

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (188) of (279)

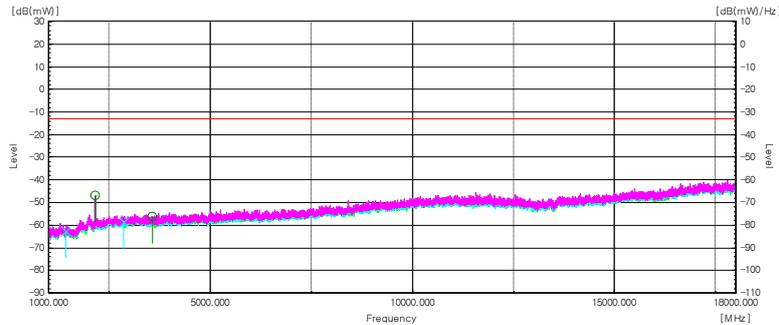


Test mode : LTE Band12/17

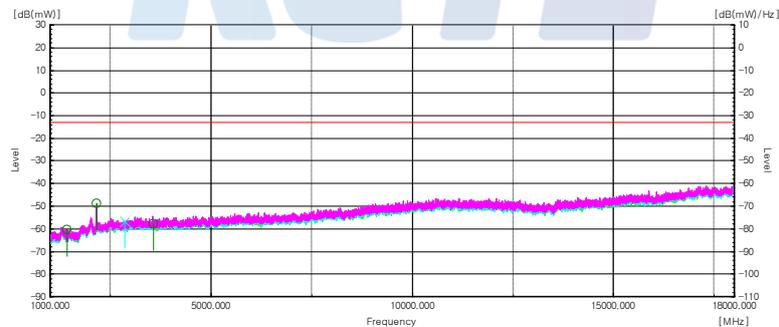
Frequency(MHz) : 713.5

Channel : 23155

Bandwidth(MHz) : 5



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	1 427.03	V	9.5	6.87	-65.13	-62.50	-13.00	49.50
	2 147.07	H	11.0	9.87	-48.23	-47.10	-13.00	34.10
	2 854.11	V	11.3	12.33	-57.67	-58.70	-13.00	45.70
	3 567.15	H	11.5	13.84	-54.16	-56.50	-13.00	43.50



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	1 431.03	H	9.5	6.87	-63.03	-60.40	-13.00	47.40
	2 147.07	H	11.0	9.87	-50.13	-49.00	-13.00	36.00
	2 854.11	V	11.3	12.33	-55.67	-56.70	-13.00	43.70
	3 567.15	H	11.5	13.84	-55.36	-57.70	-13.00	44.70

Note.

1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (189) of (279)

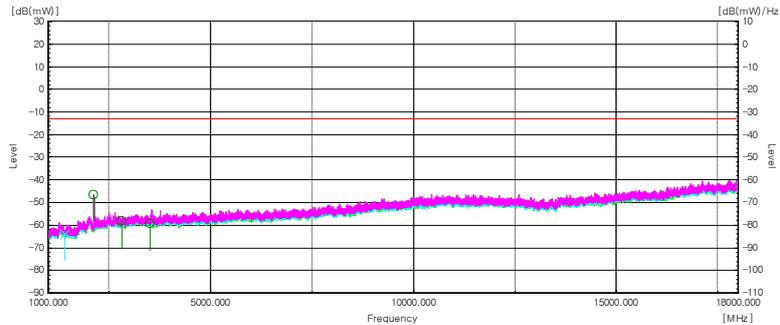


Test mode : LTE Band12/17

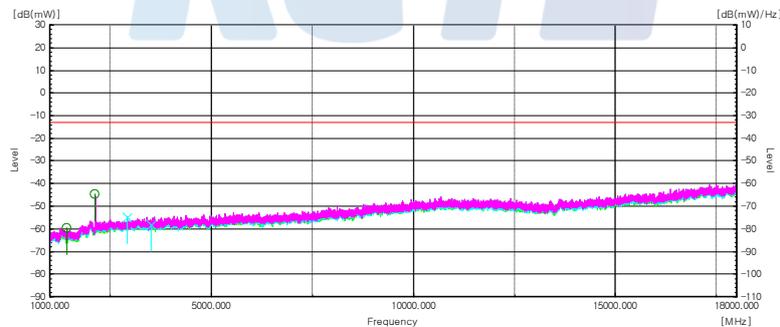
Frequency(MHz) : 704.0

Channel : 23060

Bandwidth(MHz) : 10



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	1 408.02	V	9.6	6.74	-66.76	-63.90	-13.00	50.90
	2 125.07	H	10.9	9.94	-47.66	-46.70	-13.00	33.70
	2 816.11	H	11.1	12.00	-57.50	-58.40	-13.00	45.40
	3 502.15	H	11.6	13.81	-56.99	-59.20	-13.00	46.20



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	1 417.03	H	9.6	6.74	-62.66	-59.80	-13.00	46.80
	2 125.07	H	10.9	9.94	-45.76	-44.80	-13.00	31.80
	2 913.11	V	11.1	12.00	-54.00	-54.90	-13.00	41.90
	3 502.15	V	11.6	13.81	-56.09	-58.30	-13.00	45.30

Note.

1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (190) of (279)

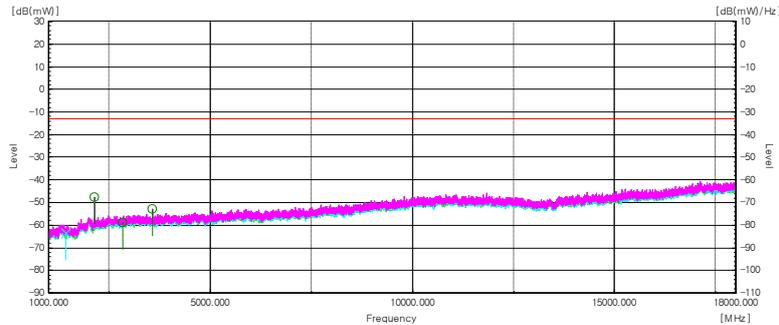


Test mode : LTE Band12/17

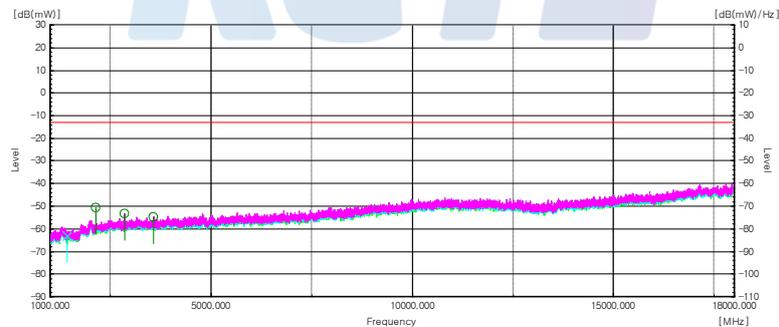
Frequency(MHz) : 707.5

Channel : 23095

Bandwidth(MHz) : 10



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	1 416.03	V	9.6	6.74	-66.36	-63.50	-13.00	50.50
	2 135.07	H	10.9	9.94	-48.66	-47.70	-13.00	34.70
	2 832.11	H	11.1	12.24	-57.76	-58.90	-13.00	45.90
	3 559.15	H	11.7	13.86	-50.94	-53.10	-13.00	40.10



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	1 416.03	V	9.6	6.74	-65.86	-63.00	-13.00	50.00
	2 136.07	H	10.9	9.94	-51.76	-50.80	-13.00	37.80
	2 847.11	H	11.1	12.24	-52.46	-53.60	-13.00	40.60
	3 559.15	H	11.7	13.86	-52.64	-54.80	-13.00	41.80

Note.

1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (191) of (279)

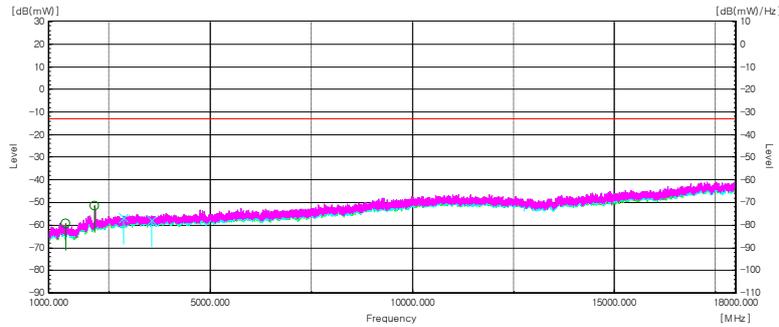


Test mode : LTE Band12/17

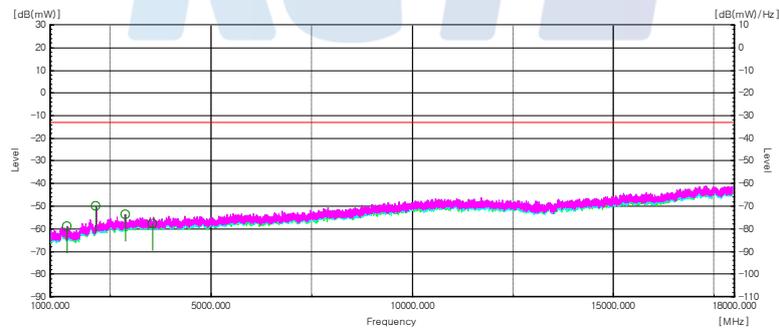
Frequency(MHz) : 711.0

Channel : 23130

Bandwidth(MHz) : 10



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	1 431.03	H	9.5	6.87	-61.83	-59.20	-13.00	46.20
	2 146.07	H	11.0	9.87	-52.73	-51.60	-13.00	38.60
	2 845.11	V	11.3	12.33	-55.57	-56.60	-13.00	43.60
	3 555.15	V	11.5	13.84	-55.56	-57.90	-13.00	44.90



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	1 431.03	H	9.5	6.87	-61.63	-59.00	-13.00	46.00
	2 146.07	H	11.0	9.87	-51.13	-50.00	-13.00	37.00
	2 862.11	H	11.3	12.33	-52.57	-53.60	-13.00	40.60
	3 555.15	H	11.5	13.84	-55.36	-57.70	-13.00	44.70

Note.

