10.5 Test data for 802.11n_HT20 RLAN Mode

10.5.1 Test data for Antenna 0

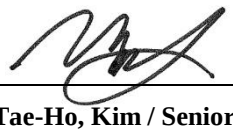
-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

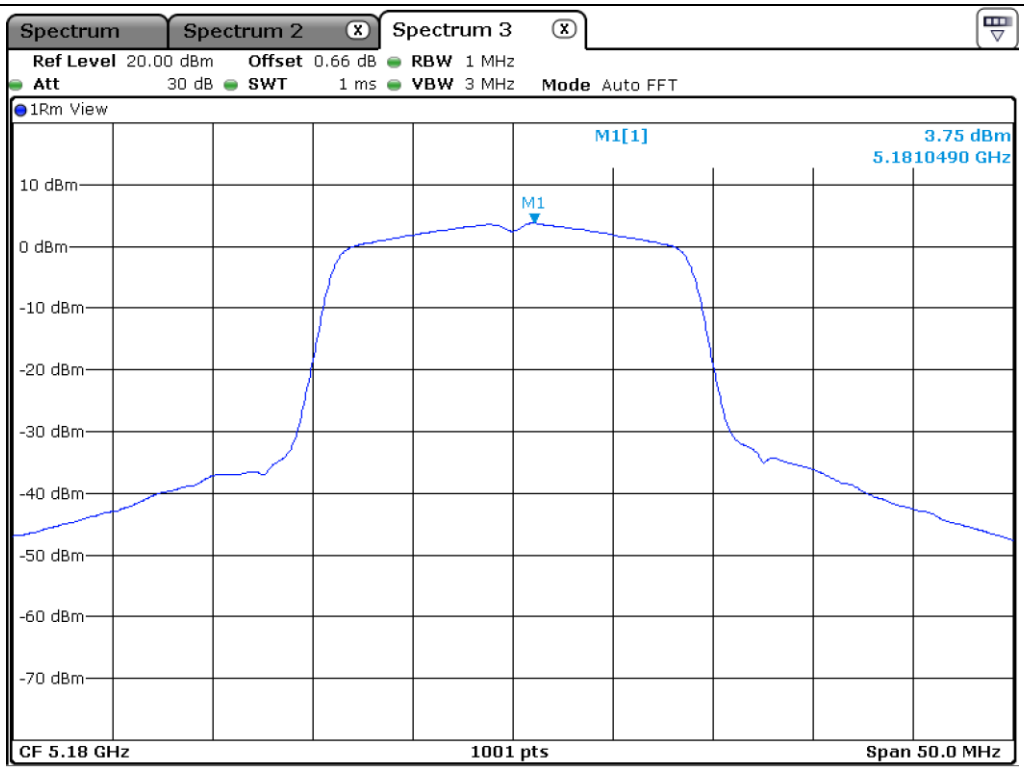
FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 180.00	3.75	11.00	7.25
	Middle	5 220.00	3.95	11.00	7.05
	High	5 240.00	3.95	11.00	7.05
5 250 ~ 5 350	Low	5 260.00	4.05	11.00	6.95
	Middle	5 300.00	4.13	11.00	6.87
	High	5 320.00	4.05	11.00	6.95
5 470 ~ 5 725	Low	5 500.00	4.04	11.00	6.96
	Middle	5 580.00	4.68	11.00	6.32
	High	5 700.00	4.48	11.00	6.52
5 725 ~ 5 850	Low	5 745.00	3.95	30.00	26.05
	Middle	5 785.00	4.34	30.00	25.66
	High	5 825.00	3.91	30.00	26.09

Remark: See next page for measurement data.

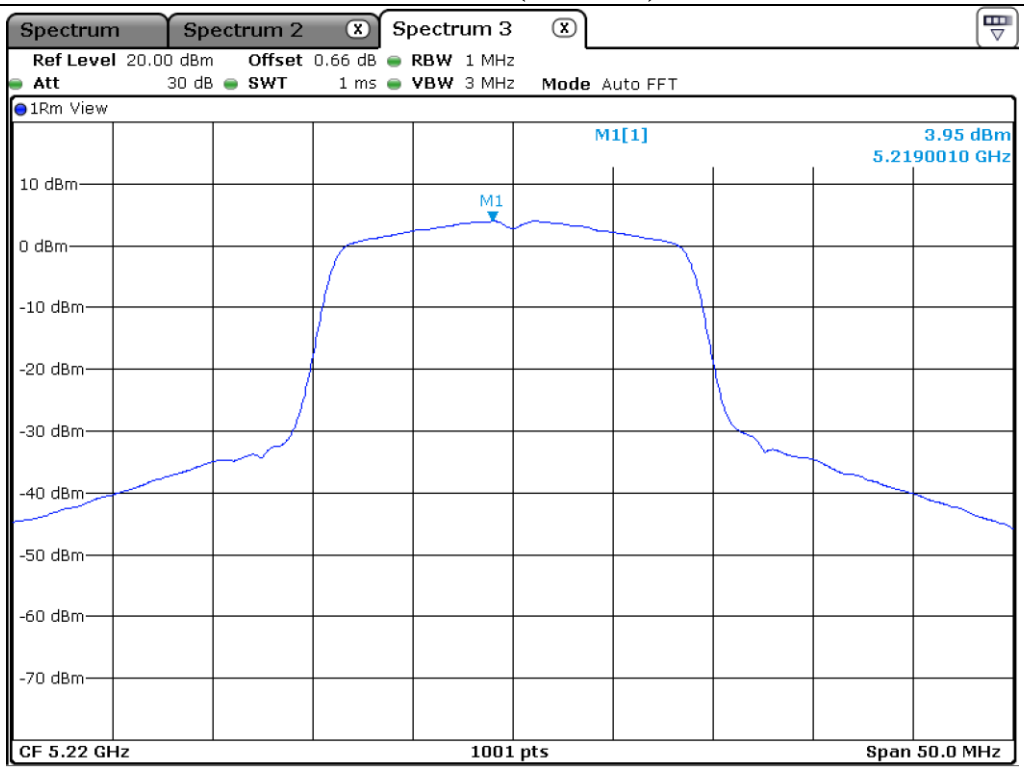


Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

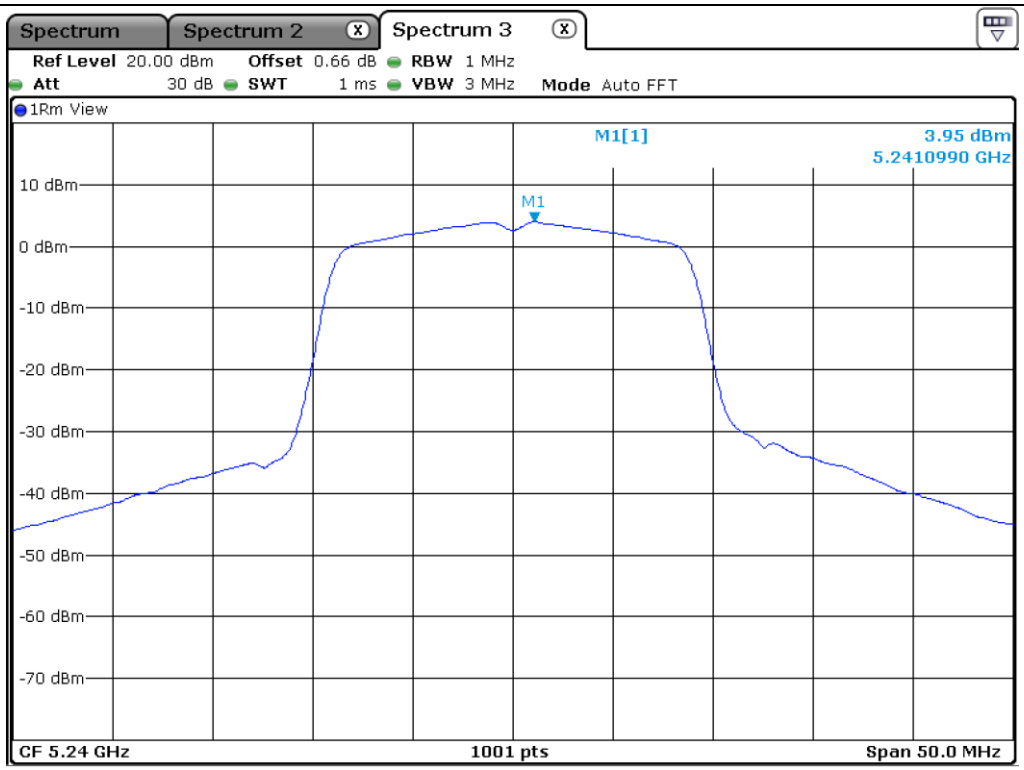


Low Channel (5 180 MHz)



