

KCTL Inc.

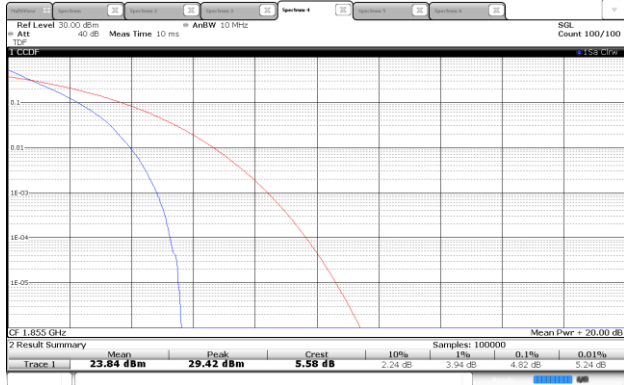
65, Sinwon-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16677, Korea
TEL: 82-31-285-0894 FAX: 82-505-299-8311
www.kctl.co.kr

Report No.:
KR19-SRF0009-B

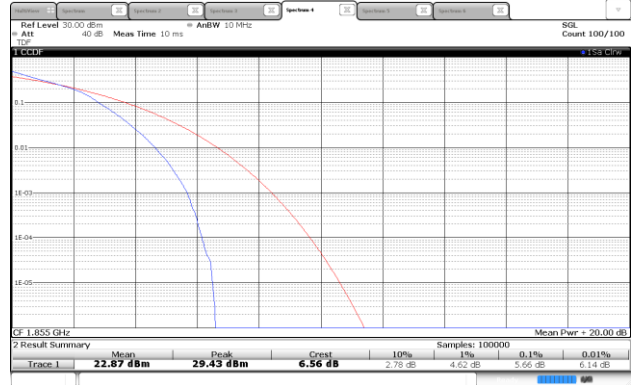
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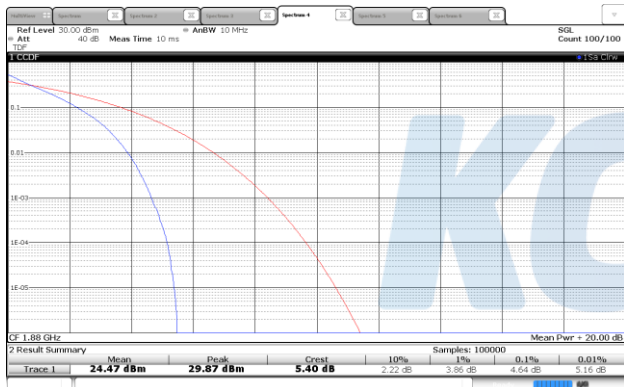
10M BW / QPSK / Low ch.



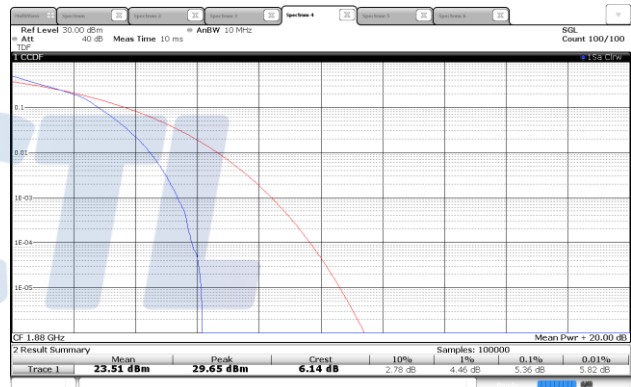
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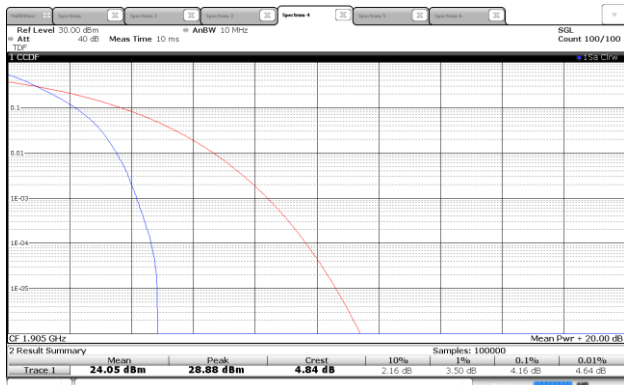
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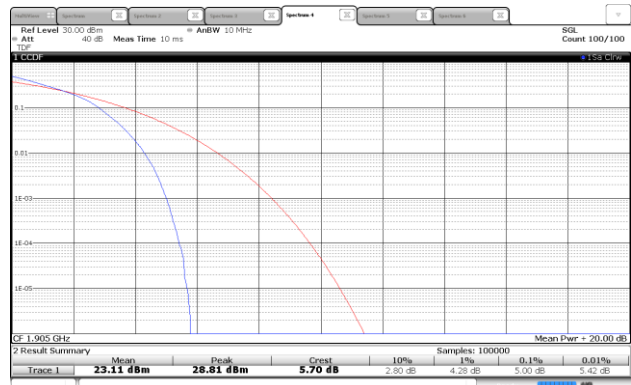
10M BW / 16QAM / Mid ch.



10M BW / QPSK / High ch.



10M BW / 16QAM / High ch.



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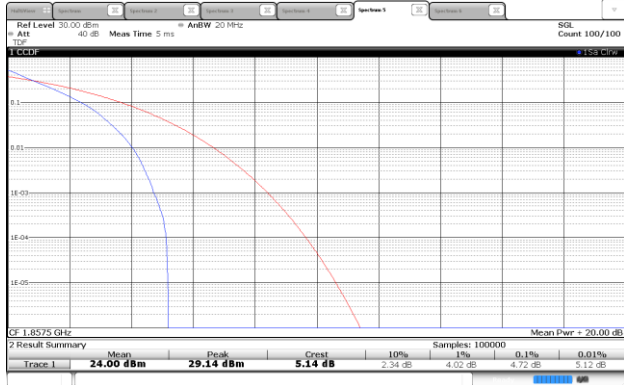
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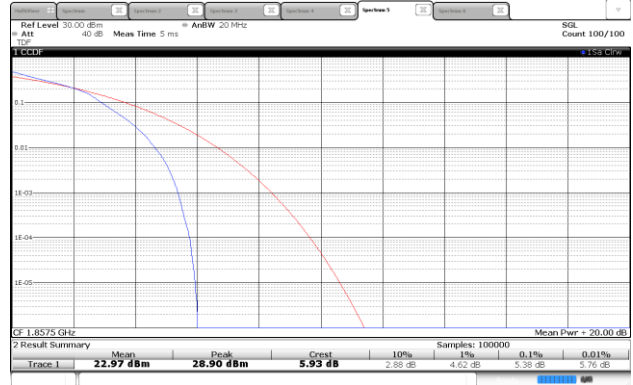
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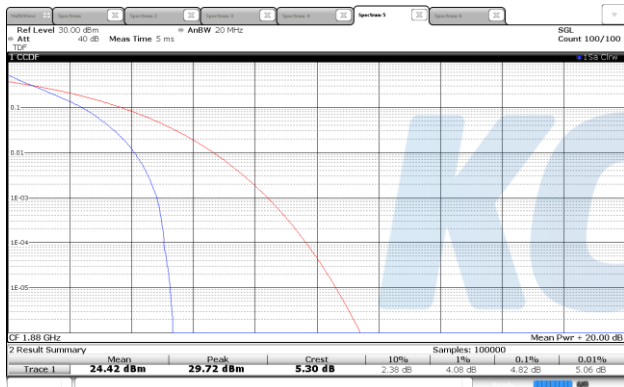
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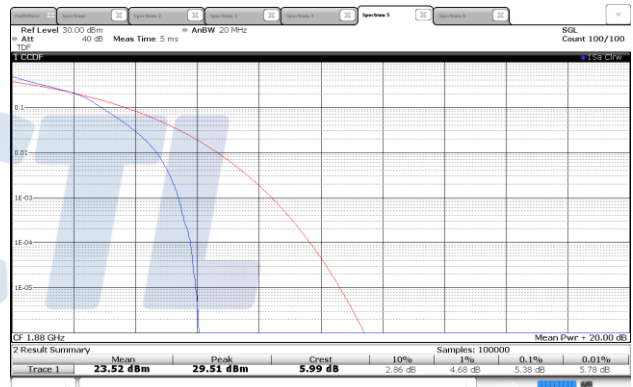
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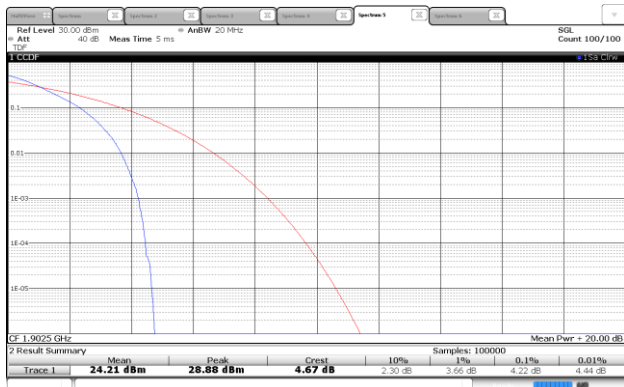
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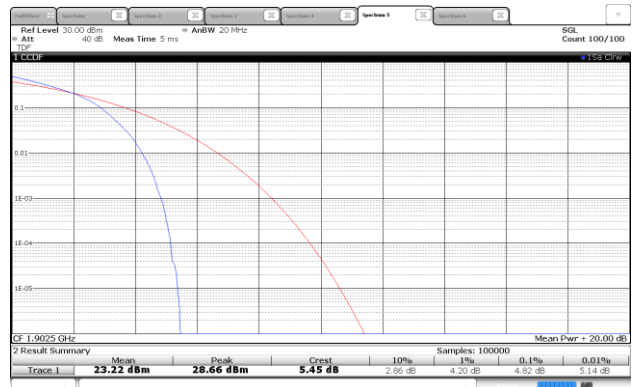
15M BW / 16QAM / Mid ch.



15M BW / QPSK / High ch.



15M BW / 16QAM / High ch.



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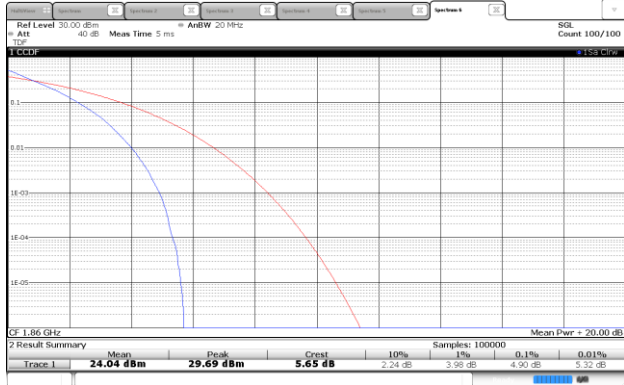
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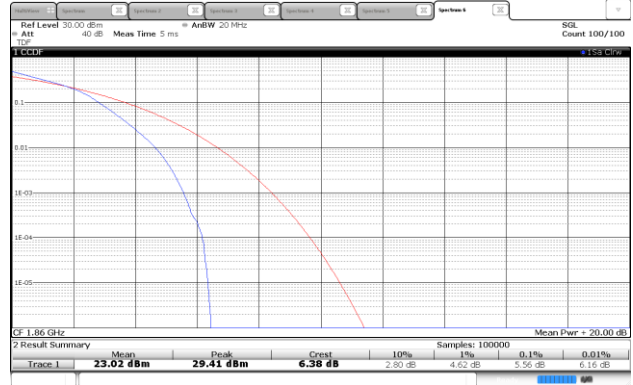
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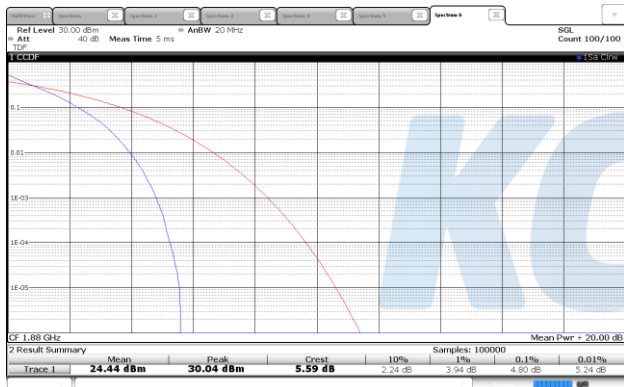
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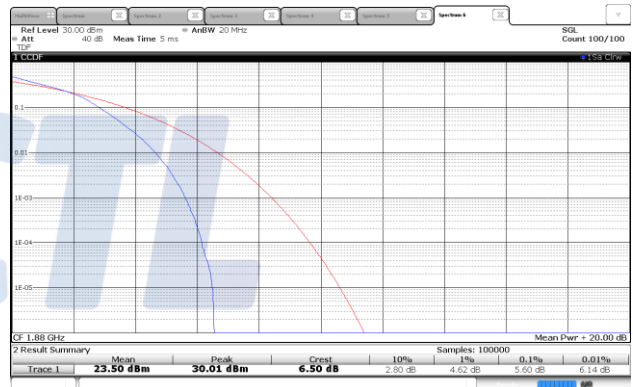
20M BW / 16QAM / Low ch.



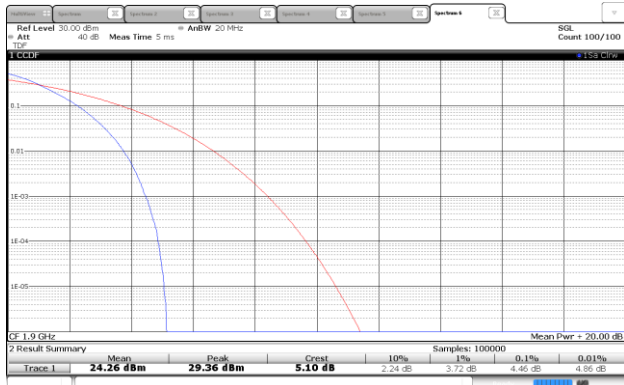
20M BW / QPSK / Mid ch.



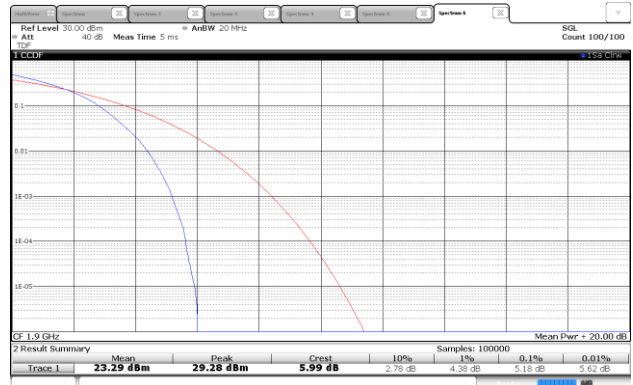
20M BW / 16QAM / Mid ch.



20M BW / QPSK / High ch.