1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (192) of (279)

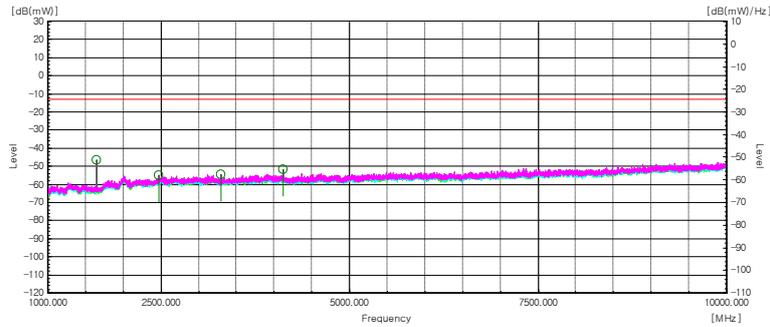


Test mode : LTE Band5

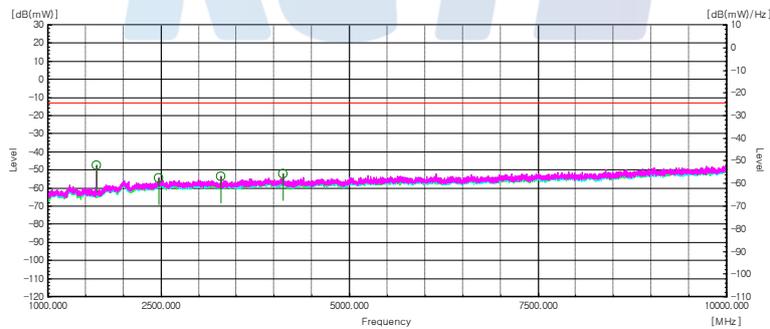
Frequency(MHz) : 824.7

Channel : 20407

Bandwidth(MHz) : 1.4



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	1 648.07	H	8.4	5.38	-49.82	-46.80	-13.00	33.80
	2 473.16	H	9.8	6.62	-58.18	-55.00	-13.00	42.00
	3 297.26	H	9.3	7.65	-56.45	-54.80	-13.00	41.80
	4 121.35	H	9.9	9.35	-52.55	-52.00	-13.00	39.00



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	1 648.07	H	8.4	5.38	-50.62	-47.60	-13.00	34.60
	2 473.16	H	9.8	6.62	-57.68	-54.50	-13.00	41.50
	3 297.26	H	9.3	7.65	-55.25	-53.60	-13.00	40.60
	4 121.35	H	9.9	9.35	-52.75	-52.20	-13.00	39.20

Note.

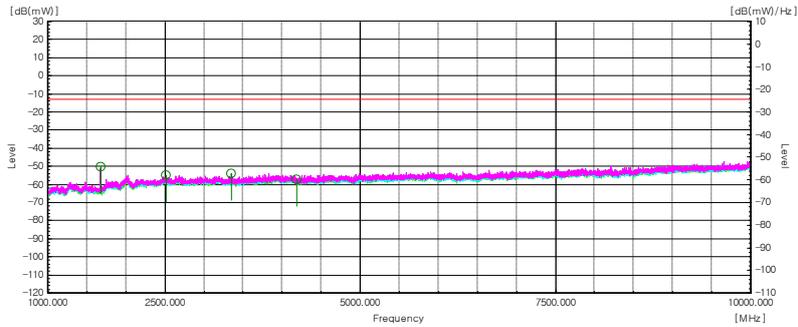
1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]

Test mode : LTE Band5

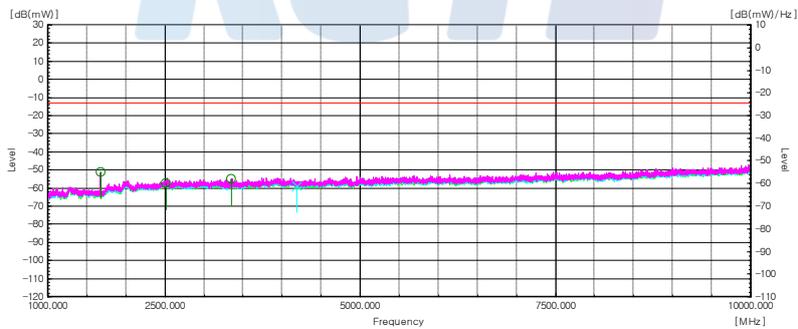
Frequency(MHz) : 836.5

Channel : 20525

Bandwidth(MHz) : 1.4



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	1 674.08	H	8.5	5.38	-53.72	-50.60	-13.00	37.60
	2 511.17	H	9.8	6.74	-58.36	-55.30	-13.00	42.30
	3 348.26	H	9.3	7.78	-55.52	-54.00	-13.00	41.00
	4 182.35	H	10.1	9.35	-58.35	-57.60	-13.00	44.60



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	1 674.08	H	8.5	5.38	-54.52	-51.40	-13.00	38.40
	2 511.17	H	9.8	6.74	-60.46	-57.40	-13.00	44.40
	3 348.26	H	9.3	7.78	-56.62	-55.10	-13.00	42.10
	4 182.35	V	10.1	9.35	-59.75	-59.00	-13.00	46.00

Note.

1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (194) of (279)

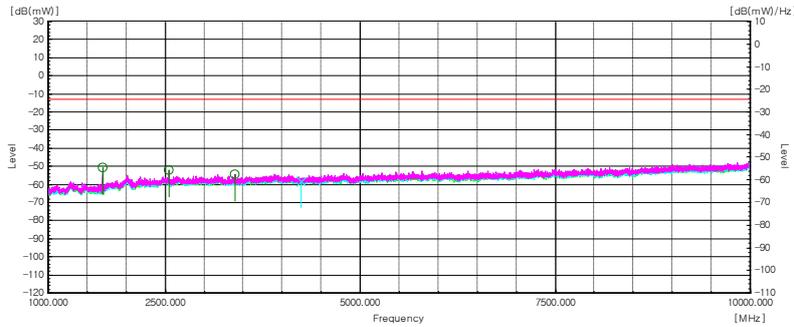


Test mode : LTE Band5

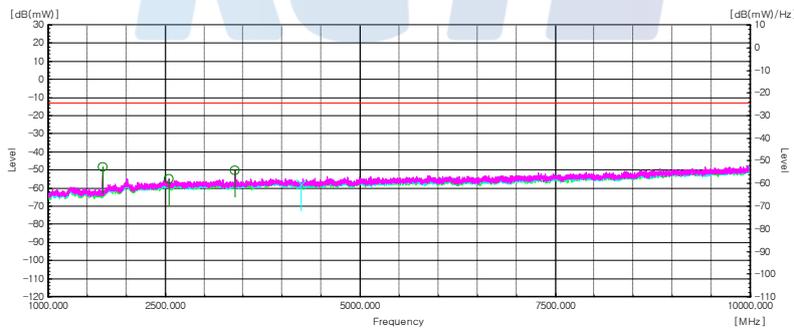
Frequency(MHz) : 848.3

Channel : 20643

Bandwidth(MHz) : 1.4



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	1 697.08	H	8.6	5.38	-54.12	-50.90	-13.00	37.90
	2 546.17	H	9.7	6.74	-55.06	-52.10	-13.00	39.10
	3 395.27	H	9.2	7.78	-56.22	-54.80	-13.00	41.80
	4 241.36	V	10.3	9.61	-58.79	-58.10	-13.00	45.10



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	1 697.08	H	8.6	5.38	-51.82	-48.60	-13.00	35.60
	2 546.17	H	9.7	6.74	-57.86	-54.90	-13.00	41.90
	3 395.27	H	9.2	7.78	-51.82	-50.40	-13.00	37.40
	4 241.36	V	10.3	9.61	-58.49	-57.80	-13.00	44.80

Note.

