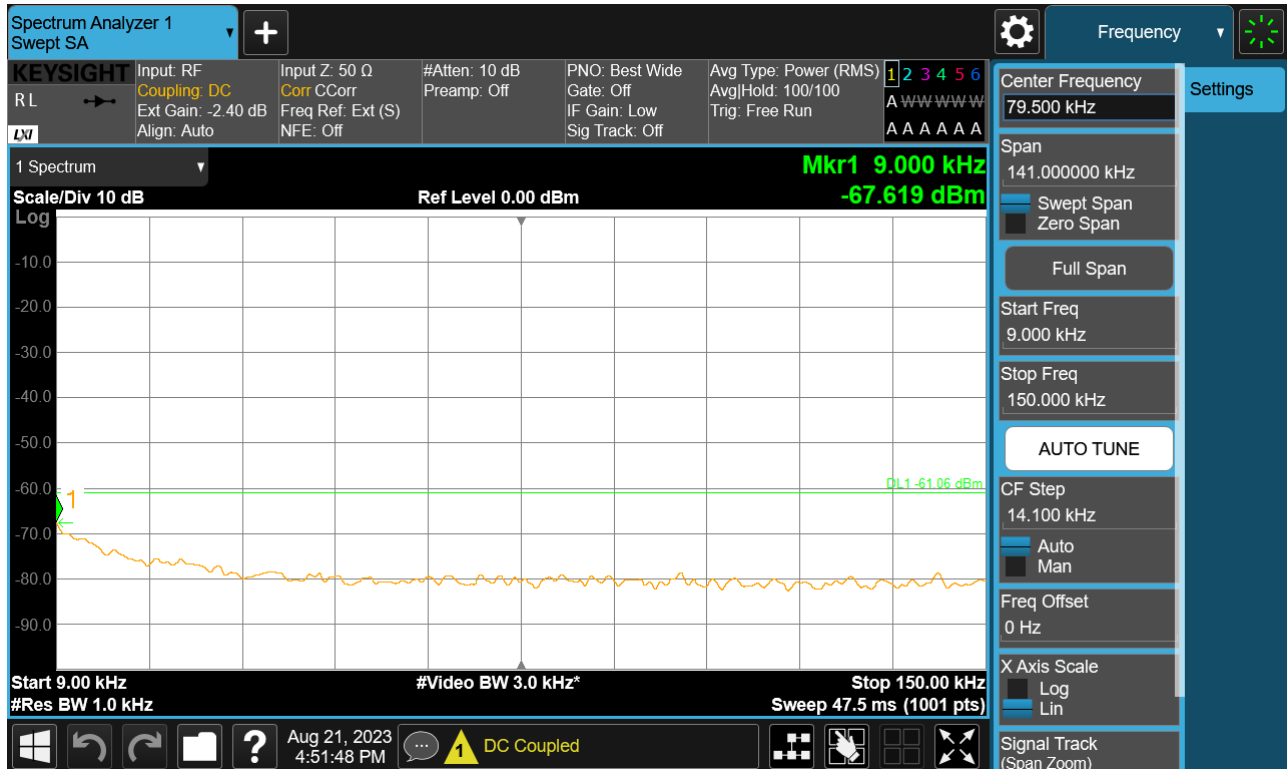
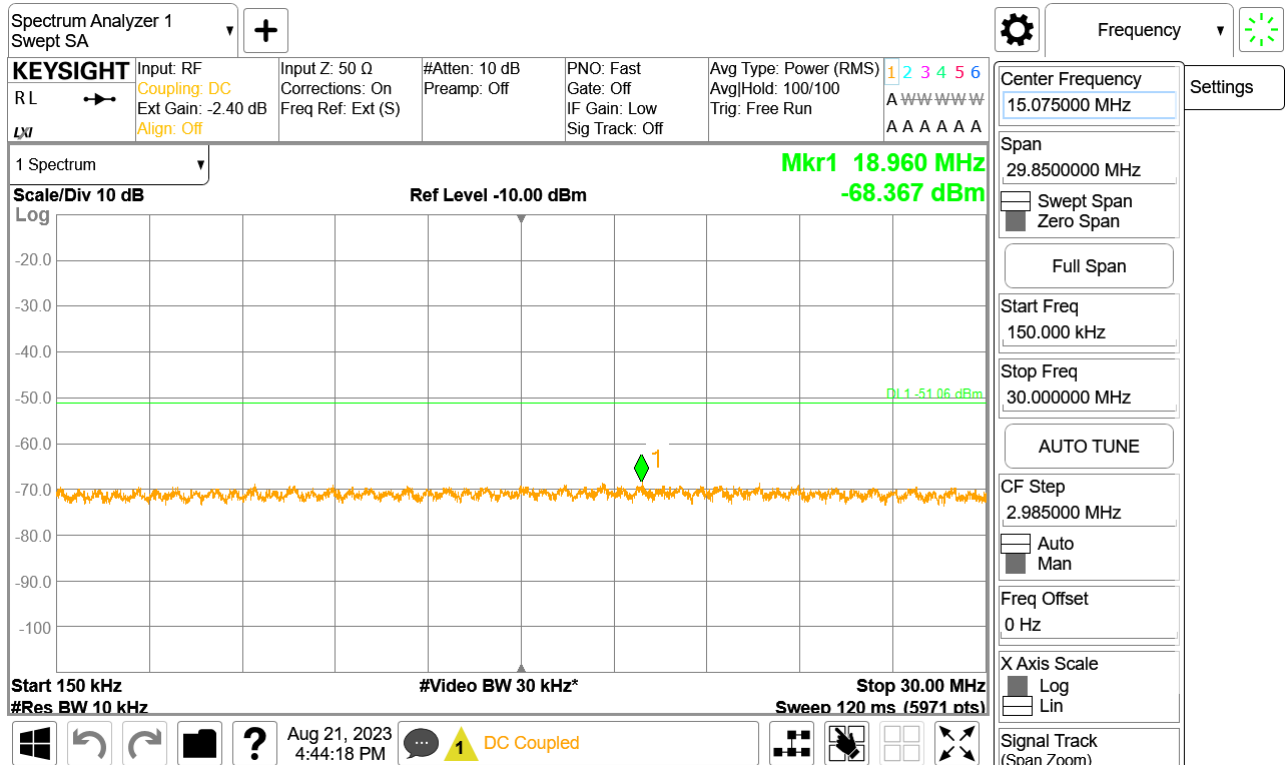


9 kHz to 150 kHz



150 kHz to 30 MHz



30 MHz to 2 400 MHz



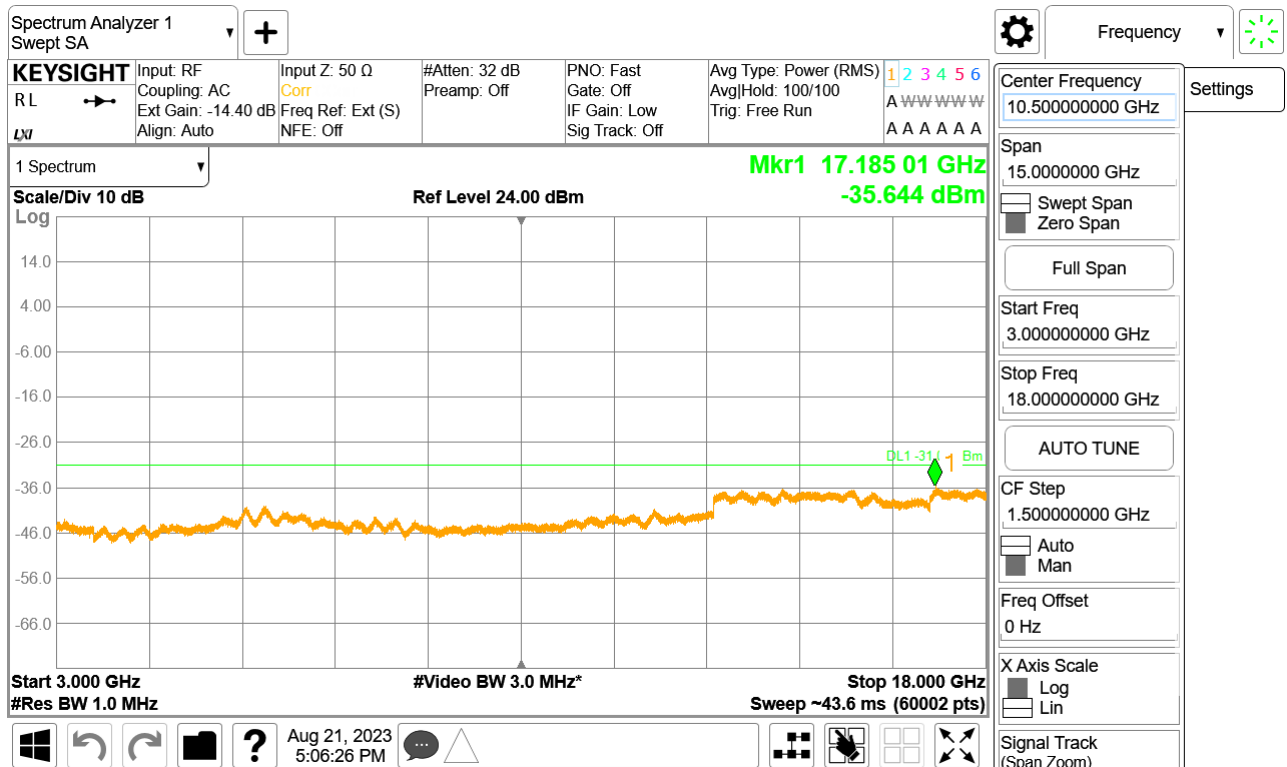
2 400 MHz to 2 495 GHz



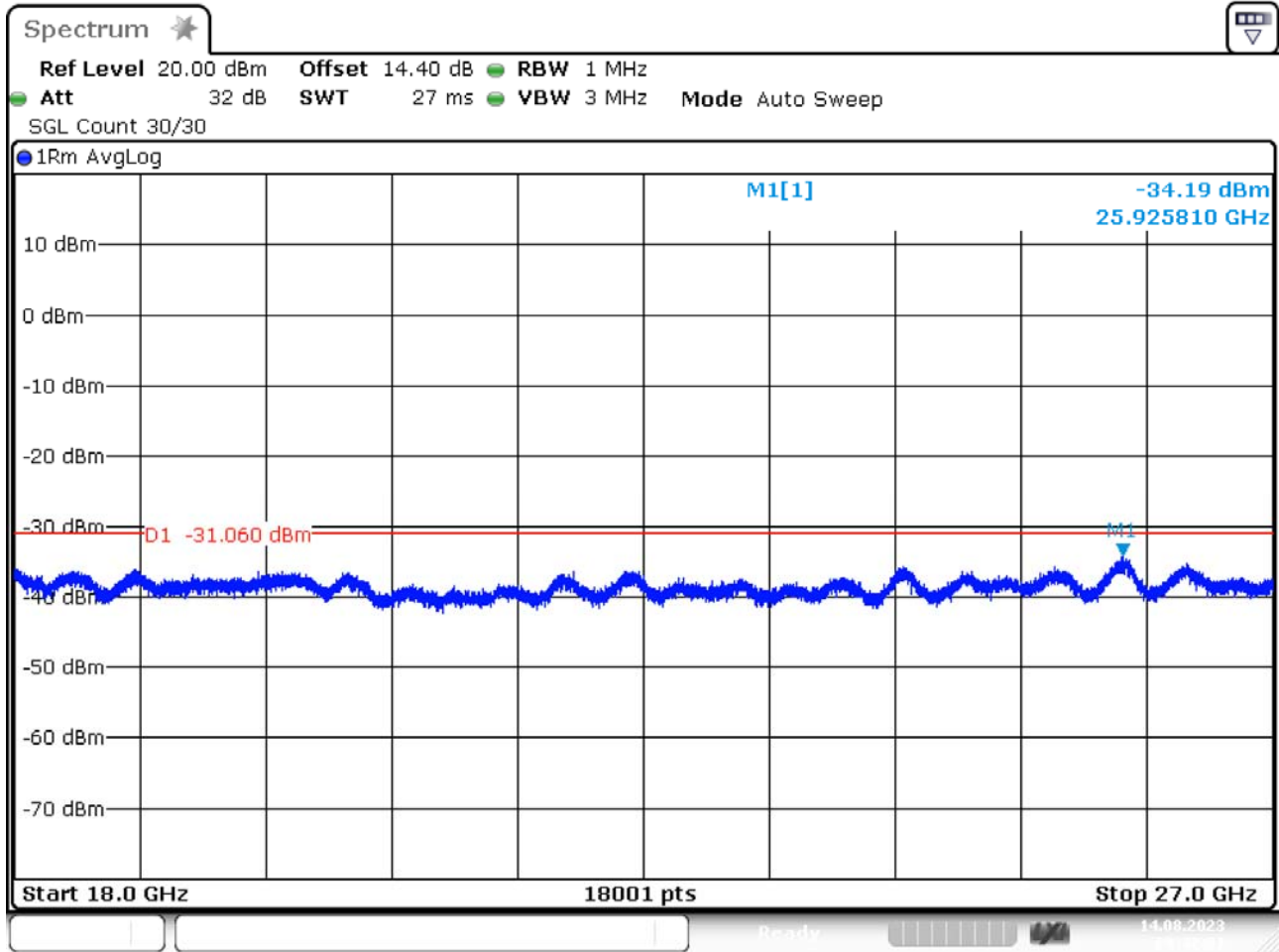
2 691 MHz to 3 GHz



3 GHz to 18 GHz



18 GHz to 27 GHz



4.6 Radiated spurious emission

Test Location :

- ☒ 10 m SAC (test distance : ☐ 10 m, ☒ 3 m)
☒ 3 m SAC (test distance : 3 m)

Test Procedures :

ANSI C63.26-2015 – Section 5.5.3.2

Test Settings :

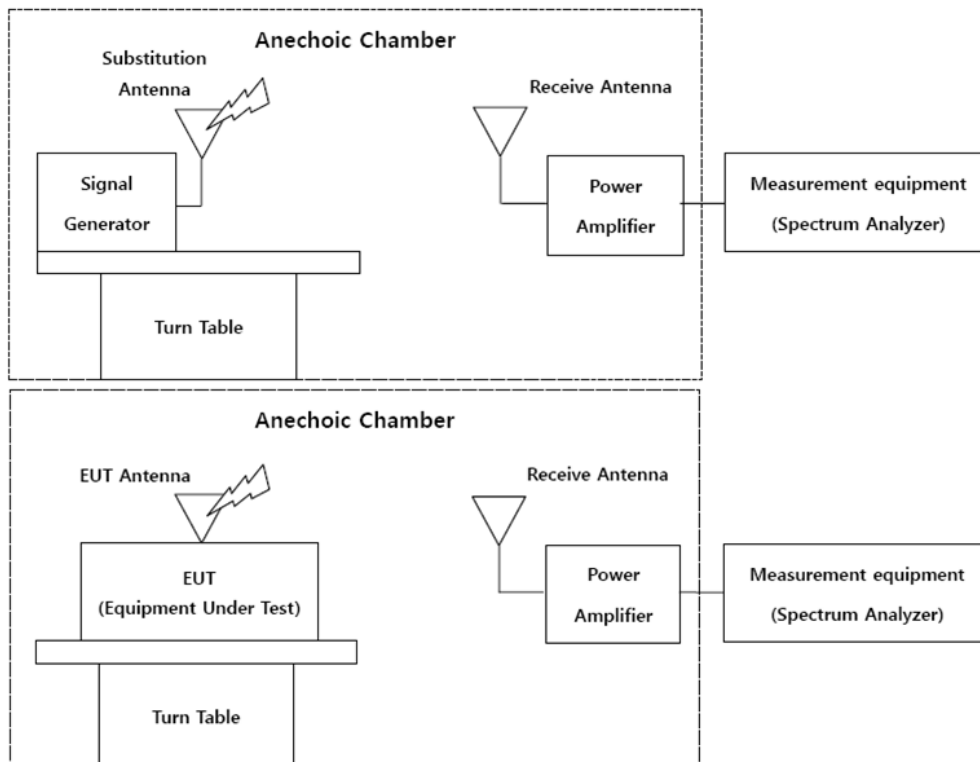
Frequency Range = 30 MHz ~ 27 GHz (10th harmonic)

- a) RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz
b) VBW $\geq 3 \times$ RBW
c) Sweep point $\geq 2 \times$ span / RBW
d) Sweep time = auto couple
e) The trace was allowed to stabilize.