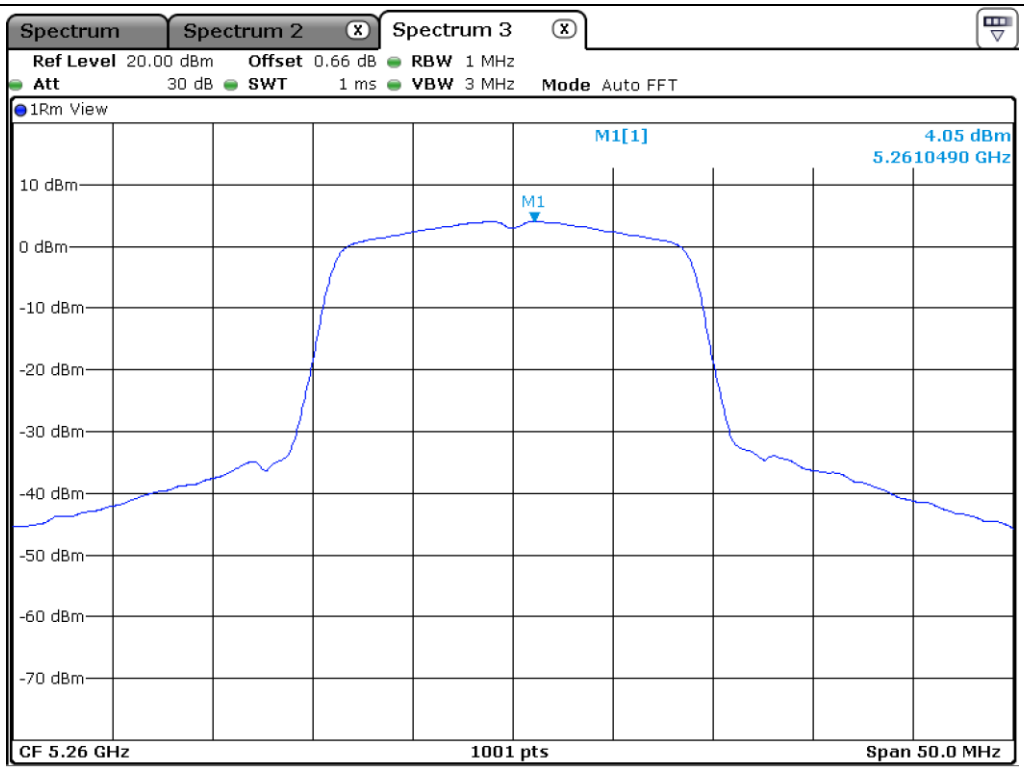
Middle Channel (5 220 MHz)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

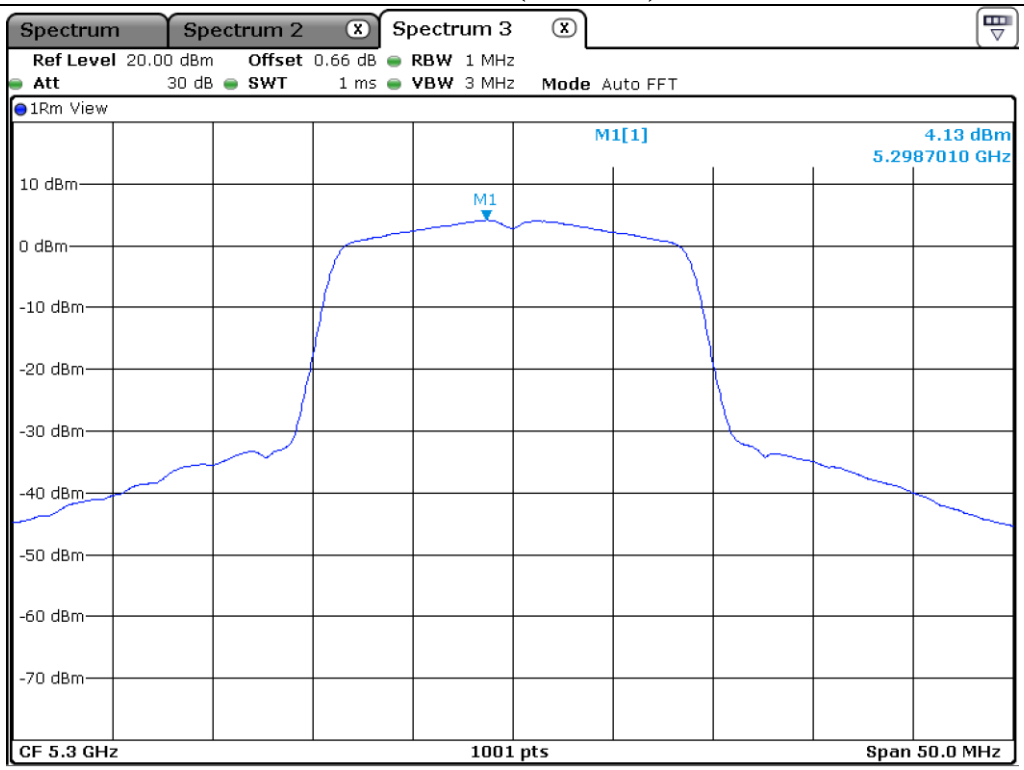


High Channel (5 240 MHz)

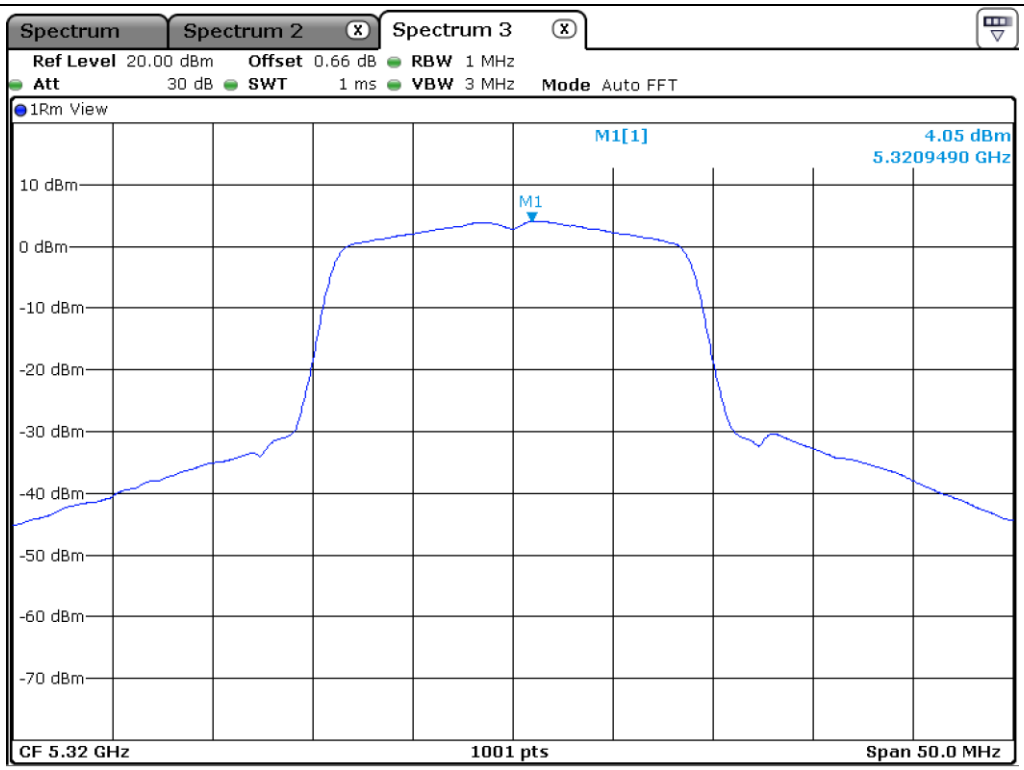
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



Low Channel (5 260 MHz)