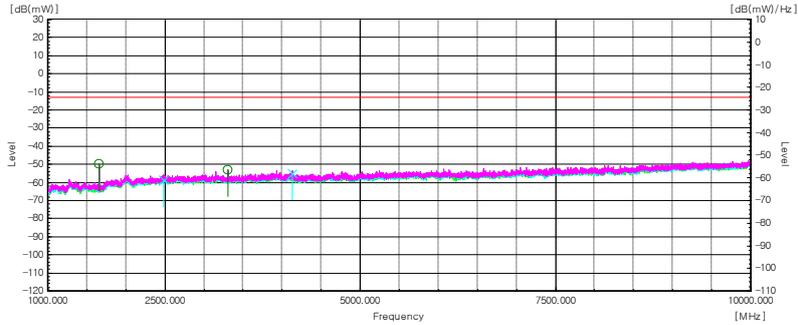
1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]

Test mode : LTE Band5

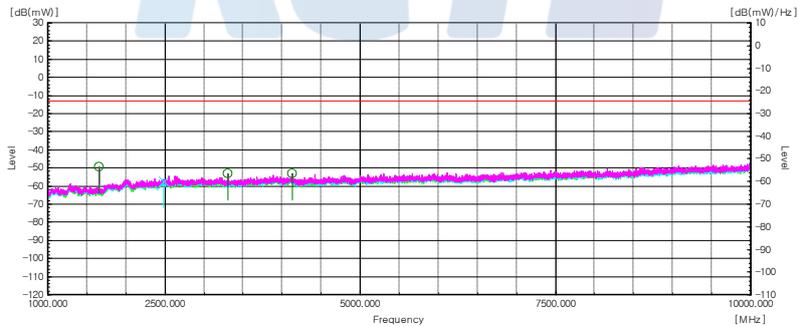
Frequency(MHz) : 825.5

Channel : 20415

Bandwidth(MHz) : 3



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	1 654.07	H	8.4	5.38	-53.12	-50.10	-13.00	37.10
	2 476.16	V	9.8	6.62	-61.78	-58.60	-13.00	45.60
	3 307.26	H	9.3	7.78	-54.62	-53.10	-13.00	40.10
	4 127.35	V	9.9	9.35	-55.85	-55.30	-13.00	42.30



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	1 653.07	H	8.4	5.38	-52.72	-49.70	-13.00	36.70
	2 476.16	V	9.8	6.62	-60.78	-57.60	-13.00	44.60
	3 306.26	H	9.3	7.78	-54.82	-53.30	-13.00	40.30
	4 133.35	H	9.9	9.35	-53.95	-53.40	-13.00	40.40

Note.

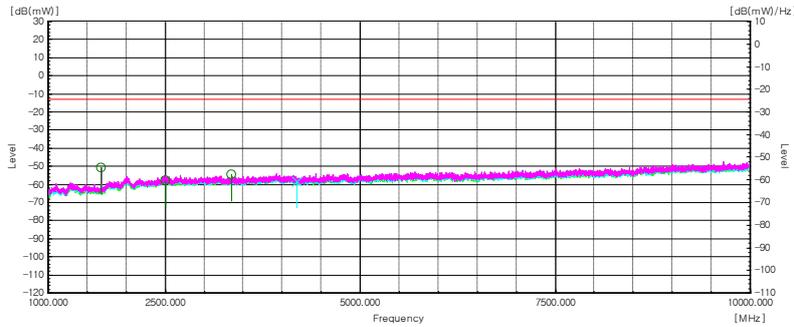
1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]

Test mode : LTE Band5

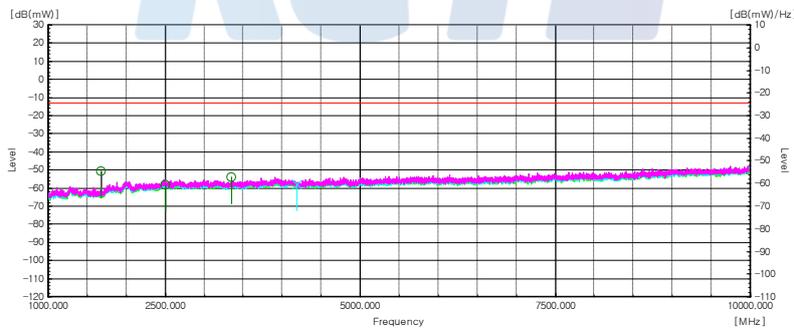
Frequency(MHz) : 836.6

Channel : 20525

Bandwidth(MHz) : 3



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	1 675.08	H	8.5	5.38	-54.02	-50.90	-13.00	37.90
	2 509.17	H	9.8	6.74	-60.96	-57.90	-13.00	44.90
	3 351.26	H	9.3	7.78	-55.92	-54.40	-13.00	41.40
	4 182.35	V	10.1	9.35	-58.85	-58.10	-13.00	45.10



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	1 675.08	H	8.5	5.38	-53.82	-50.70	-13.00	37.70
	2 509.17	H	9.8	6.74	-61.36	-58.30	-13.00	45.30
	3 351.26	H	9.3	7.78	-55.82	-54.30	-13.00	41.30
	4 182.35	V	10.1	9.35	-58.45	-57.70	-13.00	44.70

Note.

1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (197) of (279)

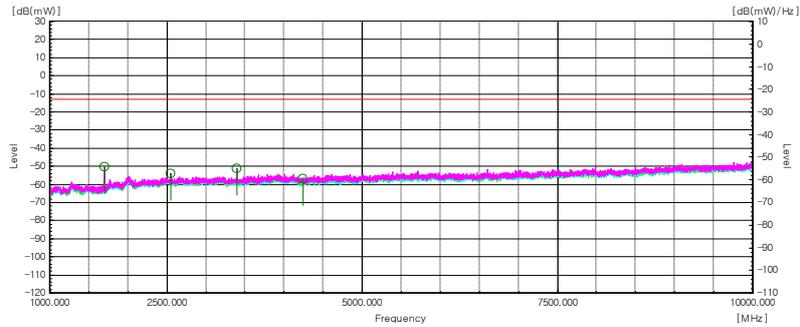


Test mode : LTE Band5

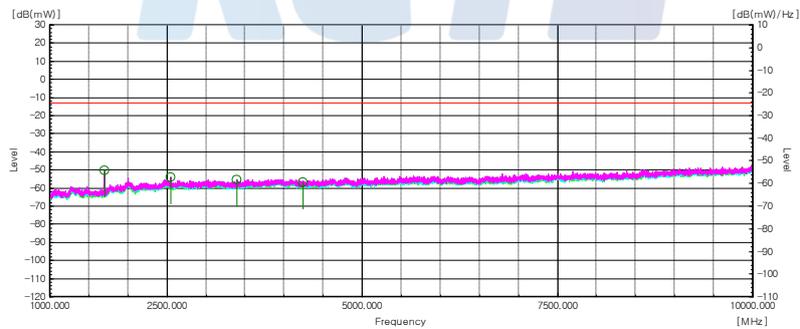
Frequency(MHz) : 847.5

Channel : 20635

Bandwidth(MHz) : 3



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	1 698.08	H	8.6	5.38	-53.42	-50.20	-13.00	37.20
	2 546.17	H	9.7	6.74	-57.16	-54.20	-13.00	41.20
	3 395.27	H	9.2	7.78	-52.82	-51.40	-13.00	38.40
	4 237.36	H	10.3	9.61	-57.59	-56.90	-13.00	43.90



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	1 697.08	H	8.6	5.38	-53.42	-50.20	-13.00	37.20
	2 546.17	H	9.7	6.74	-56.86	-53.90	-13.00	40.90
	3 395.27	H	9.2	7.78	-56.82	-55.40	-13.00	42.40
	4 237.36	H	10.3	9.61	-57.69	-57.00	-13.00	44.00

Note.

1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (198) of (279)

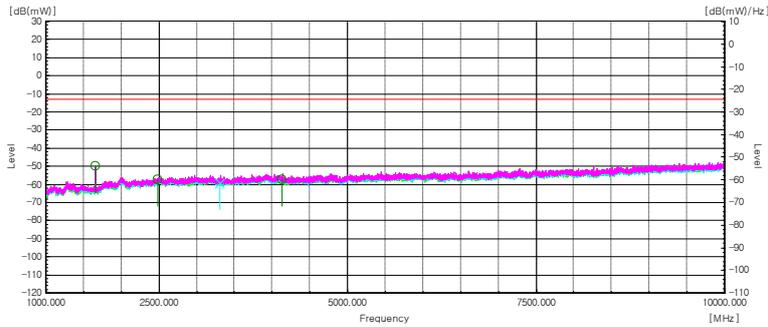


Test mode : LTE Band5

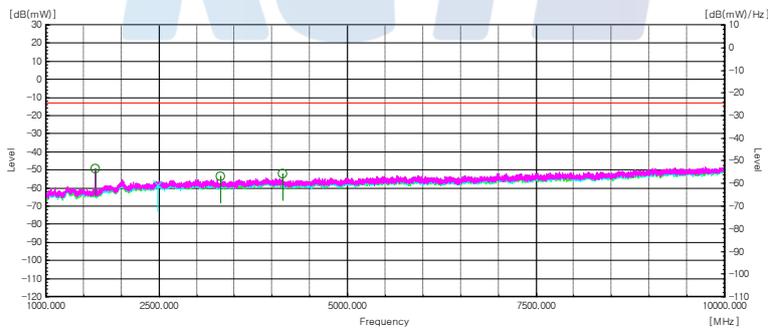
Frequency(MHz) : 826.5

Channel : 20425

Bandwidth(MHz) : 5



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]							
QPSK	1 657.07	H	8.4	5.38	-52.92	-49.90	-13.00	36.90
	2 479.17	H	9.8	6.62	-60.38	-57.20	-13.00	44.20
	3 306.26	V	9.3	7.78	-60.62	-59.10	-13.00	46.10
	4 132.35	H	9.9	9.35	-58.05	-57.50	-13.00	44.50



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]							
16QAM	1 657.07	H	8.4	5.38	-52.42	-49.40	-13.00	36.40
	2 479.17	V	9.8	6.62	-61.58	-58.40	-13.00	45.40
	3 314.26	H	9.3	7.78	-55.12	-53.60	-13.00	40.60
	4 142.35	H	9.9	9.35	-52.95	-52.40	-13.00	39.40

Note.