Limit :

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P[\text{Watts}])$, where P is the transmitter power in Watts. The power of any emission outside of the authorized operating frequency range cannot exceed -13 dBm.

Test setup :



Test note :

- Effective Isotropic Radiated Power Calculation (According to ANSI C 63.26 Clause 5.2.7 d))
Field Strength [dBuV/m] $\rightarrow$ e.i.r.p. [dBm]

$$= E[\text{dB}\mu\text{V/m}] + 20 \log_{10}(d[\text{m}]) - 104.8 (\text{Unit Conversion})$$

$$= 50 (\text{e.g.}) + (20 * \log_{10}(3)) - 104.8$$

$$= -45.26 \text{ dBm}$$
- All cases were tested and the test data is attached the only worst case.

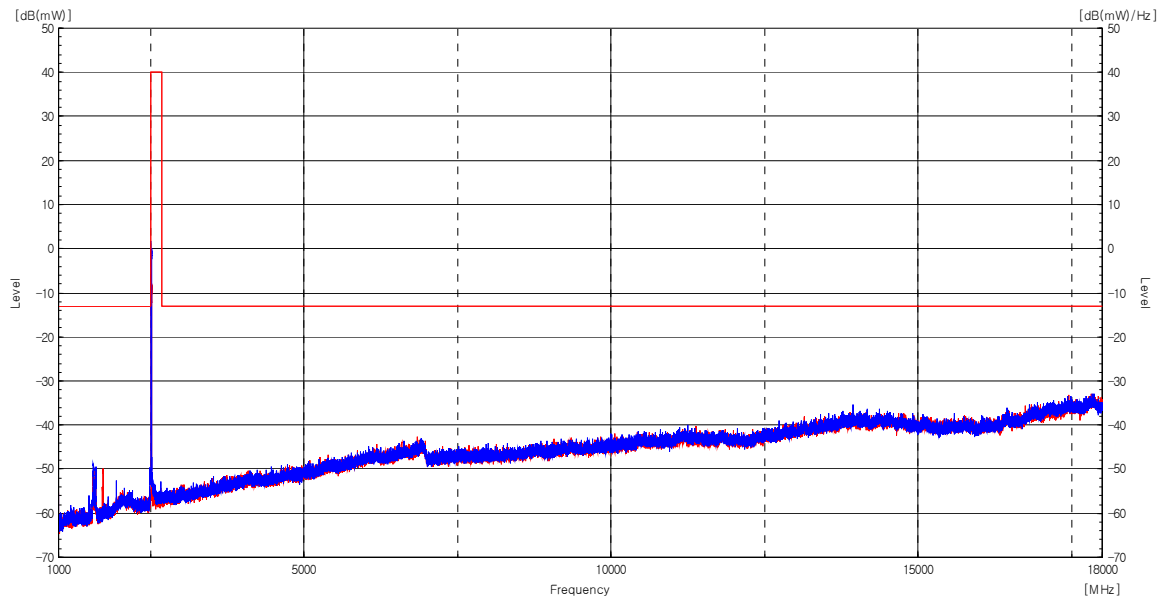
Test results

Test mode : LTE 1C 20 MHz Lowest 256 QAM (Worst case)

Frequency Range : 30 MHz - 1 GHz

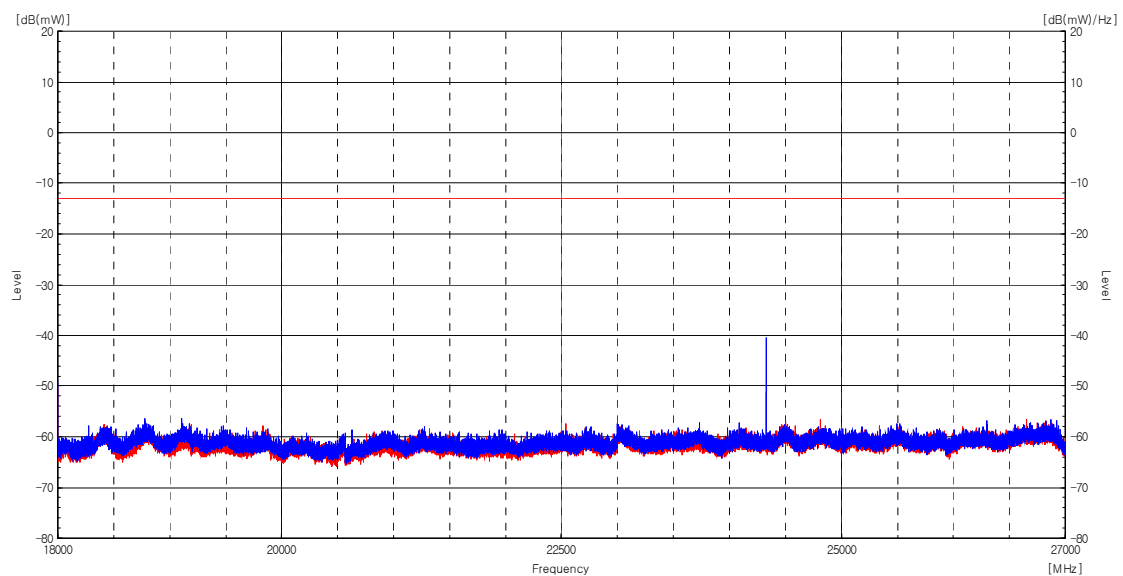
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



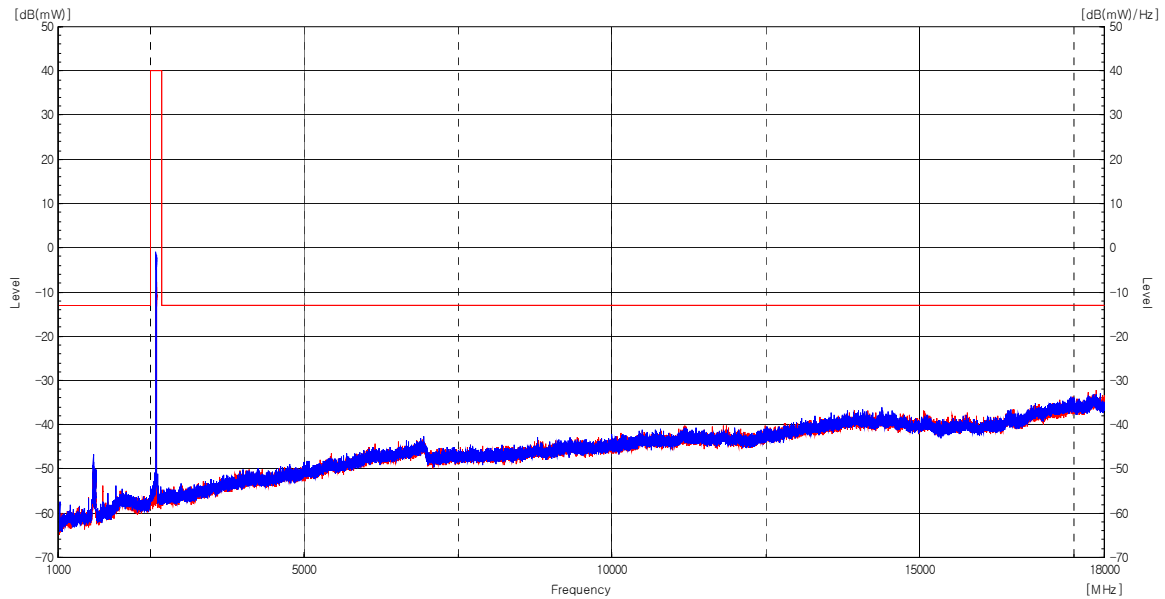
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Test mode : LTE 1C 20 MHz Middle 256 QAM (Worst case)

Frequency Range : 30 MHz - 1 GHz

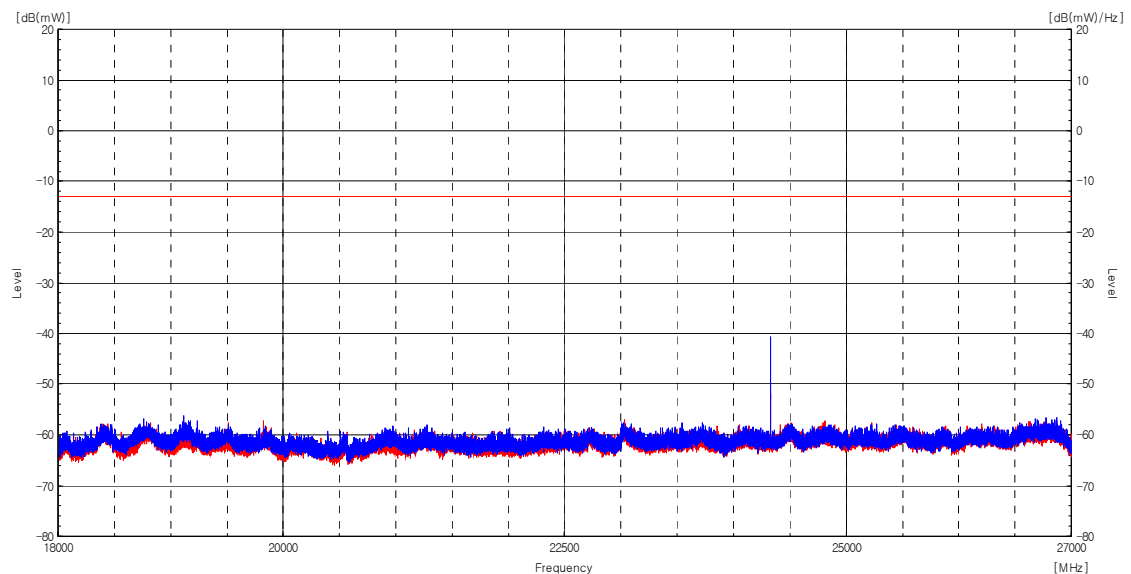
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



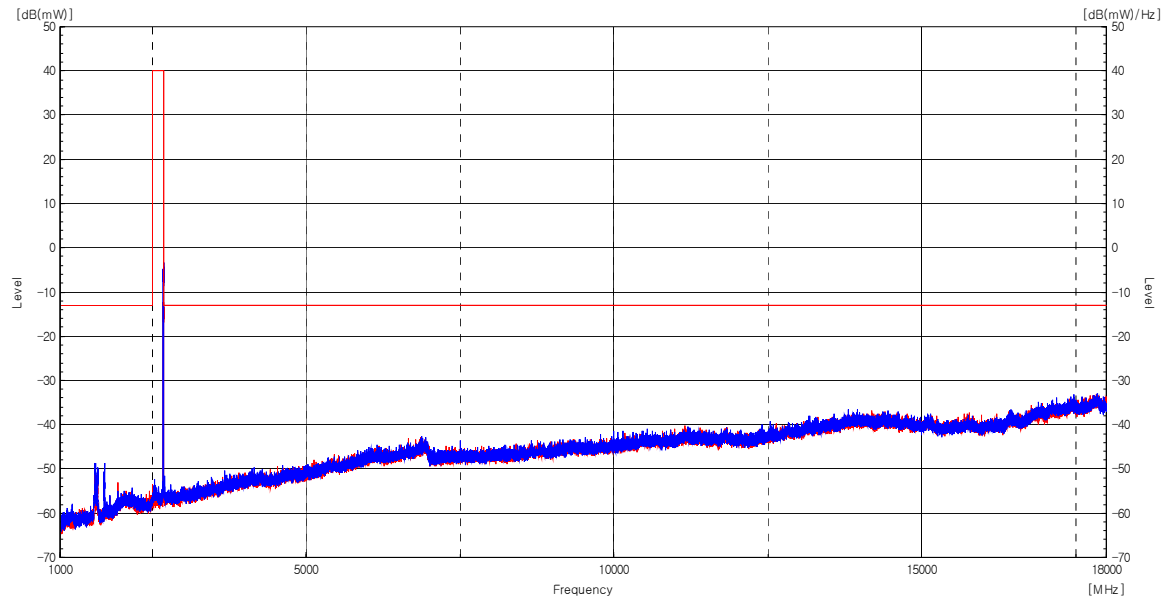
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Test mode : LTE 1C 20 MHz Highest 256 QAM (Worst case)

Frequency Range : 30 MHz - 1 GHz

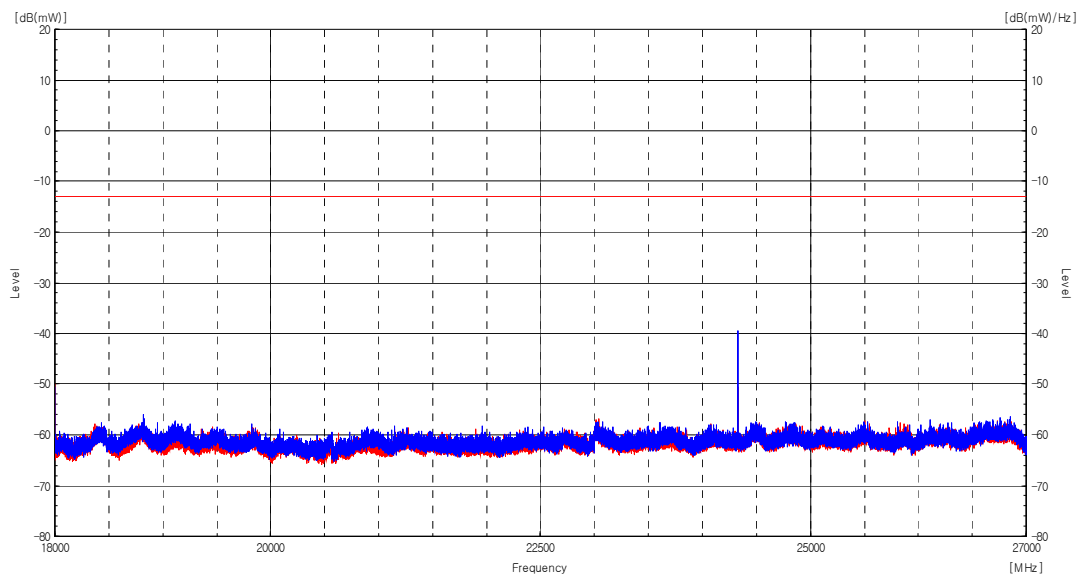
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



