/m)
Vertical	874.676000	25.80	84.40	58.60
Horizontal	898.489500	27.23	84.40	57.17
Vertical	17968.200000	51.64	84.40	32.76
Horizontal	17985.000000	52.23	84.40	32.17
Vertical	26178.593750	47.99	84.40	36.41
Horizontal	26197.718750	47.99	84.40	36.41

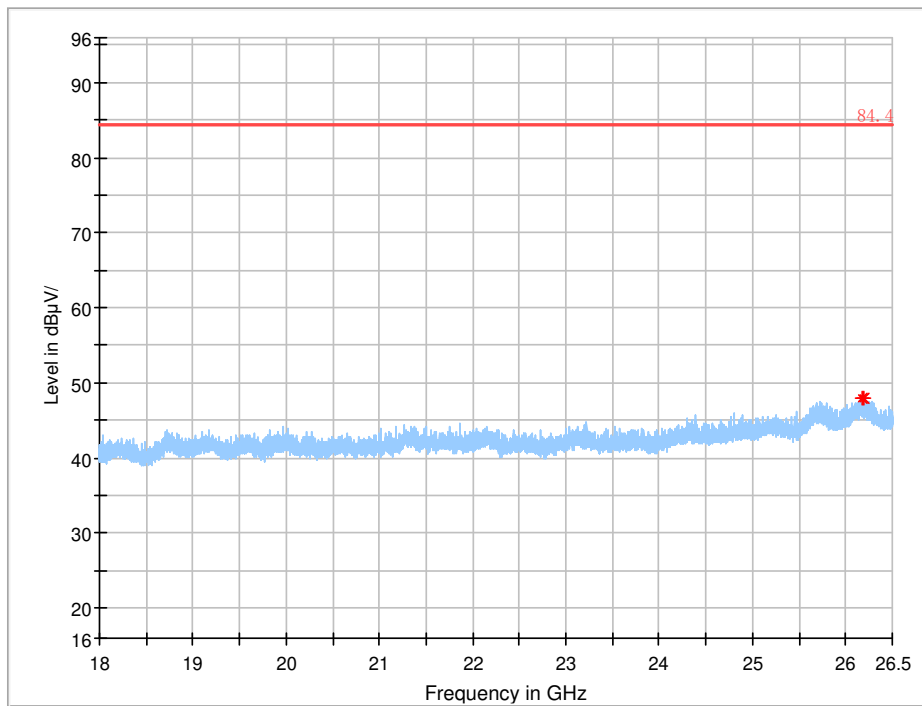
30-1000MHz, Horizontal and Vertical



1-18GHz, Horizontal and Vertical



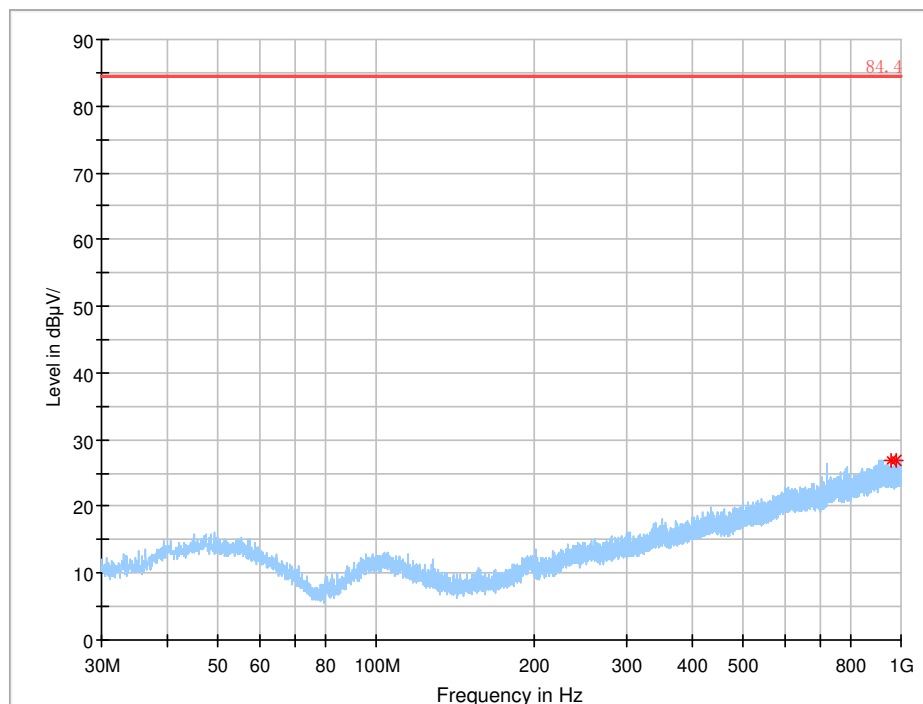
18-26.5GHz, Horizontal and Vertical



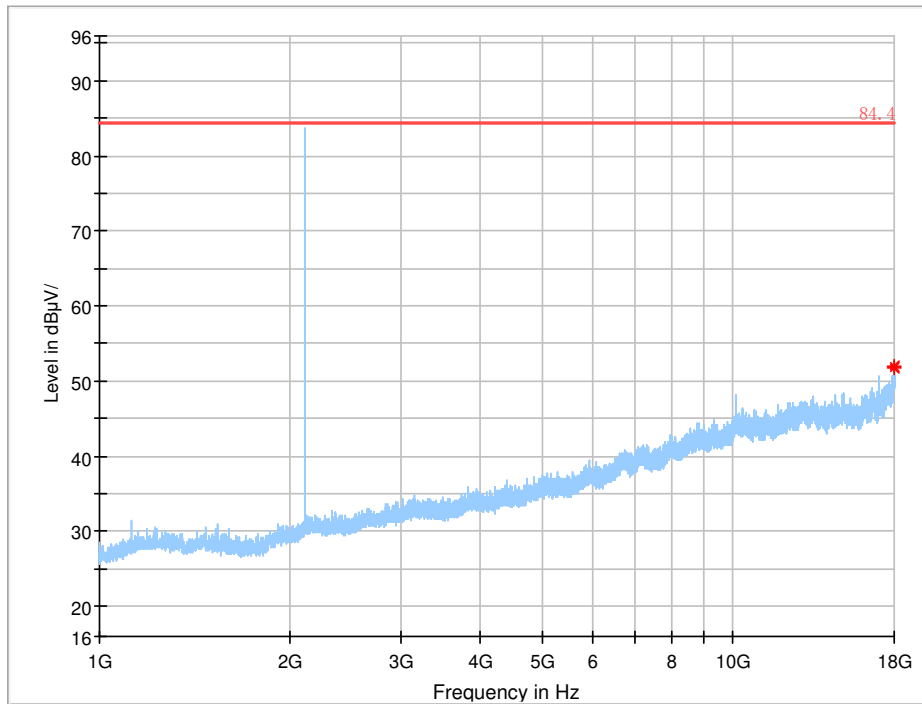
Configuration	Channel Position	Carrier	Carrier Bandwidth	Modulation
W-1C	B	1 Carrier	5MHz	64QAM
W-1C	T	1 Carrier	5MHz	64QAM

Polarization	Frequency (MHz)	Emission level PK (dBμV/m)	Limits (dBμV/m)	Margin (dBμV/m)
Vertical	953.876500	27.00	84.40	57.40
Horizontal	979.727000	26.97	84.40	57.43
Vertical	17980.800000	51.95	84.40	32.45
Horizontal	18000.000000	51.74	84.40	32.66
Vertical	26142.468750	48.11	84.40	36.29
Horizontal	26155.750000	48.85	84.40	35.55