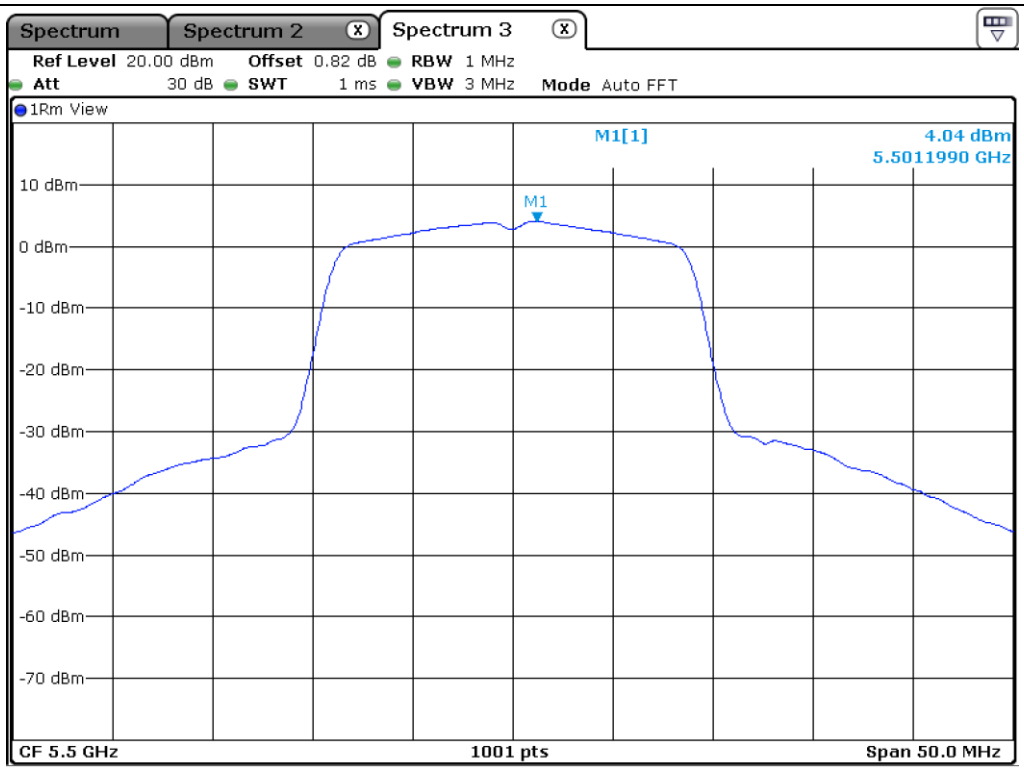


Middle Channel (5 300 MHz)

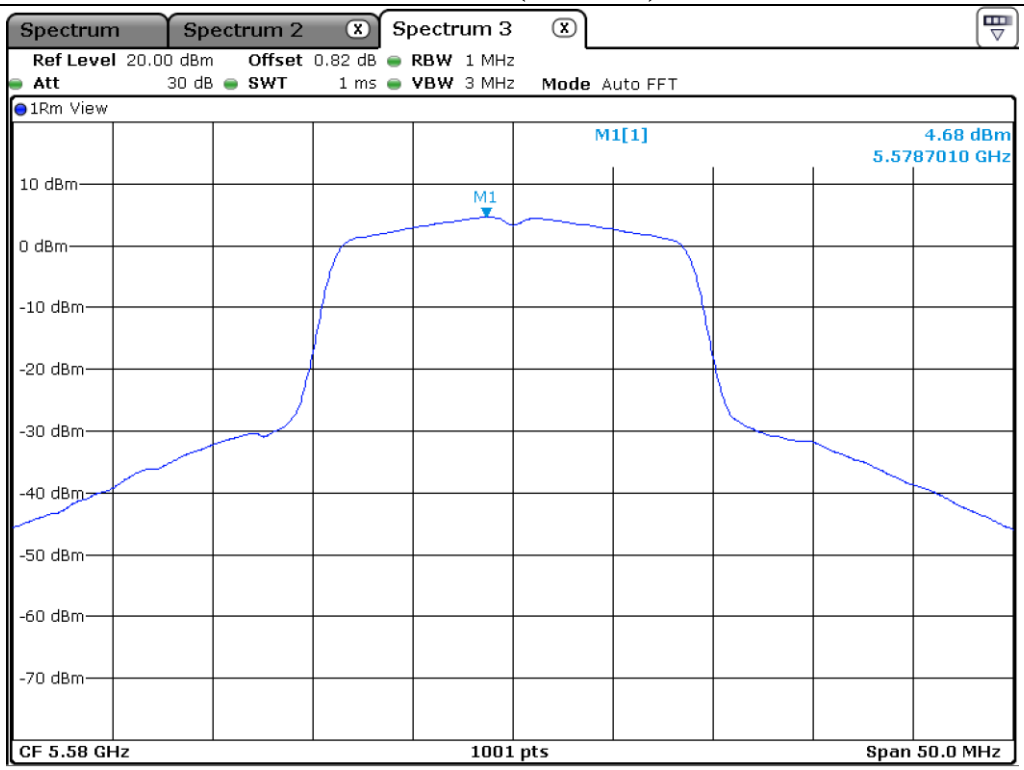


High Channel (5 320 MHz)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

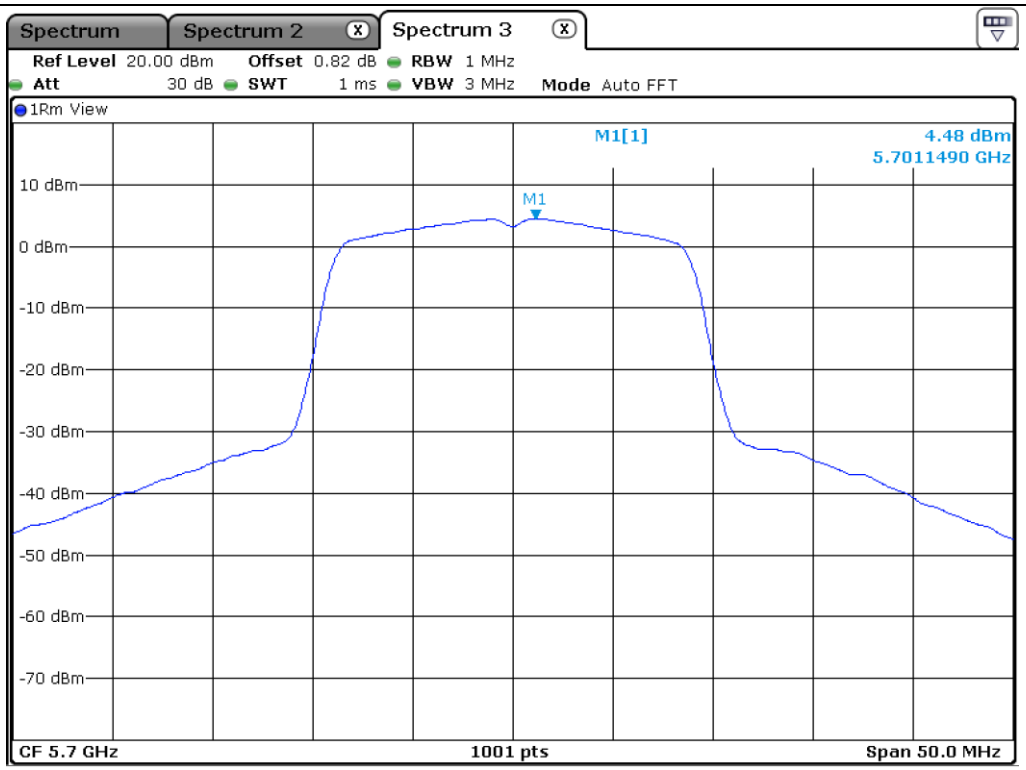


Low Channel (5 500 MHz)