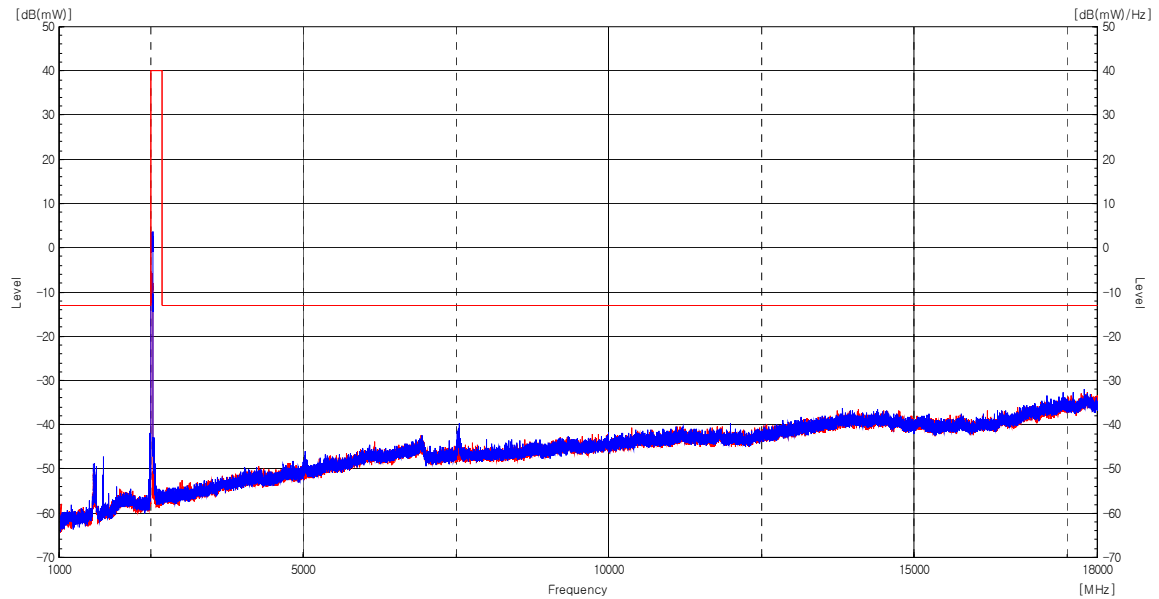
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Test mode : 5G NR 1C 40 MHz Lowest 256 QAM (Worst case)

Frequency Range : 30 MHz - 1 GHz

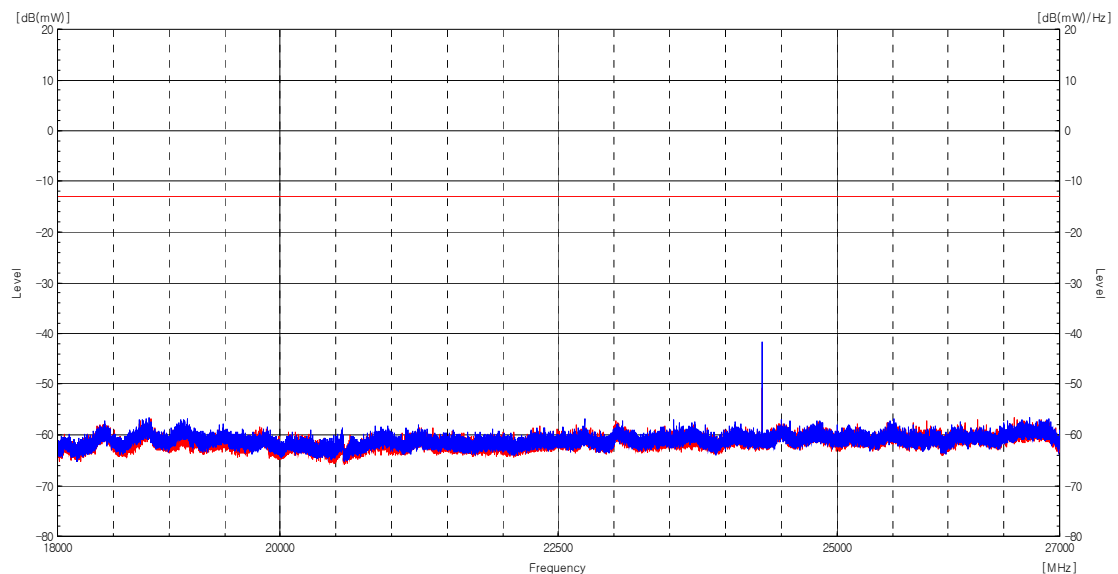
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz

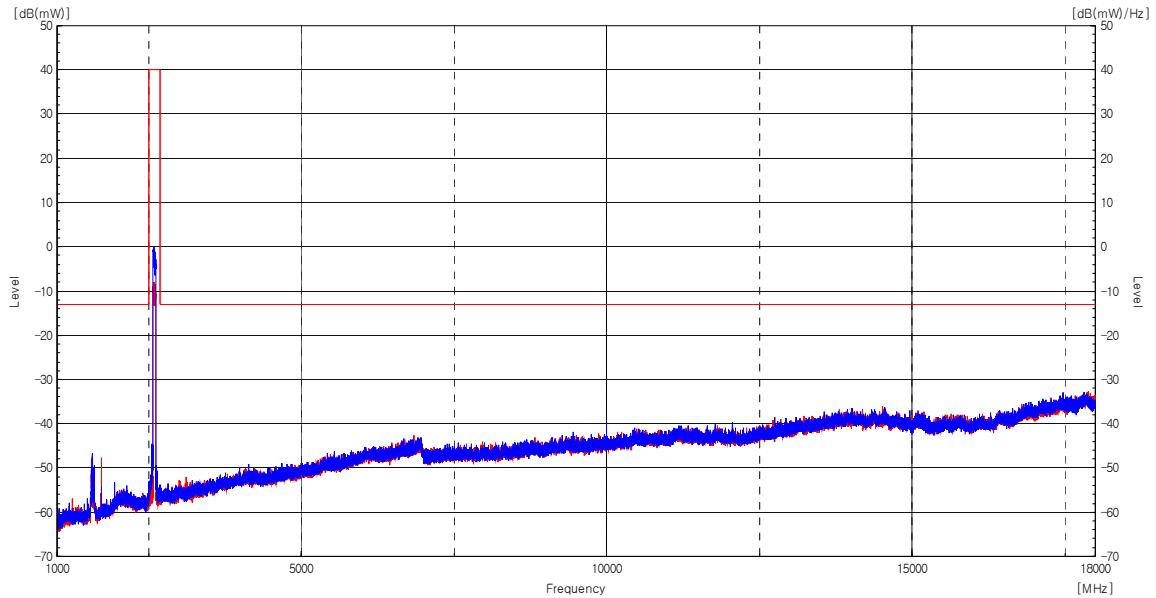


Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Test mode : 5G NR 1C 40 MHz Middle 64 QAM (Worst case)

Frequency Range : 30 MHz - 1 GHz

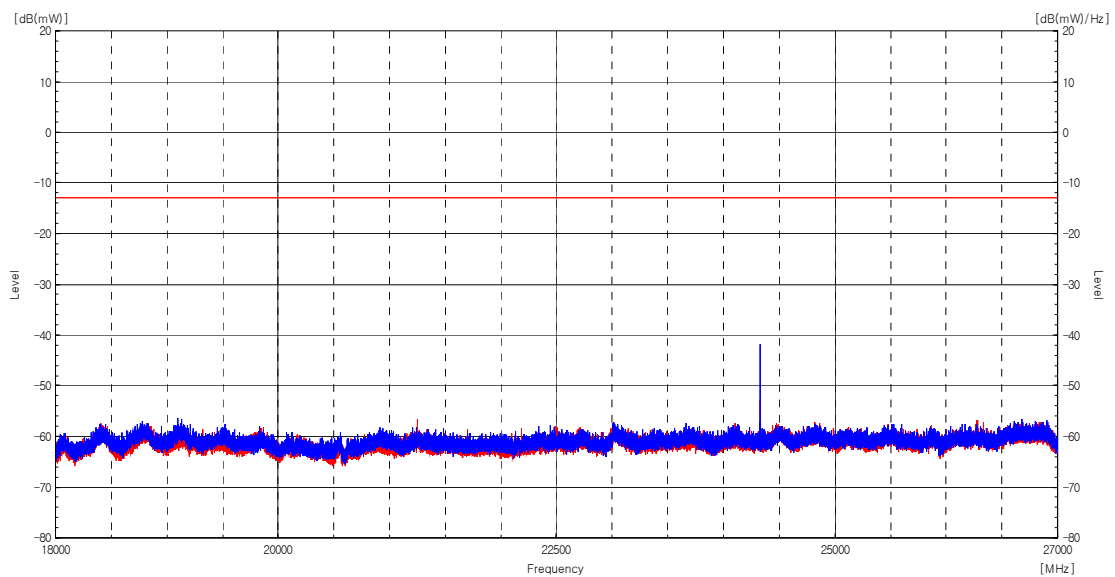
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								



Frequency Range : 1 GHz - 18 GHz

Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



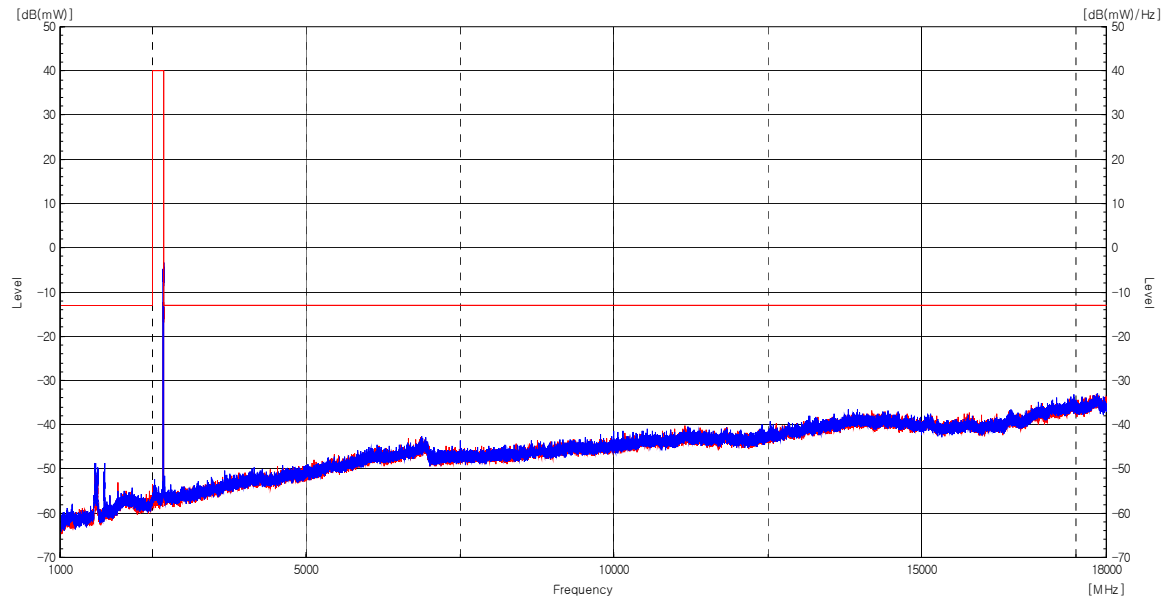
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Test mode : 5G NR 1C 40 MHz Highest 64 QAM (Worst case)

Frequency Range : 30 MHz - 1 GHz

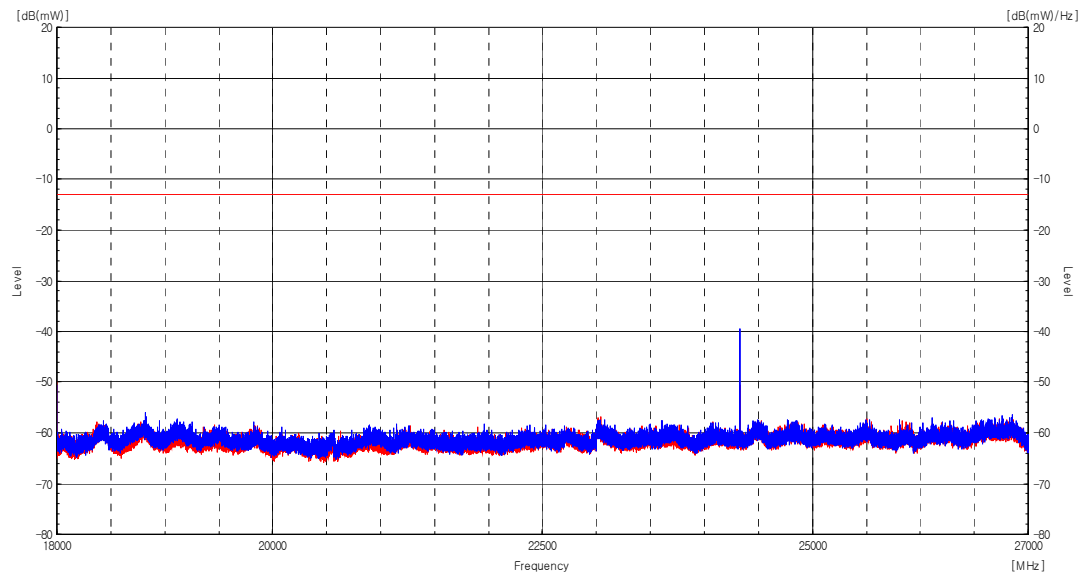
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



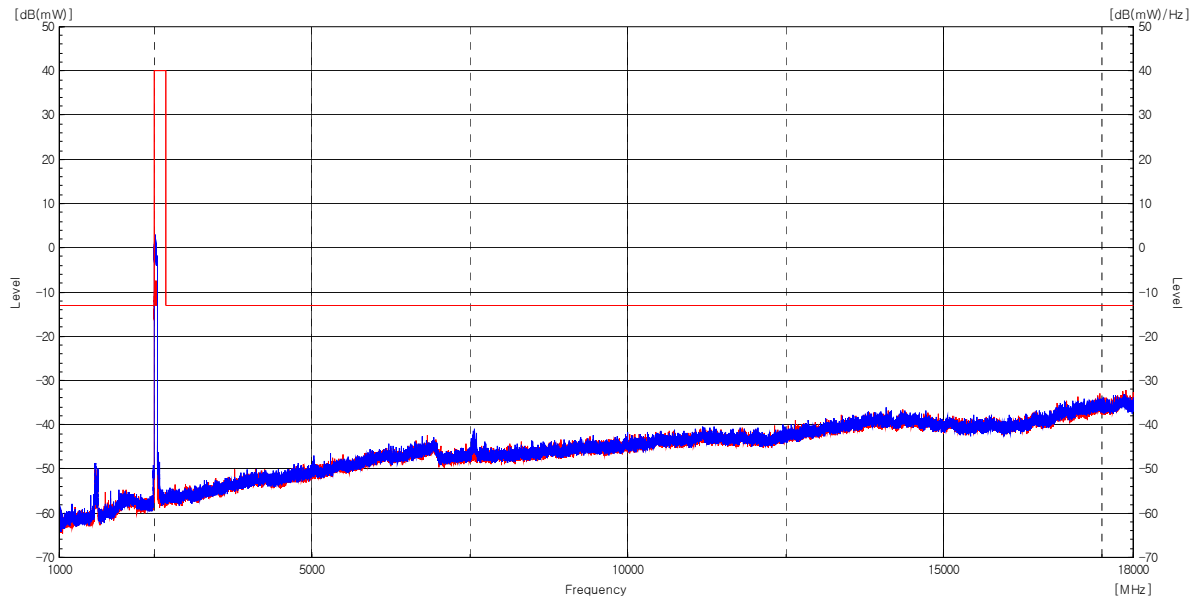
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Test mode : 5G NR 1C 50 MHz Lowest 256 QAM (Worst case)