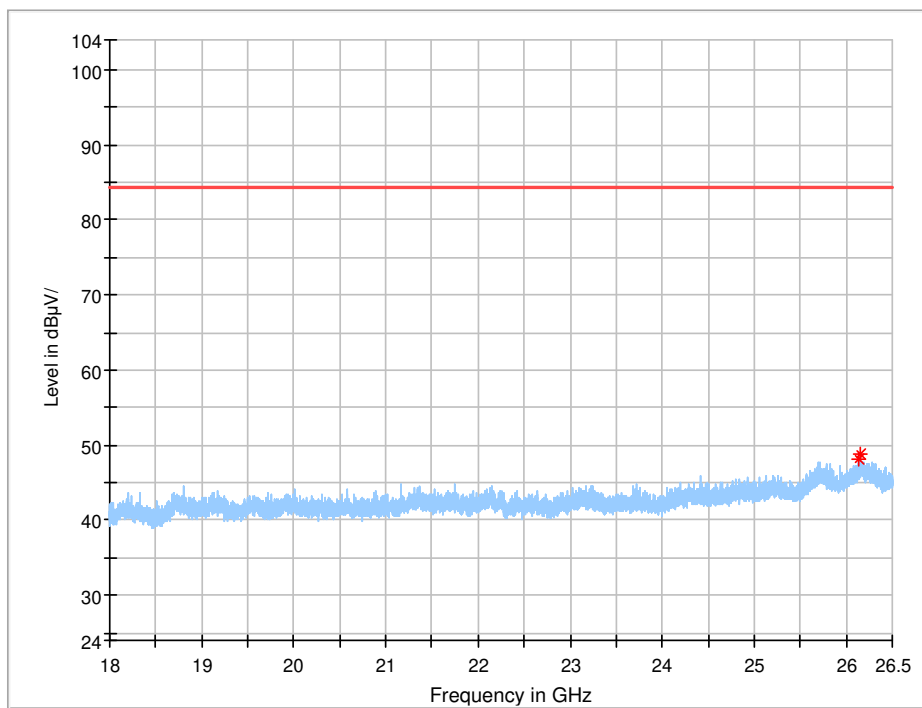
30-1000MHz, Horizontal and Vertical



1-18GHz, Horizontal and Vertical



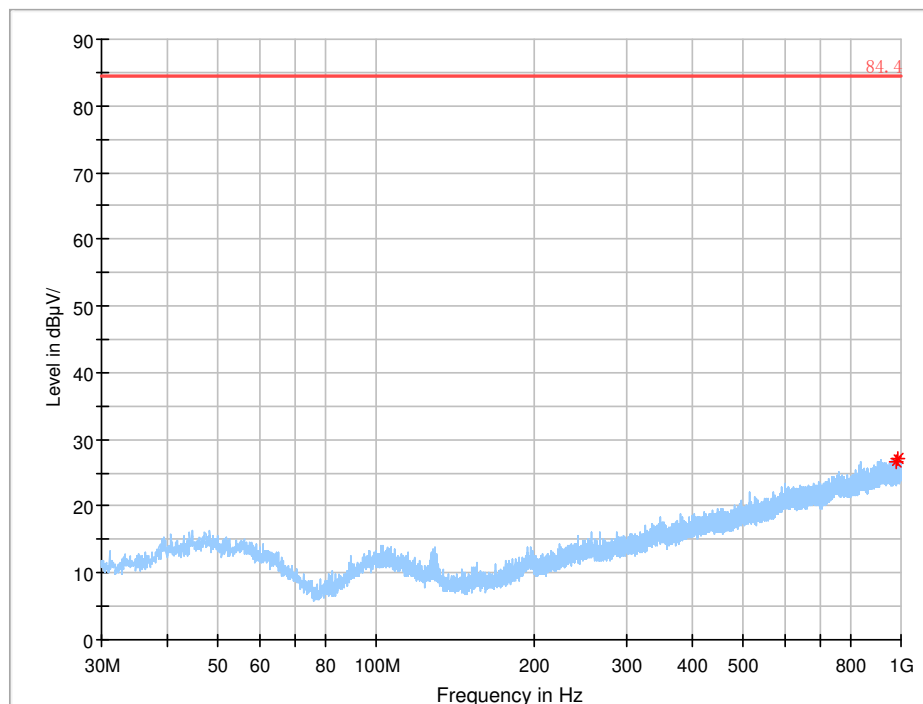
18-26.5GHz, Horizontal and Vertical



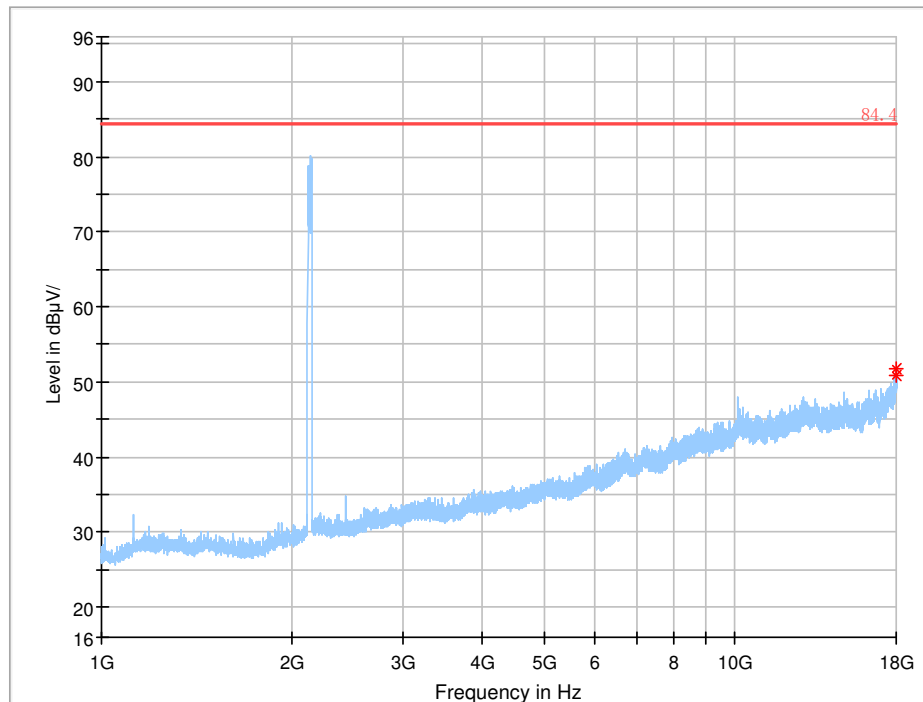
Configuration	Channel Position	Carrier	Carrier Bandwidth	Modulation
W-6C	M	6 Carrier	5MHz	64QAM

Polarization	Frequency (MHz)	Emission level PK (dB μ V/m)	Limits (dB μ V/m)	Margin (dB μ V/m)
Vertical	980.551500	26.74	84.40	57.66
Horizontal	983.995000	27.06	84.40	57.34
Vertical	17984.400000	50.95	84.40	33.45
Horizontal	17988.600000	51.84	84.40	32.56
Vertical	26171.156250	49.48	84.40	34.92
Horizontal	26198.781250	48.66	84.40	35.74