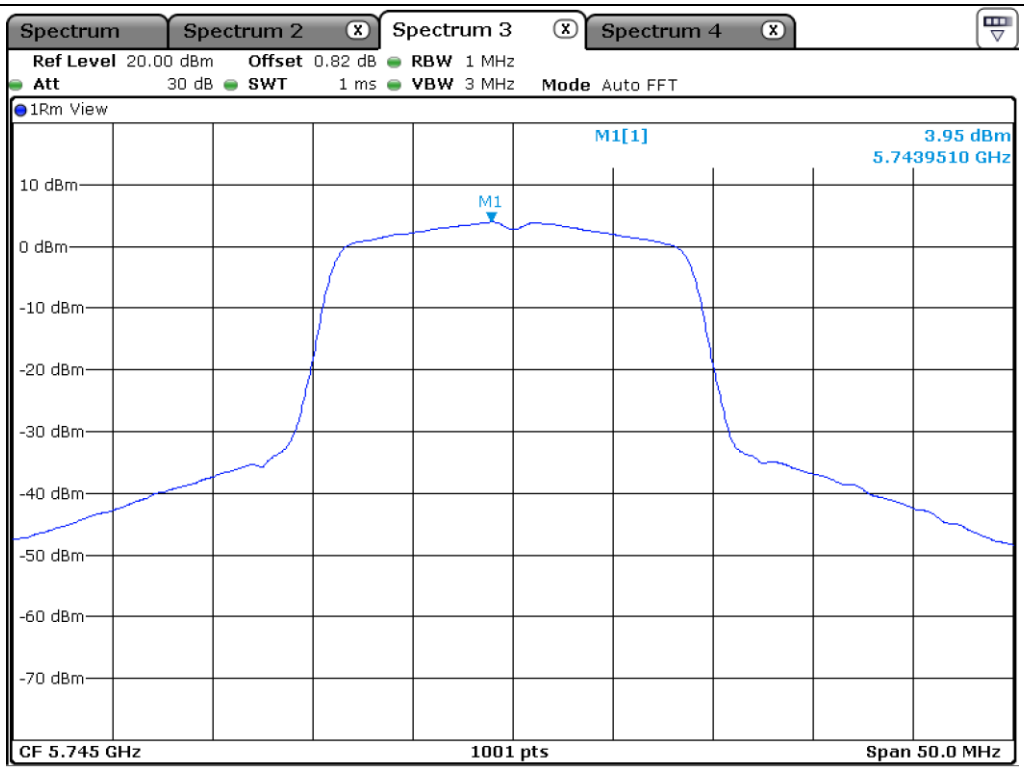


Middle Channel (5 580 MHz)

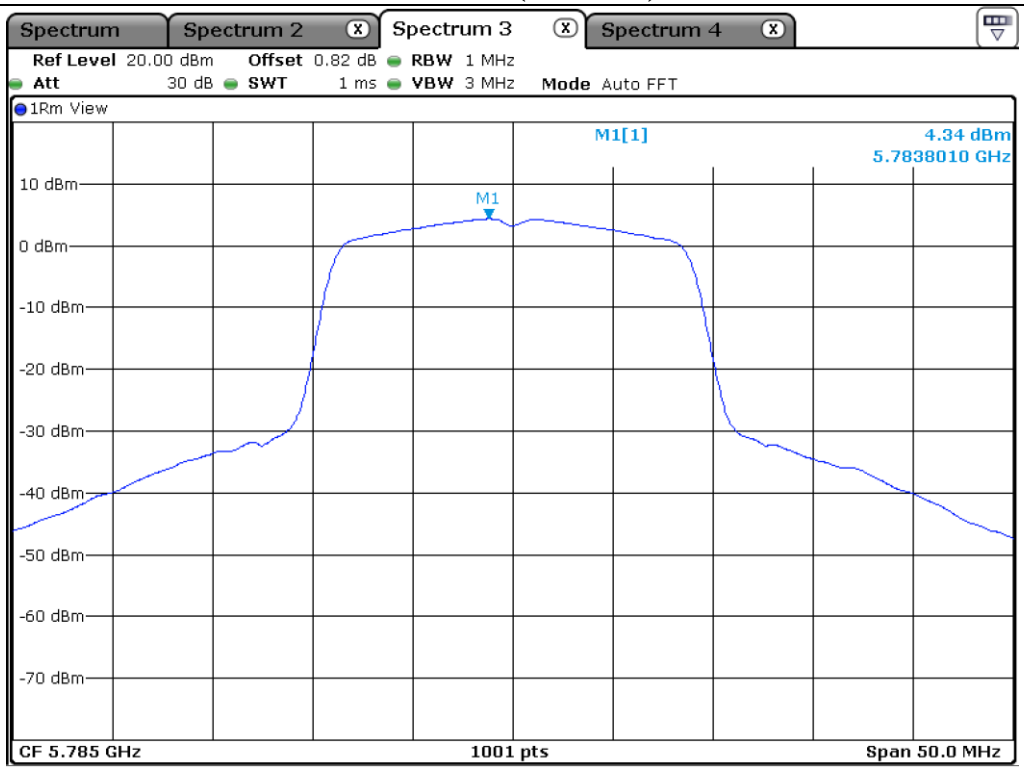
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



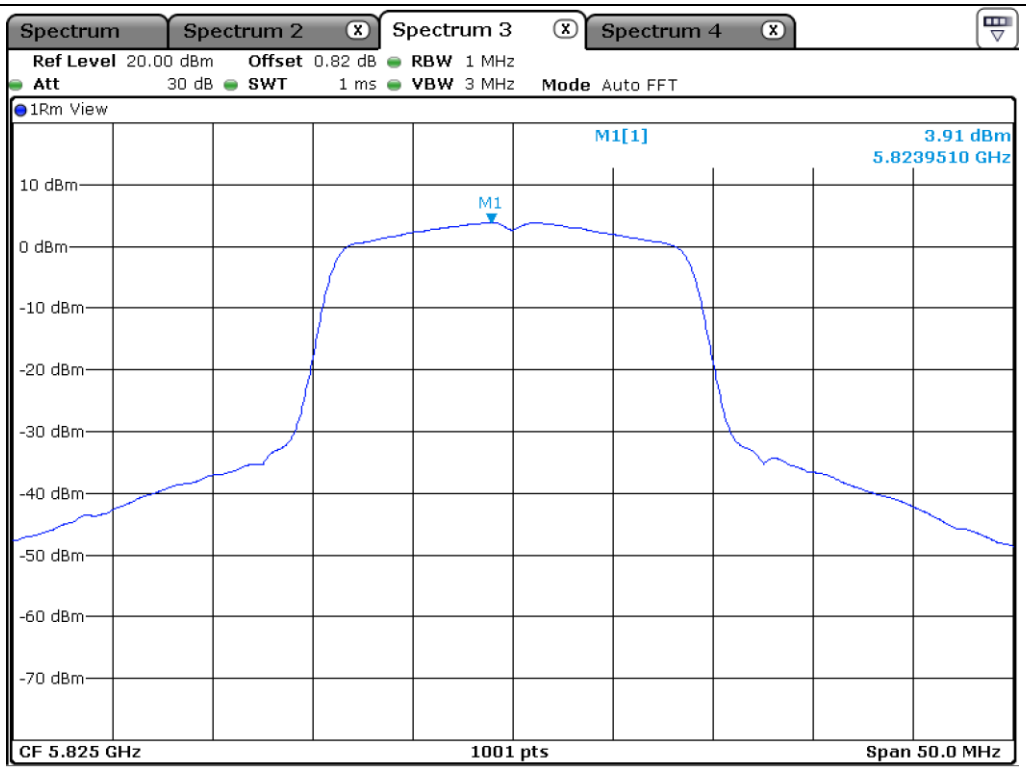
High Channel (5 700 MHz)



Low Channel (5 745 MHz)



Middle Channel (5 785 MHz)



High Channel (5 825 MHz)

10.5.2 Test data for Antenna 1

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

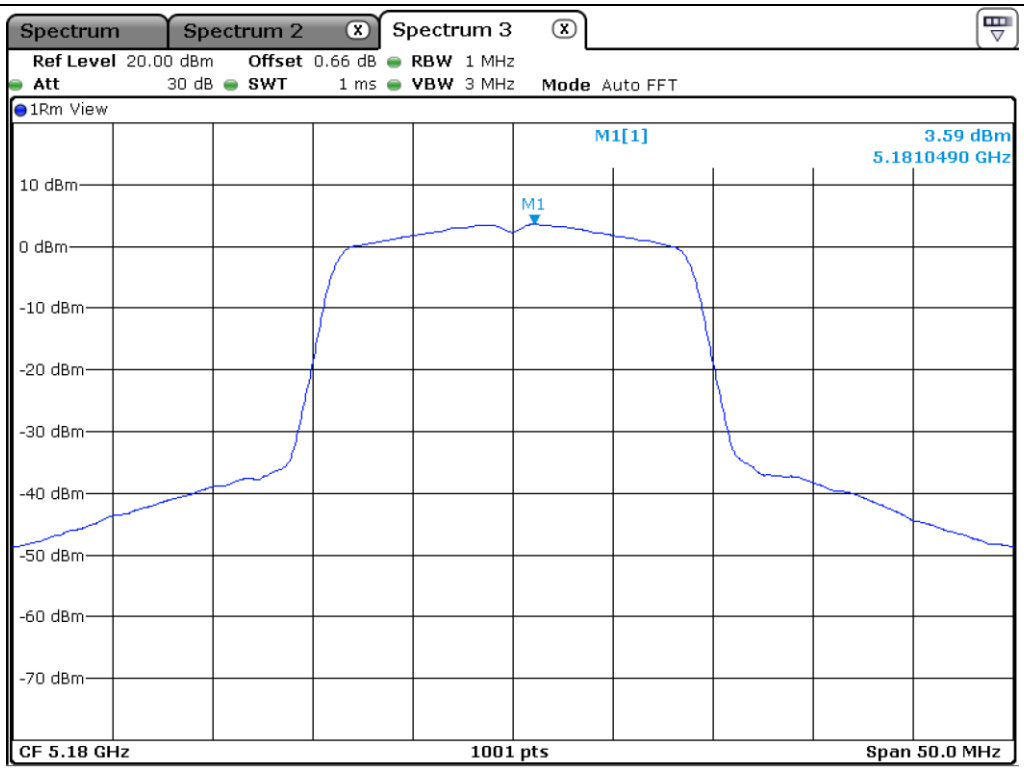
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 180.00	3.59	11.00	7.41
	Middle	5 220.00	4.11	11.00	6.89
	High	5 240.00	4.09	11.00	6.91
5 250 ~ 5 350	Low	5 260.00	4.29	11.00	6.71
	Middle	5 300.00	3.85	11.00	7.15
	High	5 320.00	3.89	11.00	7.11
5 470 ~ 5 725	Low	5 500.00	3.08	11.00	7.92
	Middle	5 580.00	3.92	11.00	7.08
	High	5 700.00	4.36	11.00	6.64
5 725 ~ 5 850	Low	5 745.00	3.31	30.00	26.69
	Middle	5 785.00	4.68	30.00	25.32
	High	5 825.00	4.28	30.00	25.72