Frequency Range : 30 MHz - 1 GHz

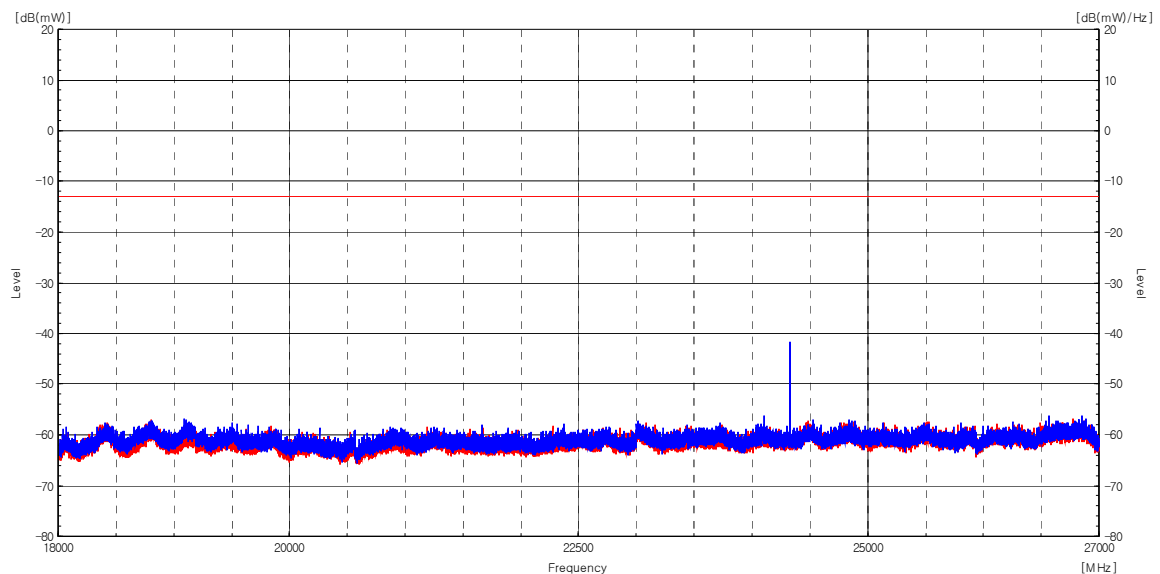
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



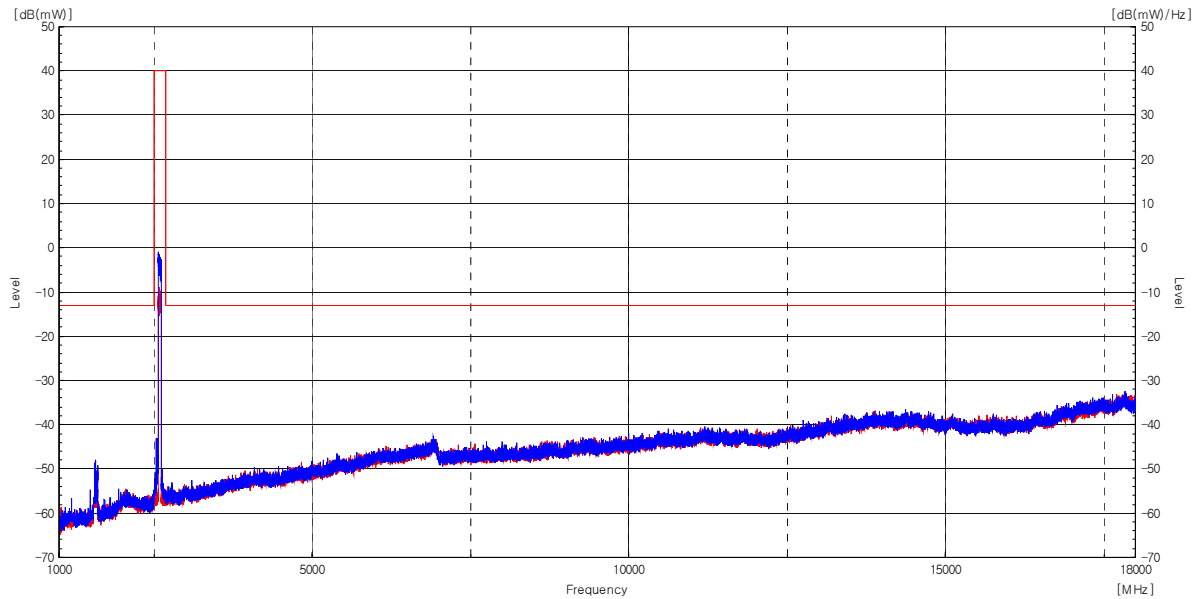
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Test mode : 5G NR 1C 50 MHz Middle QPSK (Worst case)

Frequency Range : 30 MHz - 1 GHz

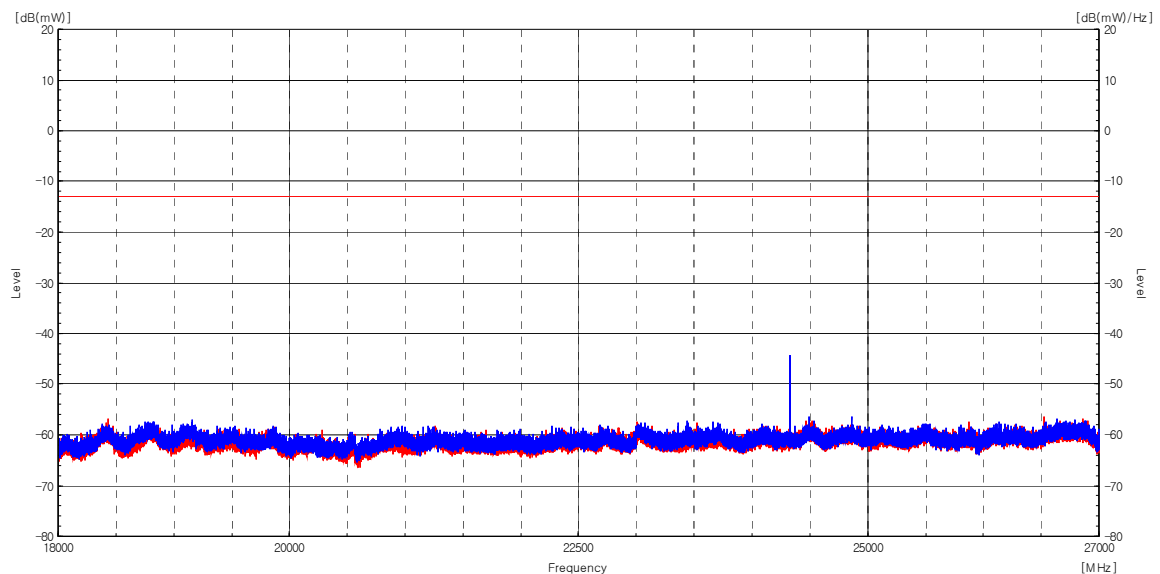
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



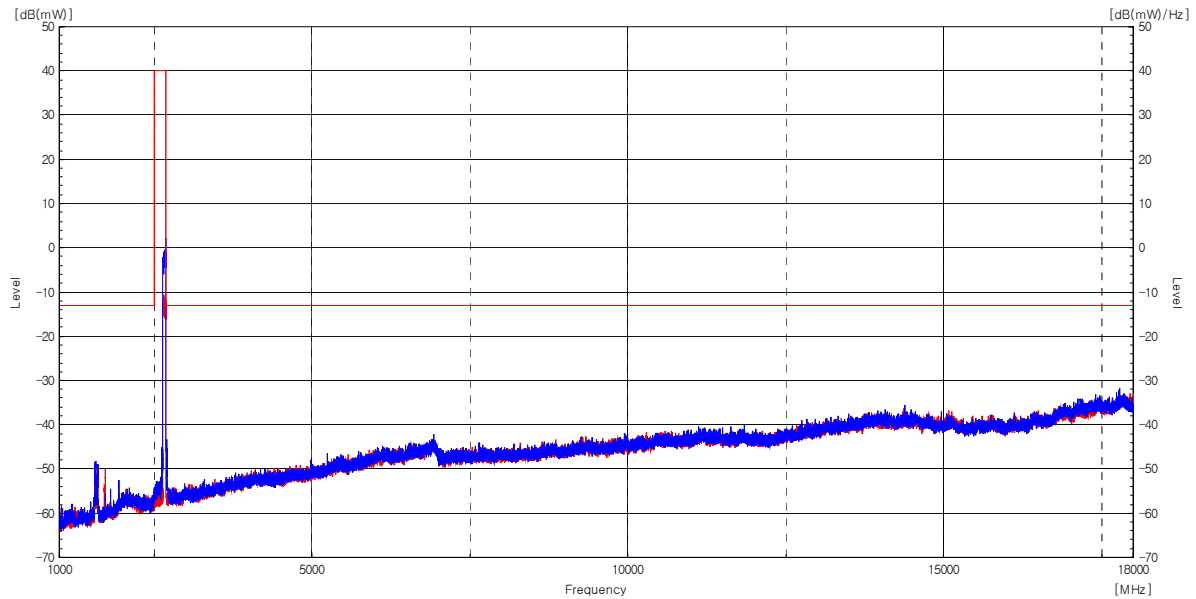
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Test mode : 5G NR 1C 50 MHz Highest 256 QAM (Worst case)

Frequency Range : 30 MHz - 1 GHz

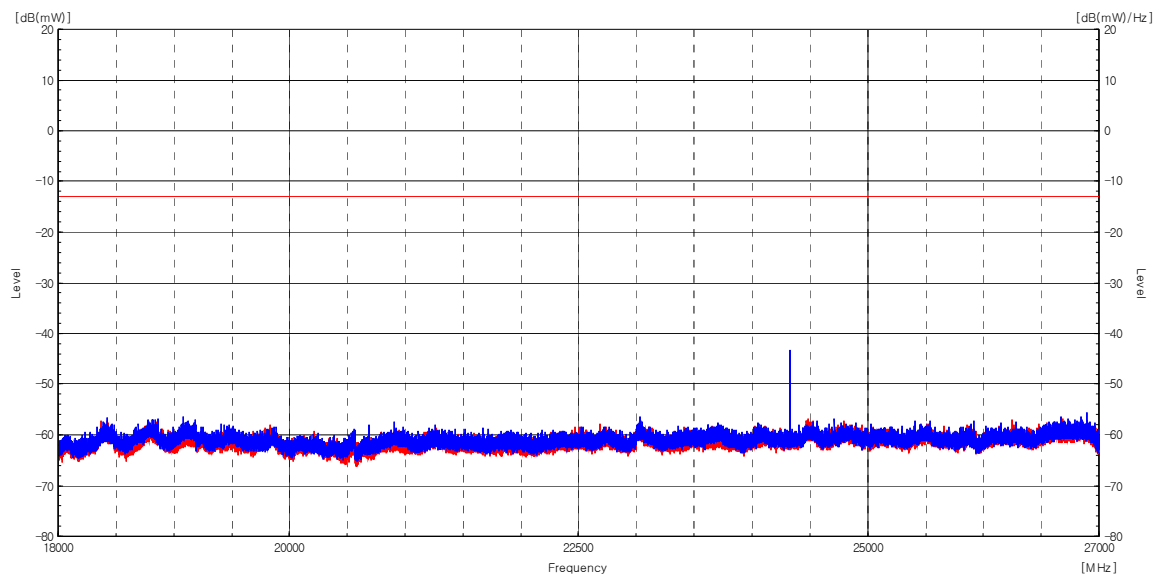
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



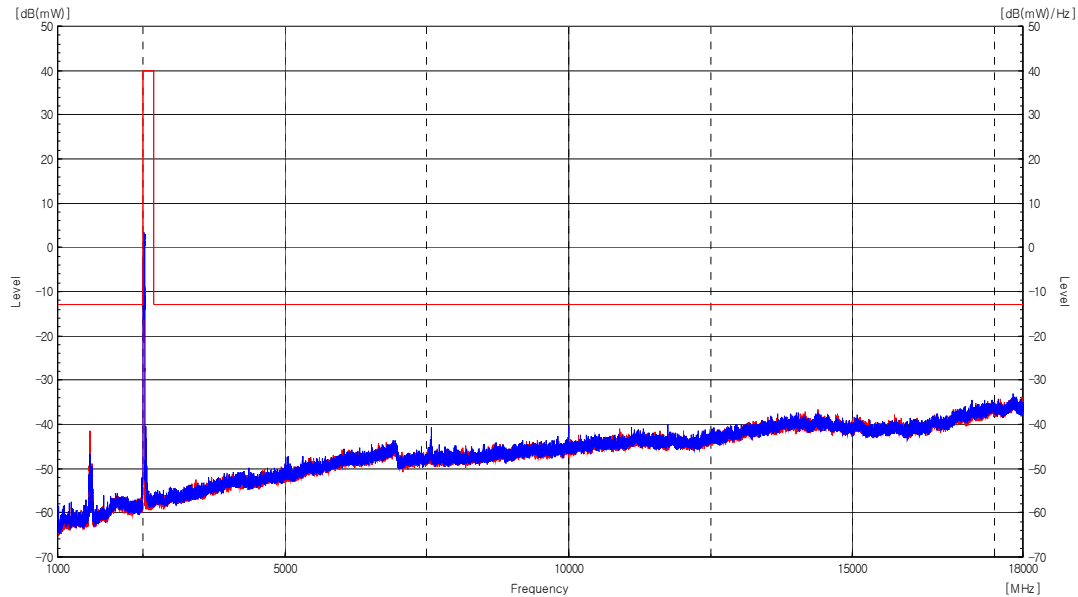
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Test mode : LTE 2C 20M+20M Contiguous Lowest QPSK (Worst case)

Frequency Range : 30 MHz - 1 GHz

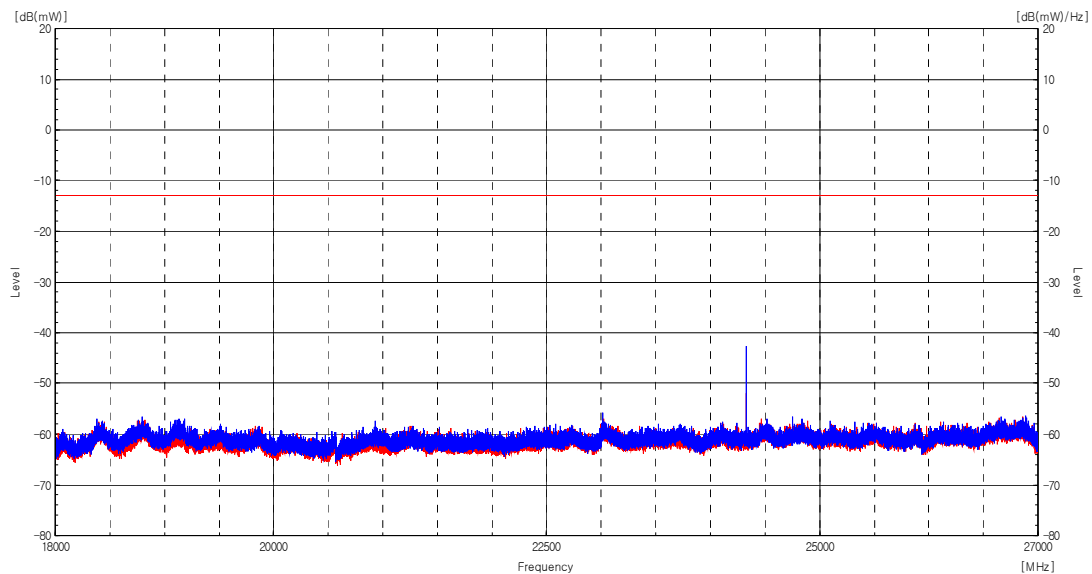
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