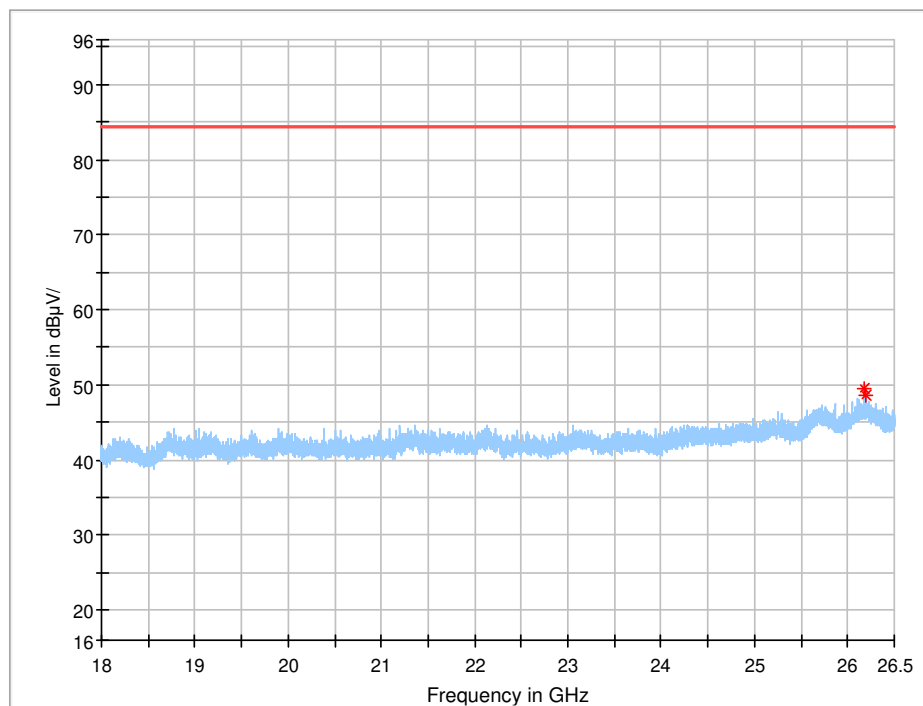
30-1000MHz, Horizontal and Vertical



1-18GHz, Horizontal and Vertical



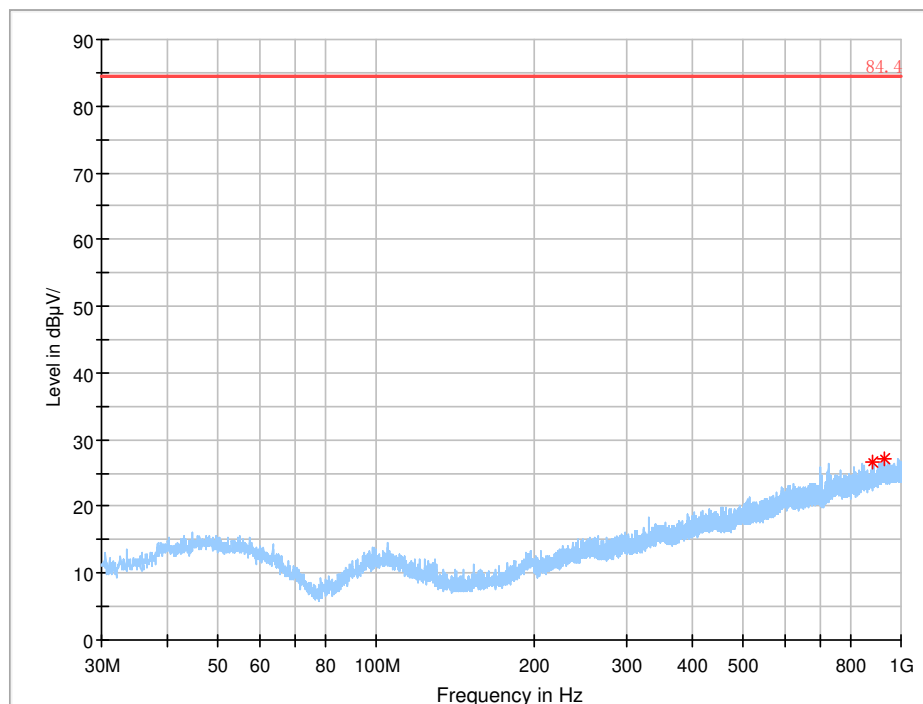
18-26.5GHz, Horizontal and Vertical



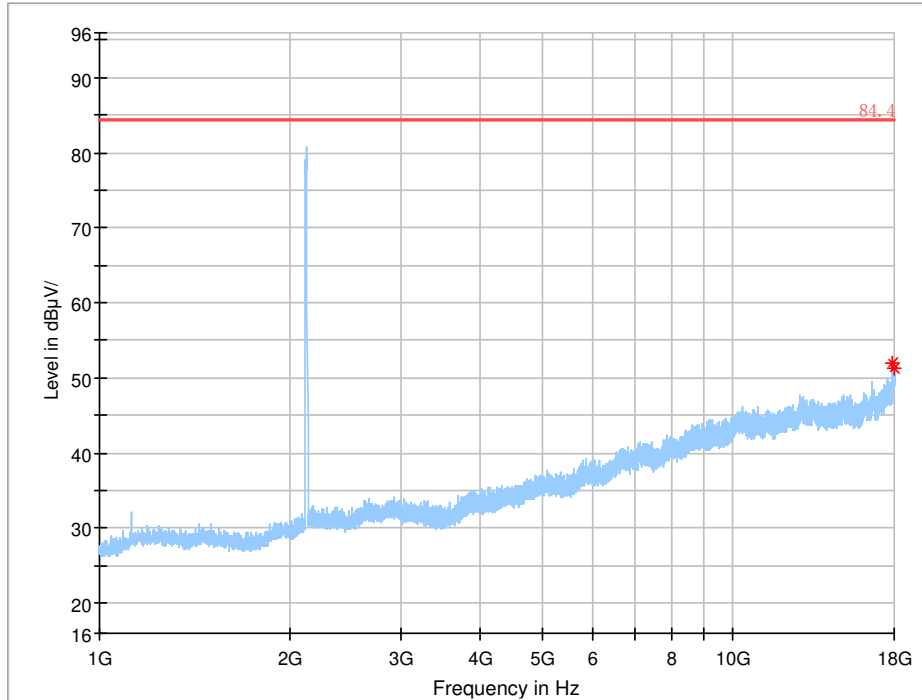
Configuration	Channel Position	Carrier	L Carrier Bandwidth	L Modulation
SA+L	B	2 Carrier	10MHz	64QAM
SA+L	T	2 Carrier	10MHz	64QAM

Polarization	Frequency (MHz)	Emission level PK (dBμV/m)	Limits (dBμV/m)	Margin (dBμV/m)
Vertical	883.648500	26.60	84.40	57.80
Horizontal	929.869000	27.20	84.40	57.20
Vertical	17934.600000	51.87	84.40	32.53
Horizontal	17986.800000	51.29	84.40	33.11
Vertical	26134.500000	47.94	84.40	36.46
Horizontal	26155.218750	47.84	84.40	36.56