1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (199) of (279)

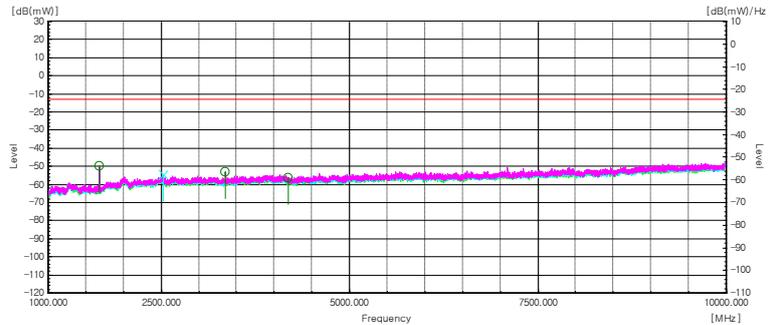


Test mode : LTE Band5

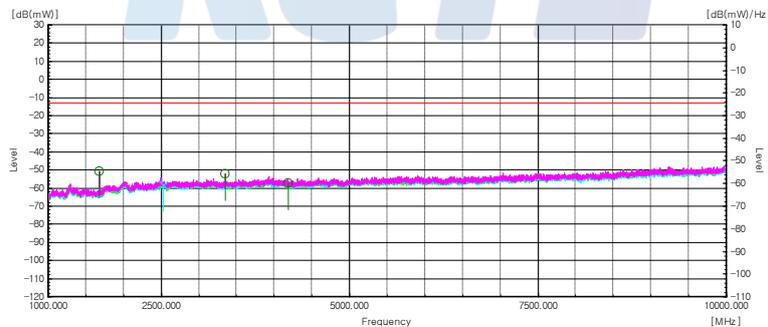
Frequency(MHz) : 836.5

Channel : 20525

Bandwidth(MHz) : 5



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	1 677.08	H	8.5	5.38	-53.02	-49.90	-13.00	36.90
	2 525.17	V	9.8	6.74	-57.66	-54.60	-13.00	41.60
	3 354.26	H	9.3	7.78	-54.82	-53.30	-13.00	40.30
	4 182.35	H	10.1	9.35	-57.25	-56.50	-13.00	43.50



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	1 677.08	H	8.5	5.38	-54.02	-50.90	-13.00	37.90
	2 525.17	V	9.8	6.74	-61.26	-58.20	-13.00	45.20
	3 354.26	H	9.3	7.78	-53.82	-52.30	-13.00	39.30
	4 182.35	H	10.1	9.35	-58.35	-57.60	-13.00	44.60

Note.

1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (200) of (279)

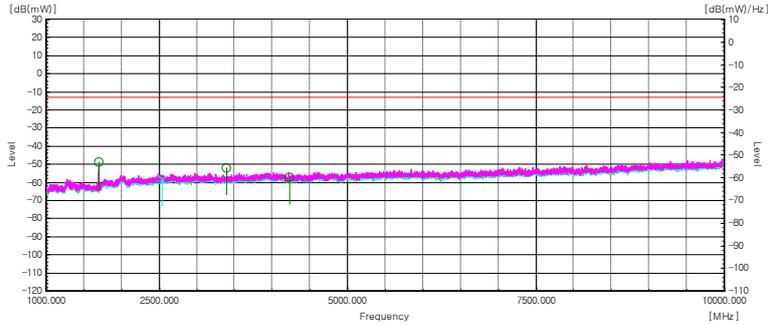


Test mode : LTE Band5

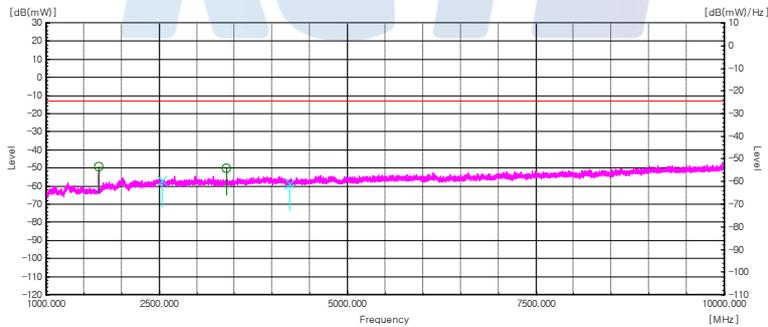
Frequency(MHz) : 846.5

Channel : 20625

Bandwidth(MHz) : 5



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]							
QPSK	1 697.08	H	8.6	5.38	-52.42	-49.20	-13.00	36.20
	3 394.27	H	9.7	6.74	-55.36	-52.40	-13.00	39.40
	2 539.17	V	9.2	7.78	-59.92	-58.50	-13.00	45.50
	4 232.36	H	10.3	9.61	-57.89	-57.20	-13.00	44.20



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]							
16QAM	1 697.08	H	8.6	5.38	-52.62	-49.40	-13.00	36.40
	2 539.17	V	9.7	6.74	-59.96	-57.00	-13.00	44.00
	3 394.27	H	9.2	7.78	-51.82	-50.40	-13.00	37.40
	4 232.36	V	10.3	9.61	-59.39	-58.70	-13.00	45.70

Note.

1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (201) of (279)

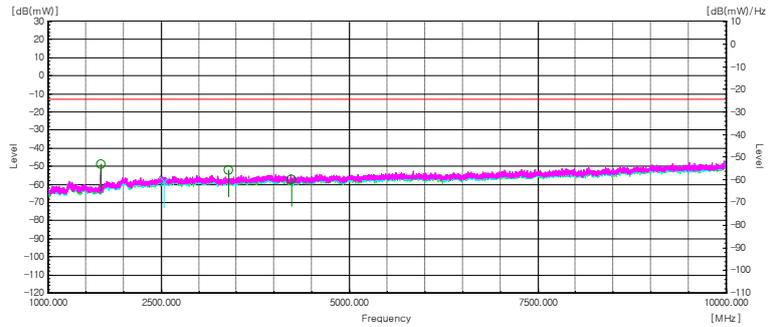


Test mode : LTE Band5

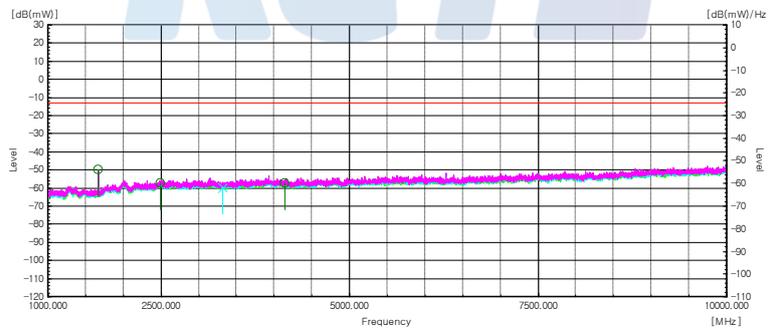
Frequency(MHz) : 829.0

Channel : 20450

Bandwidth(MHz) : 10



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]							
QPSK	1 667.07	H	8.4	5.38	-54.52	-51.50	-13.00	38.50
	2 487.16	H	9.8	6.62	-59.78	-56.60	-13.00	43.60
	3 316.26	H	9.3	7.78	-59.32	-57.80	-13.00	44.80
	4 145.35	H	9.9	9.35	-57.65	-57.10	-13.00	44.10



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]							
16QAM	1 667.07	H	8.4	5.38	-53.12	-50.10	-13.00	37.10
	2 487.17	H	9.8	6.62	-60.48	-57.30	-13.00	44.30
	3 316.26	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.

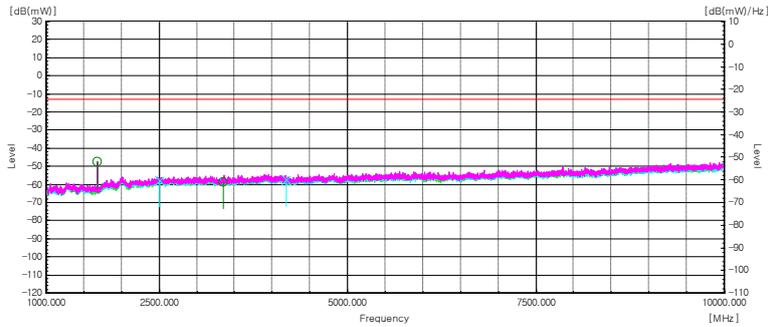
1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]

**Test mode** : LTE Band5

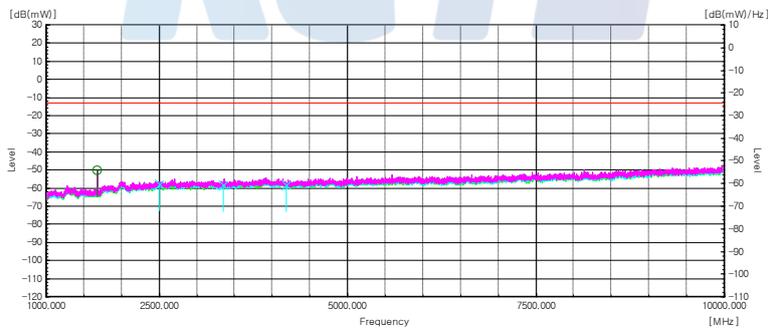
**Frequency(MHz)** : 836.5

**Channel** : 20525

**Bandwidth(MHz)** : 10



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	1 682.07	H	8.5	5.38	-50.62	-47.50	-13.00	34.50
	2 509.17	V	9.8	6.74	-60.96	-57.90	-13.00	44.90
	3 346.26	H	9.3	7.78	-60.12	-58.60	-13.00	45.60
	4 182.35	V	10.1	9.35	-58.05	-57.30	-13.00	44.30



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	1 682.08	H	8.5	5.38	-53.72	-50.60	-13.00	37.60
	2 509.17	V	9.8	6.74	-60.76	-57.70	-13.00	44.70
	3 346.26	V	9.3	7.78	-59.82	-58.30	-13.00	45.30
	4 182.35	V	10.1	9.35	-58.95	-58.20	-13.00	45.20

Note.