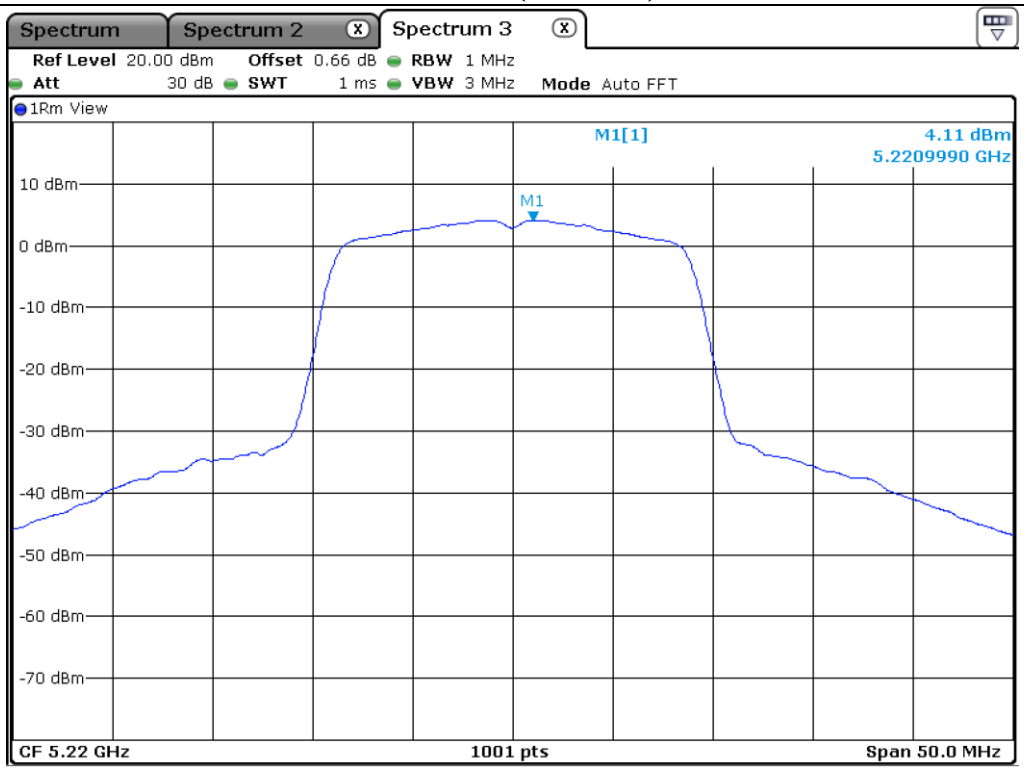
Remark: See next page for measurement data.

Tested by: Tae-Ho, Kim / Senior Manager

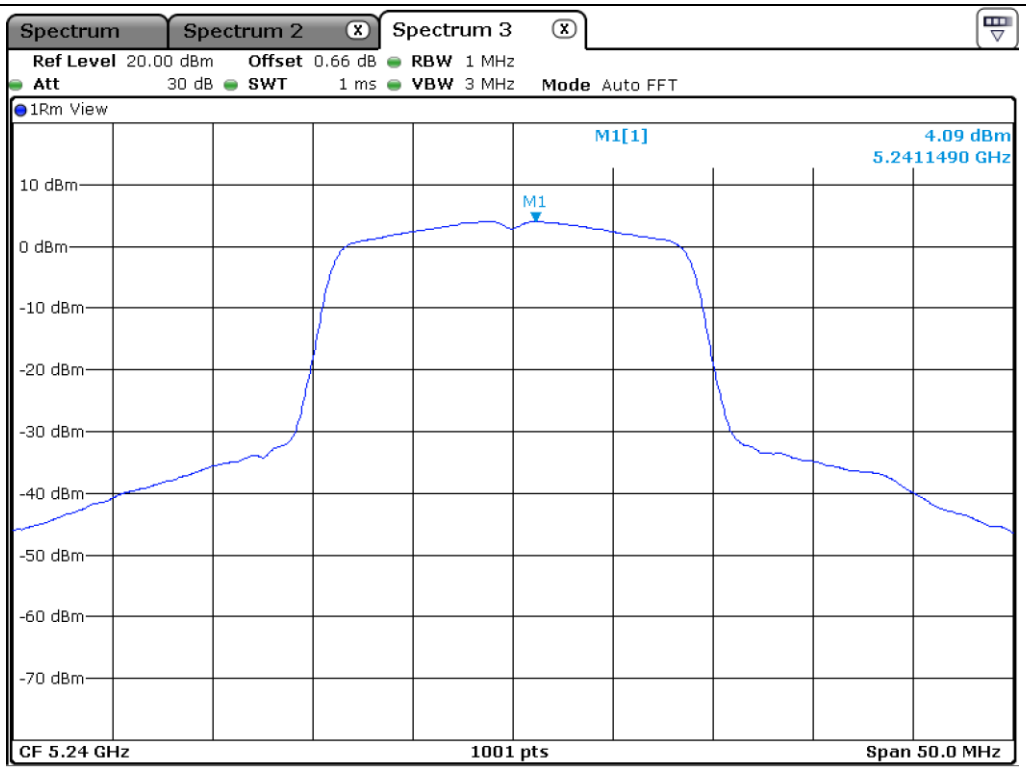
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



Low Channel (5 180 MHz)

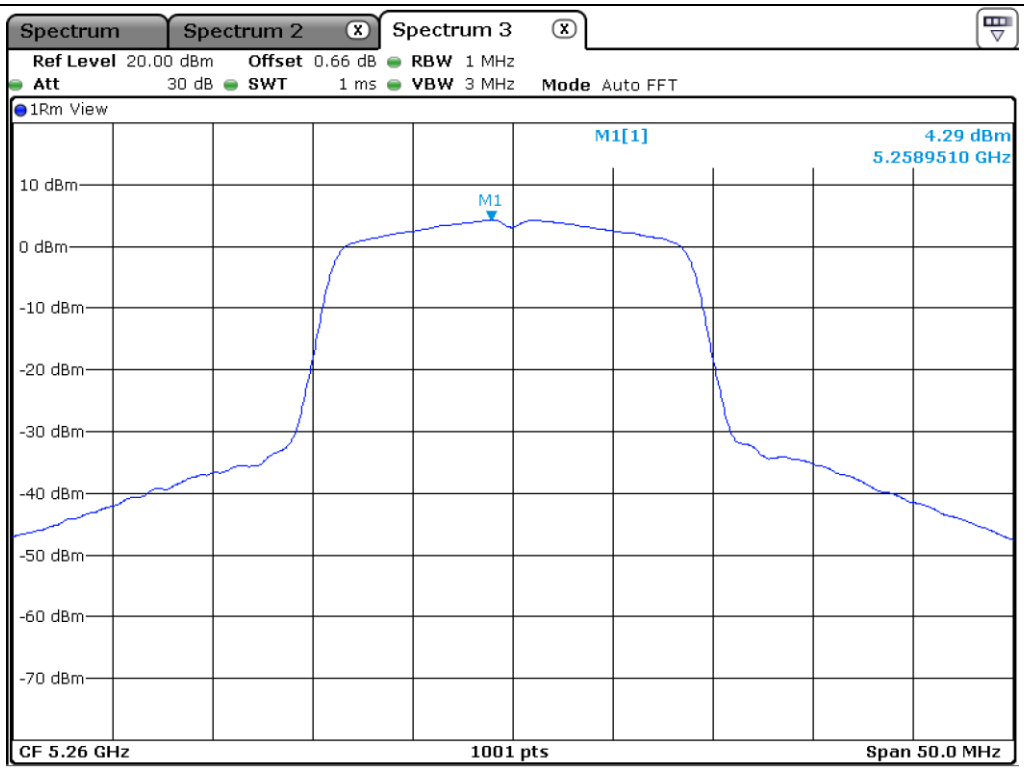


Middle Channel (5 220 MHz)