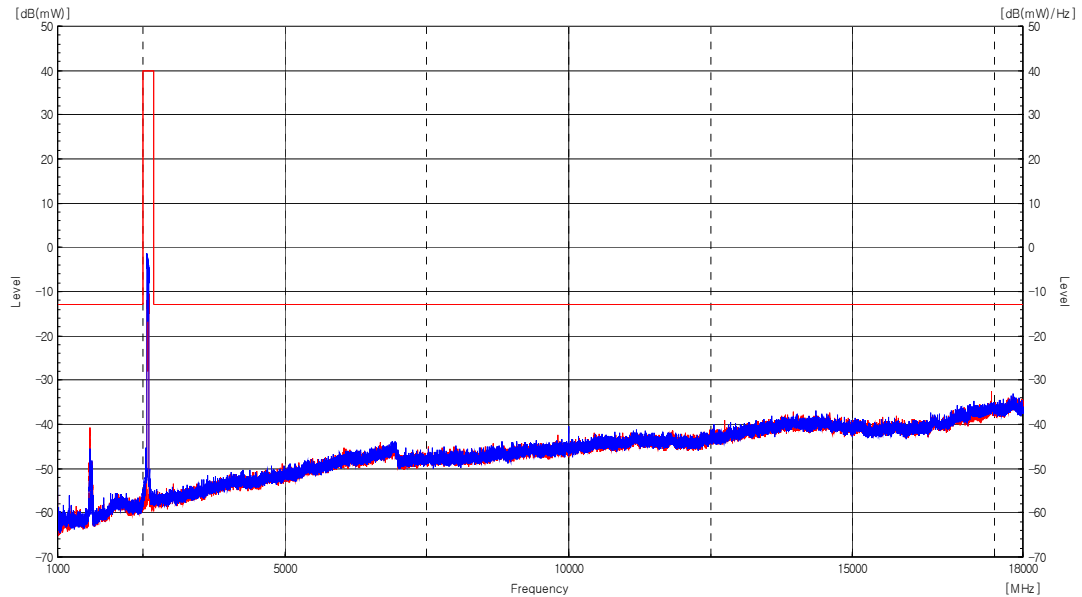
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Test mode : LTE 2C 20M+20M Contiguous Middle QPSK (Worst case)

Frequency Range : 30 MHz - 1 GHz

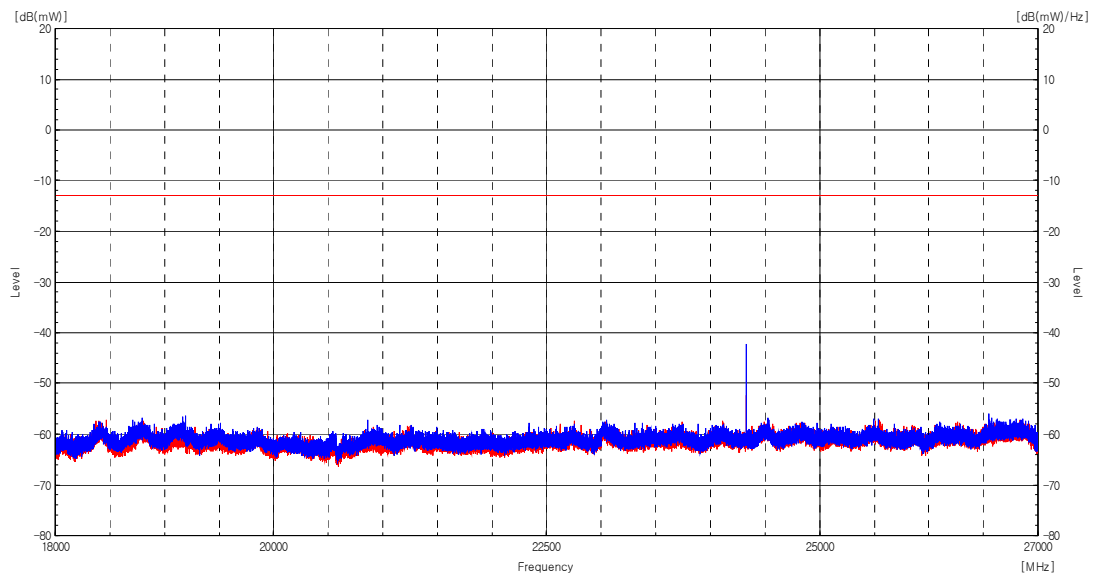
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



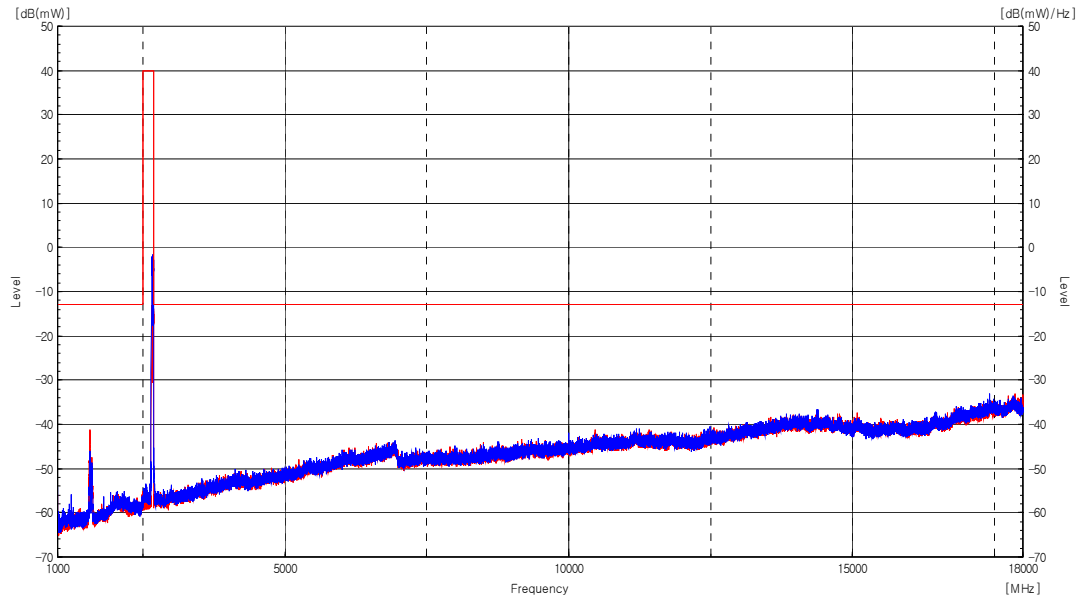
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Test mode : LTE 2C 20M+20M Contiguous Highest 256QAM (Worst case)

Frequency Range : 30 MHz - 1 GHz

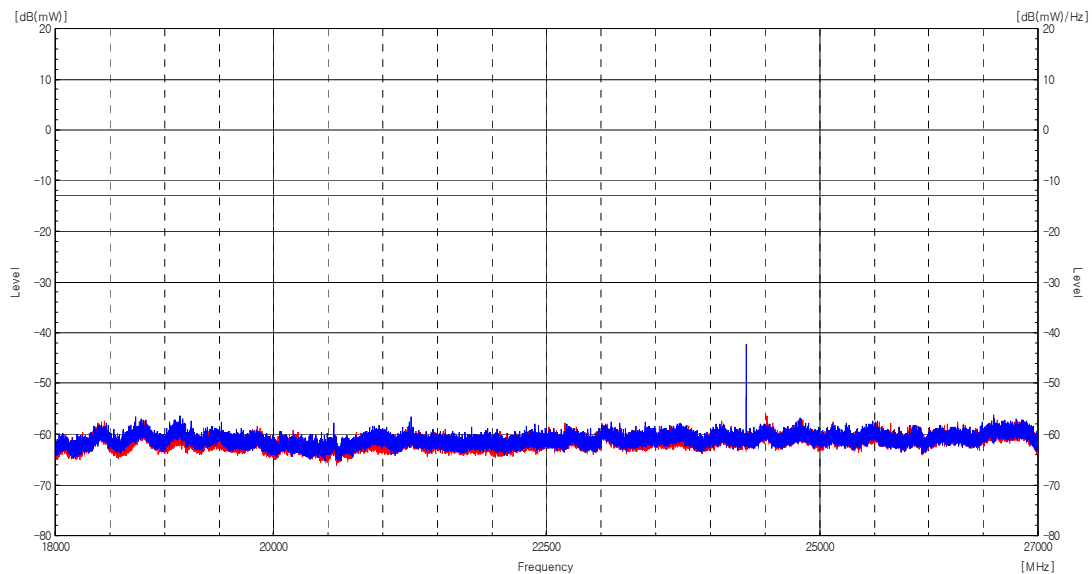
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



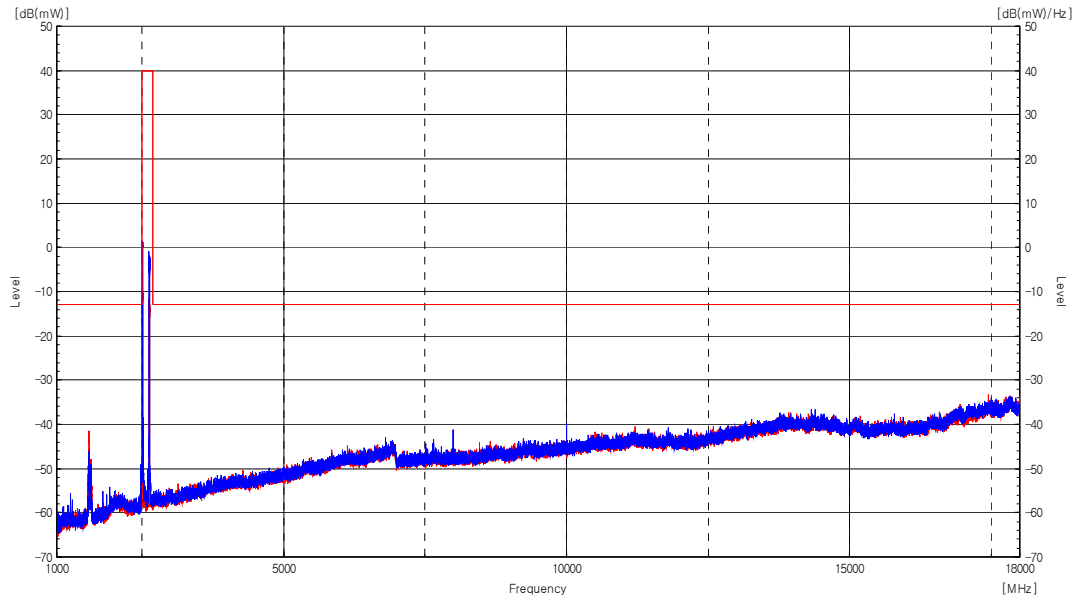
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Test mode : LTE 2C 20M+20M Non-Contiguous Lowest QPSK (Worst case)

Frequency Range : 30 MHz - 1 GHz

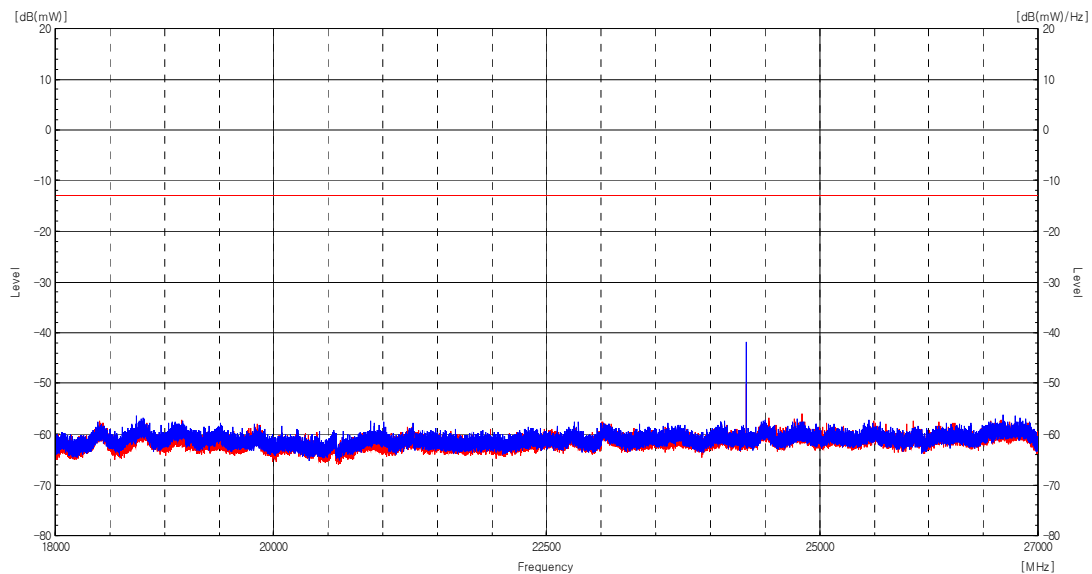
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



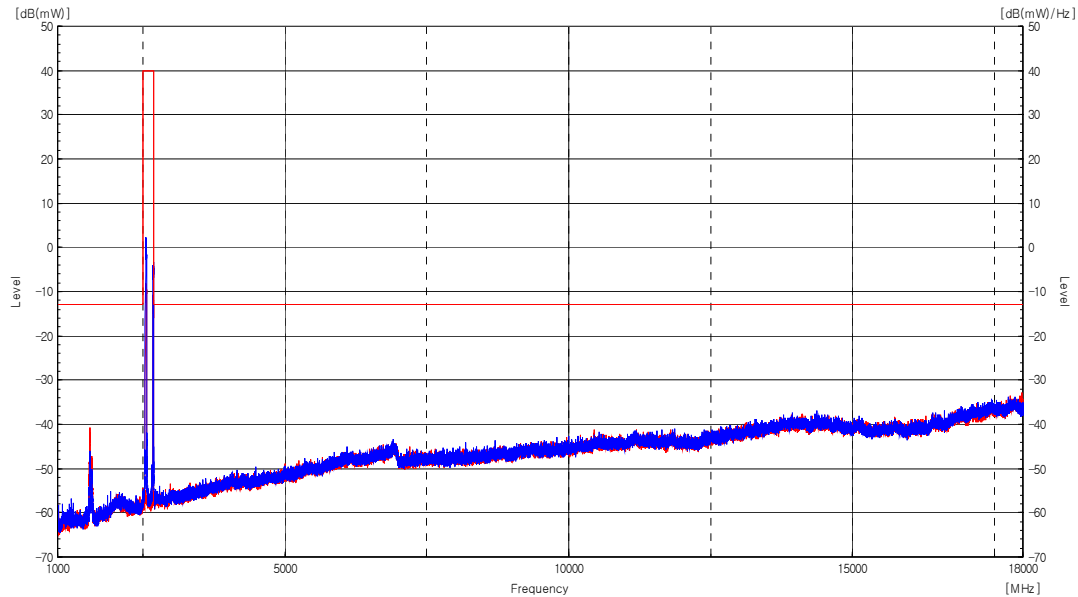
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Test mode : LTE 2C 20M+20M Non-Contiguous Highest 256QAM (Worst case)

Frequency Range : 30 MHz - 1 GHz

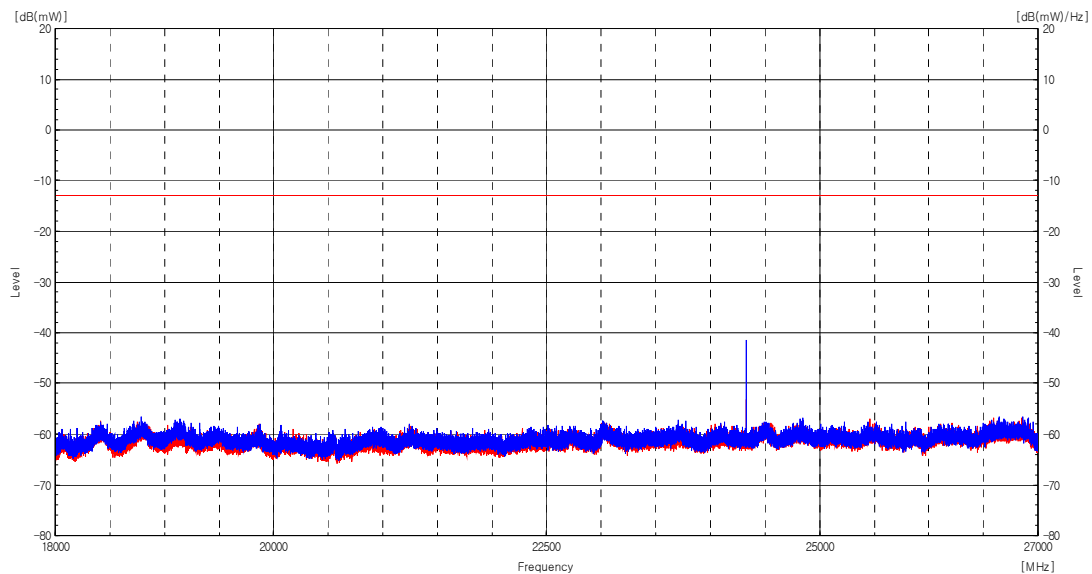
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