1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (203) of (279)

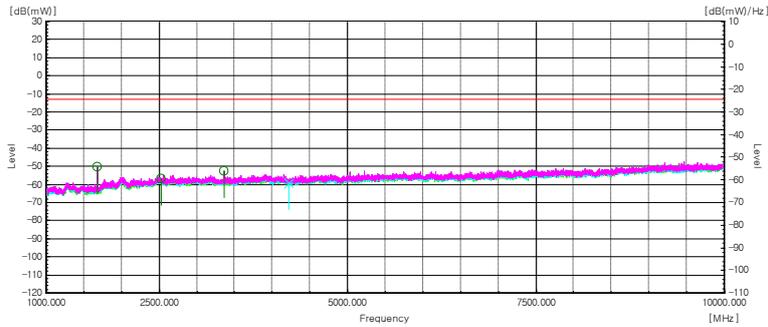


Test mode : LTE Band5

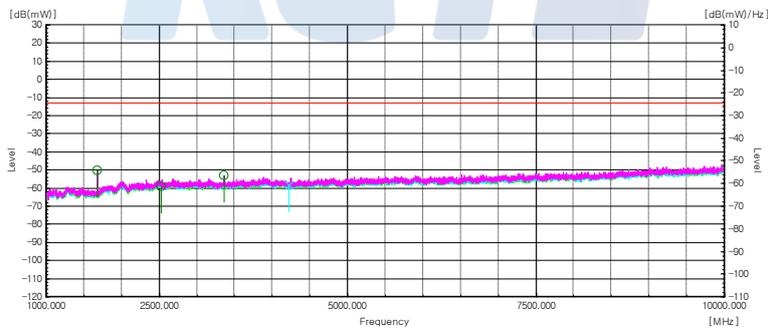
Frequency(MHz) : 844.0

Channel : 20600

Bandwidth(MHz) : 10



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	1 679.08	H	8.5	5.38	-53.62	-50.50	-13.00	37.50
	2 531.17	H	9.7	6.74	-59.76	-56.80	-13.00	43.80
	3 358.26	H	9.2	7.78	-54.22	-52.80	-13.00	39.80
	4 220.36	V	10.3	9.61	-60.09	-59.40	-13.00	46.40



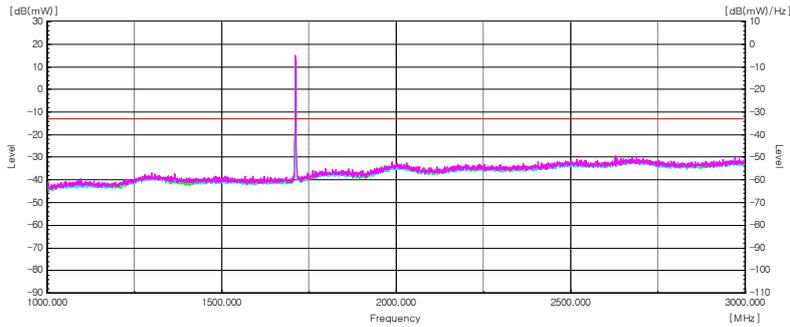
Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	1 679.08	H	8.5	5.38	-53.32	-50.20	-13.00	37.20
	2 531.17	H	9.7	6.74	-62.16	-59.20	-13.00	46.20
	3 358.26	H	9.2	7.78	-54.82	-53.40	-13.00	40.40
	4 220.36	V	10.3	9.61	-58.99	-58.30	-13.00	45.30

Note.

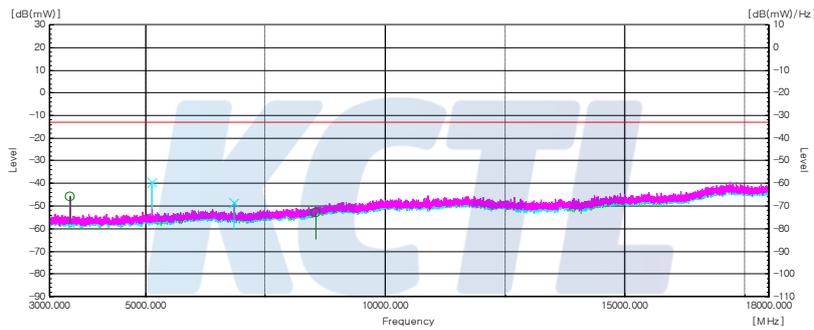
1. Limit Calculation(dBm)= 43 + 10log(P<sub>[watts]</sub>) [dBc]

Test mode : LTE Band4  
 Frequency(MHz) : 1 710.7  
 Channel : 19957  
 Bandwidth(MHz) : 1.4

1 000 MHz to 3 000 MHz



Above 3 000 MHz



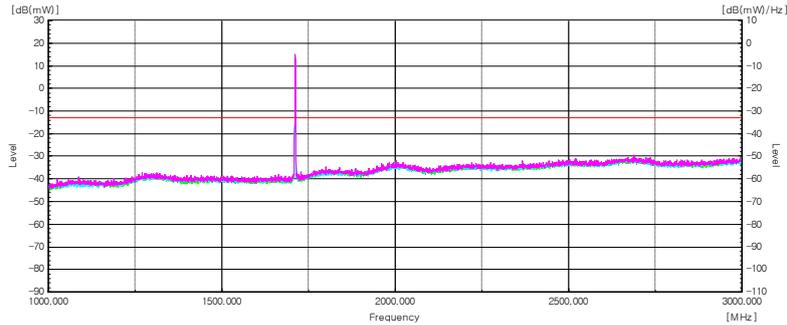
Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	3 422.03	H	9.8	8.05	-47.65	-45.90	-13.00	32.90
	5 133.14	V	10.9	11.07	-39.23	-39.40	-13.00	26.40
	6 844.26	V	10.9	13.21	-46.19	-48.50	-13.00	35.50
	8 553.37	H	11.8	14.36	-50.34	-52.90	-13.00	39.90

Note.

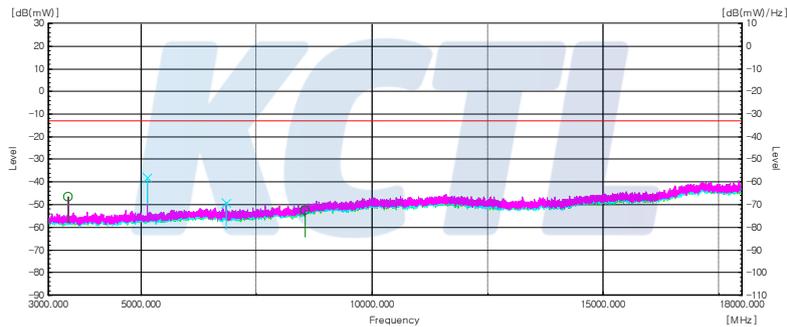
1. Limit Calculation(dBm)= 43 + 10log(P<sub>watts</sub>) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

**Test mode** : LTE Band4  
**Frequency(MHz)** : 1 710.7  
**Channel** : 19957  
**Bandwidth(MHz)** : 1.4

1 000 MHz to 3 000 MHz



Above 3 000 MHz



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	3 422.03	H	9.8	8.05	-48.25	-46.50	-13.00	33.50
	5 133.14	V	10.9	11.07	-37.83	-38.00	-13.00	25.00
	6 844.26	V	10.9	13.21	-46.79	-49.10	-13.00	36.10
	8 553.37	H	11.8	14.36	-49.94	-52.50	-13.00	39.50

Note.

1. Limit Calculation(dBm)= 43 + 10log(P<sub>[watts]</sub>) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (206) of (279)



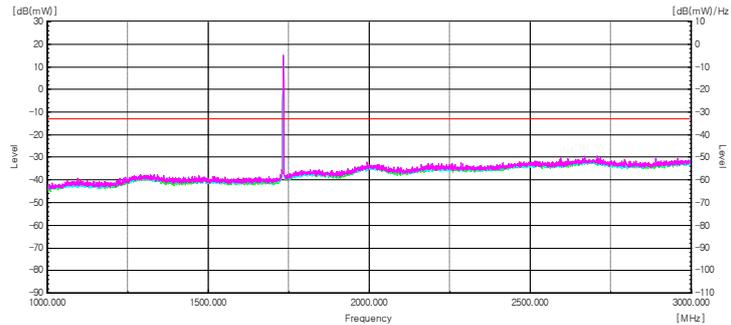
Test mode : LTE Band4

Frequency(MHz) : 1 732.5

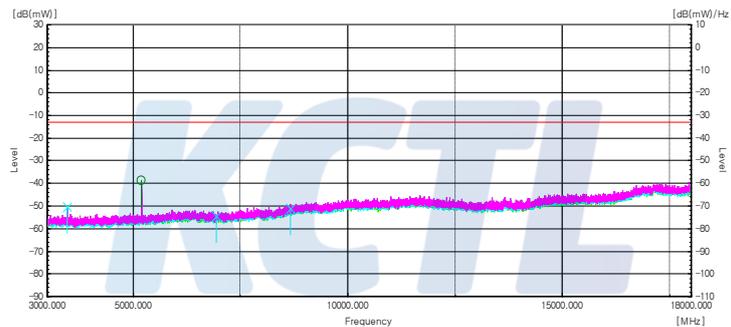
Channel : 20175

Bandwidth(MHz) : 1.4

## 1 000 MHz to 3 000 MHz



## Above 3 000 MHz



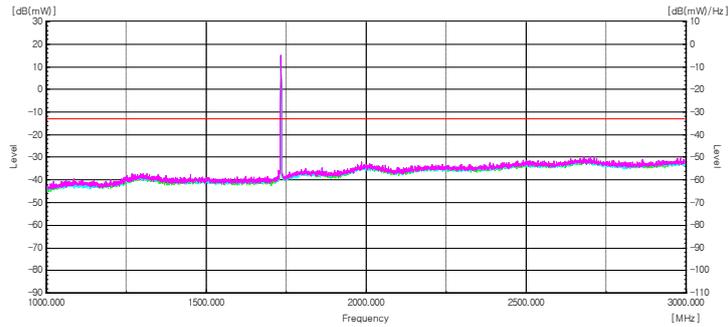
Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	3 466.03	V	9.8	9.06	-51.24	-50.50	-13.00	37.50
	5 199.15	H	10.9	11.20	-38.40	-38.70	-13.00	25.70
	6 930.26	V	10.8	13.31	-52.09	-54.60	-13.00	41.60
	8 662.38	V	11.9	14.41	-48.49	-51.00	-13.00	38.00

Note.