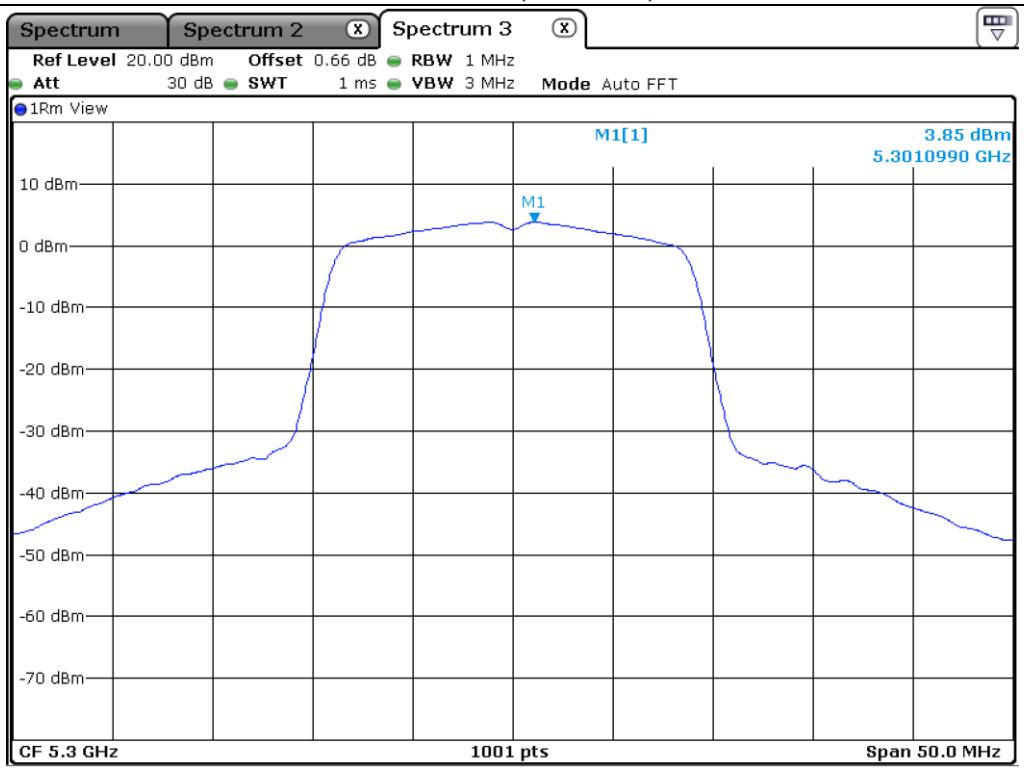


High Channel (5 240 MHz)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

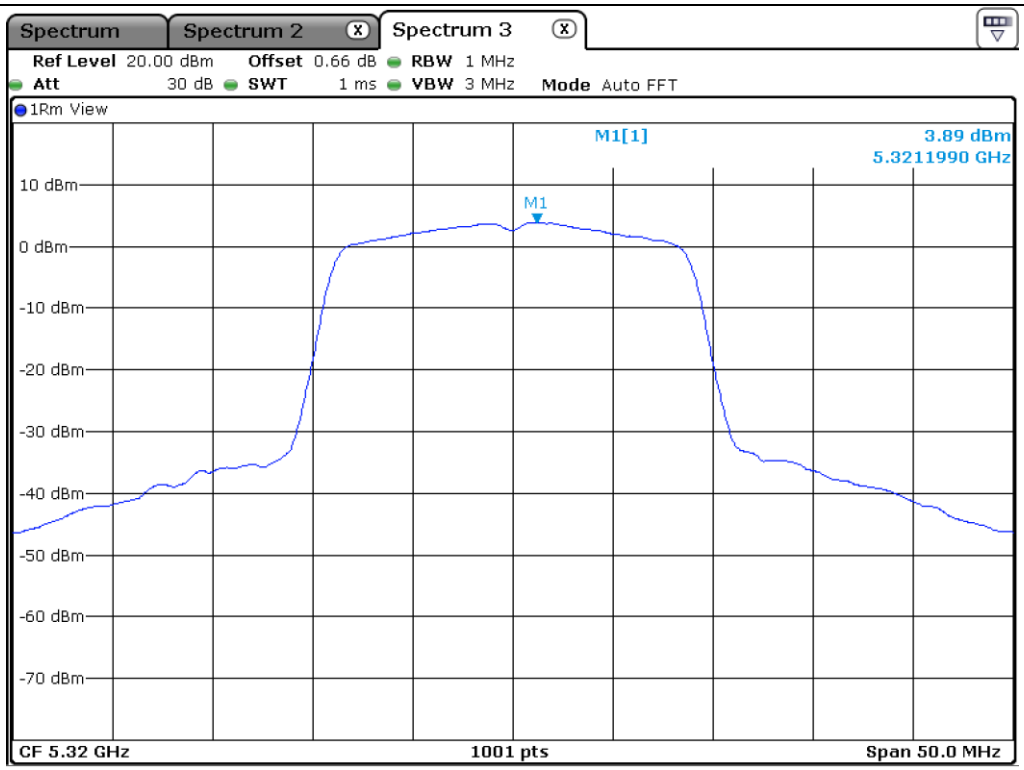


Low Channel (5 260 MHz)

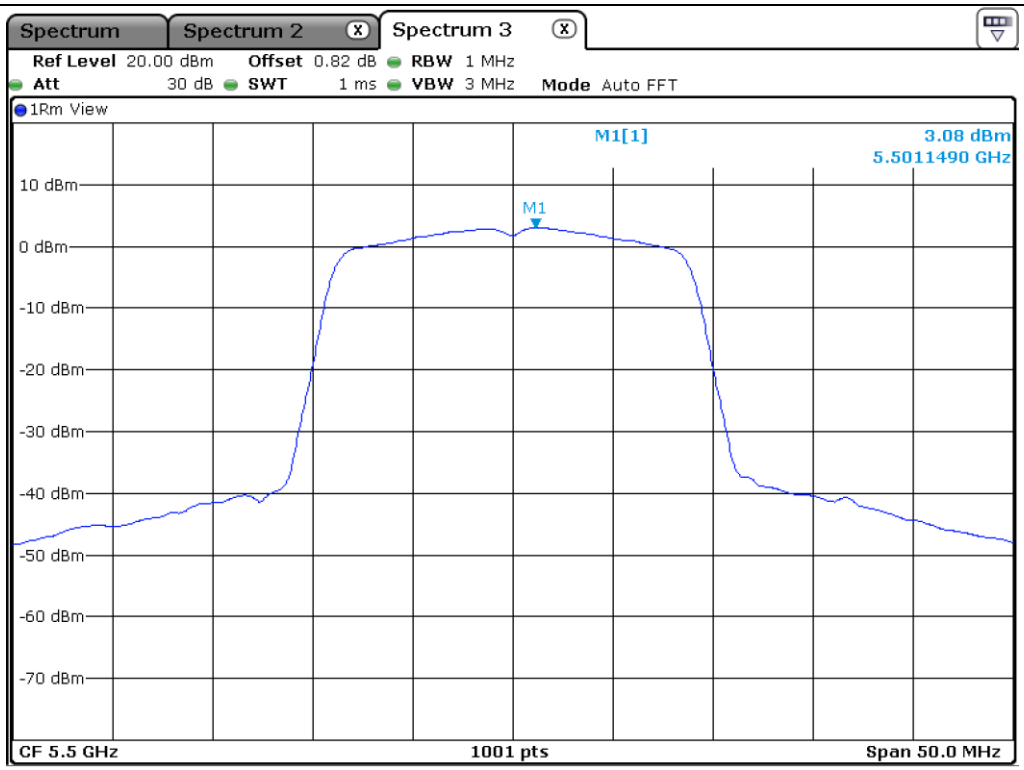


Middle Channel (5 300 MHz)