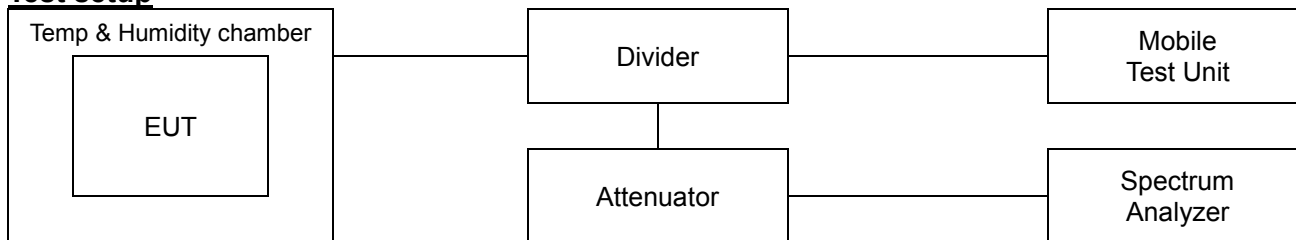


20M BW / 16QAM / High ch.



7.5. Frequency stability

Test setup



Limit

According to §2.1055(a),

The frequency stability shall be measured with variation of ambient temperature as follows:

- 1) From -30° to $+50^{\circ}$ centigrade for all equipment except that specified in paragraphs (a) (2) and (3) of this section.
- 2) From -20° to $+50^{\circ}$ centigrade for equipment to be licensed for use in the maritime services under part 80 of this chapter, except for class A, B, and S emergency position indicating radiobeacons (EPIRBS), and equipment to be licensed for use above 952 MHz at operational fixed stations in all services, stations in the local television transmission service and point-to-point microwave radio service under part 21 of this chapter, equipment licensed for use aboard aircraft in the aviation services under part 87 of this chapter, and equipment authorized for use in the family radio service under part 95 of this chapter.
- 3) From 0° to $+50^{\circ}$ centigrade for equipment to be licensed for use in the radio broadcast Services under part 73 of this chapter.

According to §2.1055(d),

The frequency stability shall be measured with variation of primary supply Voltage as follows:

- 1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.
- 2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating and point which shall be specified by the manufacturer.
- 3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided. Effects on frequency of transmitter keying (except for broadcast transmitters) and any heating element cycling at the nominal supply voltage and at each extreme also shall be shown.

According to §22.355,

The carrier frequency of each transmitter in the public mobile services must be maintained within the tolerances given in Table of this section.

For mobile devices operating in the 824 to 849 MHz band at a power level than or equal to 3 Watts, the limit specified in Table C-1 is ± 2.5 ppm.

According to §24.235,

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

According to §27.54,

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

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KCTL**Test procedure**

ANSI 63.26-2015 – Section 5.6

Test settings

- 1) The carrier frequency of the transmitter is measured at room temperature.
(20°C to provide a reference)
- 2) The equipment is turned on in a “standby” condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
- 3) Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C.
A period of at least one half-hour is provided to allow stabilization of the equipment at each Temperature level.

Notes:

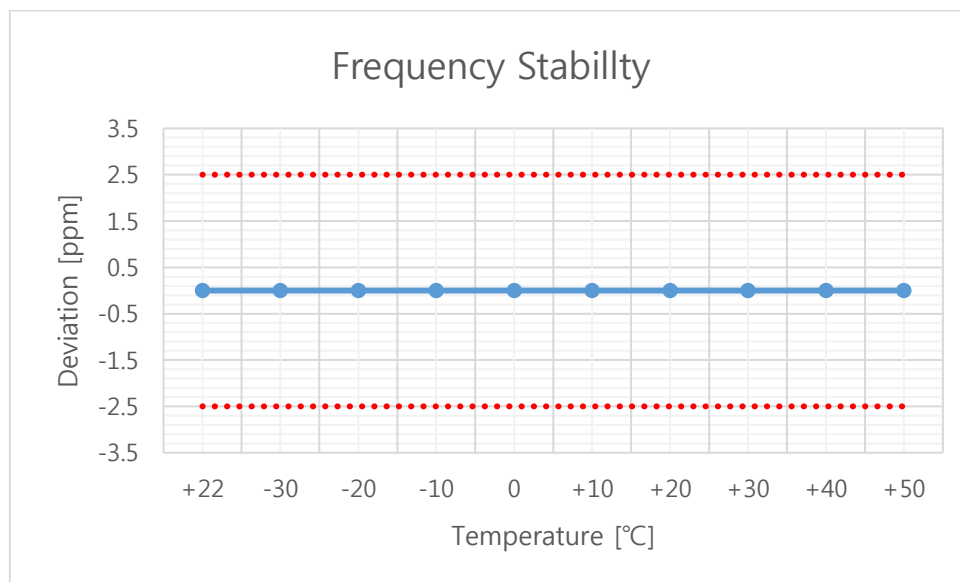
1. All path loss of frequency range was investigated and compensated to spectrum analyzer as TDF function. Please refer to the page 9.

KCTL

Test results

Test mode : LTE Band5
 Frequency (Hz) : 836,500,000
 Channel : 20525
 Deviation limit : ±0.00025% or 2.5ppm

Voltage (%)	Power (V)	Temp. (°C)	Frequency (Hz)	Frequency error (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+22(Ref)	836,500,001	1	0.00	0.000 000
		-30	836,500,003	3	0.00	0.000 000
		-20	836,500,001	1	0.00	0.000 000
		-10	836,499,998	-2	0.00	0.000 000
		0	836,499,999	-1	0.00	0.000 000
		+10	836,499,999	-2	0.00	0.000 000
		+20	836,500,002	2	0.00	0.000 000
		+30	836,500,001	1	0.00	0.000 000
		+40	836,500,002	2	0.00	0.000 000
		+50	836,500,001	1	0.00	0.000 000
115%	4.43	+22(Ref)	836,500,000	0	0.00	0.000 000
End point	3.55	+22(Ref)	836,500,001	1	0.00	0.000 000



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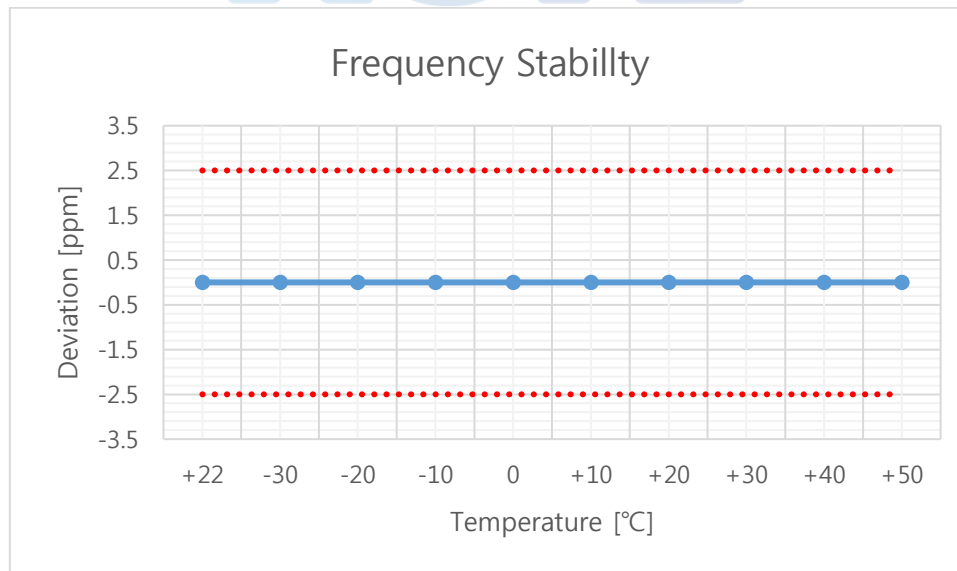
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Test mode : LTE Band2
Frequency (Hz) : 1 880,000,000
Channel : 18900
Deviation limit : ±0.00025% or 2.5ppm

Voltage (%)	Power (V)	Temp. (°C)	Frequency (Hz)	Frequency error (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+22(Ref)	1 880,000 006	6	0.00	0.000 000
		-30	1 880,000,002	2	0.00	0.000 000
		-20	1 880,000 003	3	0.00	0.000 000
		-10	1 880,000 004	4	0.00	0.000 000
		0	1 880,000 003	3	0.00	0.000 000
		+10	1 879,999 999	-1	0.00	0.000 000
		+20	1 880,000 003	3	0.00	0.000 000
		+30	1 880,000 005	5	0.00	0.000 000
		+40	1 880,000 002	2	0.00	0.000 000
		+50	1 880,000 001	1	0.00	0.000 000
115%	4.43	+22(Ref)	1 880,000 003	3	0.00	0.000 000
End point	3.55	+22(Ref)	1 880,000 004	4	0.00	0.000 000



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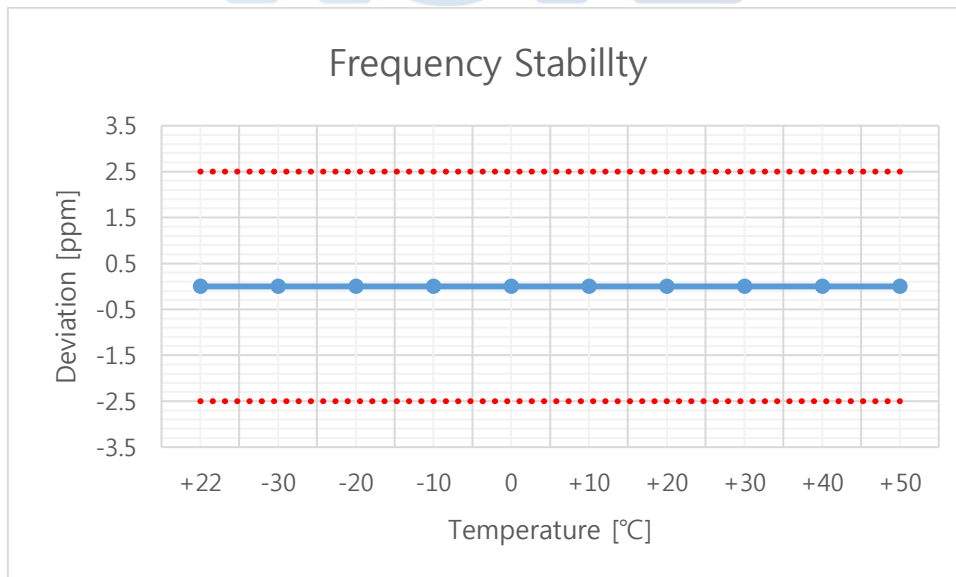
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Test mode : LTE Band41
Frequency (Hz) : 2 593,000,000
Channel : 40620
Deviation limit : ±0.00025% or 2.5ppm

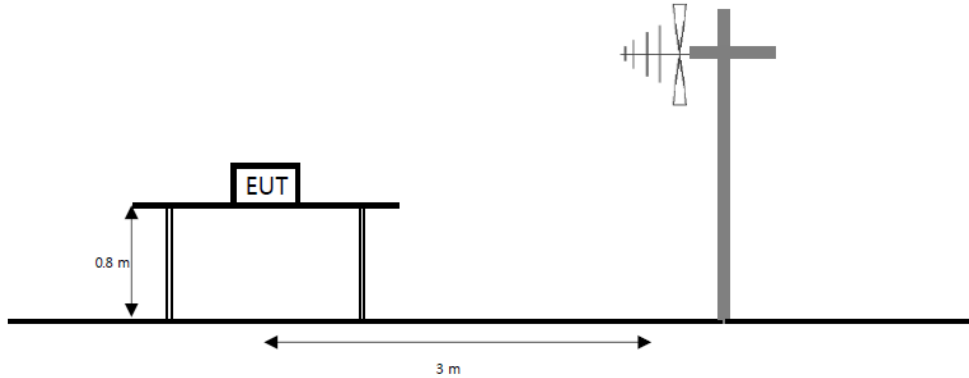
Voltage (%)	Power (V)	Temp. (°C)	Frequency (Hz)	Frequency error (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+22(Ref)	2 593,000,002	-2	0.00	0.000 000
		-30	2 592,999,998	0	0.00	0.000 000
		-20	2 593,000,000	-5	0.00	0.000 000
		-10	2 592,999,995	-10	0.00	0.000 000
		0	2 592,999,991	-9	0.00	0.000 000
		+10	2 592,999,991	-5	0.00	0.000 000
		+20	2 592,999,995	-2	0.00	0.000 000
		+30	2 592,999,998	-3	0.00	0.000 000
		+40	2 592,999,997	-1	0.00	0.000 000
		+50	2 592,999 999	-2	0.00	0.000 000
115%	4.43	+22(Ref)	2 592,999,998	0	0.00	0.000 000
End point	3.55	+22(Ref)	2 593,000,000	2	0.00	0.000 000



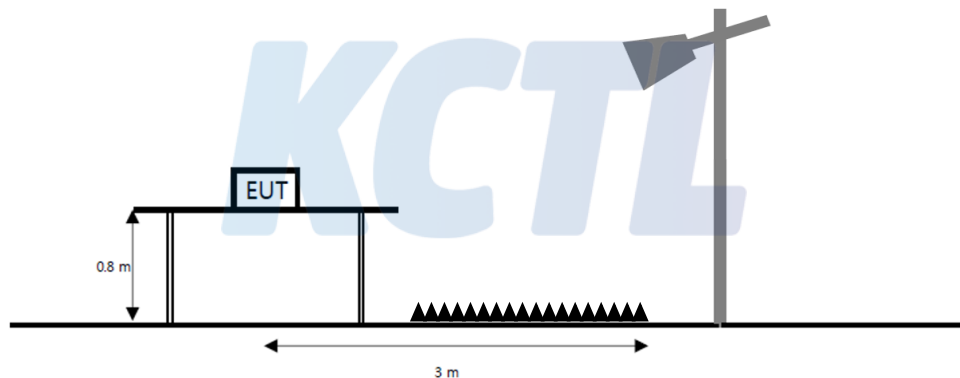
7.6. Radiated Power (ERP/EIRP)

Test setup

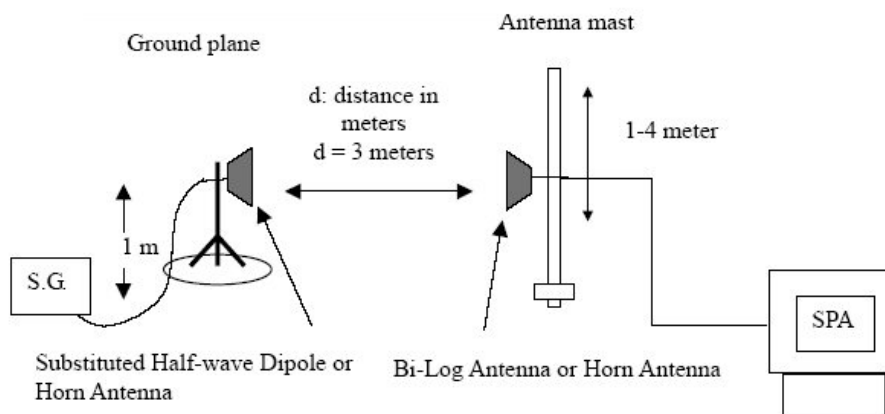
The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz emissions, whichever is lower.



The diagram below shows the test setup for substituted method.