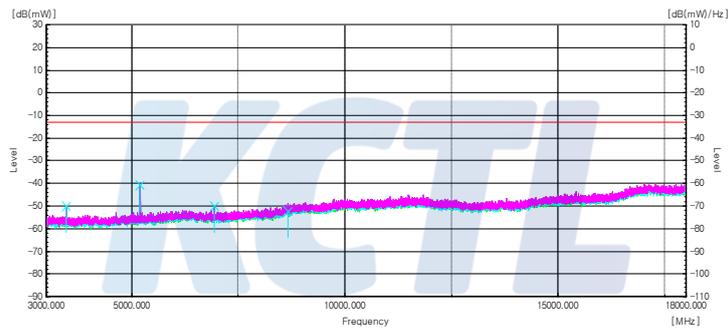
1. Limit Calculation(dBm)=  $43 + 10\log(P_{\text{Watts}})$  [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band4  
 Frequency(MHz) : 1 732.5  
 Channel : 20175  
 Bandwidth(MHz) : 1.4

1 000 MHz to 3 000 MHz



Above 3 000 MHz



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	3 466.03	V	9.8	9.06	-50.84	-50.10	-13.00	37.10
	5 198.15	V	10.9	11.20	-40.30	-40.60	-13.00	27.60
	6 932.26	V	10.8	13.31	-47.49	-50.00	-13.00	37.00
	8 662.38	V	11.9	14.41	-49.59	-52.10	-13.00	39.10

Note.

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

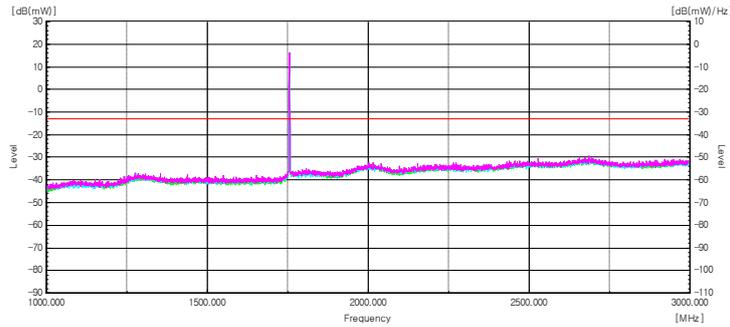
Test mode : LTE Band4

Frequency(MHz) : 1 754.3

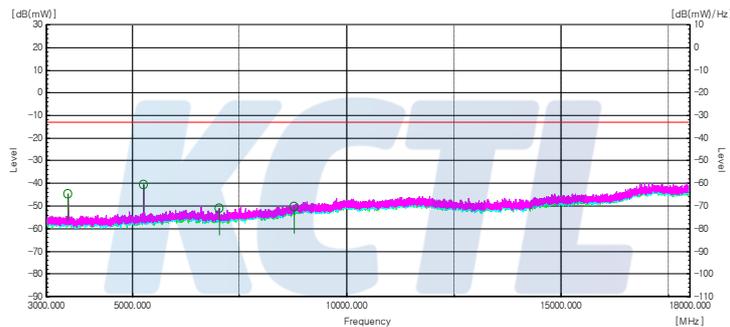
Channel : 20393

Bandwidth(MHz) : 1.4

1 000 MHz to 3 000 MHz



Above 3 000 MHz



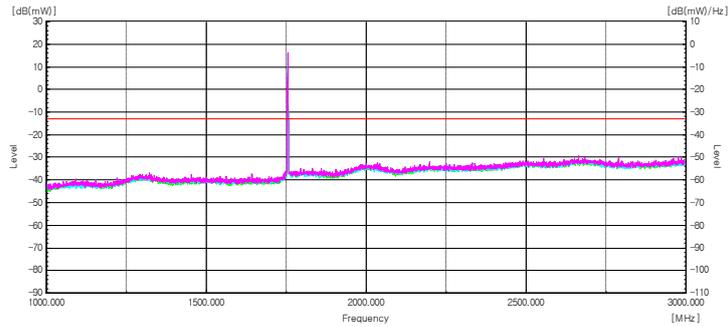
Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	3 509.03	H	9.7	9.06	-45.54	-44.90	-13.00	31.90
	5 264.15	H	10.8	11.20	-40.40	-40.80	-13.00	27.80
	7 019.27	H	10.9	13.24	-48.86	-51.20	-13.00	38.20
	8 771.38	H	11.9	14.50	-47.90	-50.50	-13.00	37.50

Note.

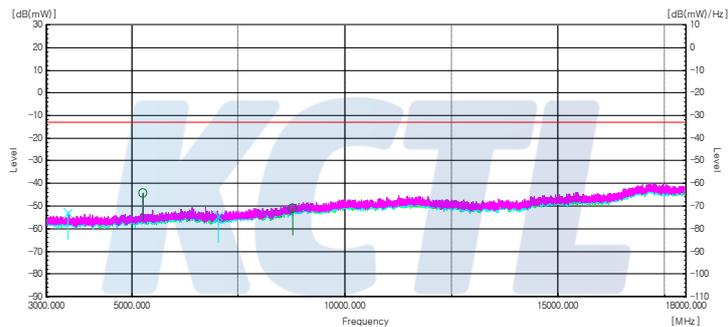
1. Limit Calculation(dBm)= 43 + 10log(P<sub>[Watts]</sub>) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band4  
 Frequency(MHz) : 1 754.3  
 Channel : 20393  
 Bandwidth(MHz) : 1.4

1 000 MHz to 3 000 MHz



Above 3 000 MHz



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	3 505.03	V	9.7	9.06	-53.54	-52.90	-13.00	39.90
	5 264.15	H	10.8	11.20	-43.90	-44.30	-13.00	31.30
	7 019.27	V	10.9	13.24	-52.26	-54.60	-13.00	41.60
	8 771.38	H	11.9	14.50	-48.60	-51.20	-13.00	38.20

Note.

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

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (210) of (279)



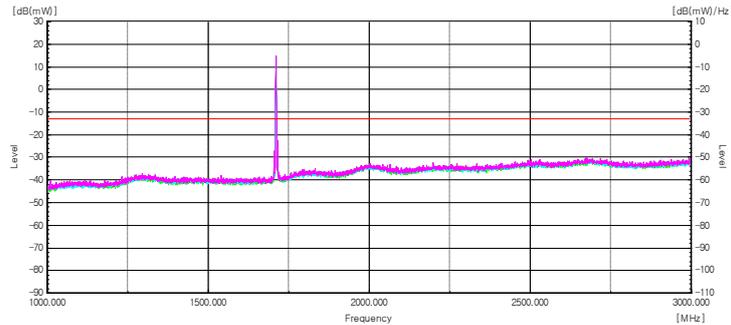
Test mode : LTE Band4

Frequency(MHz) : 1 711.5

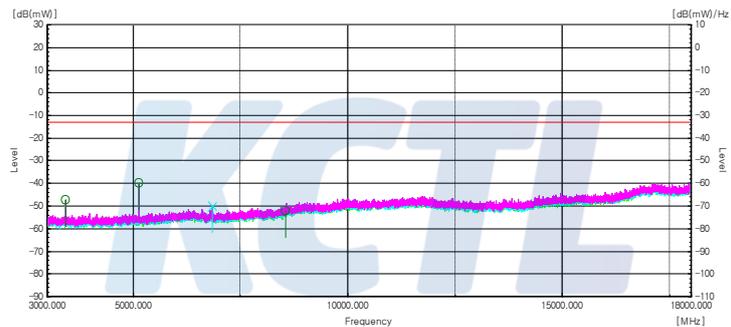
Channel : 19965

Bandwidth(MHz) : 3

## 1 000 MHz to 3 000 MHz



## Above 3 000 MHz



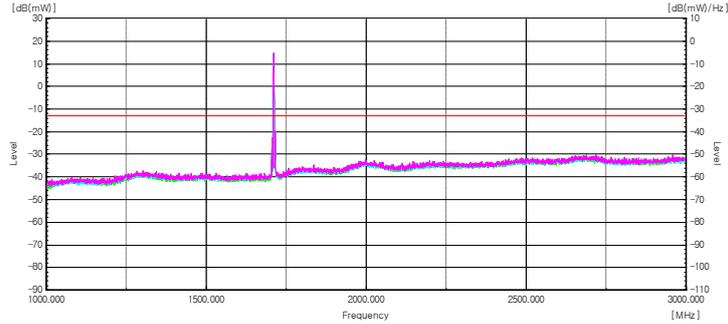
Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	3 425.03	H	9.8	8.05	-49.25	-47.50	-13.00	34.50
	5 138.14	H	10.9	11.07	-39.73	-39.90	-13.00	26.90
	6 851.26	V	10.9	13.21	-47.59	-49.90	-13.00	36.90
	8 557.37	H	11.8	14.36	-49.84	-52.40	-13.00	39.40

Note.