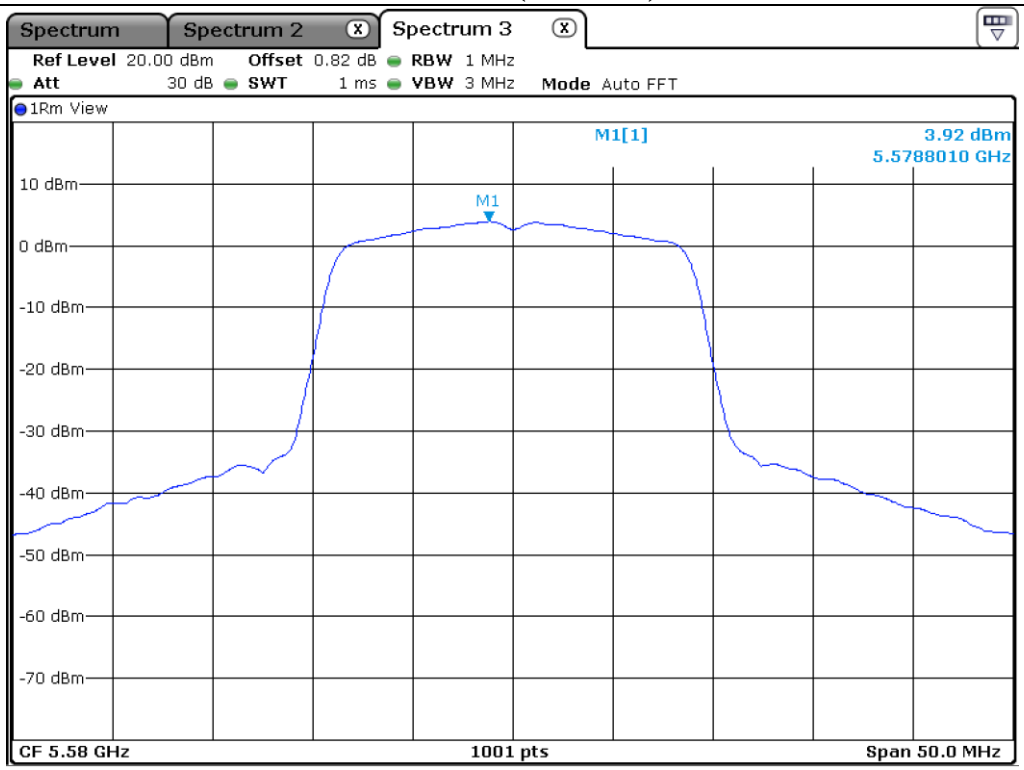
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



High Channel (5 320 MHz)

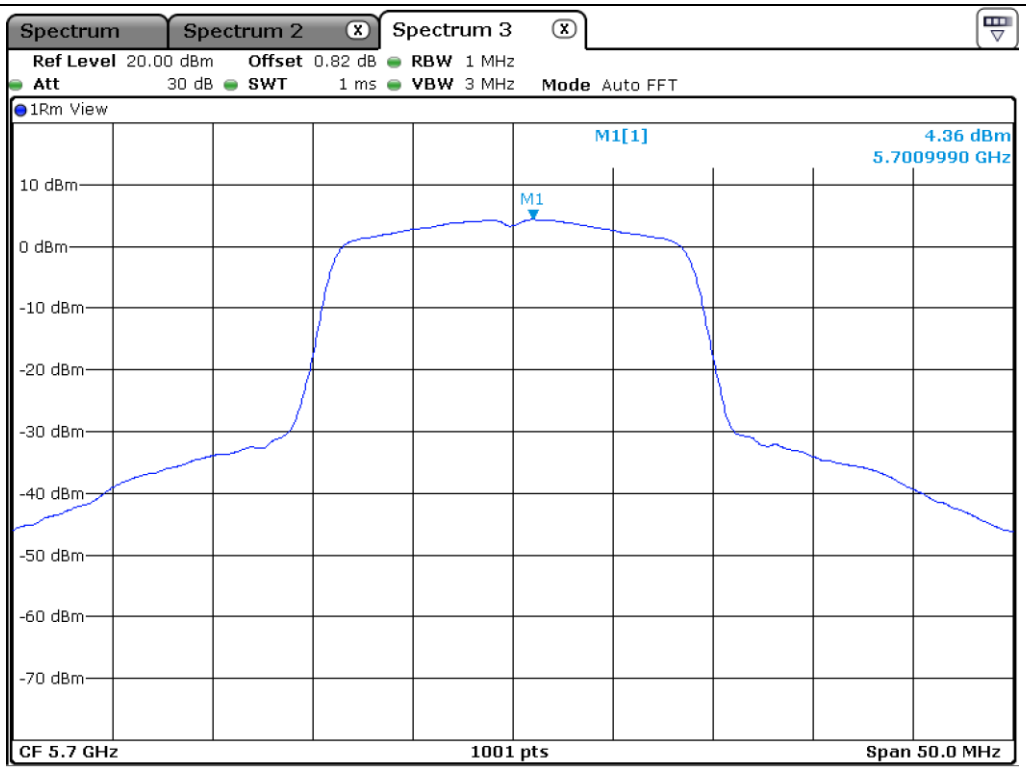


Low Channel (5 500 MHz)



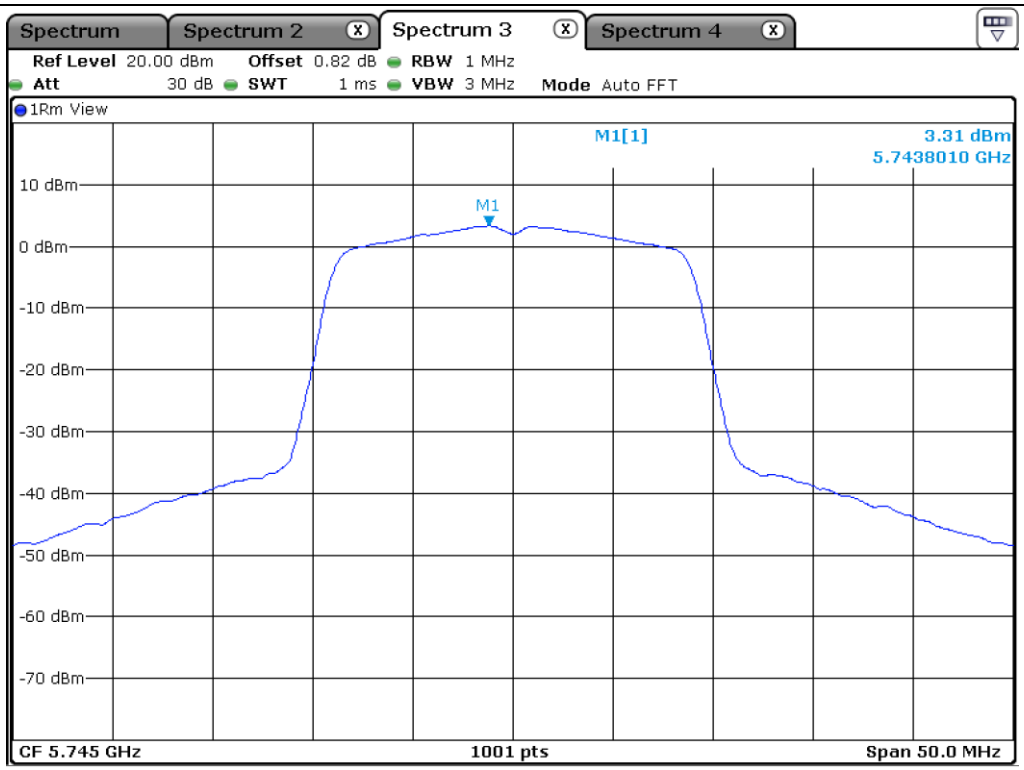
Middle Channel (5 580 MHz)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