Limit

According to §22.913(a)(5), the ERP of transmitters in the cellular radiotelephone service must not exceed the limits in this section. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to §24.232(c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to §27.50(h)(2), mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

Test procedure

971168 D01 v03r01 - Section 5.2 and 5.8

ANSI 63.26-2015 – Section 5.2

ANSI/TIA-603-E-2016 - Section 2.2.17

Test settings

- 1) RBW = 1 % to 5 % of the OBW.
- 2) VBW $\geq 3 \times$ RBW.
- 3) SPAN = 2 \times to 3 \times the OBW.
- 4) Number of measurement points in sweep $\geq 2 \times$ span / RBW.
- 5) Sweep time :
 - 1) Auto couple, or
 - 2) $\geq [10 \times (\text{number of points in sweep}) \times (\text{transmission period})]$ for single sweep (automation-compatible) measurement. Transmission period is the on and off time of the transmitter.
- 6) Detector = RMS
- 7) If the EUT can be configured to transmit continuously, then set the trigger to free run.
- 8) If the EUT cannot be configured to transmit continuously, then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Verify that the sweep time is less than or equal to the transmission burst duration. Time gating can also be used under similar constraints (i.e., configured such that measurement data is collected only during active full-power transmissions).
- 9) Trace mode = trace averaging (RMS) over 100 sweeps.
- 10) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function, with the band/channel limits set equal to the OBW band edges. If the instrument does not have a band or channel power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.
- 11) Allow trace to fully stabilize.

Notes:

1. On a test site, the EUT shall be placed at 80 cm height on a turn table, and in the position close to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3 m from EUT to correspond to the fundamental frequency of the transmitter.

3. The turntable is rotated through 360°, and the receiving antenna scans in order to determine the Level of the maximized emission.
4. The test antenna shall be raised and lowered again through the specified range of height until the maximum signal level is detected by the measuring receiver.
5. The maximum signal level detected by the measuring receiver shall be noted.
6. The EUT was replaced by half-wave dipole (1 GHz below) or horn antenna (1 GHz above) connected to a signal generator.
The power is calculated by the following formula;
$$Pd(\text{dBm}) = Pg(\text{dBm}) - \text{Cable loss (dB)} + \text{Antenna gain (dB)}$$

Note. Pd is the dipole equivalent power and Pg is the generator output power into the substitution antenna.
7. The test antenna shall be raised and lowered through the specified range of height to ensure that The maximum signal is received.
8. The input signal to the substitution antenna shall be adjusted to the level that produces a level Detected by the measuring corrected for the change of input attenuator setting of the measuring Receiver.
9. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for Any change of input attenuator setting of the measuring receiver.
10. The measurement shall be repeated with the test antenna and the substitution antenna Orientated for horizontal polarization.



Test results**Test mode: LTE Band5**

Bandwidth	Modulation	Frequency	Pol.	Antenna Gain	C.L	Substitute Level	ERP	
		[MHz]	[V/H]	[dB i]	[dB]	[dB m]	[dB m]	[W]
1.4	QPSK	824.70	H	-0.60	3.80	25.35	20.95	0.124
		836.50	H	-0.50	3.84	26.58	22.24	0.167
		848.30	H	-0.50	3.87	27.04	22.67	0.185
	16QAM	824.70	H	-0.60	3.80	24.78	20.38	0.109
		836.50	H	-0.50	3.84	25.24	20.90	0.123
		848.30	H	-0.50	3.87	25.22	20.85	0.122
3.0	QPSK	825.50	H	-0.60	3.80	25.79	21.39	0.138
		836.50	H	-0.50	3.84	26.51	22.17	0.165
		847.50	H	-0.50	3.87	26.93	22.56	0.180
	16QAM	825.50	H	-0.60	3.80	24.29	19.89	0.097
		836.50	H	-0.50	3.84	24.64	20.30	0.107
		847.50	H	-0.50	3.87	24.72	20.35	0.108
5.0	QPSK	826.50	H	-0.60	3.80	25.63	21.23	0.133
		836.50	H	-0.50	3.84	26.33	21.99	0.158
		846.50	H	-0.50	3.87	26.99	22.62	0.183
	16QAM	826.50	H	-0.60	3.80	24.13	19.73	0.094
		836.50	H	-0.50	3.84	24.16	19.82	0.096
		846.50	H	-0.50	3.87	24.65	20.28	0.107
10.0	QPSK	829.00	H	-0.60	3.80	25.89	21.49	0.141
		836.50	H	-0.50	3.84	26.60	22.26	0.168
		844.00	H	-0.50	3.87	26.95	22.58	0.181
	16QAM	829.00	H	-0.60	3.80	24.67	20.27	0.106
		836.50	H	-0.50	3.84	25.05	20.71	0.118
		844.00	H	-0.50	3.87	25.77	21.40	0.138

Note.

1. E.R.P & E.I.R.P(dBm) = Substitute Level(dB) + Antenna gain(dBi) - C.L(Cable loss) (dB)

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**Test mode: LTE Band2**

Bandwidth	Modulation	Frequency	Pol.	Antenna Gain	C.L	Substitute Level	EIRP	
		[MHz]	[V/H]	[dB i]	[dB]	[dB m]	[dB m]	[W]
1.4	QPSK	1850.70	V	8.70	5.72	18.66	21.64	0.146
		1880.00	V	8.70	5.72	18.35	21.33	0.136
		1909.30	V	8.70	5.88	18.73	21.55	0.143
	16QAM	1850.70	V	8.70	5.72	17.64	20.62	0.115
		1880.00	H	8.70	5.72	17.32	20.30	0.107
		1909.30	H	8.70	5.88	17.47	20.29	0.107
3.0	QPSK	1851.50	V	8.70	5.72	18.62	21.60	0.145
		1880.00	H	8.70	5.72	18.28	21.26	0.134
		1908.50	H	8.70	5.88	18.61	21.43	0.139
	16QAM	1851.50	V	8.70	5.72	17.33	20.31	0.107
		1880.00	H	8.70	5.72	17.12	20.10	0.102
		1908.50	H	8.70	5.88	17.34	20.16	0.104
5.0	QPSK	1852.50	V	8.70	5.72	18.87	21.85	0.153
		1880.00	H	8.70	5.72	18.37	21.35	0.136
		1907.50	H	8.70	5.88	18.78	21.60	0.145
	16QAM	1852.50	V	8.70	5.72	17.64	20.62	0.115
		1880.00	V	8.70	5.72	17.32	20.30	0.107
		1907.50	V	8.70	5.88	17.70	20.52	0.113
10.0	QPSK	1855.00	V	8.70	5.72	18.65	21.63	0.146
		1880.00	H	8.70	5.72	18.43	21.41	0.138
		1905.00	H	8.70	5.88	19.14	21.96	0.157
	16QAM	1855.00	V	8.70	5.72	17.65	20.63	0.116
		1880.00	H	8.70	5.72	17.34	20.32	0.108
		1905.00	H	8.70	5.88	18.02	20.84	0.121
15	QPSK	1857.50	V	8.70	5.72	18.51	21.49	0.141
		1880.00	H	8.70	5.72	18.38	21.36	0.137
		1902.50	H	8.70	5.88	19.28	22.10	0.162
	16QAM	1857.50	V	8.70	5.72	17.24	20.22	0.105
		1880.00	H	8.70	5.72	17.27	20.25	0.106
		1902.50	H	8.70	5.88	18.04	20.86	0.122

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Bandwidth	Modulation	Frequency	Pol.	Antenna Gain	C.L	Substitute Level	EIRP	
		[MHz]	[V/H]	[dB i]	[dB]	[dB m]	[dB m]	[W]
20	QPSK	1860.00	V	8.70	5.72	18.47	21.45	0.140
		1880.00	V	8.70	5.72	18.39	21.37	0.137
		1900.00	H	8.70	5.88	18.96	21.78	0.151
	16QAM	1860.00	V	8.70	5.72	17.39	20.37	0.109
		1880.00	H	8.70	5.72	17.26	20.24	0.106
		1900.00	H	8.70	5.88	17.98	20.80	0.120

Test mode: LTE Band41

Bandwidth	Modulation	Frequency	Pol.	Antenna Gain	C.L	Substitute Level	EIRP	
		[MHz]	[V/H]	[dB i]	[dB]	[dB m]	[dB m]	[W]
5.0	QPSK	2498.50	H	9.80	6.62	19.63	22.81	0.191
		2547.80	H	9.70	6.74	19.33	22.29	0.169
		2593.00	H	9.50	6.74	20.81	23.57	0.228
	16QAM	2640.30	H	9.50	6.87	20.17	22.80	0.191
		2687.50	H	9.50	6.87	20.54	23.17	0.207
		2498.50	H	9.80	6.62	17.77	20.95	0.124
10.0	QPSK	2547.80	H	9.70	6.74	18.61	21.57	0.144
		2593.00	H	9.50	6.74	18.98	21.74	0.149
		2640.30	H	9.50	6.87	19.62	22.25	0.168
	16QAM	2687.50	H	9.50	6.87	19.13	21.76	0.150
		2501.00	H	9.80	6.74	19.83	22.89	0.195
		2547.00	H	9.70	6.74	18.69	21.65	0.146
15.0	QPSK	2593.00	H	9.50	6.74	20.01	22.77	0.189
		2639.00	H	9.50	6.87	20.41	23.04	0.201
		2685.00	H	9.50	6.87	19.70	22.33	0.171
	16QAM	2501.00	H	9.80	6.74	15.30	18.36	0.069
		2547.00	H	9.70	6.74	18.47	21.43	0.139
		2593.00	H	9.50	6.74	14.82	17.58	0.057
20.0	QPSK	2639.00	H	9.50	6.87	16.08	18.71	0.074
		2685.00	H	9.50	6.87	17.88	20.51	0.112
		2503.50	H	9.70	6.74	19.27	22.23	0.167
	16QAM	2548.30	H	9.70	6.74	19.22	22.18	0.165
		2593.00	H	9.50	6.74	18.73	21.49	0.141
		2637.80	H	9.50	6.87	19.59	22.22	0.167

Note.

1. E.R.P & E.I.R.P(dBm) = Substitute Level(dB) + Antenna gain(dBi) - C.L(Cable loss) (dB)

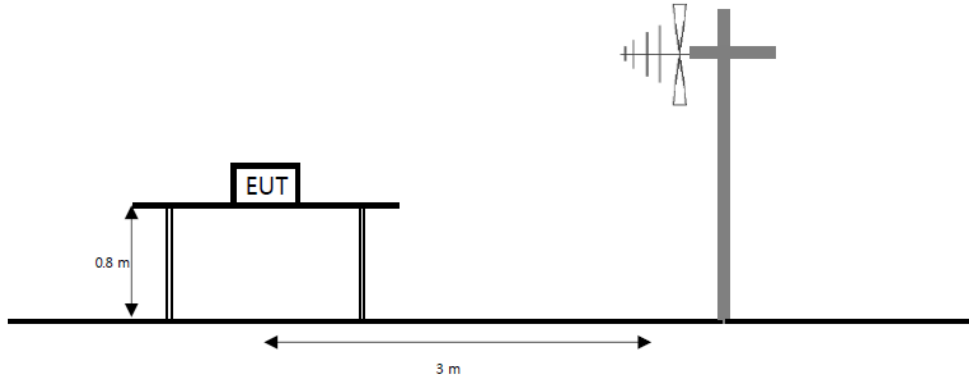
This test report shall not be reproduced, except in full, without the written approval

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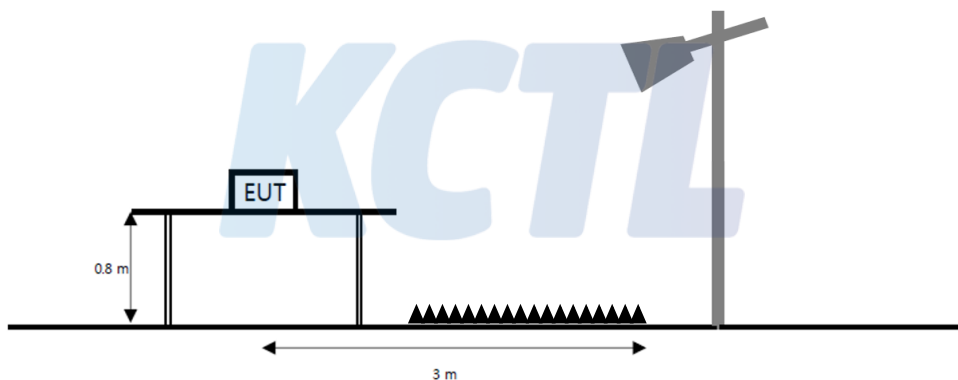
7.7. Radiated Spurious Emissions

Test setup

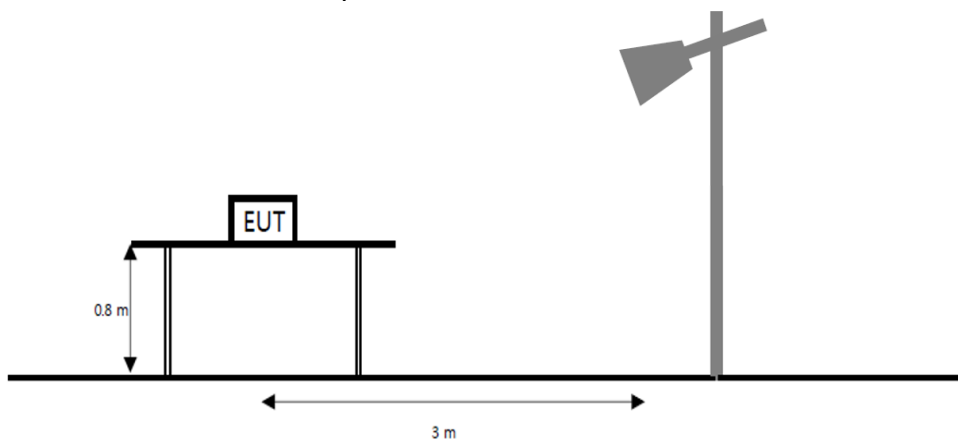
The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz emissions, whichever is lower.



The diagram below shows the test setup for substituted method.



Limit

According to §22.917(a), §24.238(a) 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 $43 + 10\log(P_{\text{Watts}})$ dB.

According to §27.53(m)(6), the minimum permissible attenuation level of any spurious emission is $55 + 3 + 10\log(P_{\text{Watts}})$ dB.