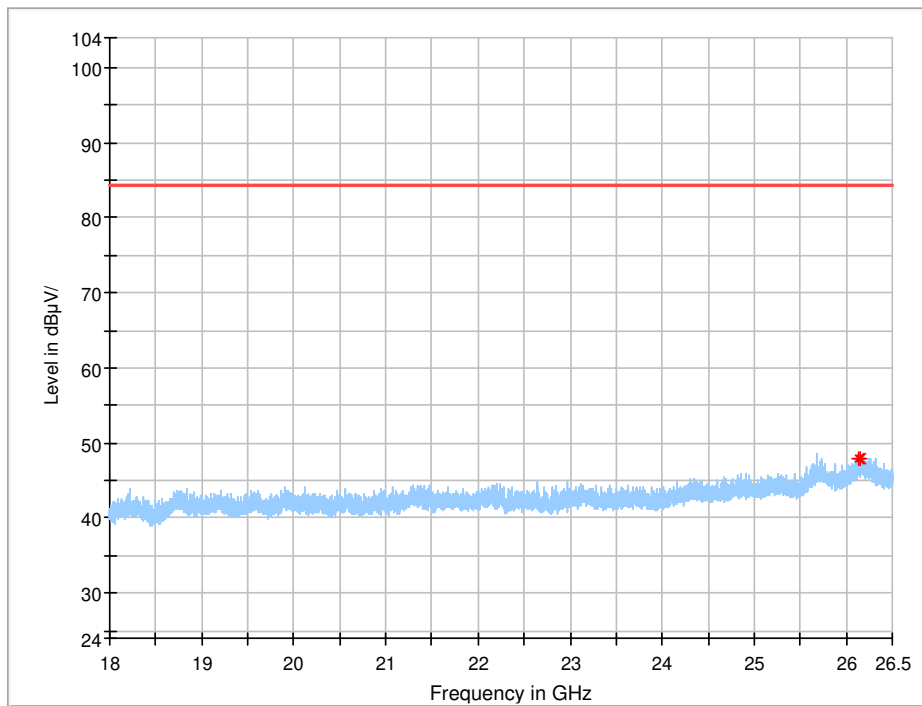
30-1000MHz, Horizontal and Vertical



1-18GHz, Horizontal and Vertical



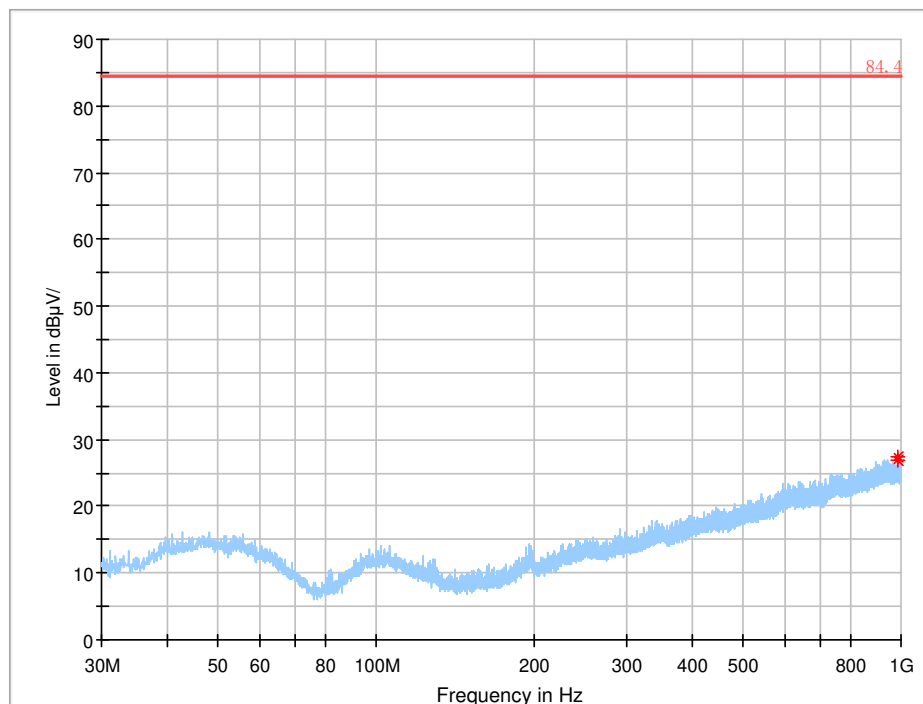
18-26.5GHz, Horizontal and Vertical



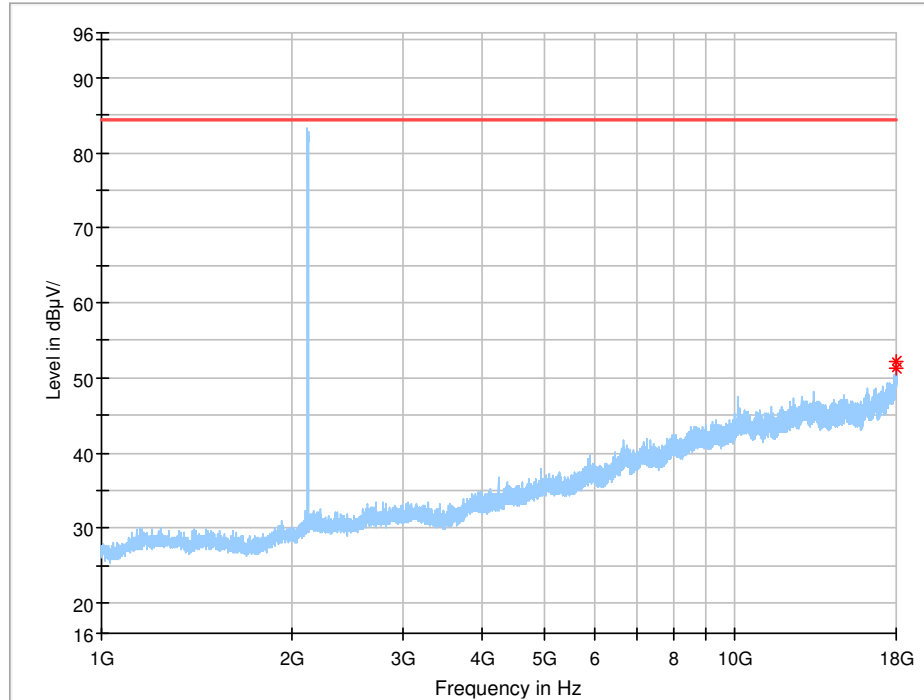
Configuration	Channel Position	Carrier	L Carrier Bandwidth	L Modulation
IB+L	B	2 Carrier	10MHz	64QAM
IB+L	T	2 Carrier	10MHz	64QAM

Polarization	Frequency (MHz)	Emission level PK (dB μ V/m)	Limits (dB μ V/m)	Margin (dB μ V/m)
Vertical	982.588500	27.32	84.40	57.08
Horizontal	984.625500	26.93	84.40	57.47
Vertical	17984.400000	51.34	84.40	33.06
Horizontal	17996.400000	52.17	84.40	32.23
Vertical	26200.906250	48.16	84.40	36.24
Horizontal	26229.062500	48.73	84.40	35.67