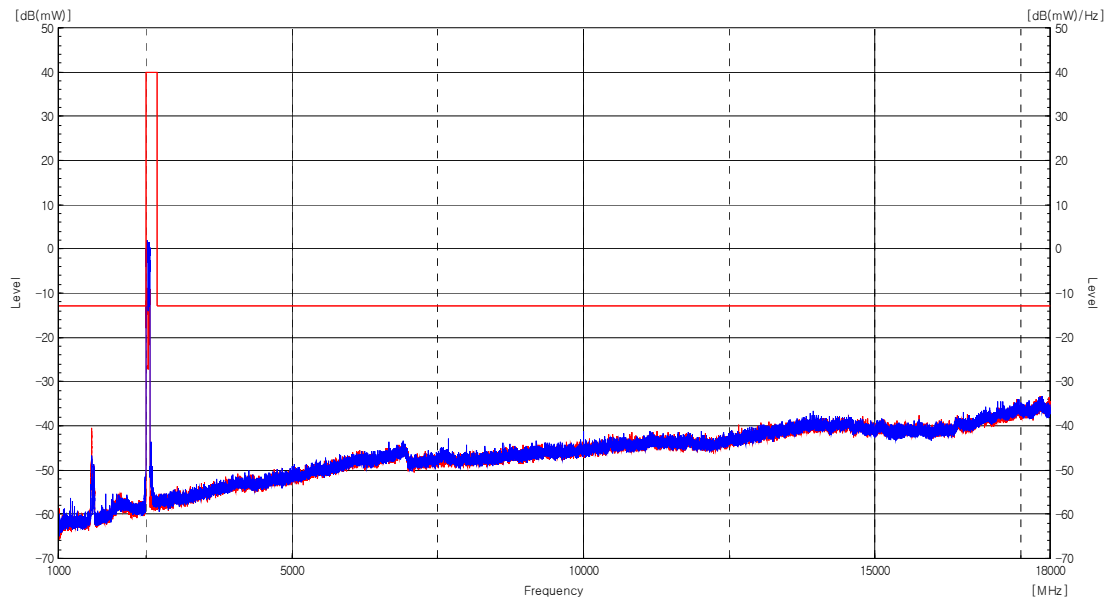
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

**Test mode : 5G NR 1C 40M+LTE 2C 20M+20M Contiguous Lowest 256QAM
(Worst case)**

Frequency Range : 30 MHz - 1 GHz

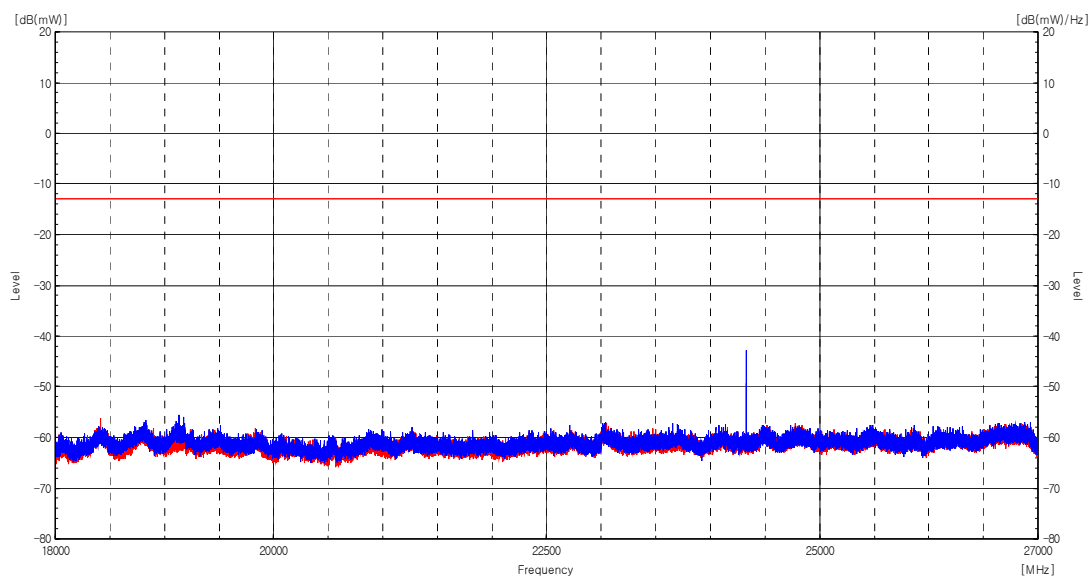
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



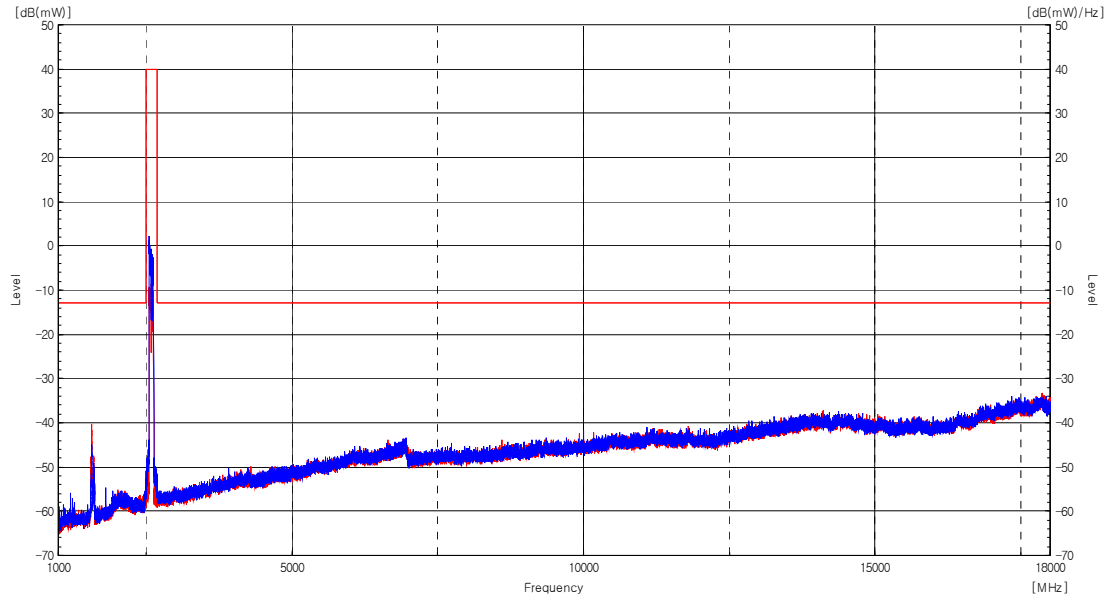
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

**Test mode : 5G NR 1C 40M+LTE 2C 20M+20M Contiguous Middle 16QAM
(Worst case)**

Frequency Range : 30 MHz - 1 GHz

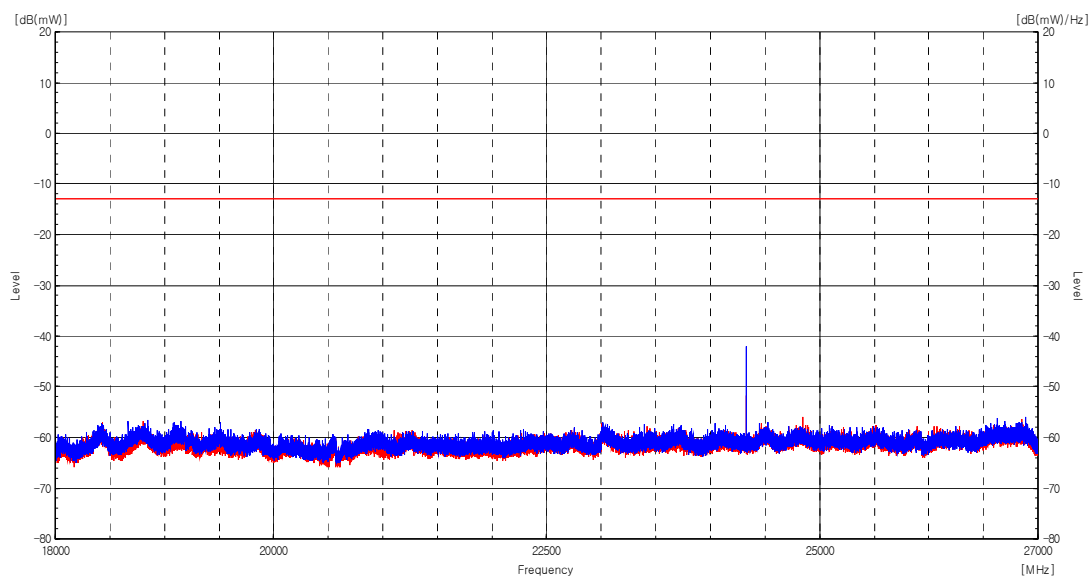
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



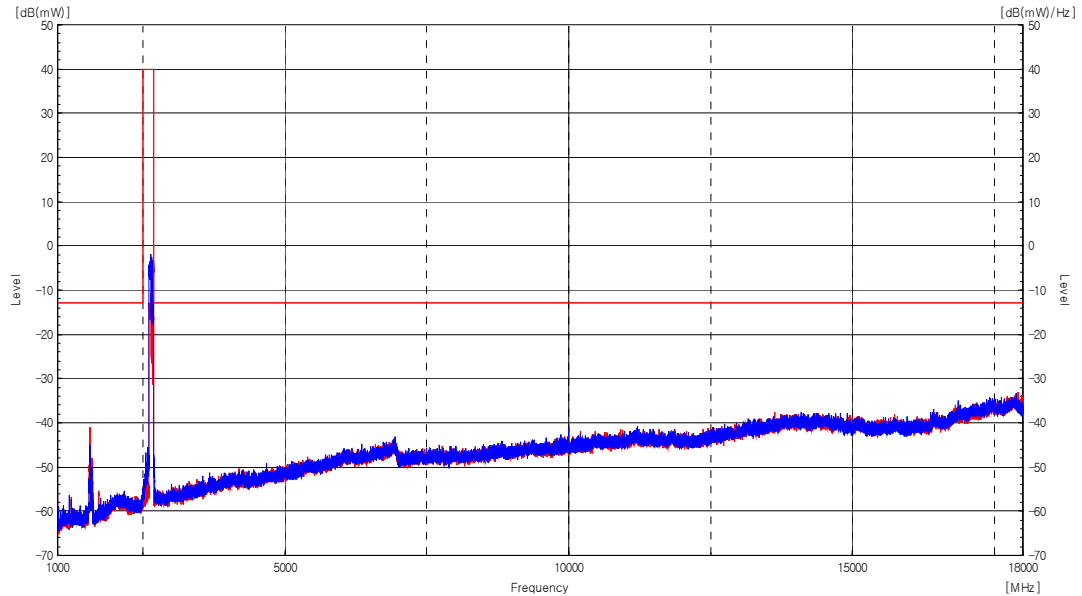
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

**Test mode : 5G NR 1C 40M+LTE 2C 20M+20M Contiguous Highest QPSK
(Worst case)**

Frequency Range : 30 MHz - 1 GHz

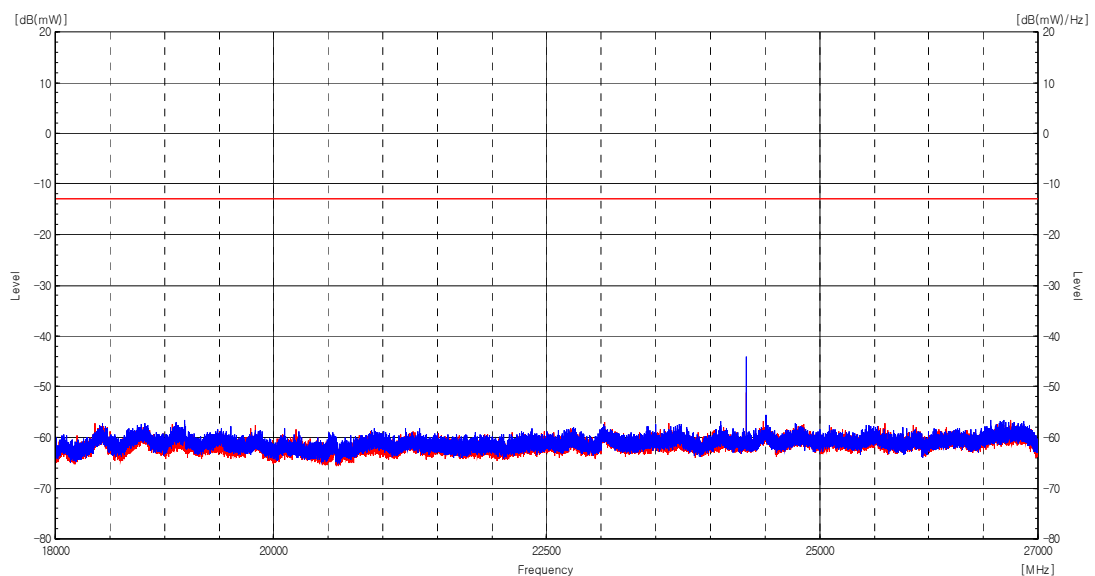
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



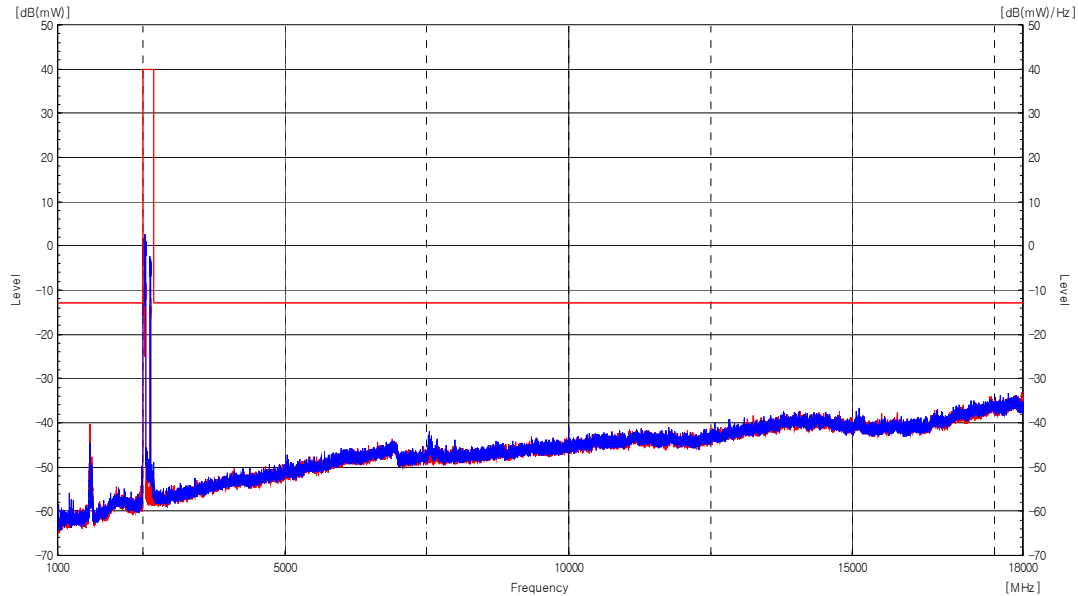
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