Test procedure

971168 D01 v03r01 - Section 6.2

ANSI 63.26-2015 – Section 5.5

ANSI/TIA-603-E-2016 - Section 2.2.12

Test settings

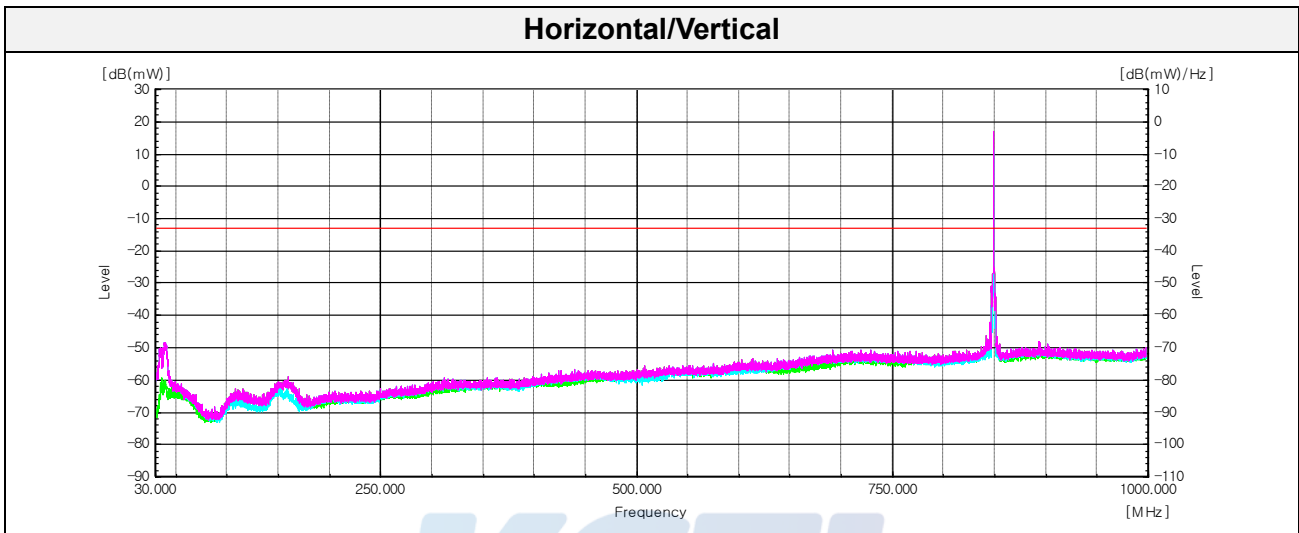
- 1) RBW = 1 kHz for below 1 GHz and 1 MHz for above 1 GHz.
- 2) VBW $\geq 3 \times$ RBW.
- 3) Detector = RMS
- 4) Trace mode = Max hold
- 5) Sweep time = Auto couple
- 6) Number of sweep points $\geq 2 \times$ span / RBW
- 7) Allow trace to fully stabilize.

Notes:

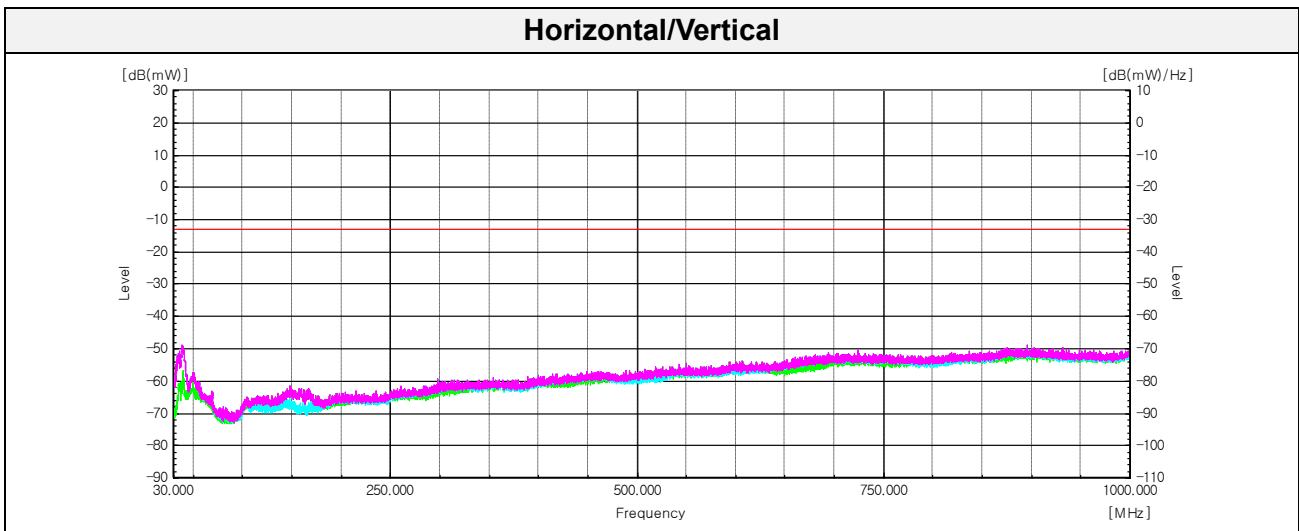
1. On a test site, the EUT shall be placed at 80 cm height on a turn table, and in the position close to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3 m from EUT to correspond to the fundamental frequency of the transmitter.
3. The turntable is rotated through 360° , and the receiving antenna scans in order to determine the level of the maximized emission.
4. The test antenna shall be raised and lowered again through the specified range of height until the maximum signal level is detected by the measuring receiver.
5. The maximum signal level detected by the measuring receiver shall be noted.
6. The EUT was replaced by half-wave dipole (1 GHz below) or horn antenna (1 GHz above) connected to a signal generator.
7. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
8. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring corrected for the change of input attenuator setting of the measuring receiver.
9. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
10. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.

Test results (Below 1 000 MHz) – Worst case

Test mode : LTE Band5
Frequency (MHz) : 848.3
Channel : 20643

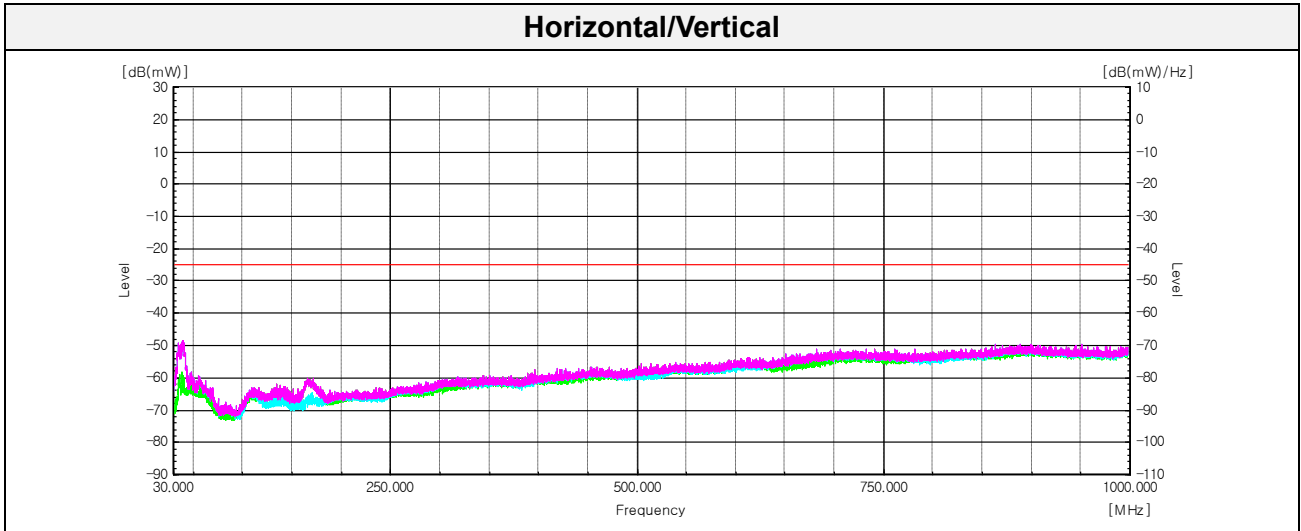


Test mode : LTE Band2
Frequency (MHz) : 1 902.5
Channel : 19125

**Note.**

1. No spurious emission were detected below 1 000 MHz.

Test mode : LTE Band41
Frequency (MHz) : 2 593.0
Channel : 40620

**Note.**

1. No spurious emission were detected below 1 000 MHz.

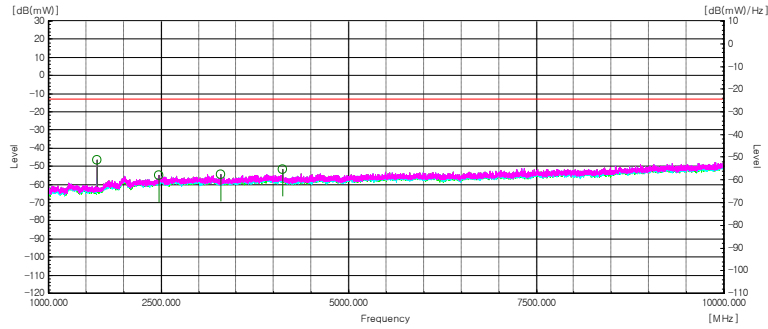
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Test results (Above 1 000 MHz)

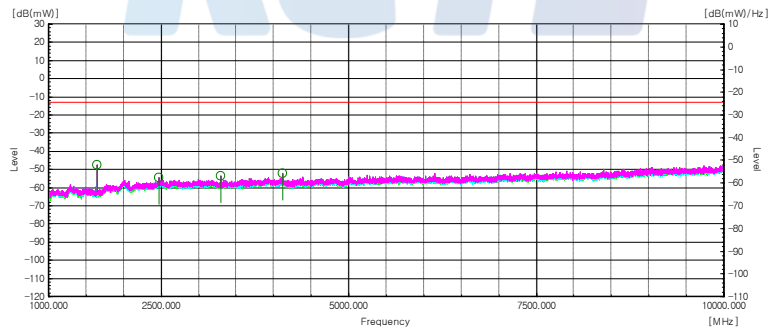
Test mode : LTE Band5

Frequency(MHz) : 824.7

Channel : 20407



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	1.4	1 648.072	H	8.4	5.38	-49.82	-46.80	-13.00	33.80
		2 473.164	H	9.8	6.62	-58.18	-55.00	-13.00	42.00
		3 297.255	H	9.3	7.65	-56.45	-54.80	-13.00	41.80
		4 121.347	H	9.9	9.35	-52.55	-52.00	-13.00	39.00



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	1.4	1 648.072	H	8.4	5.38	-50.62	-47.60	-13.00	34.60
		2 473.164	H	9.8	6.62	-57.68	-54.50	-13.00	41.50
		3 297.255	H	9.3	7.65	-55.25	-53.60	-13.00	40.60
		4 121.347	H	9.9	9.35	-52.75	-52.20	-13.00	39.20

Note.

1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]

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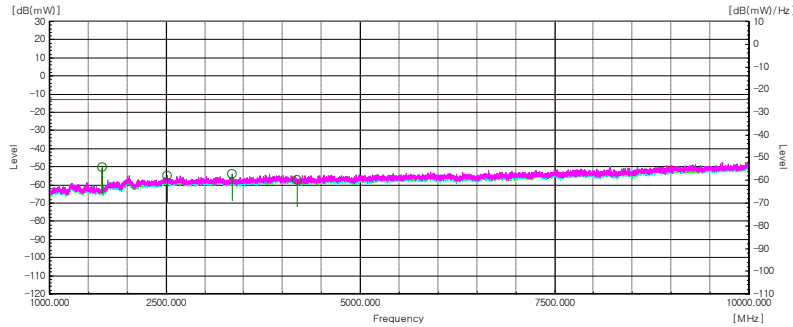
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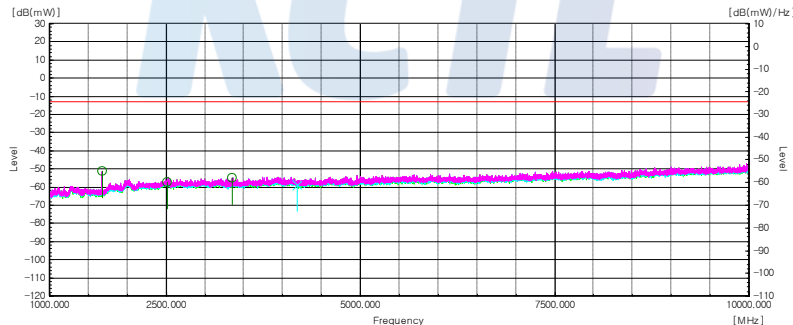
Test mode : LTE Band5

Frequency(MHz) : 836.5

Channel : 20525



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	1.4	1 674.075	H	8.5	5.38	-53.72	-50.60	-13.00	37.60
		2 511.168	H	9.8	6.74	-58.36	-55.30	-13.00	42.30
		3 348.261	H	9.3	7.78	-55.52	-54.00	-13.00	41.00
		4 182.354	H	10.1	9.35	-58.35	-57.60	-13.00	44.60



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	1.4	1 674.075	H	8.5	5.38	-54.52	-51.40	-13.00	38.40
		2 511.168	H	9.8	6.74	-60.46	-57.40	-13.00	44.40
		3 348.261	H	9.3	7.78	-56.62	-55.10	-13.00	42.10
		4 182.354	V	10.1	9.35	-59.75	-59.00	-13.00	46.00

Note.

1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]

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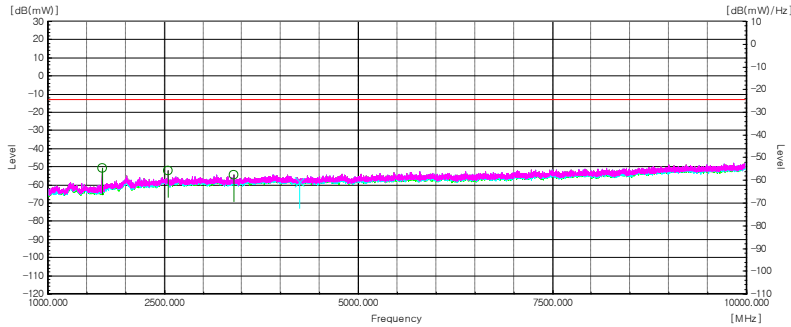
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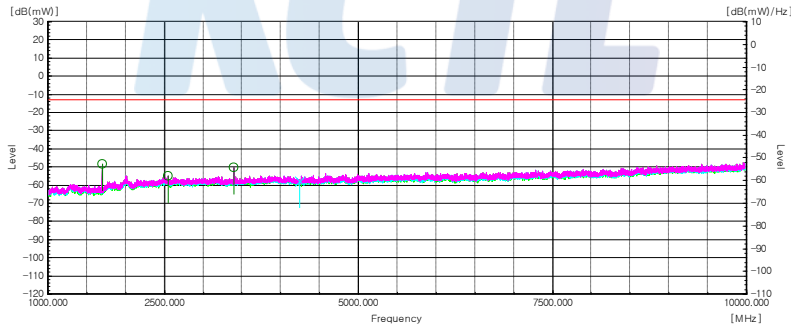
Test mode : LTE Band5

Frequency(MHz) : 848.3

Channel : 20643



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	1.4	1 697.078	H	8.6	5.38	-54.12	-50.90	-13.00	37.90
		2 546.172	H	9.7	6.74	-55.06	-52.10	-13.00	39.10
		3 395.266	H	9.2	7.78	-56.22	-54.80	-13.00	41.80
		4 241.360	V	10.3	9.61	-58.79	-58.10	-13.00	45.10



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	1.4	1 697.078	H	8.6	5.38	-51.82	-48.60	-13.00	35.60
		2 546.172	H	9.7	6.74	-57.86	-54.90	-13.00	41.90
		3 395.266	H	9.2	7.78	-51.82	-50.40	-13.00	37.40
		4 241.360	V	10.3	9.61	-58.49	-57.80	-13.00	44.80

Note.