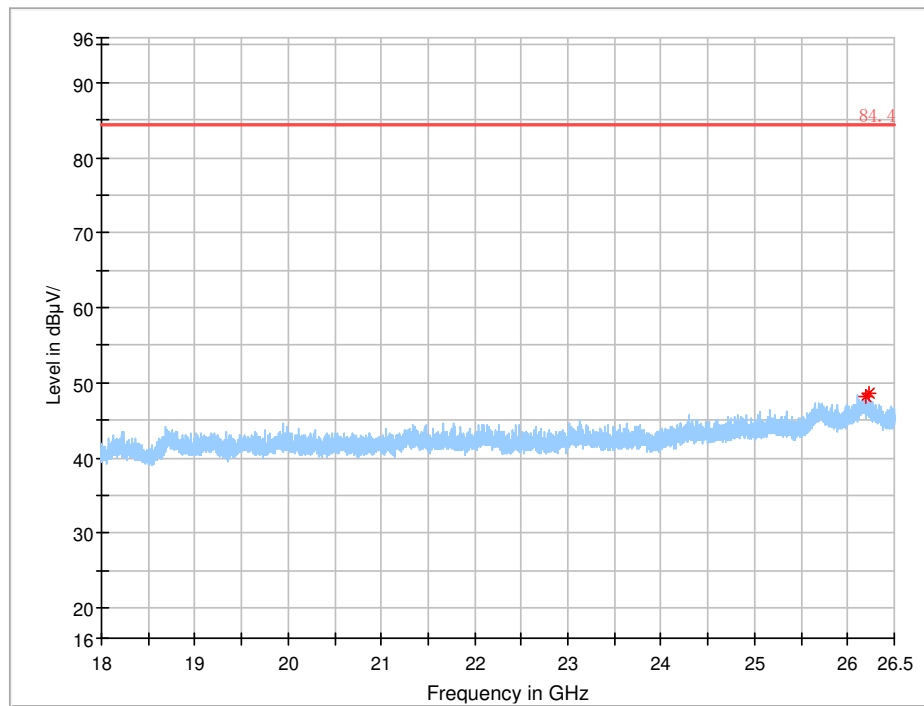
30-1000MHz, Horizontal and Vertical



1-18GHz, Horizontal and Vertical



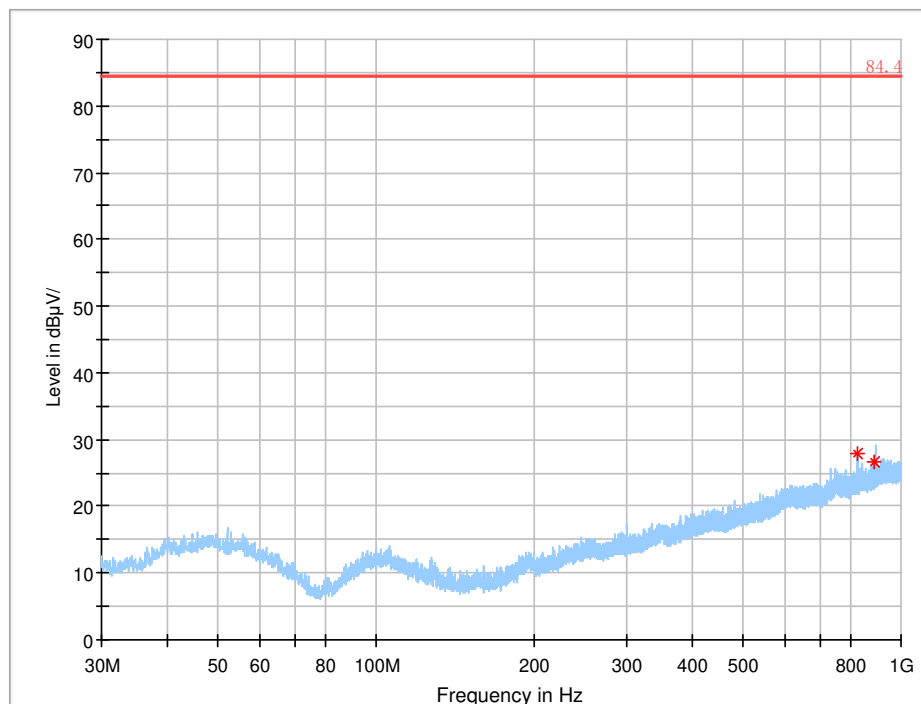
18-26.5GHz, Horizontal and Vertical



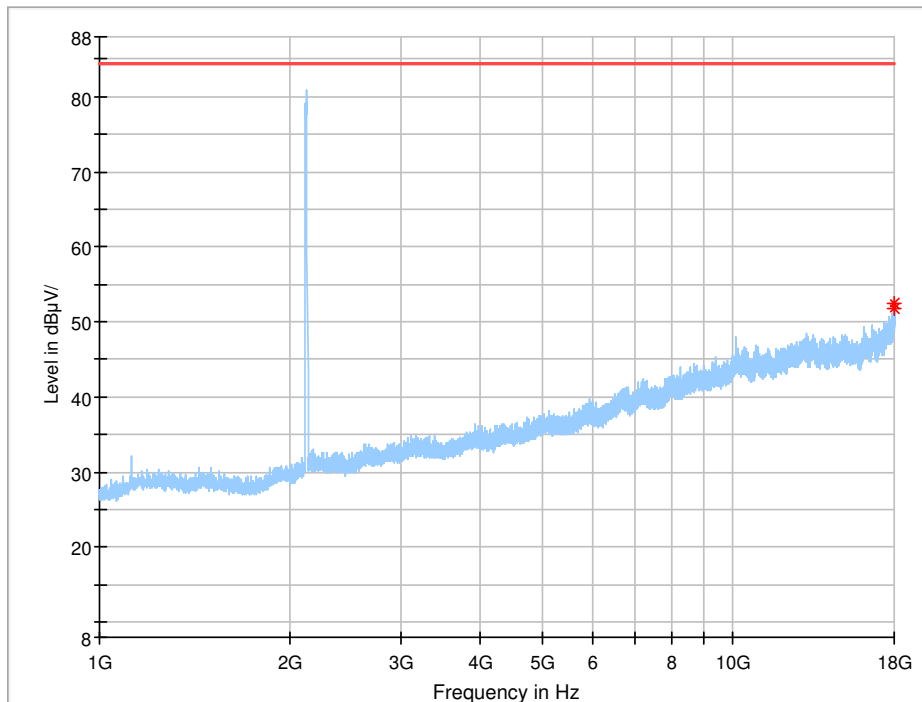
Configuration	Channel Position	Carrier	L Carrier Bandwidth	L Modulation
2GB+L	B	3 Carrier	20MHz	64QAM
2GB+L	T	3 Carrier	20MHz	64QAM

Polarization	Frequency (MHz)	Emission level PK (dB μ V/m)	Limits (dB μ V/m)	Margin (dB μ V/m)
Vertical	825.836500	27.99	84.40	56.41
Horizontal	887.577000	26.60	84.40	57.80
Vertical	17994.600000	52.56	84.40	31.84
Horizontal	18000.000000	51.70	84.40	32.70
Vertical	26119.625000	48.90	84.40	35.50
Horizontal	26225.875000	49.42	84.40	34.98