**Test mode : 5G NR 1C 40M+LTE 2C 20M+20M Non-Contiguous Lowest 256QAM
(Worst case)**

Frequency Range : 30 MHz - 1 GHz

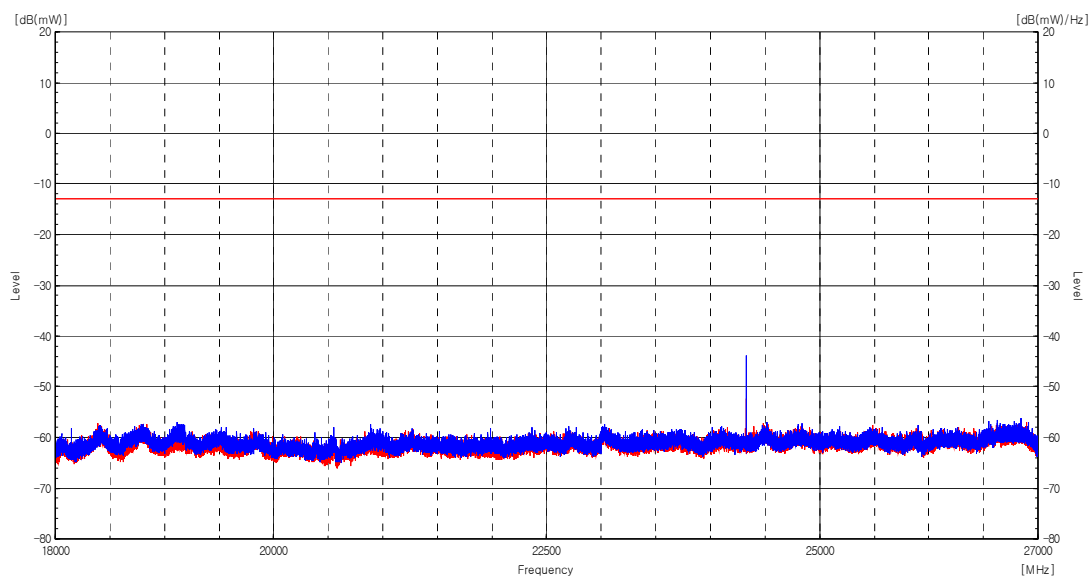
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



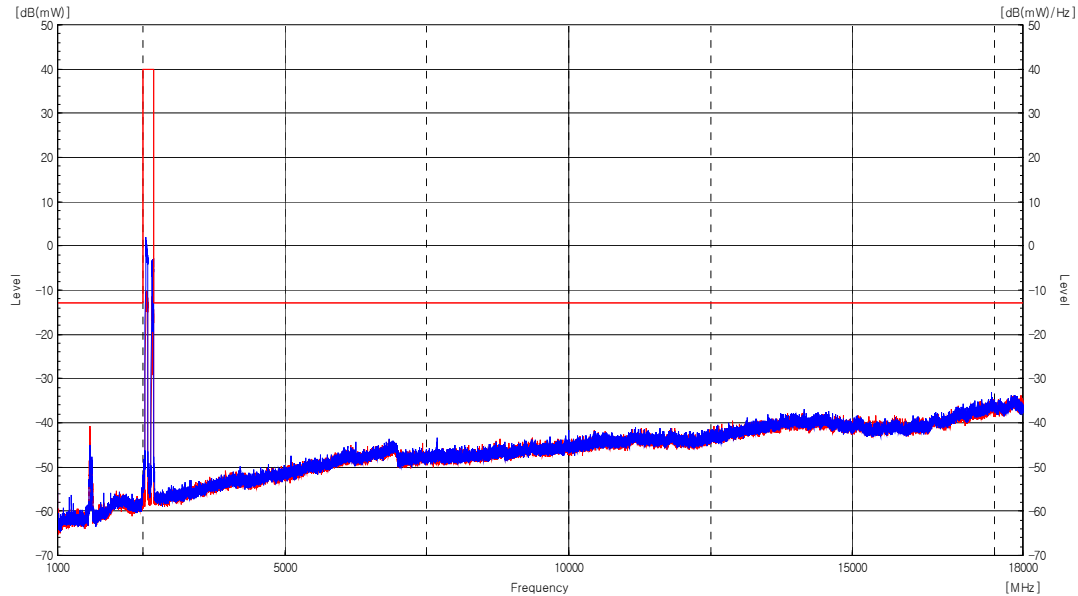
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

**Test mode : 5G NR 1C 40M+LTE 2C 20M+20M Non-Contiguous Highest QPSK
(Worst case)**

Frequency Range : 30 MHz - 1 GHz

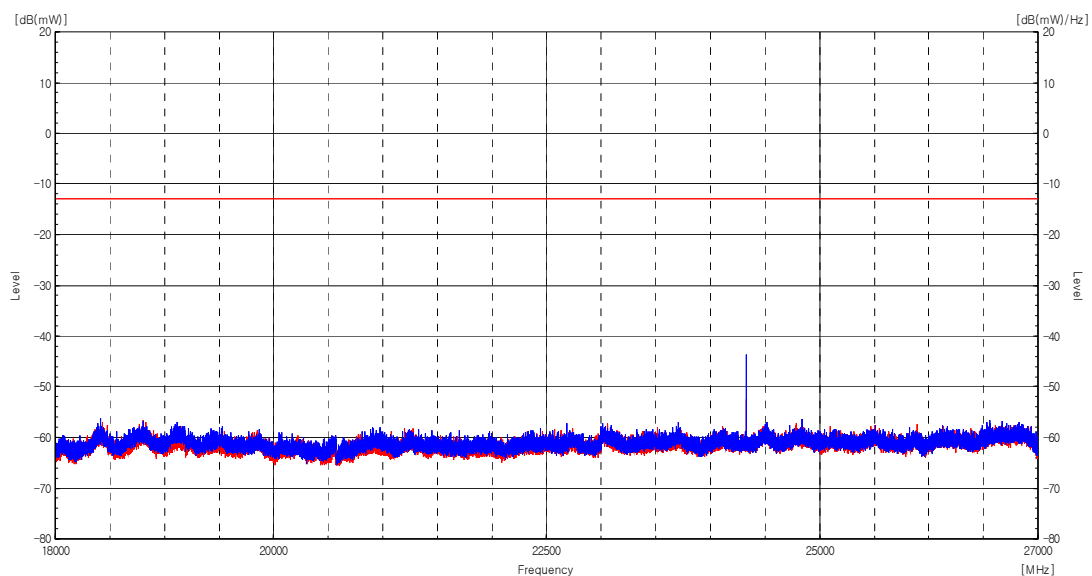
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



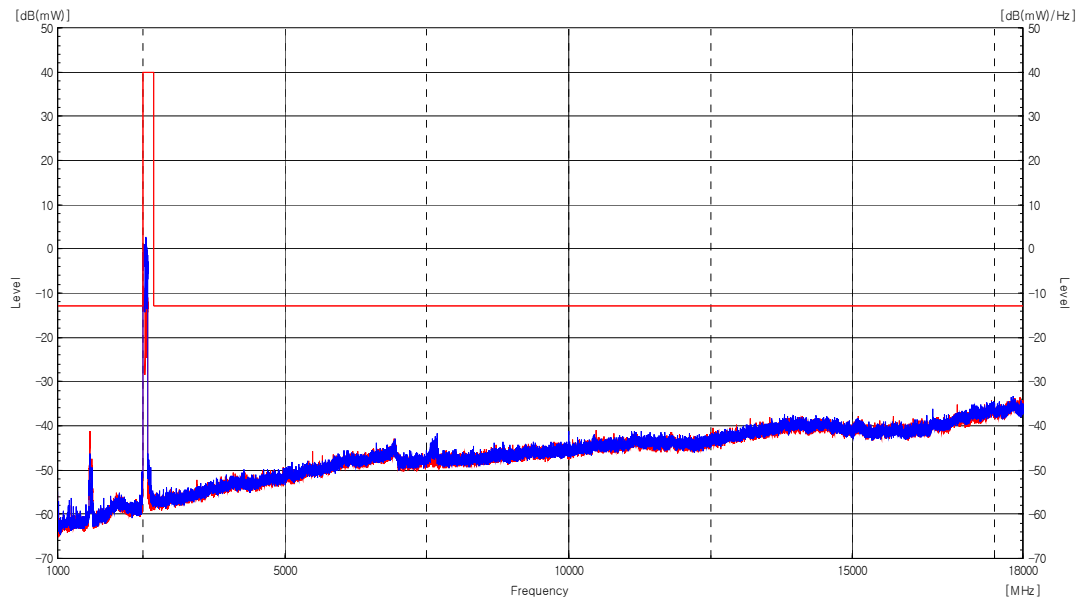
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

**Test mode : 5G NR 1C 50M+LTE 2C 20M+20M Contiguous Lowest 256QAM
(Worst case)**

Frequency Range : 30 MHz - 1 GHz

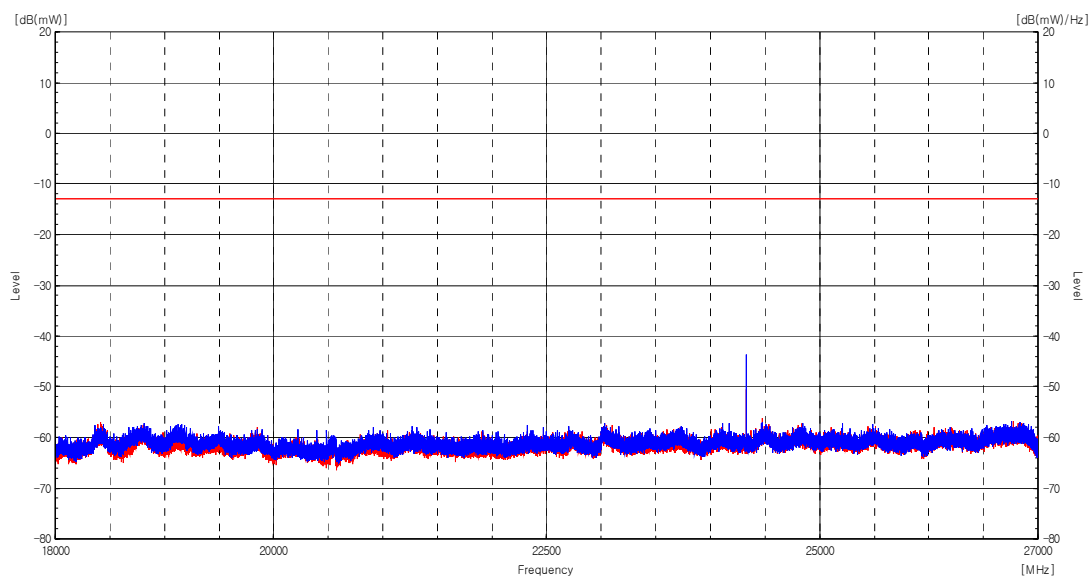
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



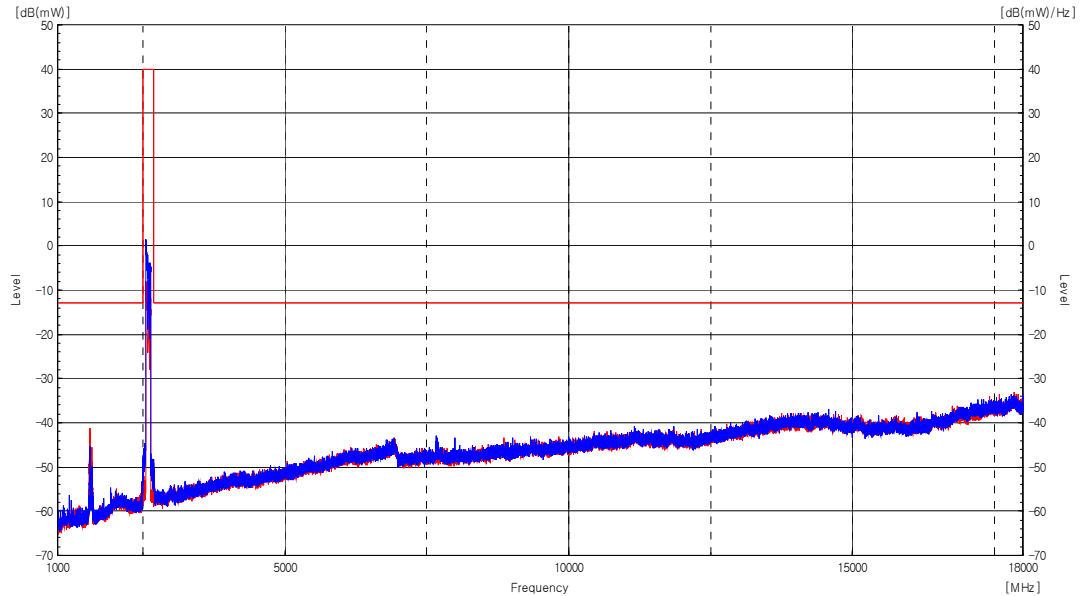
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

**Test mode : 5G NR 1C 50M+LTE 2C 20M+20M Contiguous Middle 256QAM
(Worst case)**

Frequency Range : 30 MHz - 1 GHz

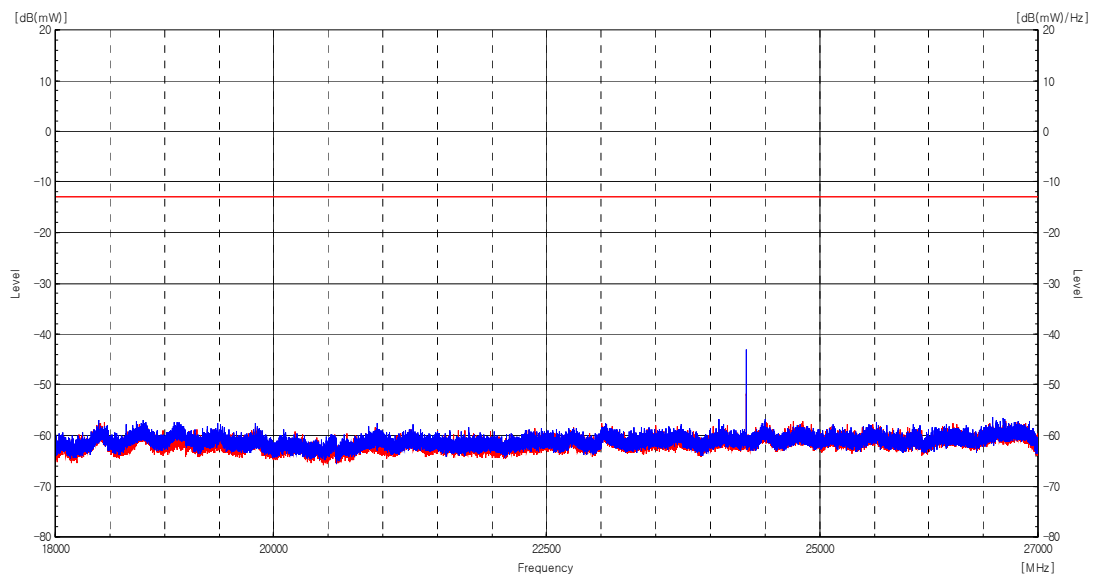
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



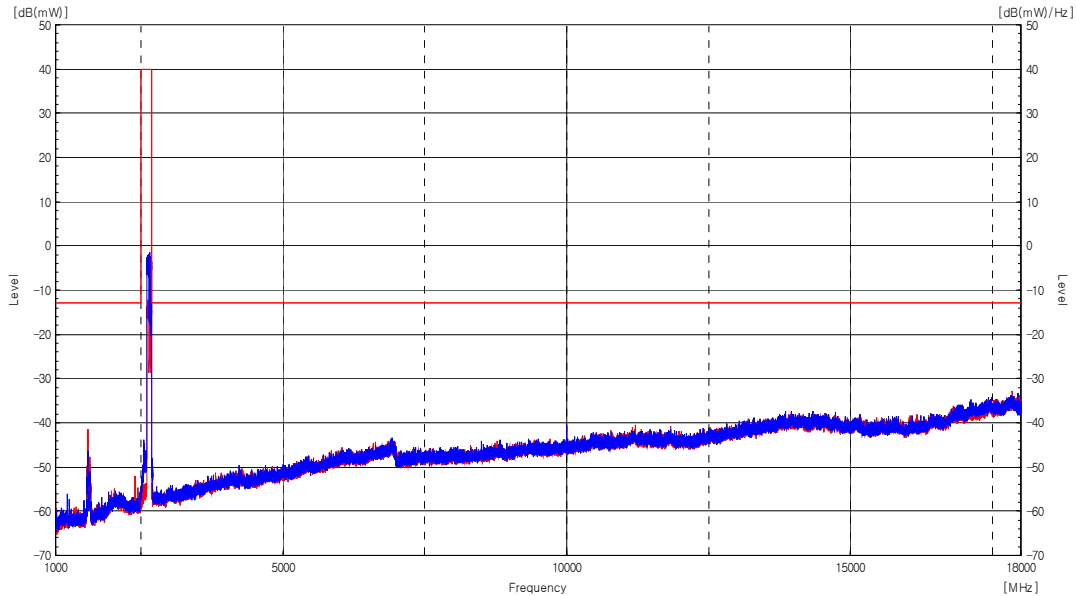
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