1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]

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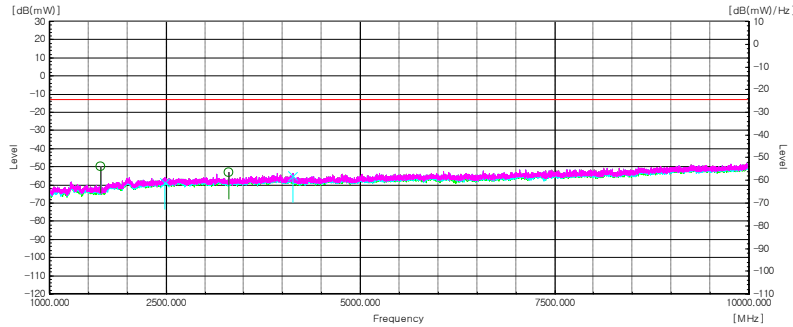
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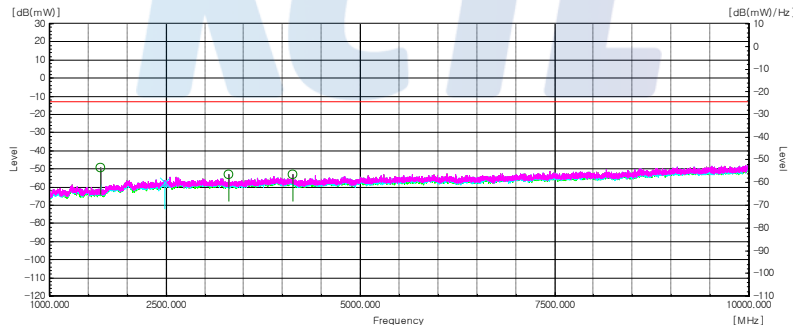
Test mode : LTE Band5

Frequency(MHz) : 825.5

Channel : 20415



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	3	1 654.073	H	8.4	5.38	-53.12	-50.10	-13.00	37.10
		2 476.164	V	9.8	6.62	-61.78	-58.60	-13.00	45.60
		3 307.257	H	9.3	7.78	-54.62	-53.10	-13.00	40.10
		4 127.348	V	9.9	9.35	-55.85	-55.30	-13.00	42.30



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	3	1 653.073	H	8.4	5.38	-52.72	-49.70	-13.00	36.70
		2 476.164	V	9.8	6.62	-60.78	-57.60	-13.00	44.60
		3 306.256	H	9.3	7.78	-54.82	-53.30	-13.00	40.30
		4 133.348	H	9.9	9.35	-53.95	-53.40	-13.00	40.40

Note.

1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]

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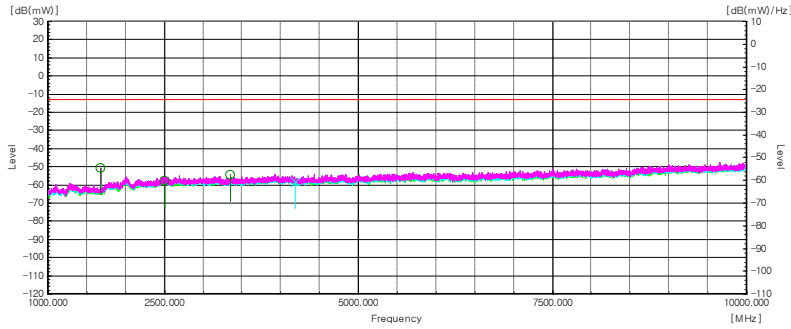
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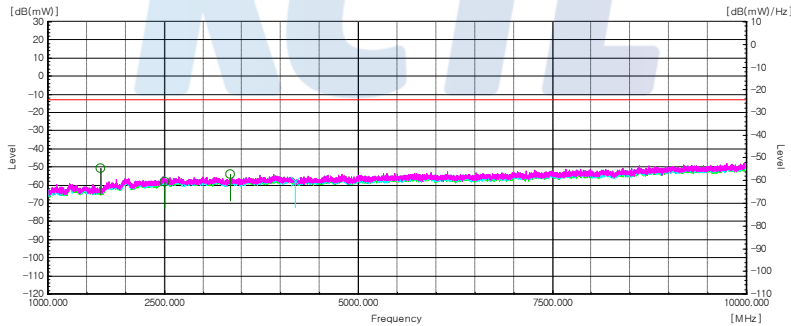
Test mode : LTE Band5

Frequency(MHz) : 836.6

Channel : 20525



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	3	1 675.075	H	8.5	5.38	-54.02	-50.90	-13.00	37.90
		2 509.168	H	9.8	6.74	-60.96	-57.90	-13.00	44.90
		3 351.261	H	9.3	7.78	-55.92	-54.40	-13.00	41.40
		4 182.354	V	10.1	9.35	-58.85	-58.10	-13.00	45.10



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	3	1 675.075	H	8.5	5.38	-53.82	-50.70	-13.00	37.70
		2 509.168	H	9.8	6.74	-61.36	-58.30	-13.00	45.30
		3 351.261	H	9.3	7.78	-55.82	-54.30	-13.00	41.30
		4 182.354	V	10.1	9.35	-58.45	-57.70	-13.00	44.70

Note.

1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]

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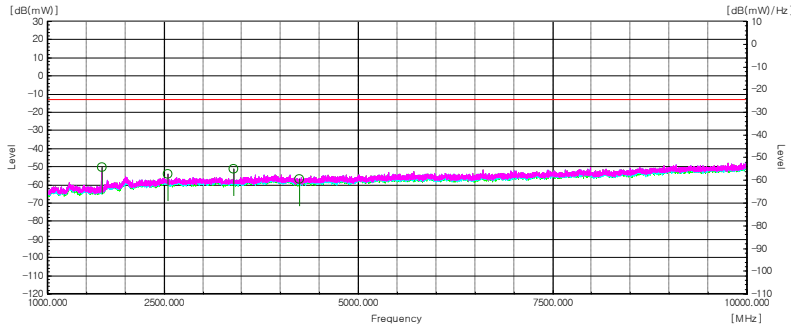
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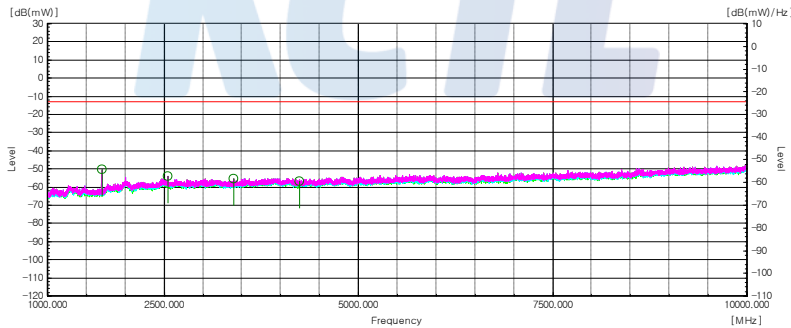
Test mode : LTE Band5

Frequency(MHz) : 847.5

Channel : 20635



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	3	1 698.078	H	8.6	5.38	-53.42	-50.20	-13.00	37.20
		2 546.172	H	9.7	6.74	-57.16	-54.20	-13.00	41.20
		3 395.266	H	9.2	7.78	-52.82	-51.40	-13.00	38.40
		4 237.360	H	10.3	9.61	-57.59	-56.90	-13.00	43.90



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	3	1 697.078	H	8.6	5.38	-53.42	-50.20	-13.00	37.20
		2 546.172	H	9.7	6.74	-56.86	-53.90	-13.00	40.90
		3 395.266	H	9.2	7.78	-56.82	-55.40	-13.00	42.40
		4 237.360	H	10.3	9.61	-57.69	-57.00	-13.00	44.00

Note.

1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]

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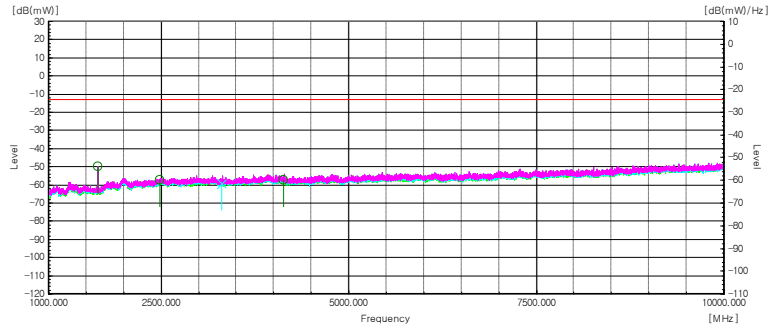
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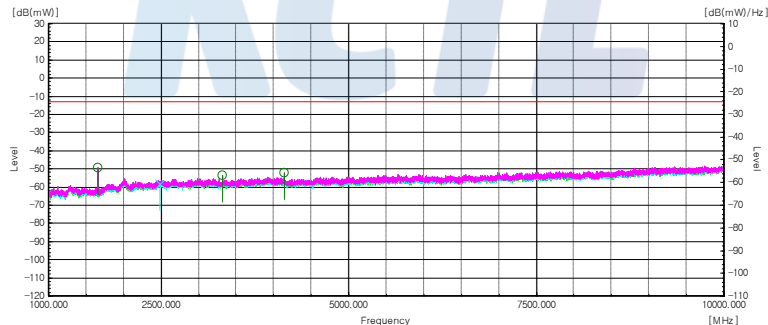
Test mode : LTE Band5

Frequency(MHz) : 826.5

Channel : 20425



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	5	1 657.073	H	8.4	5.38	-52.92	-49.90	-13.00	36.90
		2 479.165	H	9.8	6.62	-60.38	-57.20	-13.00	44.20
		3 306.256	V	9.3	7.78	-60.62	-59.10	-13.00	46.10
		4 132.348	H	9.9	9.35	-58.05	-57.50	-13.00	44.50



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	5	1 657.073	H	8.4	5.38	-52.42	-49.40	-13.00	36.40
		2 479.165	V	9.8	6.62	-61.58	-58.40	-13.00	45.40
		3 314.257	H	9.3	7.78	-55.12	-53.60	-13.00	40.60
		4 142.349	H	9.9	9.35	-52.95	-52.40	-13.00	39.40

Note.

1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]

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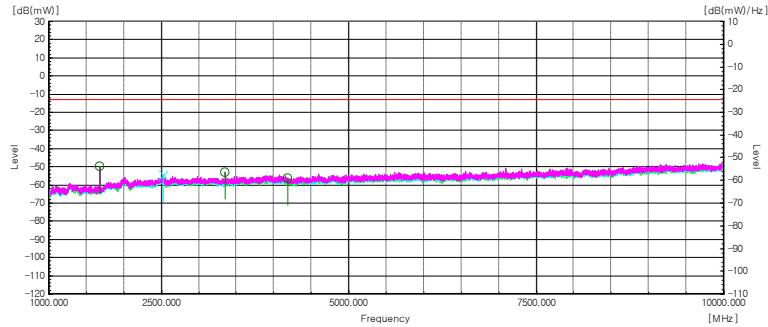
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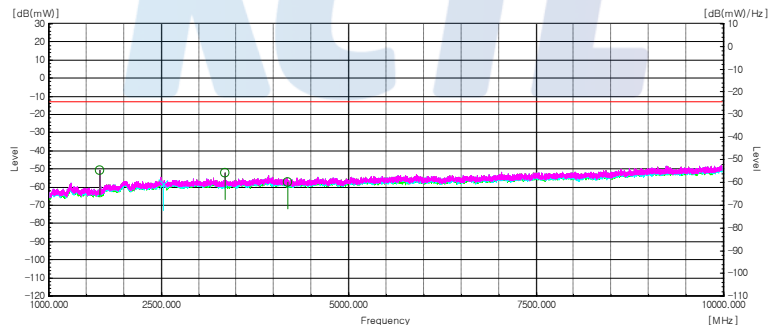
Test mode : LTE Band5

Frequency(MHz) : 836.5

Channel : 20525



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	5	1 677.075	H	8.5	5.38	-53.02	-49.90	-13.00	36.90
		2 525.170	V	9.8	6.74	-57.66	-54.60	-13.00	41.60
		3 354.262	H	9.3	7.78	-54.82	-53.30	-13.00	40.30
		4 182.354	H	10.1	9.35	-57.25	-56.50	-13.00	43.50



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	5	1 677.075	H	8.5	5.38	-54.02	-50.90	-13.00	37.90
		2 525.170	V	9.8	6.74	-61.26	-58.20	-13.00	45.20
		3 354.262	H	9.3	7.78	-53.82	-52.30	-13.00	39.30
		4 182.354	H	10.1	9.35	-58.35	-57.60	-13.00	44.60

Note.

1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]

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Report No.:
KR19-SRF0009-B

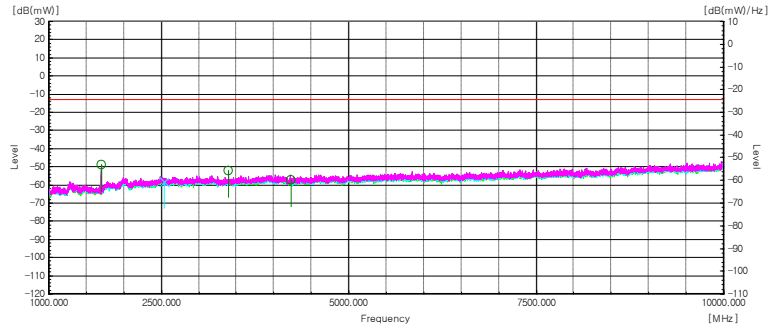
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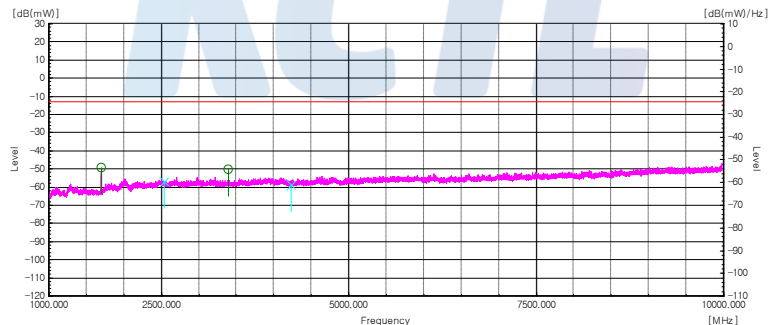
Test mode : LTE Band5

Frequency(MHz) : 846.5

Channel : 20625



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	5	1 697.078	H	8.6	5.38	-52.42	-49.20	-13.00	36.20
		3 394.266	H	9.7	6.74	-55.36	-52.40	-13.00	39.40
		2 539.171	V	9.2	7.78	-59.92	-58.50	-13.00	45.50
		4 232.359	H	10.3	9.61	-57.89	-57.20	-13.00	44.20



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	5	1 697.078	H	8.6	5.38	-52.62	-49.40	-13.00	36.40
		2 539.171	V	9.7	6.74	-59.96	-57.00	-13.00	44.00
		3 394.266	H	9.2	7.78	-51.82	-50.40	-13.00	37.40
		4 232.359	V	10.3	9.61	-59.39	-58.70	-13.00	45.70

Note.