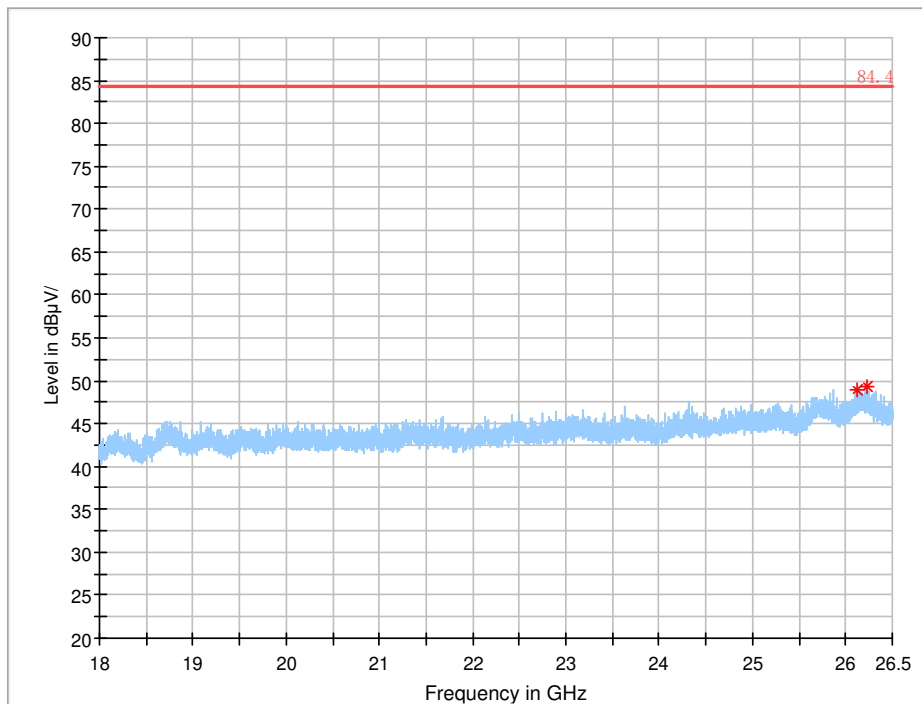
30-1000MHz, Horizontal and Vertical



1-18GHz, Horizontal and Vertical



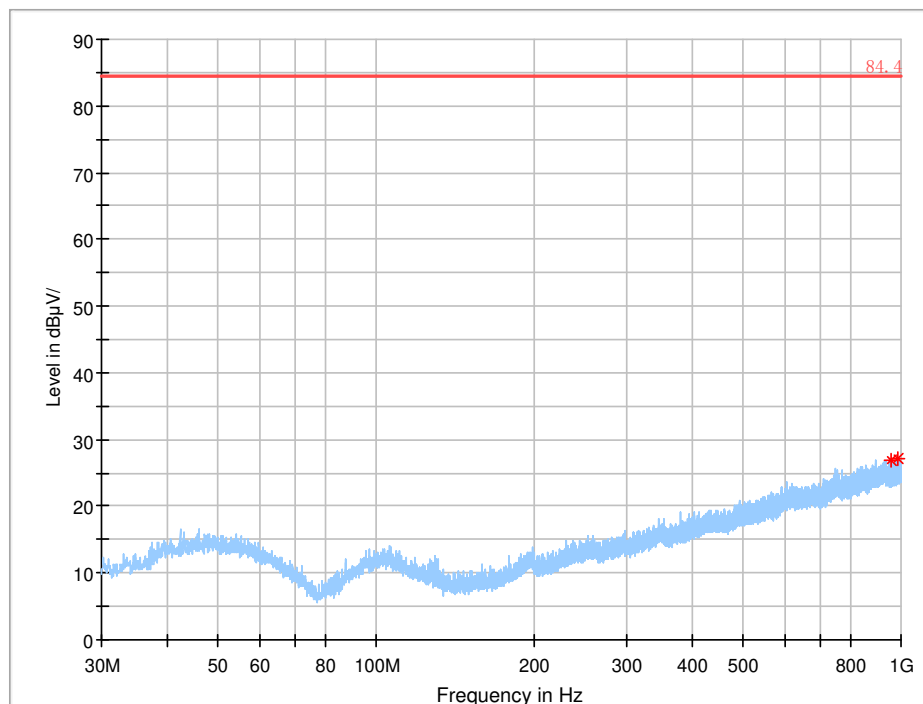
18-26.5GHz, Horizontal and Vertical



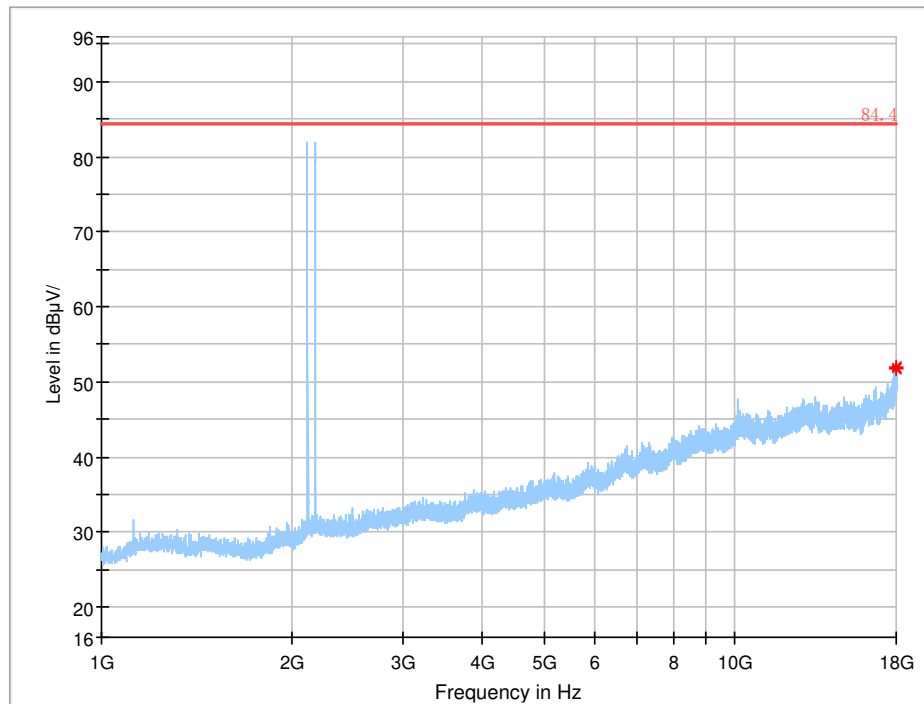
Configuration	Channel Position	Carrier	W/L Carrier Bandwidth	W/L Modulation
W+SA+L	M	3 Carrier	5MHz	64QAM

Polarization	Frequency (MHz)	Emission level PK (dB μ V/m)	Limits (dB μ V/m)	Margin (dB μ V/m)
Vertical	955.962000	26.92	84.40	57.48
Horizontal	985.401500	27.09	84.40	57.31
Vertical	17970.000000	51.71	84.40	32.69
Horizontal	17994.000000	51.96	84.40	32.44
Vertical	26211.000000	48.41	84.40	35.99
Horizontal	26214.718750	48.01	84.40	36.39