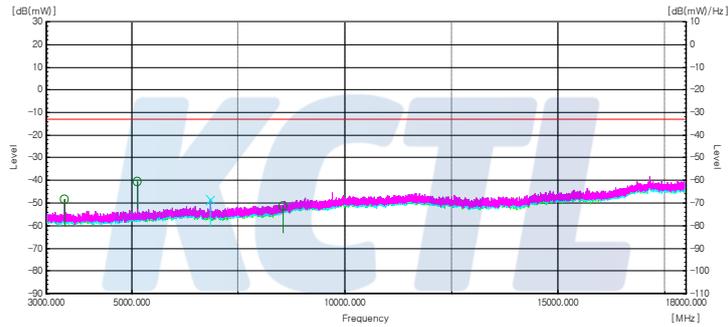
1. Limit Calculation(dBm)= 43 + 10log(P<sub>[Watts]</sub>) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band4  
 Frequency(MHz) : 1 711.5  
 Channel : 19965  
 Bandwidth(MHz) : 3

1 000 MHz to 3 000 MHz



Above 3 000 MHz



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	3 425.03	H	9.8	8.05	-50.45	-48.70	-13.00	35.70
	5 138.14	H	10.9	11.07	-40.63	-40.80	-13.00	27.80
	6 850.26	V	10.9	13.21	-46.09	-48.40	-13.00	35.40
	8 557.37	H	11.8	14.36	-48.84	-51.40	-13.00	38.40

Note.

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

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (212) of (279)



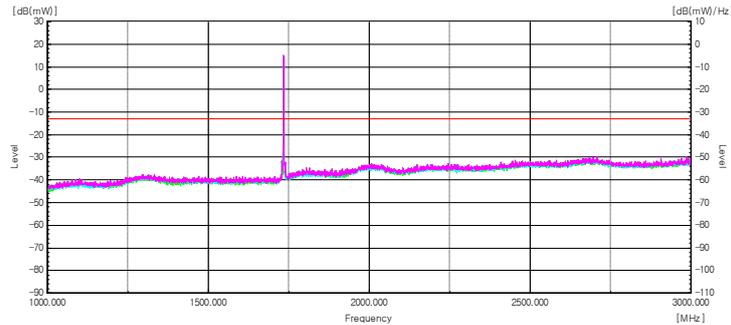
Test mode : LTE Band4

Frequency(MHz) : 1 732.5

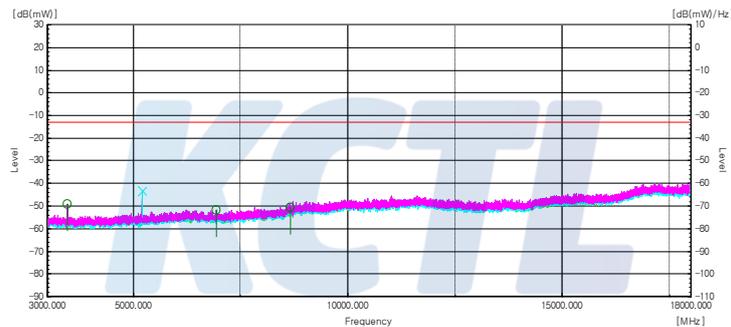
Channel : 20175

Bandwidth(MHz) : 3

## 1 000 MHz to 3 000 MHz



## Above 3 000 MHz



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	3 467.03	H	9.8	9.06	-50.04	-49.30	-13.00	36.30
	5 201.15	V	10.9	11.20	-42.90	-43.20	-13.00	30.20
	6 935.26	H	10.8	13.31	-49.29	-51.80	-13.00	38.80
	8 662.38	H	11.9	14.41	-48.29	-50.80	-13.00	37.80

Note.

- Limit Calculation(dBm)= 43 + 10log(P<sub>[Watts]</sub>) [dBc]
- No spurious emission were detected 1 000 MHz to 3 000 MHz.

# 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](http://www.kctl.co.kr)

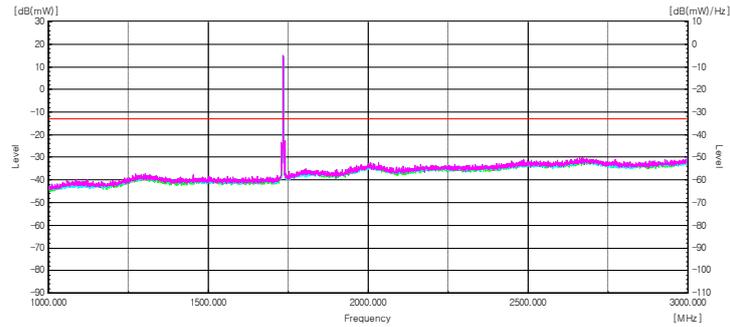
Report No.:  
KR19-SRF0016-A

Page (213) of (279)

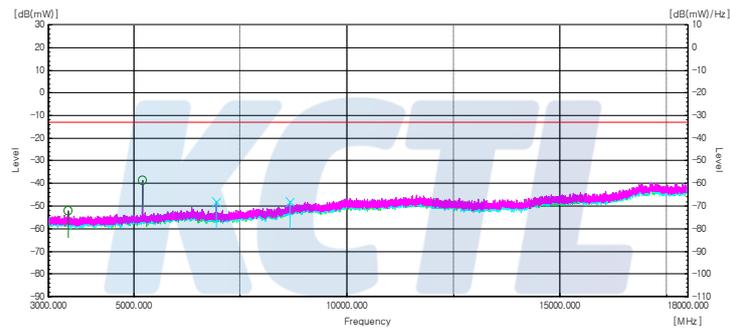


Test mode : LTE Band4  
Frequency(MHz) : 1 732.5  
Channel : 20175  
Bandwidth(MHz) : 3

## 1 000 MHz to 3 000 MHz



## Above 3 000 MHz



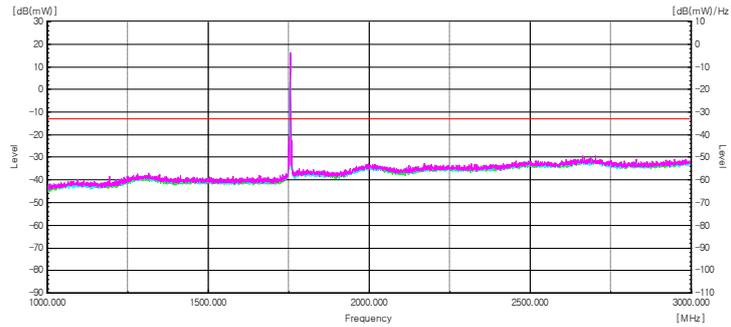
Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	3 467.03	H	9.8	9.06	-53.04	-52.30	-13.00	39.30
	5 201.15	H	10.9	11.20	-38.60	-38.90	-13.00	25.90
	6 935.26	V	10.8	13.31	-45.59	-48.10	-13.00	35.10
	8 668.38	V	11.9	14.41	-45.79	-48.30	-13.00	35.30

Note.

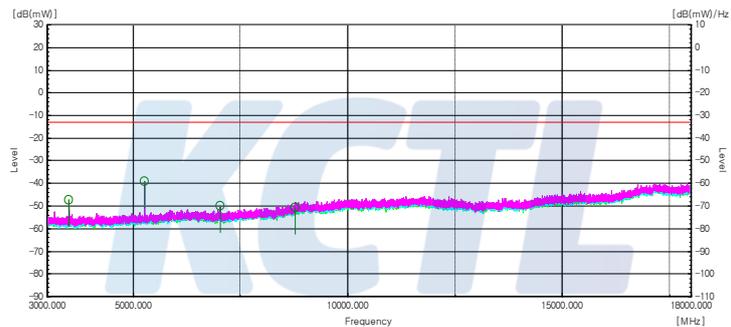
- Limit Calculation(dBm)=  $43 + 10\log(P_{\text{Watts}})$  [dBc]
- No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band4  
Frequency(MHz) : 1 753.5  
Channel : 20385  
Bandwidth(MHz) : 3

1 000 MHz to 3 000 MHz



Above 3 000 MHz



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	3 509.03	H	9.7	9.06	-48.14	-47.50	-13.00	34.50
	5 264.15	H	10.8	11.20	-38.90	-39.30	-13.00	26.30
	7 019.27	H	10.9	13.24	-47.56	-49.90	-13.00	36.90
	8 767.38	H	11.9	14.50	-48.20	-50.80	-13.00	37.80

Note.