1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]

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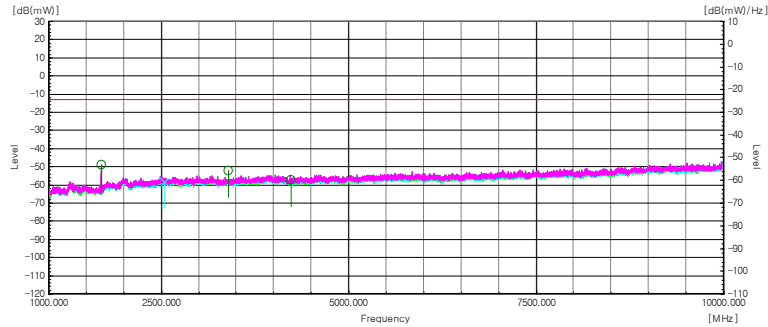
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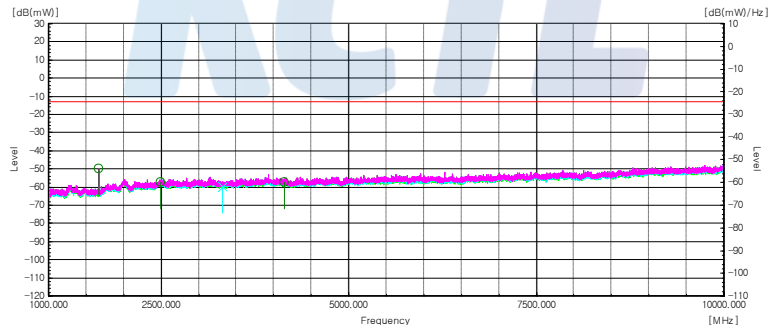
Test mode : LTE Band5

Frequency(MHz) : 829.0

Channel : 20450



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	10	1 667.074	H	8.4	5.38	-54.52	-51.50	-13.00	38.50
		2 487.165	H	9.8	6.62	-59.78	-56.60	-13.00	43.60
		3 316.258	H	9.3	7.78	-59.32	-57.80	-13.00	44.80
		4 145.350	H	9.9	9.35	-57.65	-57.10	-13.00	44.10



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	10	1 667.074	H	8.4	5.38	-53.12	-50.10	-13.00	37.10
		2 487.165	H	9.8	6.62	-60.48	-57.30	-13.00	44.30
		3 316.258	V	9.3	7.78	-61.42	-59.90	-13.00	46.90
		4 145.35	H	9.9	9.35	-57.75	-57.20	-13.00	44.20

Note.

1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]

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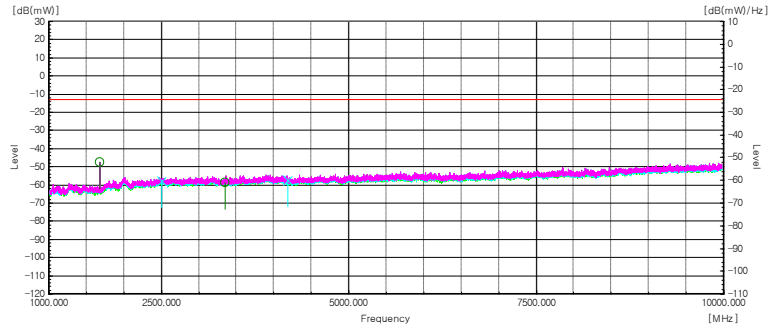
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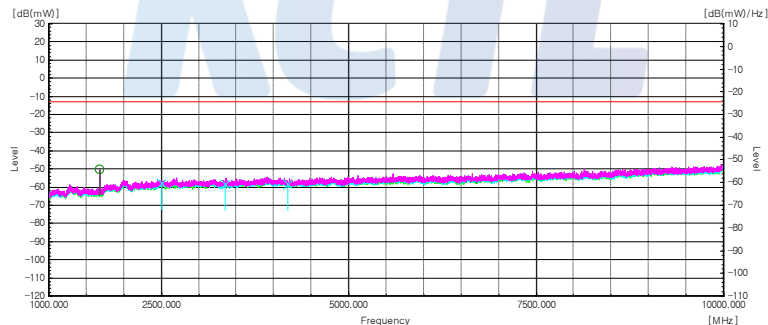
Test mode : LTE Band5

Frequency(MHz) : 836.5

Channel : 20525



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	10	1 682.076	H	8.5	5.38	-50.62	-47.50	-13.00	34.50
		2 509.168	V	9.8	6.74	-60.96	-57.90	-13.00	44.90
		3 346.261	H	9.3	7.78	-60.12	-58.60	-13.00	45.60
		4 182.354	V	10.1	9.35	-58.05	-57.30	-13.00	44.30



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	10	1 682.076	H	8.5	5.38	-53.72	-50.60	-13.00	37.60
		2 509.168	V	9.8	6.74	-60.76	-57.70	-13.00	44.70
		3 346.261	V	9.3	7.78	-59.82	-58.30	-13.00	45.30
		4 182.354	V	10.1	9.35	-58.95	-58.20	-13.00	45.20

Note.

1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]

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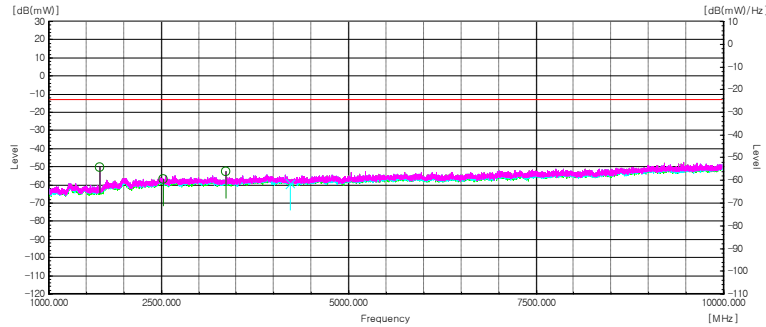
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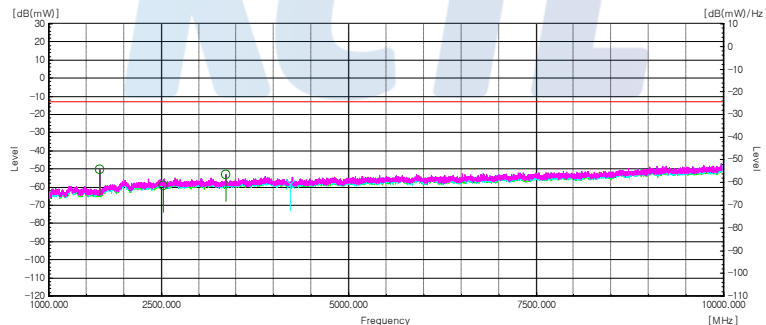
Test mode : LTE Band5

Frequency(MHz) : 844.0

Channel : 20600



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	10	1 679.076	H	8.5	5.38	-53.62	-50.50	-13.00	37.50
		2 531.170	H	9.7	6.74	-59.76	-56.80	-13.00	43.80
		3 358.262	H	9.2	7.78	-54.22	-52.80	-13.00	39.80
		4 220.358	V	10.3	9.61	-60.09	-59.40	-13.00	46.40



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	10	1 679.076	H	8.5	5.38	-53.32	-50.20	-13.00	37.20
		2 531.170	H	9.7	6.74	-62.16	-59.20	-13.00	46.20
		3 358.262	H	9.2	7.78	-54.82	-53.40	-13.00	40.40
		4 220.358	V	10.3	9.61	-58.99	-58.30	-13.00	45.30

Note.

1. Limit Calculation(dBm)= 43 + 10log(P_[watts]) [dBc]

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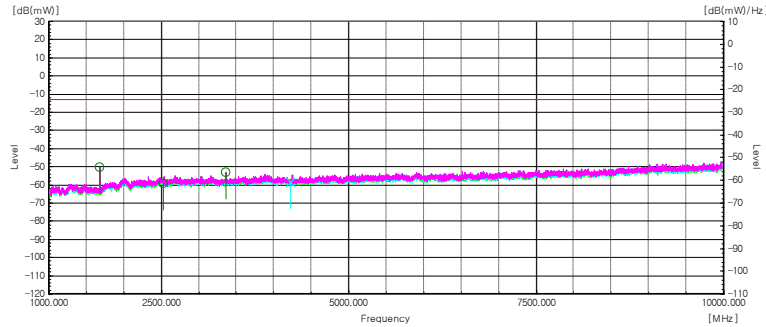
Page (140) of (221)



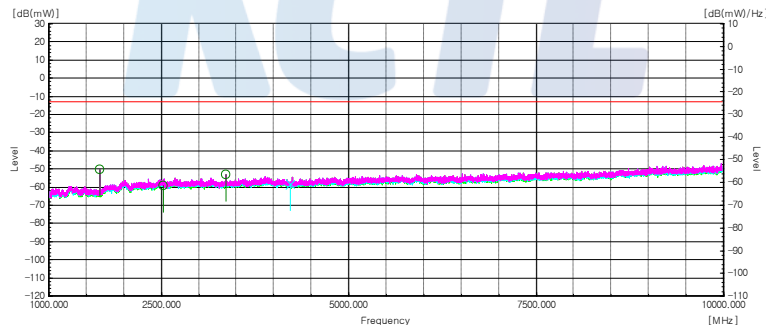
Test mode : LTE Band5

Frequency(MHz) : 844.0

Channel : 20600



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	10	1 679.076	H	8.5	5.38	-53.62	-50.50	-13.00	37.50
		2 531.170	H	9.7	6.74	-59.76	-56.80	-13.00	43.80
		3 358.262	H	9.2	7.78	-54.22	-52.80	-13.00	39.80
		4 220.358	V	10.3	9.61	-60.09	-59.40	-13.00	46.40



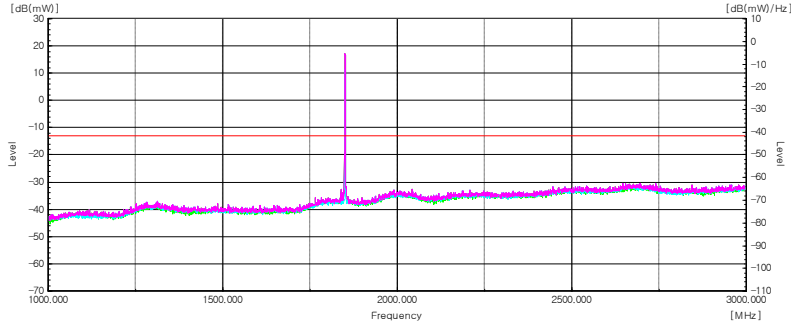
Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	10	1 679.076	H	8.5	5.38	-53.32	-50.20	-13.00	37.20
		2 531.170	H	9.7	6.74	-62.16	-59.20	-13.00	46.20
		3 358.262	H	9.2	7.78	-54.82	-53.40	-13.00	40.40
		4 220.358	V	10.3	9.61	-58.99	-58.30	-13.00	45.30

Note.

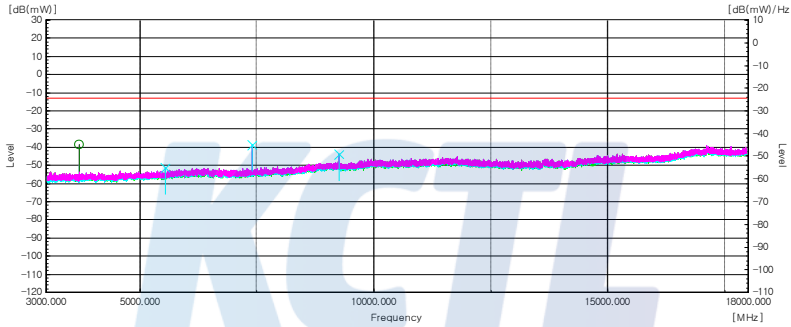
1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]

Test mode : LTE Band2
Frequency(MHz) : 1 850.7
Channel : 18607

1 000 MHz to 3 000 MHz



Above 3 000 MHz



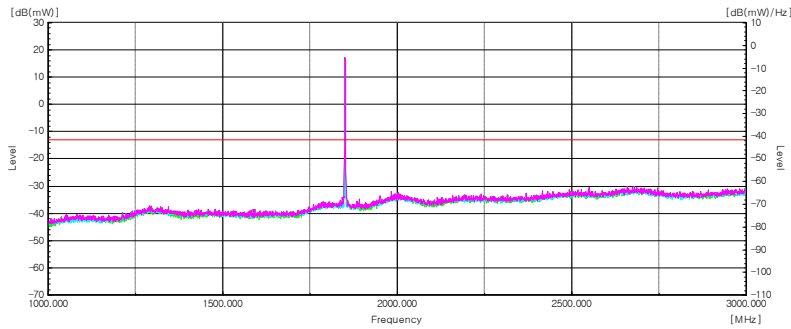
Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	1.4	3 700.047	H	9.6	8.92	-39.48	-38.80	-13.00	25.80
		5 550.170	V	10.8	11.20	-50.70	-51.10	-13.00	38.10
		7 401.293	V	10.8	13.24	-36.36	-38.80	-13.00	25.80
		9 251.416	V	11.9	14.41	-41.29	-43.80	-13.00	30.80

Note.

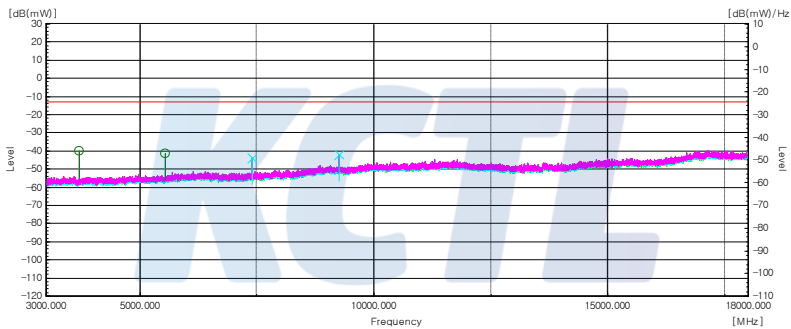
1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band2
Frequency(MHz) : 1 850.7
Channel : 18607

1 000 MHz to 3 000 MHz



Above 3 000 MHz



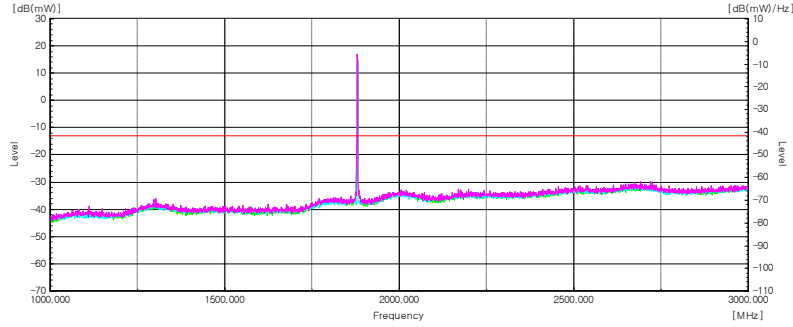
Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	10	3 700.047	H	9.6	8.92	-40.78	-40.10	-13.00	27.10
		5 551.170	H	10.8	11.2	-41.2	-41.60	-13.00	28.60
		7 400.293	V	10.8	13.24	-41.26	-43.70	-13.00	30.70
		9 251.416	V	11.9	14.41	-39.39	-41.90	-13.00	28.90

Note.