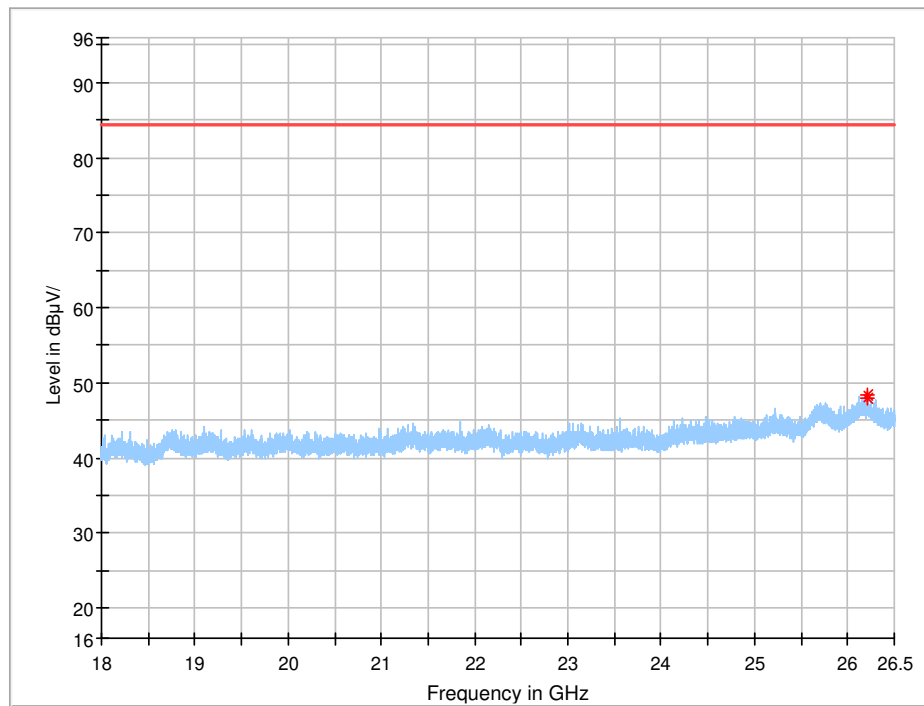
30-1000MHz, Horizontal and Vertical



1-18GHz, Horizontal and Vertical



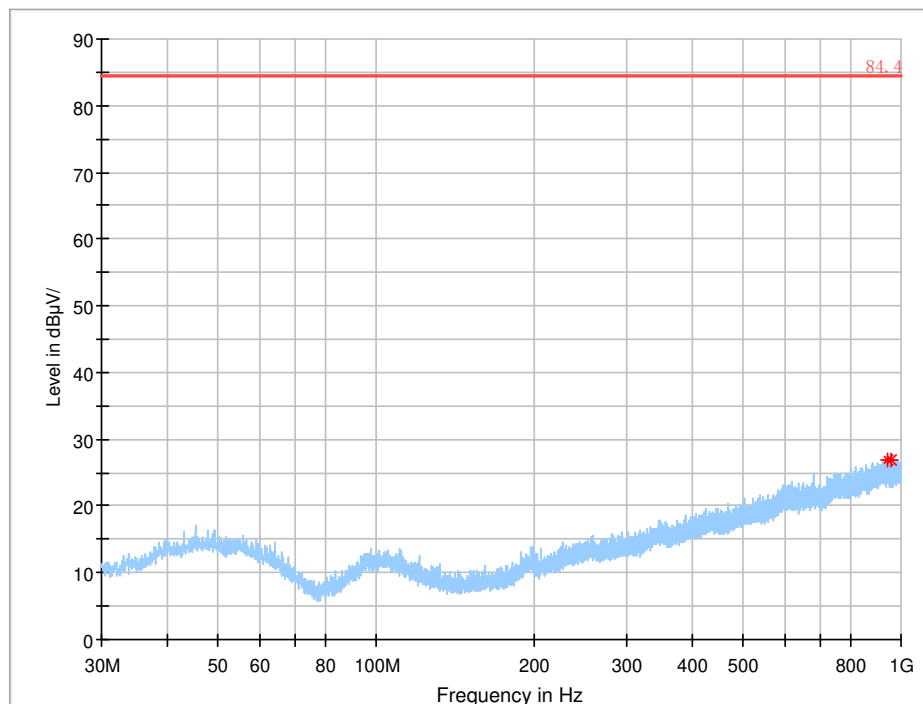
18-26.5GHz, Horizontal and Vertical



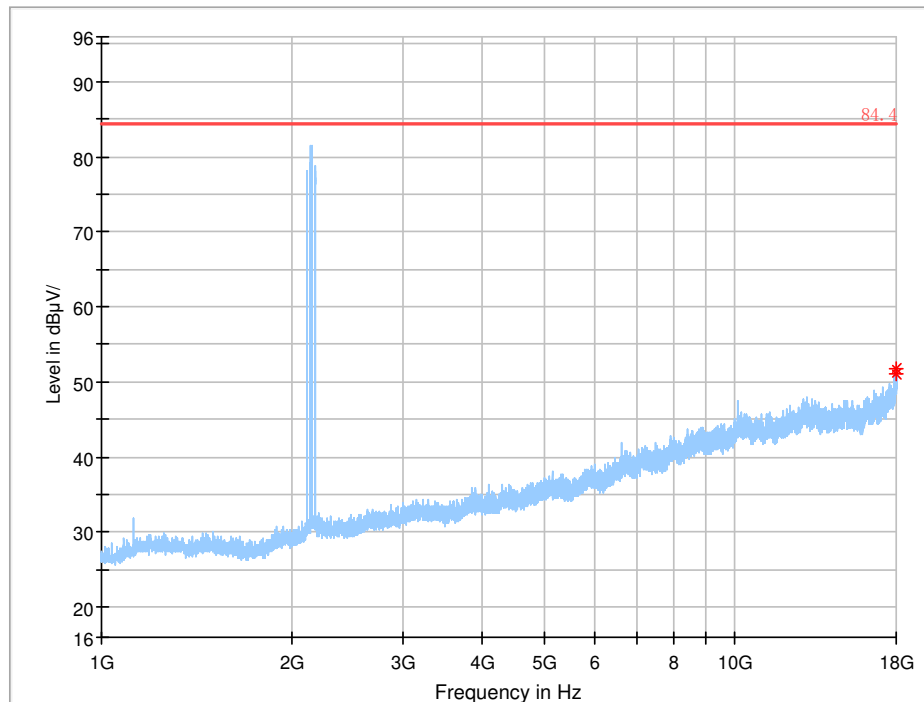
Configuration	Channel Position	Carrier	NR/L Carrier Bandwidth	NR/L Modulation
2NR+2L+2SA	M	6 Carrier	5MHz	QPSK/64QAM

Polarization	Frequency (MHz)	Emission level PK (dBμV/m)	Limits (dBμV/m)	Margin (dBμV/m)
Vertical	944.855500	26.91	84.40	57.49
Horizontal	960.133000	26.81	84.40	57.59
Vertical	17983.200000	51.78	84.40	32.62
Horizontal	17989.800000	51.14	84.40	33.26
Vertical	26165.843750	47.95	84.40	36.45
Horizontal	26170.093750	47.91	84.40	36.49