**Test mode : 5G NR 1C 50M+LTE 2C 20M+20M Contiguous Highest 256QAM
(Worst case)**

Frequency Range : 30 MHz - 1 GHz

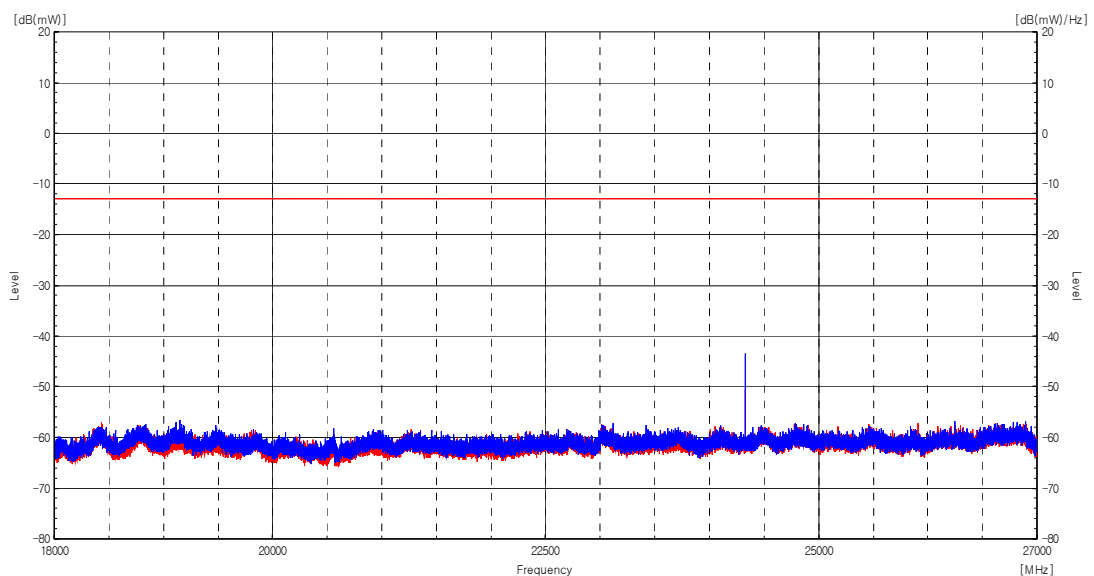
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



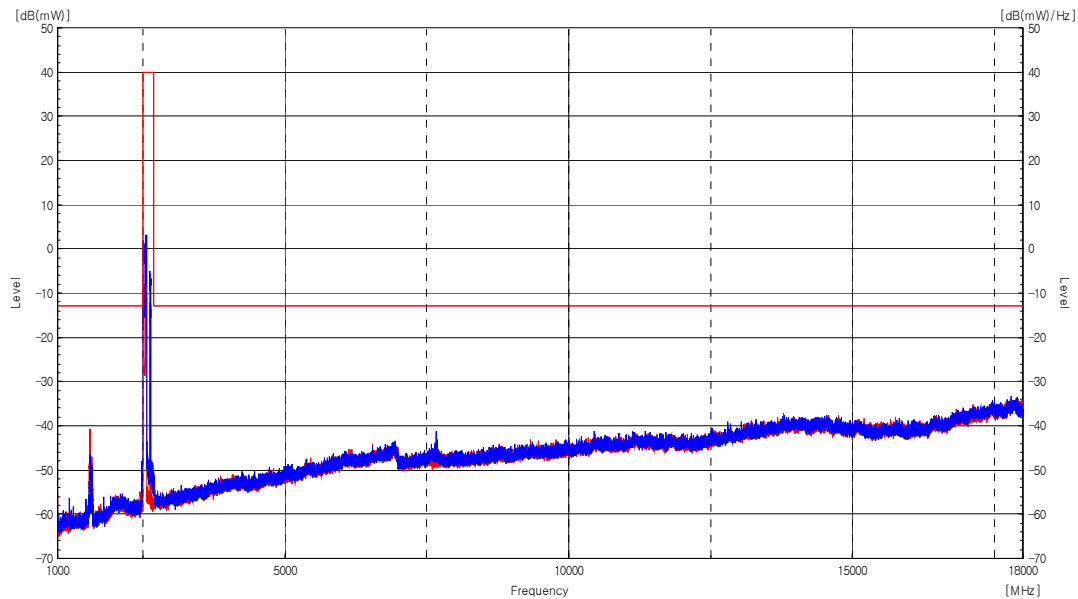
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

**Test mode : 5G NR 1C 50M+LTE 2C 20M+20M Non-Contiguous Lowest 256QAM
(Worst case)**

Frequency Range : 30 MHz - 1 GHz

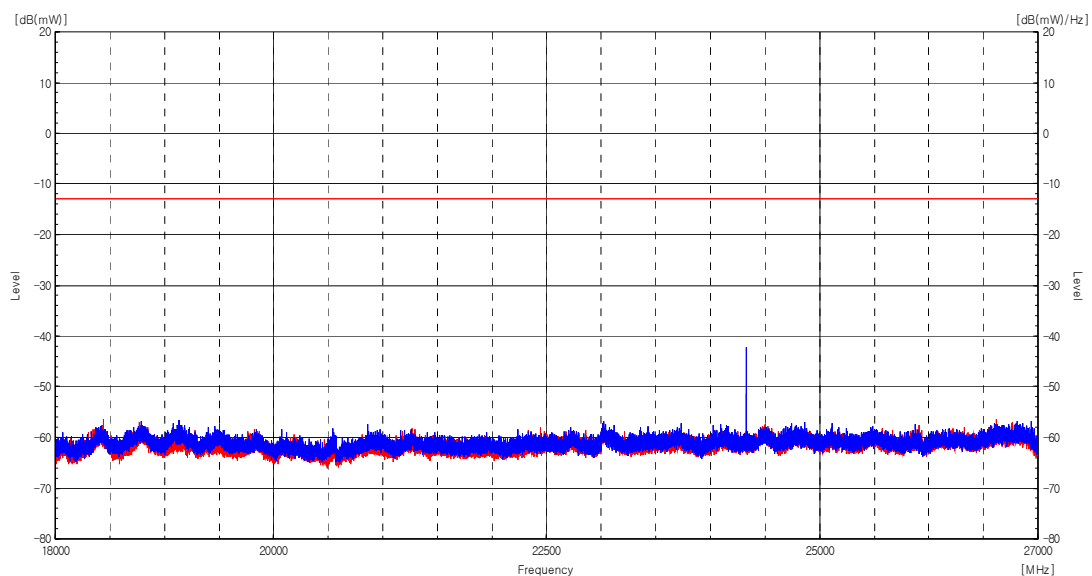
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



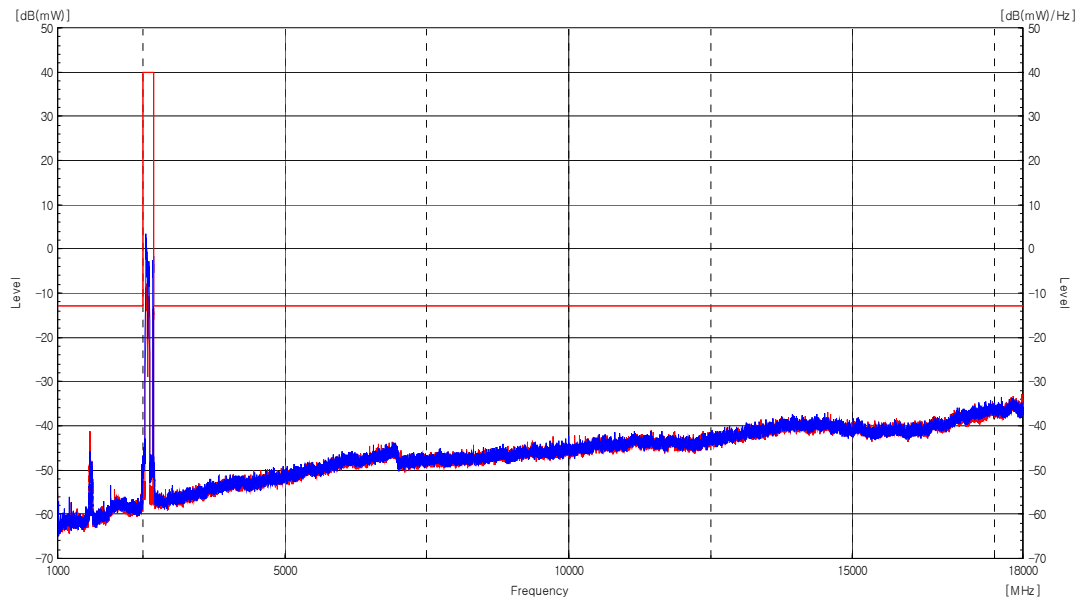
Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

**Test mode : 5G NR 1C 50M+LTE 2C 20M+20M Non-Contiguous Highest 256QAM
(Worst case)**

Frequency Range : 30 MHz - 1 GHz

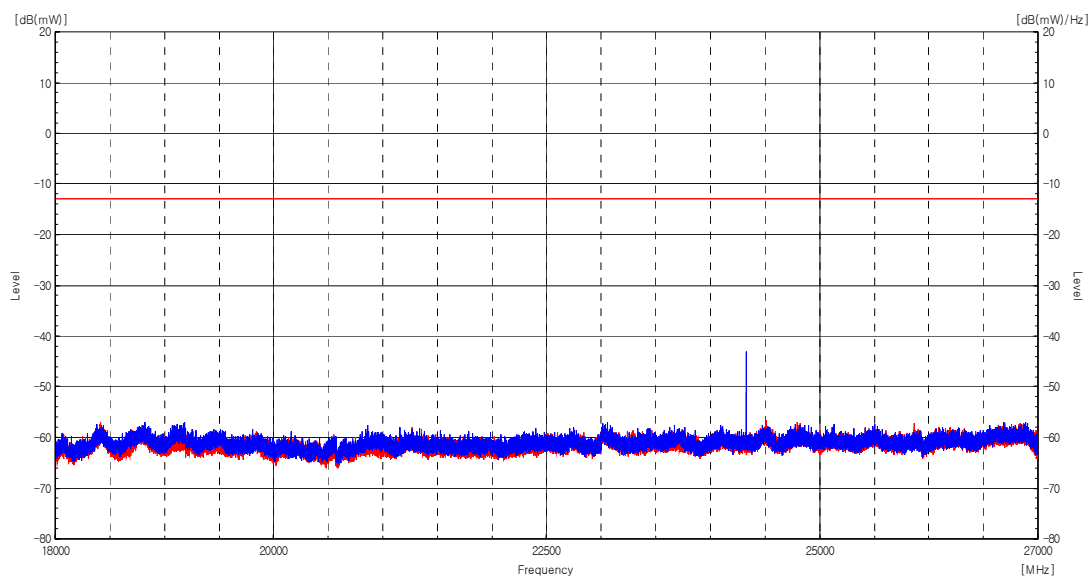
Frequency [MHz]	Pol.	Reading [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP-PK [dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 1 GHz - 18 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

Frequency Range : 18 GHz - 27 GHz



Frequency [MHz]	Pol.	Reading [dBm]	Space Loss [dB]	EIRP[dBm]	Limit[dBm]	Margin[dB]	Height [cm]	Angle [deg]
The emissions 20 dB lower than the limit.								

 CTK Co., Ltd. The First Leader of Global Regulatory Compliance	CTK Co., Ltd. (Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2023-01878 Page (418) / (420) Pages	
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4.6 Frequency Stability

Test Overview :

Some transmitter requirements specify frequency stability tests with variations of supply voltage and temperature, to show that the transmitter is capable of maintaining its assigned carrier frequency.

Test Settings :

1. Temperature: The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
2. Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Test Procedures :

ANSI C63.26-2015 - Section 5.6

1. Device is placed at the Temp & Humidity Chamber. The Temp & Humidity Chamber could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
2. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
3. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

Test Data

Operating frequency	2 593 MHz
Reference voltage / temperature	-48 Vdc / 20 °C

Voltage (%)	Temperature (°C)	Frequency (Hz)	Frequency Error(Hz)	Deviation (Hz)	Frequency Error (ppm)
100	+20(Ref)	2 593 019 999	19999.0	0.0	0.0000
	-30	2 593 019 999	19999.0	0.0	0.0000
	-20	2 593 019 997	19997.0	-2.0	-0.0008
	-10	2 593 019 995	19995.0	-4.0	-0.0015
	0	2 593 019 998	19998.0	-1.0	-0.0004
	+10	2 593 019 996	19996.0	-3.0	-0.0012
	+30	2 593 019 995	19995.0	-4.0	-0.0015
	+40	2 593 020 000	20000.0	1.0	0.0004
	+50	2 593 019 997	19997.0	-2.0	-0.0008
115	+20	2 593 019 996	19996.0	-3.0	-0.0012
85	+20	2 593 019 997	19997.0	-2.0	-0.0008

5. APPENDIX A – Test Equipment Used For Tests

	Name of Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Signal Analyzer	Keysight	N9020B	MY57431080	2023-03-22	2024-03-22
2	Signal Analyzer	Keysight	N9020B	MY58100015	2022-12-15	2023-12-15
3	Signal Generator	Rohde & Schwarz	SMB100A	175528	2023-03-22	2024-03-22
4	MXG Vector Signal Generator	KEYSIGHT	N5182B	MY53051144	2023-03-22	2024-03-22
5	RF Switch System	INSJOY Ltd	RFX0132R	RFS01	2022-10-20	2023-10-20
6	RF Switch System	INSJOY Ltd	RFX0132R	RFS02	2022-10-13	2023-10-13
7	System DC Power Supply	Agilent	6674A	US36372372	2023-03-27	2024-03-27
8	System DC Power Supply	Agilent	6674A	MY41001477	2023-01-03	2024-01-03
9	Signal Analyzer	Rohde & Schwarz	FSV30	100925	2023-01-03	2024-01-03
10	Spectrum Analyzer	Rohde & Schwarz	FSV40	101574	2023-01-11	2024-01-11
11	EMI TEST RECEIVER	Rohde & Schwarz	ESW44	102039	2023-05-03	2024-05-03
12	Bilog Antenna	TESEQ	CBL6111D	60654	2021-09-03	2023-09-03
13	Attenuator	PASTERNAK	PE7AP006-06	L20210504000 023	2023-08-04	2024-08-04
14	AMPLIFIER	SONOMA	310N	411011	2023-08-04	2024-08-04
15	Preamplifier	Agilent	8449B	3008A00620	2023-04-21	2024-04-21
16	Double Ridged Guide Antenna	ETS-Lindgren	3115	00078895	2023-04-14	2024-04-13
17	Horn Antenna	SCHWARZBECK	BBHA9170	1153	2022-10-31	2023-10-31
18	Low Noise Amplifier	TESTEK	TK-PA1840H	210124-L	2022-11-09	2023-11-09

-END-