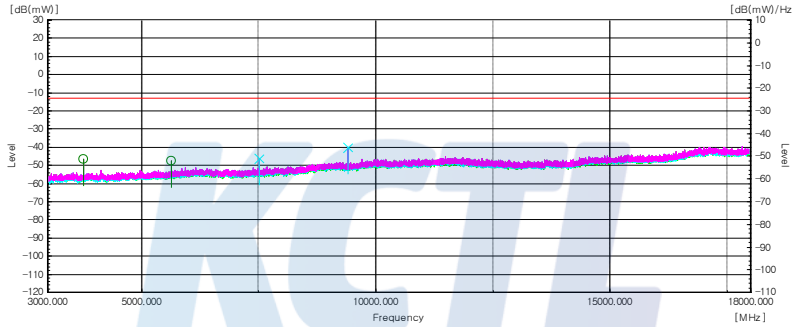
1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band2
Frequency(MHz) : 1 880
Channel : 18900

1 000 MHz to 3 000 MHz



Above 3 000 MHz



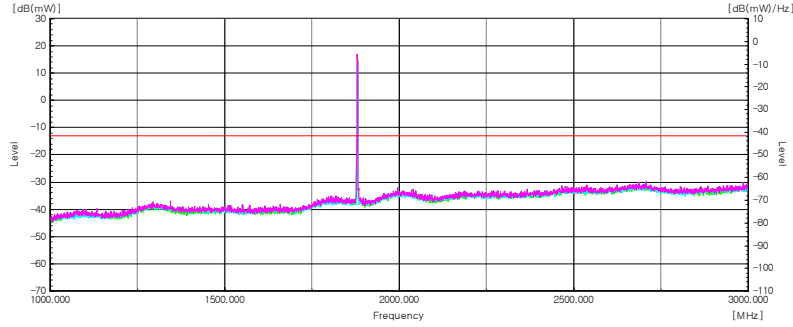
Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	1.4	3 759.051	H	9.3	8.92	-46.88	-46.50	-13.00	33.50
		5 638.176	H	10.8	11.27	-46.93	-47.40	-13.00	34.40
		7 518.301	V	11.0	13.24	-43.76	-46.00	-13.00	33.00
		9 398.426	V	12.0	14.50	-37.40	-39.90	-13.00	26.90

Note.

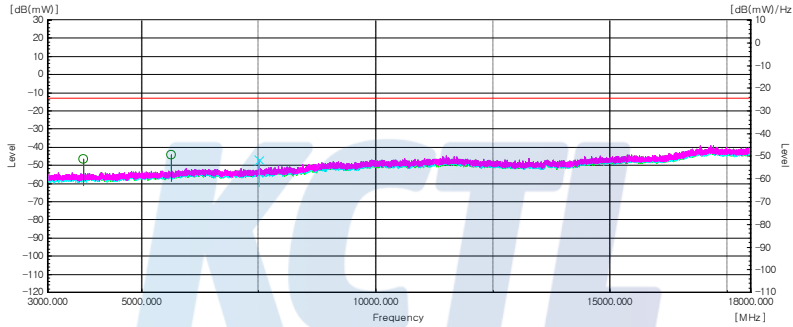
1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band2
Frequency(MHz) : 1 880
Channel : 18900

1 000 MHz to 3 000 MHz



Above 3 000 MHz



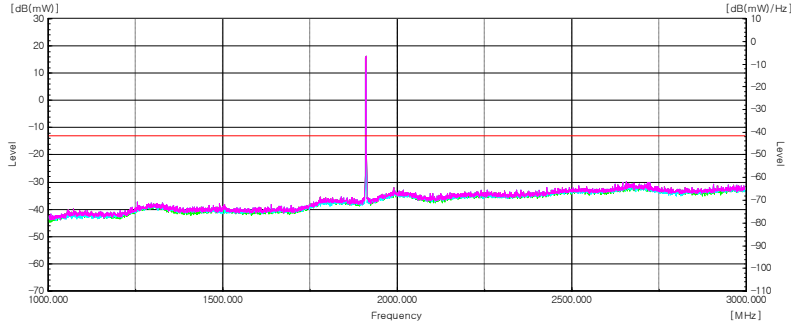
Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	1.4	3 759.051	H	9.3	8.92	-47.18	-46.80	-13.00	33.80
		5 639.176	H	10.8	11.27	-44.03	-44.50	-13.00	31.50
		7 517.301	V	11.0	13.24	-45.06	-47.30	-13.00	34.30

Note.

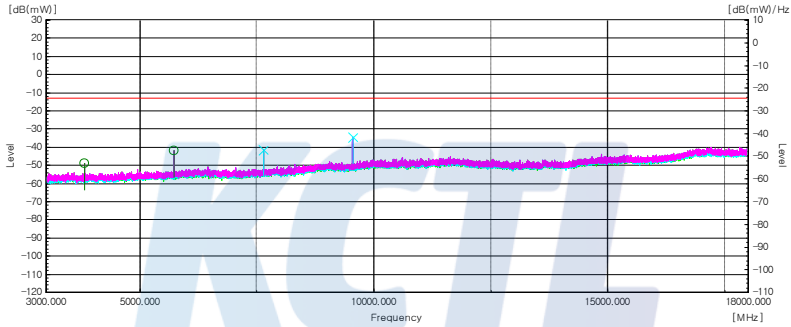
1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band2
Frequency(MHz) : 1 909.3
Channel : 18900

1 000 MHz to 3 000 MHz



Above 3 000 MHz



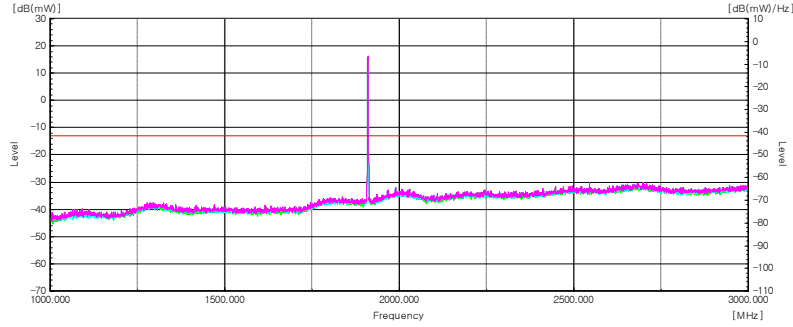
Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	1.4	3 817.055	H	9.1	9.04	-48.86	-48.80	-13.00	35.80
		5 726.182	H	10.9	11.16	-41.74	-42.00	-13.00	29.00
		7 635.309	V	11.3	13.24	-39.66	-41.60	-13.00	28.60
		9 544.436	V	12.0	14.65	-31.85	-34.50	-13.00	21.50

Note.

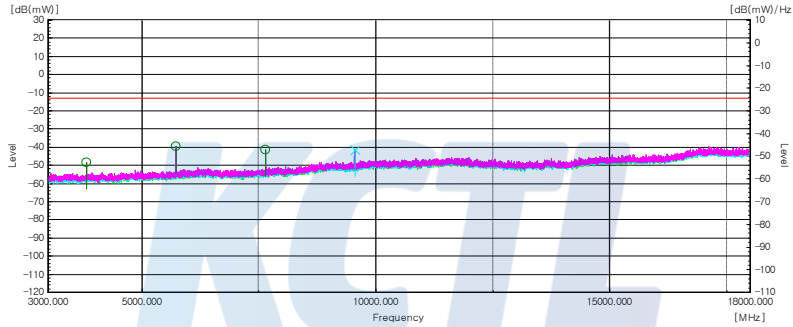
1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band2
Frequency(MHz) : 1 909.3
Channel : 18900

1 000 MHz to 3 000 MHz



Above 3 000 MHz



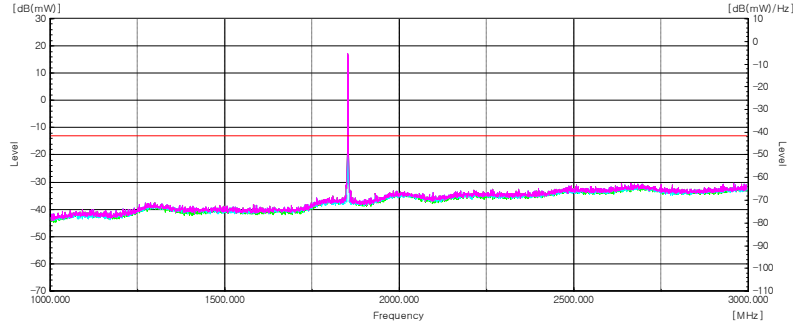
Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	1.4	3 817.055	H	9.1	9.04	-48.56	-48.50	-13.00	35.50
		5 726.182	H	10.9	11.16	-39.14	-39.40	-13.00	26.40
		7 635.309	H	11.3	13.24	-39.46	-41.40	-13.00	28.40
		9 544.436	V	12.0	14.65	-38.95	-41.60	-13.00	28.60

Note.

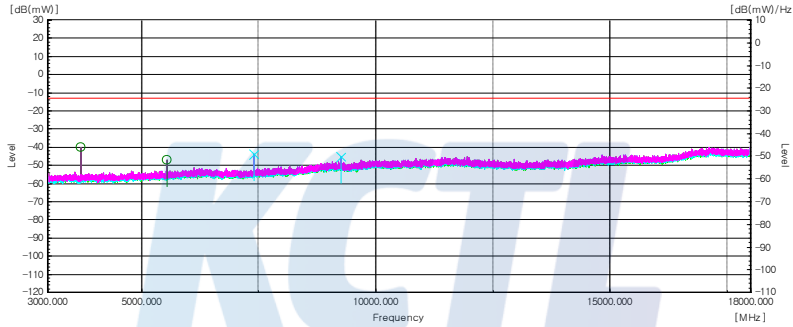
1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band2
Frequency(MHz) : 1 851.5
Channel : 18615

1 000 MHz to 3 000 MHz



Above 3 000 MHz



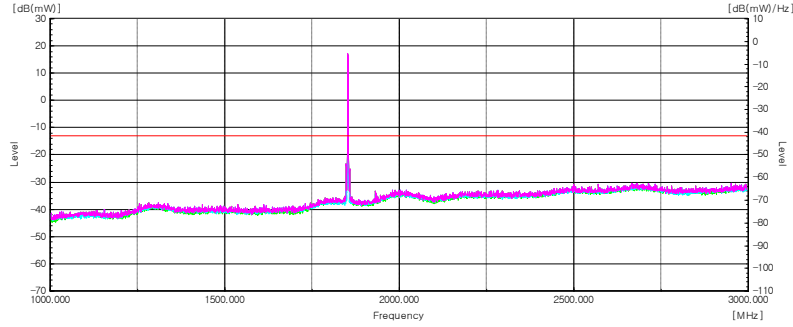
Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	3	3 700.047	H	9.6	8.92	-40.88	-40.20	-13.00	27.20
		5 551.170	H	10.8	11.2	-46.70	-47.10	-13.00	34.10
		7 401.293	V	10.8	13.24	-41.26	-43.70	-13.00	30.70
		9 250.416	V	11.9	14.41	-42.69	-45.20	-13.00	32.20

Note.

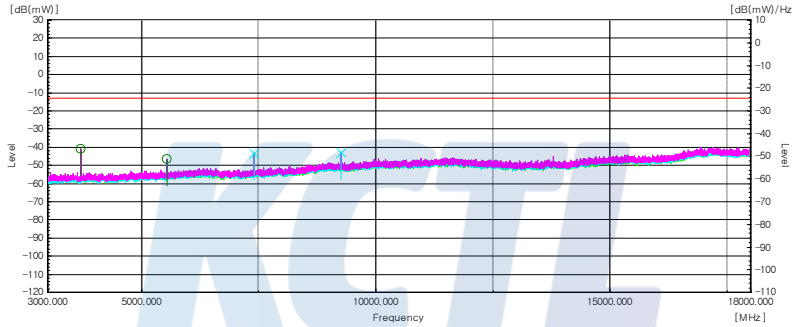
1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band2
Frequency(MHz) : 1 851.5
Channel : 18615

1 000 MHz to 3 000 MHz



Above 3 000 MHz



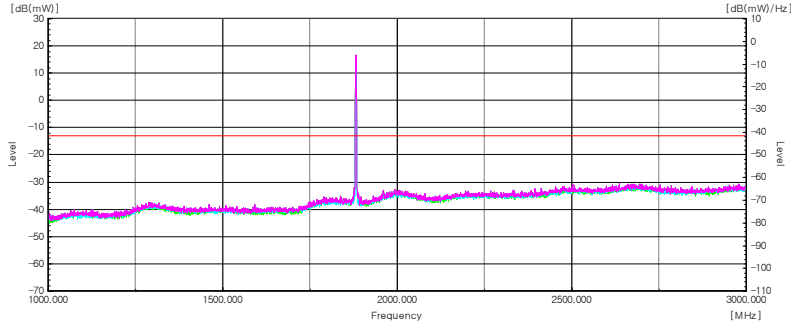
Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	3	3 700.047	H	9.6	8.92	-41.88	-41.20	-13.00	28.20
		5 550.170	H	10.8	11.20	-46.30	-46.70	-13.00	33.70
		7 400.293	V	10.8	13.24	-40.76	-43.20	-13.00	30.20
		9 251.416	V	11.9	14.41	-40.59	-43.10	-13.00	30.10

Note.

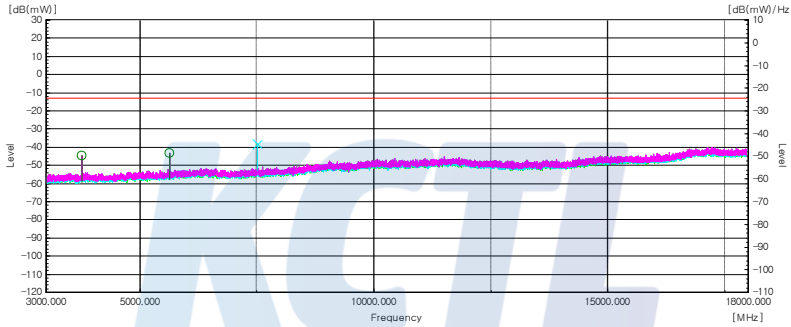
1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band2
Frequency(MHz) : 1 880.0
Channel : 18900

1 000 MHz to 3 000 MHz



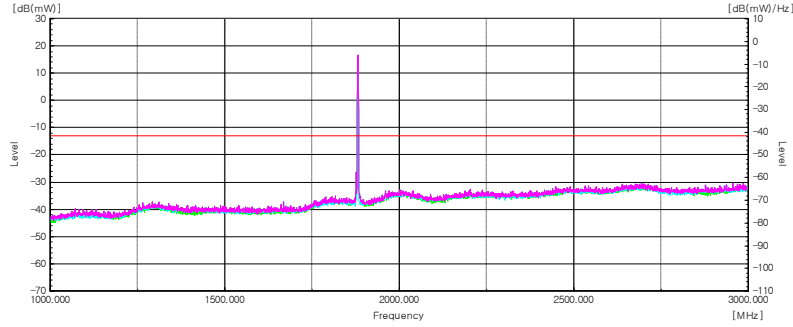
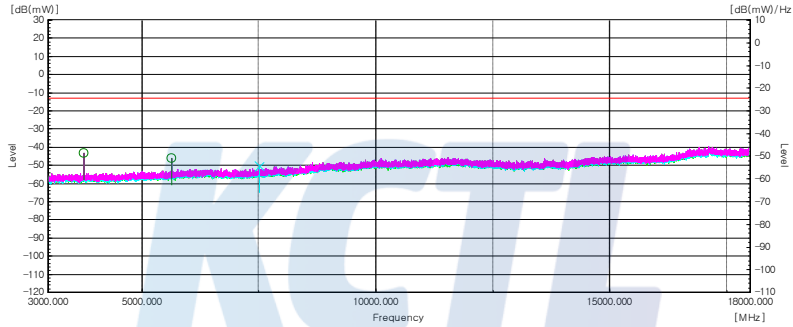
Above 3 000 MHz



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	3	3 757.051	H	9.3	8.92	-45.08	-44.70	-13.00	31.70
		5 636.176	H	10.8	11.27	-42.73	-43.20	-13.00	30.20
		7 515.301	V	11.0	13.24	-35.96	-38.20	-13.00	25.20

Note.