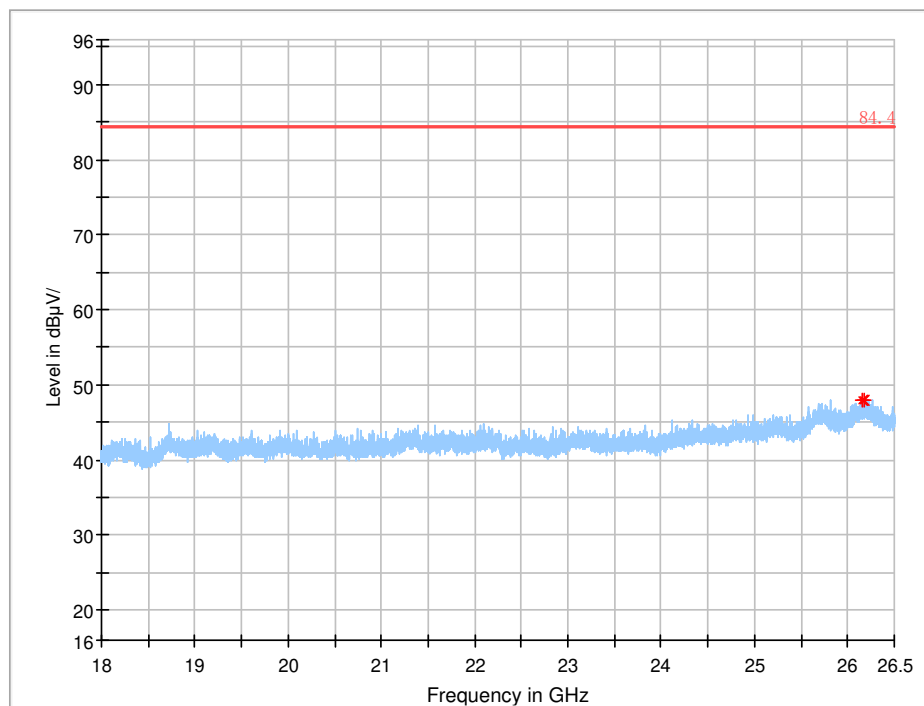
30-1000MHz, Horizontal and Vertical



1-18GHz, Horizontal and Vertical



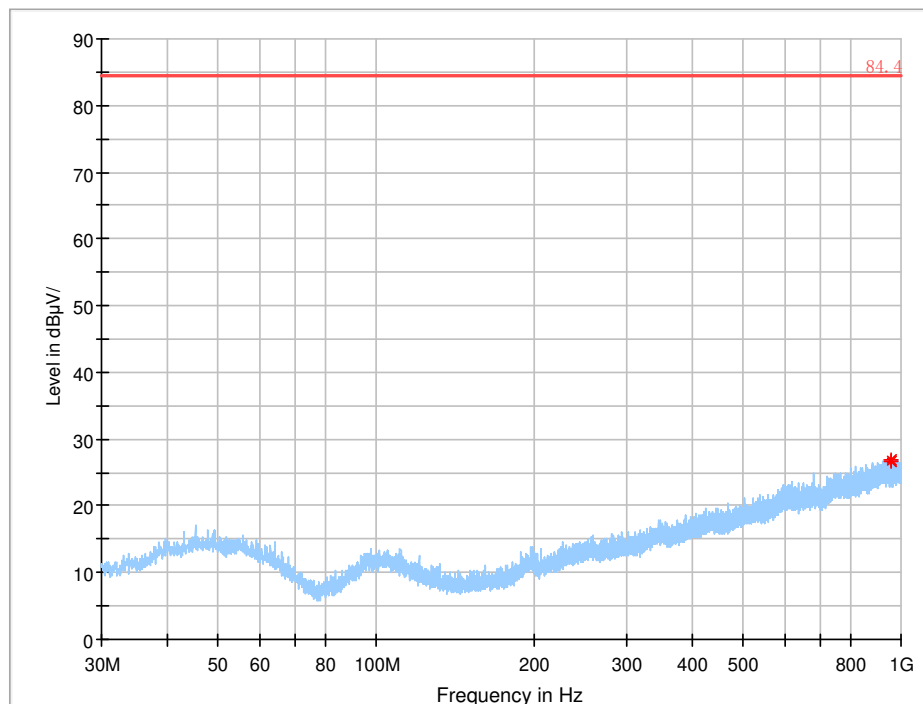
18-26.5GHz, Horizontal and Vertical



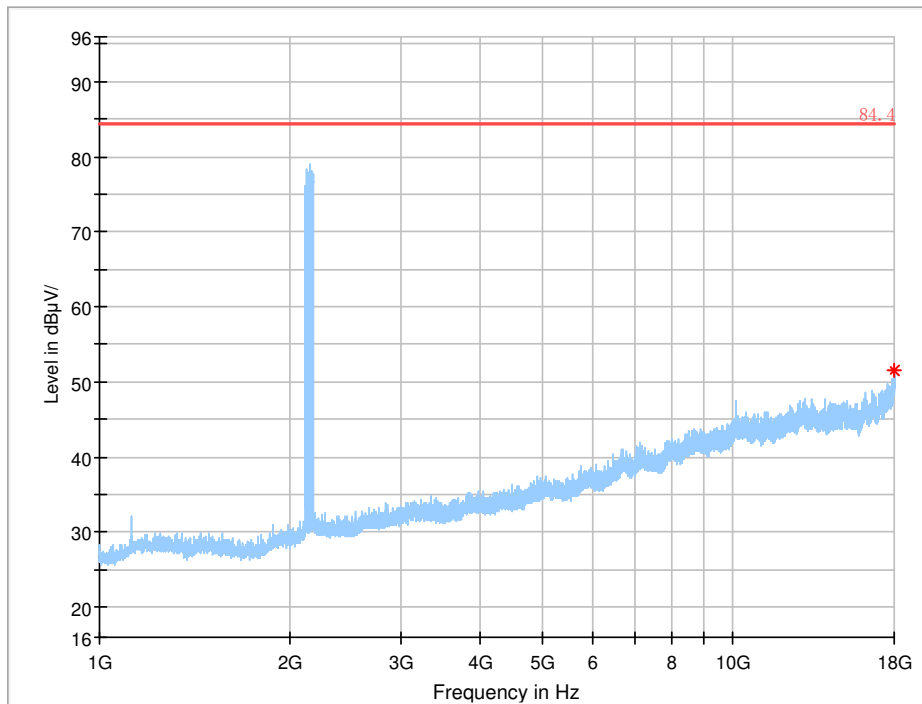
Configuration	Channel Position	Carrier	NR/L Carrier Bandwidth	NR/L Modulation
2NR+2W+2L	M	6 Carrier	5MHz	QPSK/64QAM

Polarization	Frequency (MHz)	Emission level PK (dBμV/m)	Limits (dBμV/m)	Margin (dBμV/m)
Vertical	955.719500	26.60	84.40	57.80
Horizontal	960.133000	26.81	84.40	57.59
Vertical	17966.400000	51.58	84.40	32.82
Horizontal	17977.200000	51.45	84.40	32.95
Vertical	26143.531250	48.57	84.40	35.83
Horizontal	26166.906250	47.75	84.40	36.65

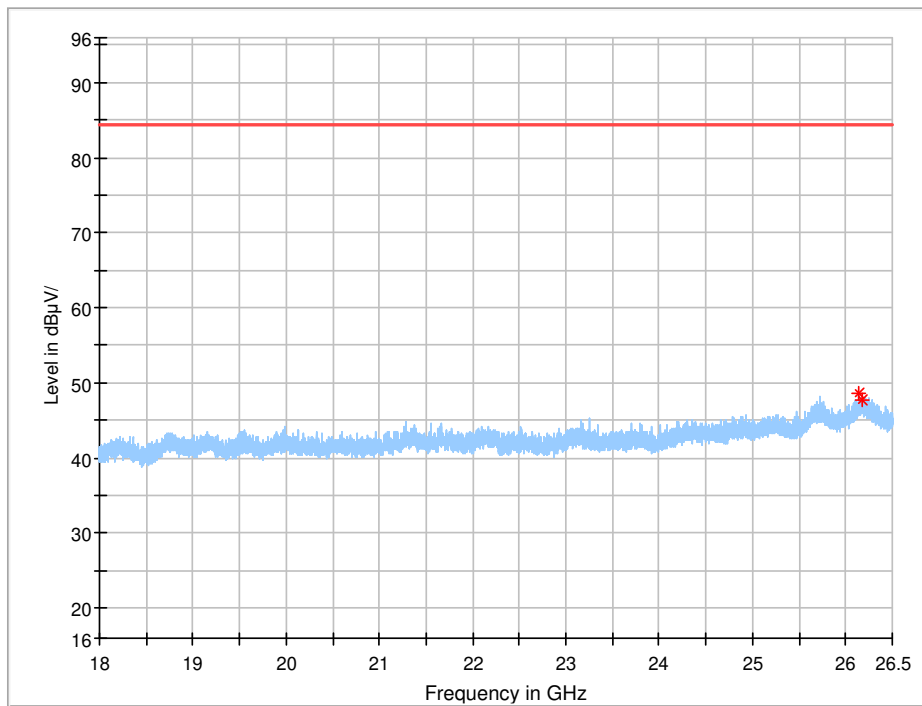
30-1000MHz, Horizontal and Vertical



1-18GHz, Horizontal and Vertical



18-26.5GHz, Horizontal and Vertical



TEST REPORT

8 Frequency Stability

Test result: Pass

8.1 Limit

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

8.2 Measurement Procedure

Temperature Variation

The EUT was tested over the temperature range -40°C to +55°C in 10°C steps with -48VDC Power Supply. At each temperature step, the Base Station was configured to transmit at maximum power on the middle channel of the operating band.

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 at maximum power on the middle channel of the frequency block.

8.3 Measurement result

Frequency Error – Temperature Variation

LTE-1C, Channel Bandwidth: 20MHz

Antenna Port	Modulation	Temperature (°C)	Frequency Stability (Hz)		
			Channel Position B	Channel Position M	Channel Position T
C	64QAM	55	0.23	0.15	-0.83
		50	0.20	0.37	0.09
		40	0.32	0.12	0.03
		30	0.23	-0.52	0.68
		20	0.20	0.05	0.00
		10	0.13	0.63	0.02
		0	-0.31	-0.16	-0.06
		-10	0.33	0.09	-0.40
		-20	0.18	0.05	0.00
		-30	-0.44	0.22	0.31
		-40	0.36	-0.19	0.19

Frequency Error – Voltage Variation

LTE-1C, Channel Bandwidth: 20MHz

Antenna Port	Modulation	Temperature (°C)	Supply Voltage (V)	Frequency Stability (Hz)		
				Channel Position B	Channel Position M	Channel Position T
C	64QAM	20	-40.8	0.39	0.12	-0.40
			-48	0.20	0.05	0.00
			-55.2	0.00	0.22	0.30

TEST REPORT

Frequency Error – Temperature Variation

NRE-1C, Channel Bandwidth: 40MHz

Antenna Port	Modulation	Temperature (°C)	Frequency Stability (Hz)		
			Channel Position B	Channel Position M	Channel Position T
C	QPSK	55	0.24	-0.12	0.43
		50	-0.89	0.09	0.18
		40	-0.13	-0.17	-0.10
		30	0.13	0.06	0.05
		20	-0.23	-0.27	-0.30
		10	-0.04	0.26	-0.17
		0	-0.10	0.04	-0.17
		-10	0.19	-0.01	-0.07
		-20	-0.03	-0.08	0.00
		-30	0.07	-0.38	0.33
		-40	0.44	-0.06	0.74

Frequency Error – Voltage Variation

NR-1C, Channel Bandwidth: 40MHz

Antenna Port	Modulation	Temperature (°C)	Supply Voltage (V)	Frequency Stability (Hz)		
				Channel Position B	Channel Position M	Channel Position T
C	QPSK	20	-40.8	0.39	0.36	-0.13
			-48	-0.23	-0.27	-0.30
			-55.2	-0.16	0.13	0.00

TEST REPORT

Frequency Error – Temperature Variation

W-1C, Channel Bandwidth: 5MHz

Antenna Port	Modulation	Temperature (°C)	Frequency Stability (Hz)		
			Channel Position B	Channel Position M	Channel Position T
C	64QAM	55	-1.24	-0.20	-0.82
		50	-0.27	-0.77	-0.53
		40	0.26	-0.50	-1.05
		30	1.03	0.78	0.52
		20	0.90	-0.79	0.88
		10	-1.10	-0.20	-0.41
		0	0.97	-0.50	1.59
		-10	0.90	0.72	0.41
		-20	1.01	-1.07	-0.17
		-30	-0.46	-0.36	-0.86
		-40	0.20	0.61	0.56

Frequency Error – Voltage Variation

W-1C, Channel Bandwidth: 5MHz

Antenna Port	Modulation	Temperature (°C)	Supply Voltage (V)	Frequency Stability (Hz)		
				Channel Position B	Channel Position M	Channel Position T
C	64QAM	20	-40.8	0.72	-0.43	0.42
			-48	0.90	-0.79	0.88
			-55.2	1.45	0.37	1.19

***** END *****