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

# 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](http://www.kctl.co.kr)

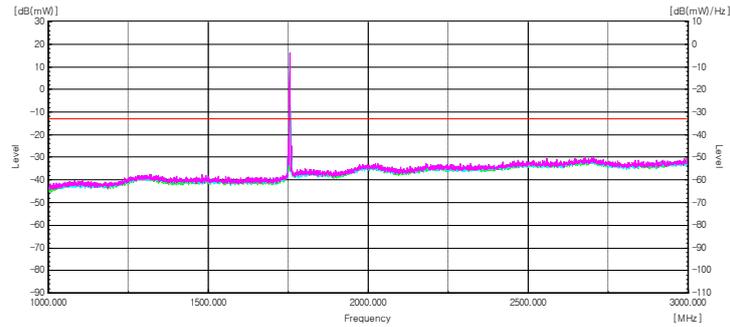
Report No.:  
KR19-SRF0016-A

Page (215) of (279)

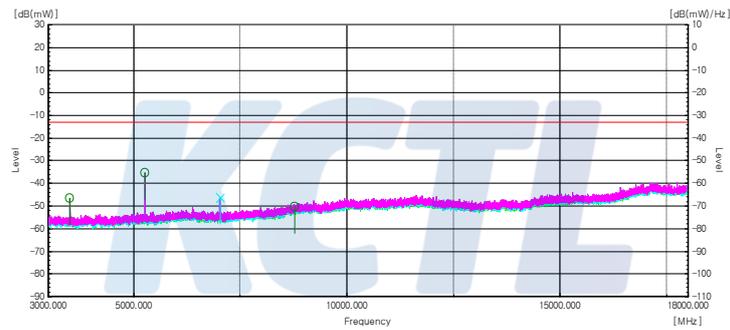


Test mode : LTE Band4  
Frequency(MHz) : 1 753.5  
Channel : 20385  
Bandwidth(MHz) : 3

### 1 000 MHz to 3 000 MHz



### Above 3 000 MHz



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	3 509.03	H	9.7	9.06	-47.24	-46.60	-13.00	33.60
	5 264.15	H	10.8	11.20	-35.10	-35.50	-13.00	22.50
	7 019.27	V	10.9	13.24	-43.96	-46.30	-13.00	33.30
	8 767.38	H	11.9	14.50	-47.80	-50.40	-13.00	37.40

Note.

- Limit Calculation(dBm)= 43 + 10log(P<sub>[Watts]</sub>) [dBc]
- No spurious emission were detected 1 000 MHz to 3 000 MHz.

# 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](http://www.kctl.co.kr)

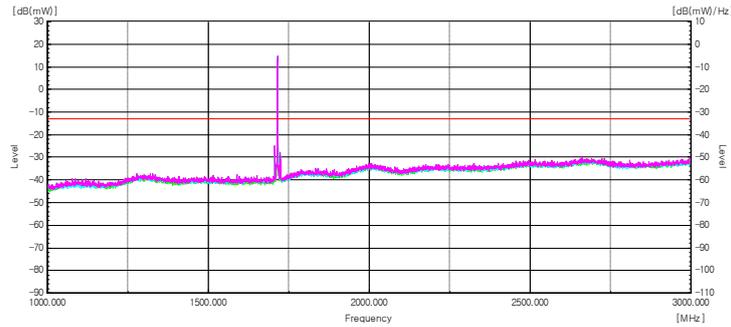
Report No.:  
KR19-SRF0016-A

Page (216) of (279)

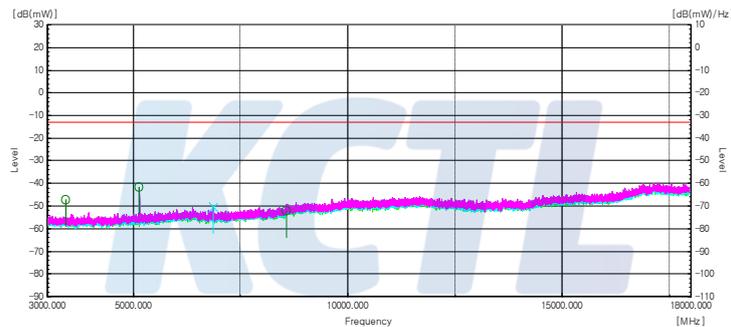


Test mode : LTE Band4  
Frequency(MHz) : 1 712.5  
Channel : 19975  
Bandwidth(MHz) : 5

### 1 000 MHz to 3 000 MHz



### Above 3 000 MHz



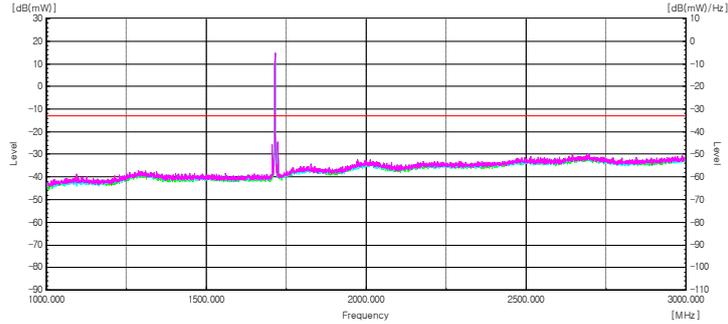
Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	3 429.03	H	9.8	8.05	-49.05	-47.30	-13.00	34.30
	5 144.14	H	10.9	11.07	-41.53	-41.70	-13.00	28.70
	6 858.26	V	10.9	13.21	-48.09	-50.40	-13.00	37.40
	8 562.37	H	11.8	14.36	-49.74	-52.30	-13.00	39.30

Note.

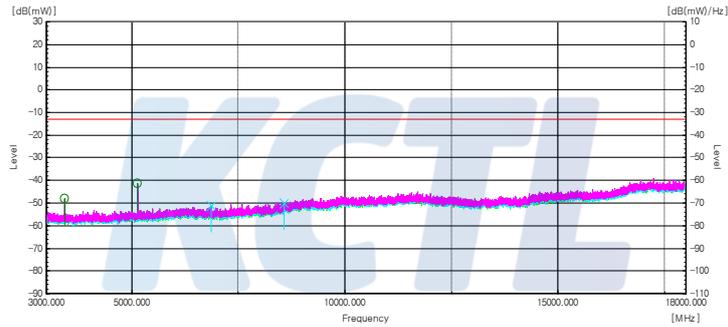
1. Limit Calculation(dBm)= 43 + 10log(P<sub>[Watts]</sub>) [dBc]
2. No spurious emission were detected 1 000 MHz to 3 000 MHz.

Test mode : LTE Band4  
Frequency(MHz) : 1 712.5  
Channel : 19975  
Bandwidth(MHz) : 5

1 000 MHz to 3 000 MHz



Above 3 000 MHz



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
16QAM	3 430.03	H	9.8	8.05	-49.95	-48.20	-13.00	35.20
	5 144.14	H	10.9	11.07	-41.13	-41.30	-13.00	28.30
	6 858.26	V	10.9	13.21	-48.79	-51.10	-13.00	38.10
	8 562.37	V	11.8	14.36	-47.44	-50.00	-13.00	37.00

Note.

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

# 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](http://www.kctl.co.kr)

Report No.:  
KR19-SRF0016-A

Page (218) of (279)



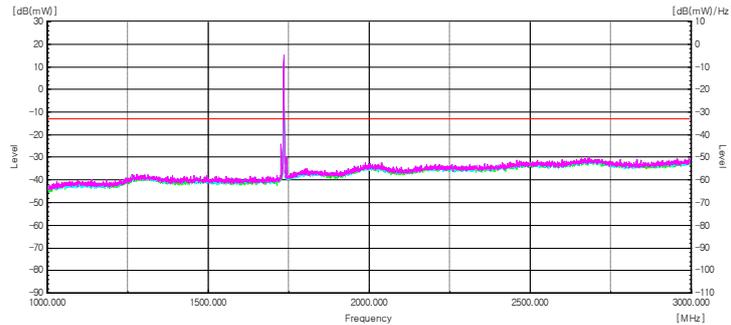
Test mode : LTE Band4

Frequency(MHz) : 1 732.5

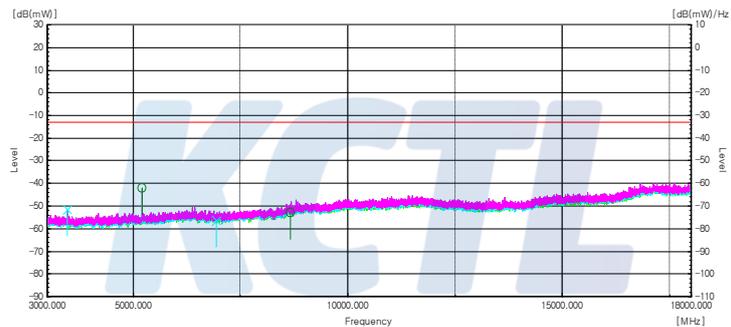
Channel : 20175

Bandwidth(MHz) : 5

## 1 000 MHz to 3 000 MHz



## Above 3 000 MHz



Mode	Frequency	Pol.	Antenna Gain	Cable loss	Substitute Level	Level	Limit	Margin
	[MHz]	[V/H]	[dBi]	[dB]	[dBm]	[dBm]	[dBm]	[dB]
QPSK	3 469.03	V	9.8	9.06	-52.04	-51.30	-13.00	38.30
	5 204.15	H	10.9	11.20	-42.00	-42.30	-13.00	29.30
	6 935.26	V	10.8	13.31	-53.99	-56.50	-13.00	43.50
	8 662.38	H	11.9	14.41	-50.69	-53.20	-13.00	40.20

Note.

- Limit Calculation(dBm)= 43 + 10log(P<sub>[Watts]</sub>) [dBc]
- No spurious emission were detected 1 000 MHz to 3 000 MHz.