1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band2Frequency(MHz) : 1 880.0Channel : 189001 000 MHz to 3 000 MHzAbove 3 000 MHz

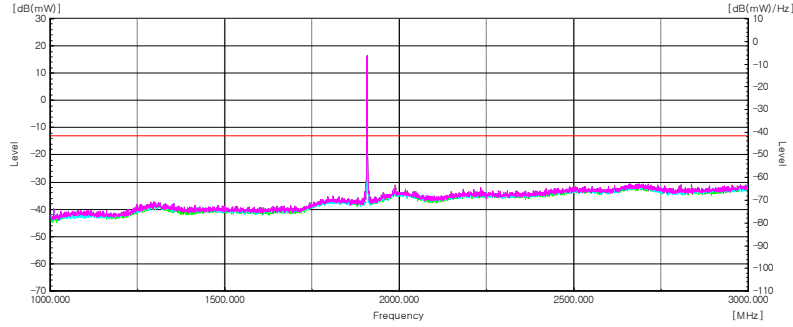
Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	3	3 757.051	H	9.3	8.92	-43.98	-43.60	-13.0	30.60
		5 636.176	H	10.8	11.27	-45.63	-46.10	-13.0	33.10
		7 515.301	V	11.0	13.24	-48.36	-50.60	-13.0	37.60

Note.

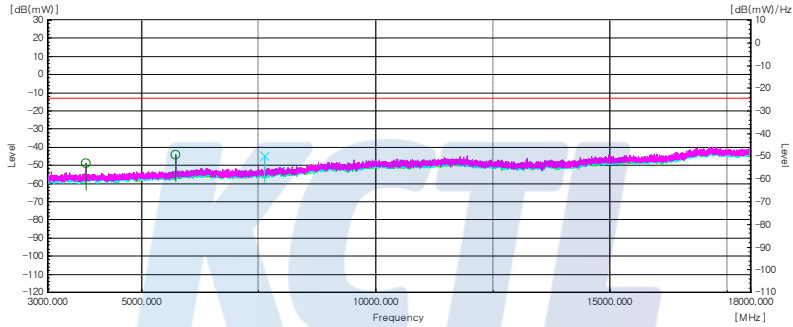
1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band2
Frequency(MHz) : 1 908.5
Channel : 19185

1 000 MHz to 3 000 MHz



Above 3 000 MHz



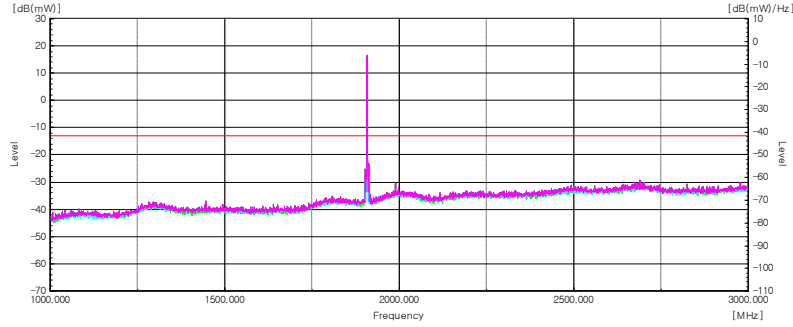
Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	3	3 814.054	H	9.1.0	9.04	-49.16	-49.10	-13.00	36.10
		5 721.181	H	10.9	11.16	-44.04	-44.30	-13.00	31.30
		7 629.308	V	11.3	13.24	-42.66	-44.60	-13.00	31.60

Note.

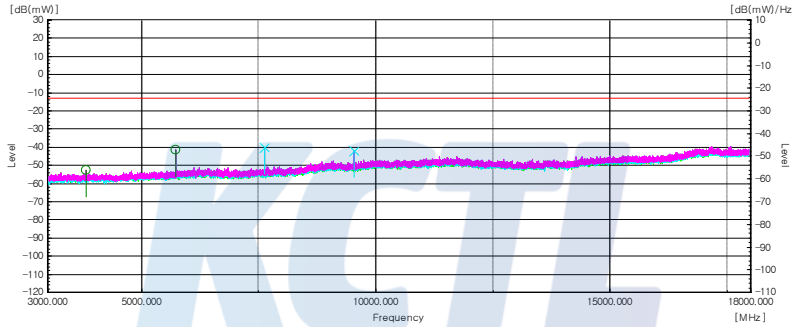
1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band2
Frequency(MHz) : 1 908.5
Channel : 19185

1 000 MHz to 3 000 MHz



Above 3 000 MHz



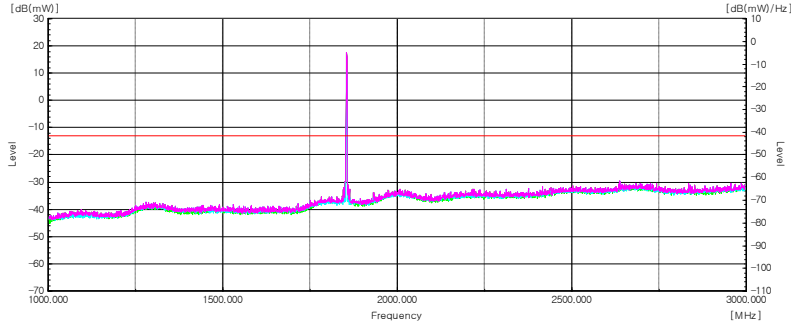
Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	3	3 814.054	H	9.1	9.04	-52.56	-52.50	-13.00	39.50
		5 721.181	H	10.9	11.16	-41.14	-41.40	-13.00	28.40
		7 629.308	V	11.3	13.24	-38.36	-40.30	-13.00	27.30
		9 536.435	V	12.0	14.65	-39.45	-42.10	-13.00	29.10

Note.

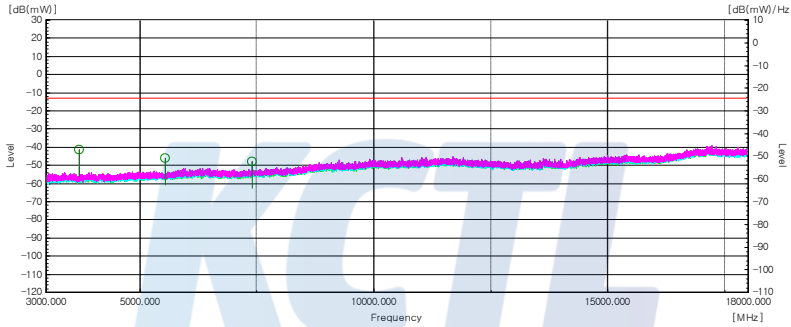
1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band2
Frequency(MHz) : 1 852.5
Channel : 18625

1 000 MHz to 3 000 MHz



Above 3 000 MHz



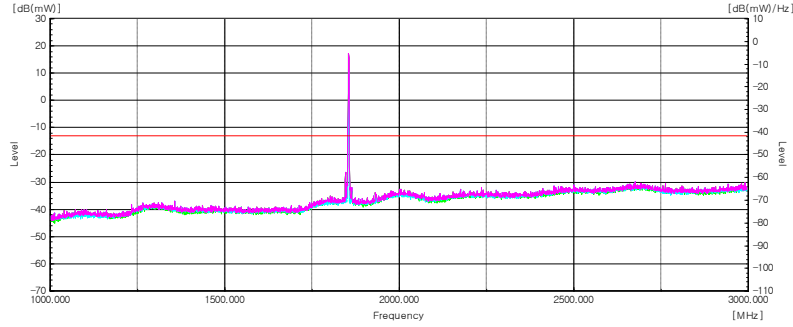
Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	5	3 701.047	H	9.6	8.92	-42.08	-41.40	-13.00	28.40
		5 551.170	H	10.8	11.20	-45.90	-46.30	-13.00	33.30
		7 401.293	H	10.8	13.24	-45.36	-47.80	-13.00	34.80

Note.

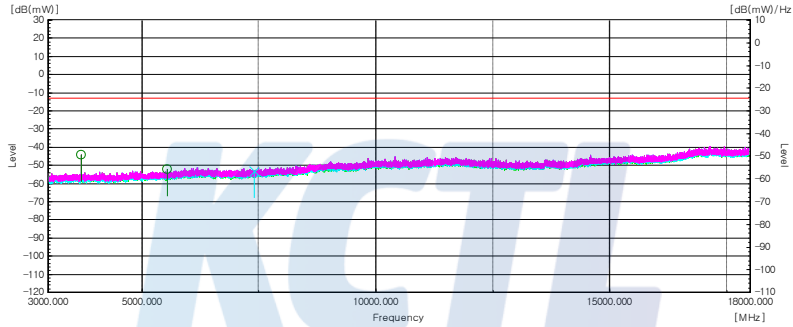
1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band2
Frequency(MHz) : 1 852.5
Channel : 18625

1 000 MHz to 3 000 MHz



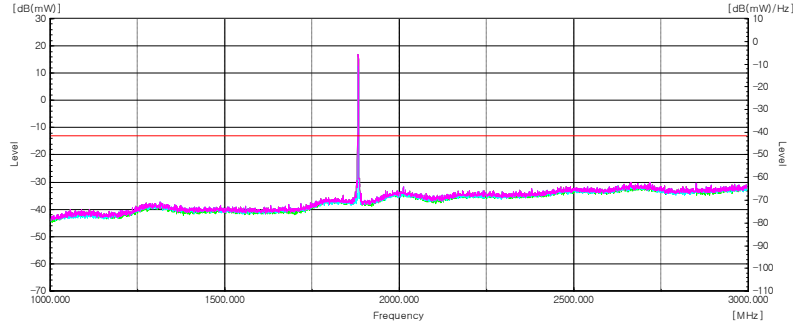
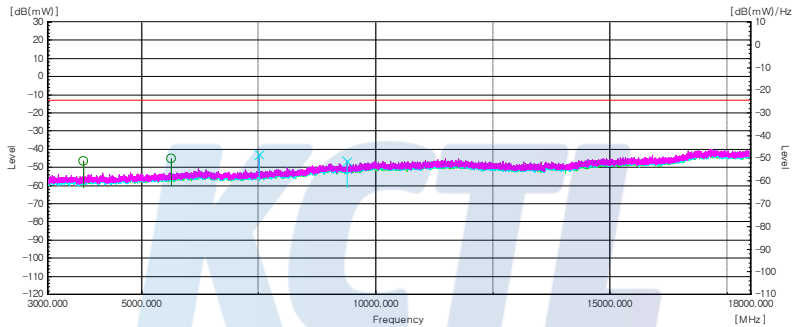
Above 3 000 MHz



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	5	3 701.047	H	9.6	8.92	-44.78	-44.10	-13.00	31.10
		5 551.170	H	10.8	11.20	-51.90	-52.30	-13.00	39.30
		7 401.293	V	10.8	13.24	-50.96	-53.40	-13.00	40.40

Note.

1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band2Frequency(MHz) : 1 880.0Channel : 189001 000 MHz to 3 000 MHzAbove 3 000 MHz

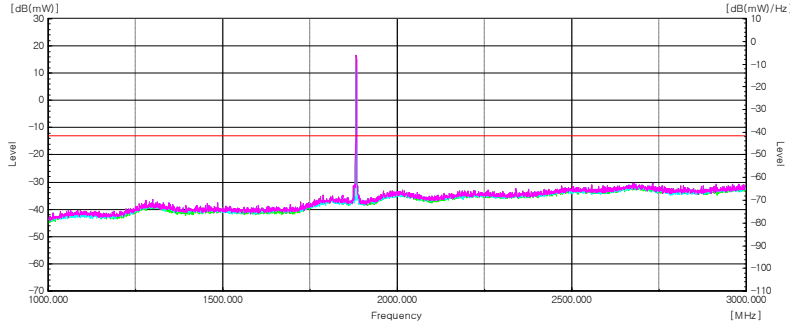
Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
QPSK	5	3 755.050	H	9.3	8.92	-47.18	-46.80	-13.00	33.80
		5 633.175	H	10.8	11.27	-44.93	-45.40	-13.00	32.40
		7 511.300	V	11.0	13.24	-40.86	-43.10	-13.00	30.10
		9 388.425	V	12.0	14.50	-44.10	-46.60	-13.00	33.60

Note.

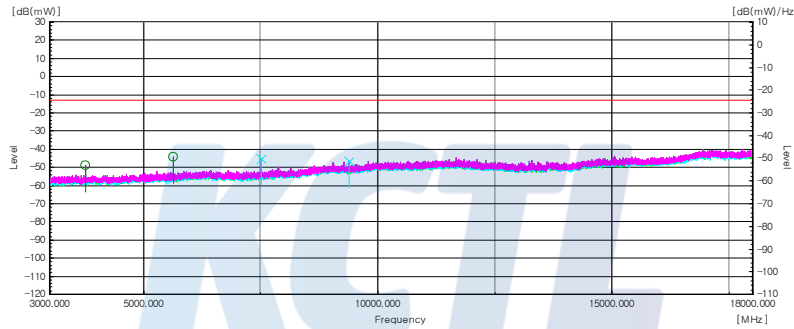
1. Limit Calculation(dBm)= $43 + 10\log(P_{\text{Watts}})$ [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band2
Frequency(MHz) : 1 880.0
Channel : 18900

1 000 MHz to 3 000 MHz



Above 3 000 MHz



Mode	Bandwidth	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dB]	[dBm]	[dB]
16QAM	5	3 756.050	H	9.3	8.92	-49.48	-49.10	-13.00	36.10
		5 634.175	H	10.8	11.27	-43.63	-44.10	-13.00	31.10
		7 511.300	V	11.0	13.24	-43.06	-45.30	-13.00	32.30
		9 389.425	V	12.0	14.50	-44.10	-46.60	-13.00	33.60

Note.

1. Limit Calculation(dBm)= 43 + 10log(P_[Watts]) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.