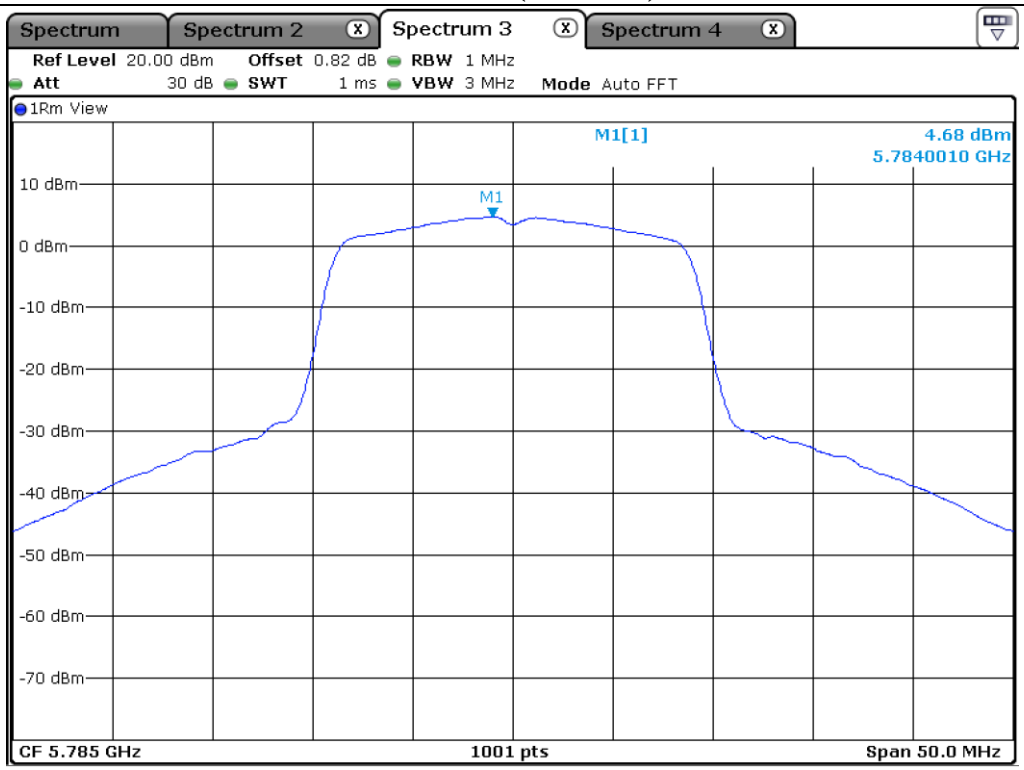


High Channel (5 700 MHz)

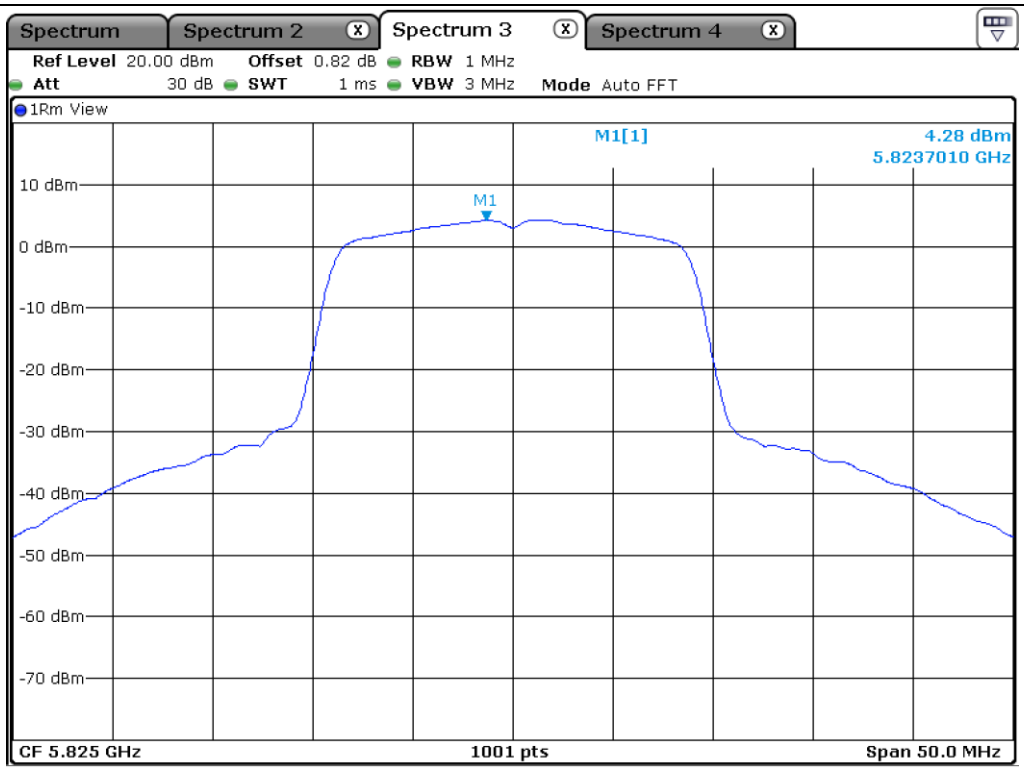
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



Low Channel (5 745 MHz)



Middle Channel (5 785 MHz)



High Channel (5 825 MHz)

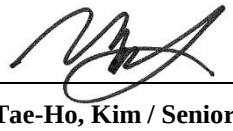
10.5.3 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 180.00	6.68	10.76	4.08
	Middle	5 220.00	7.04	10.76	3.72
	High	5 240.00	7.03	10.76	3.73
5 250 ~ 5 350	Low	5 260.00	7.18	11.00	3.82
	Middle	5 300.00	7.00	11.00	4.00
	High	5 320.00	6.98	11.00	4.02
5 470 ~ 5 725	Low	5 500.00	6.60	11.00	4.40
	Middle	5 580.00	7.33	11.00	3.67
	High	5 700.00	7.43	11.00	3.57
5 725 ~ 5 850	Low	5 745.00	6.65	30.00	23.35
	Middle	5 785.00	7.52	30.00	22.48
	High	5 825.00	7.11	30.00	22.89



Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

10.5.4 Test data for Staddle Channel_Antenna 0

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

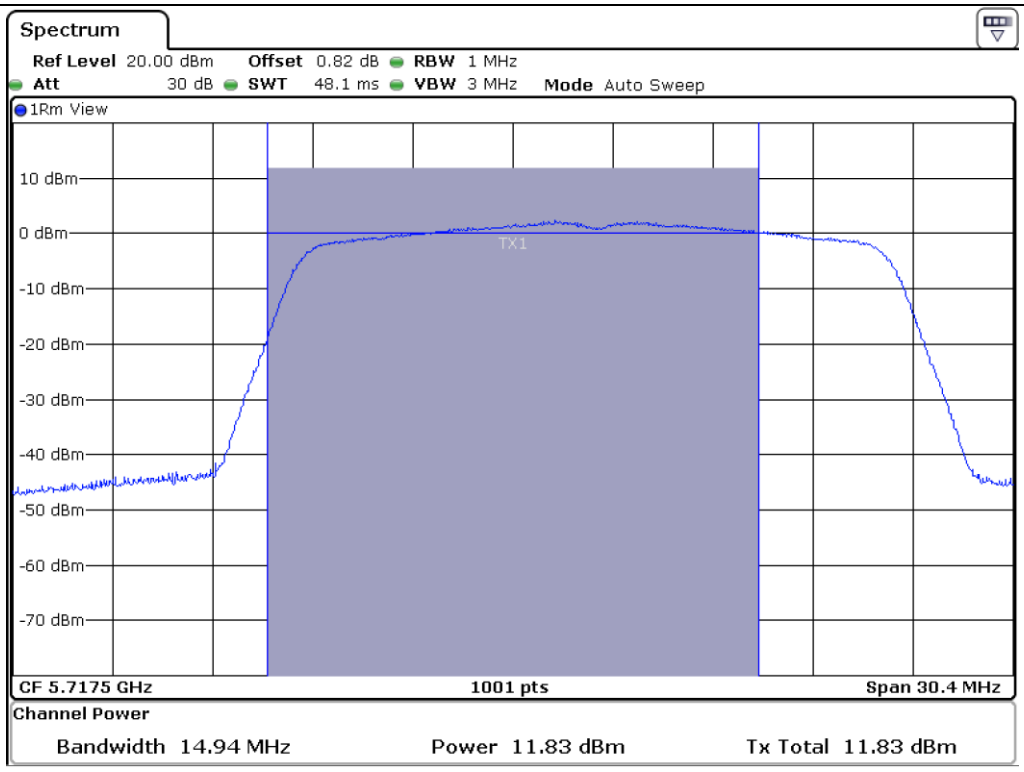
-. Test Result : Pass

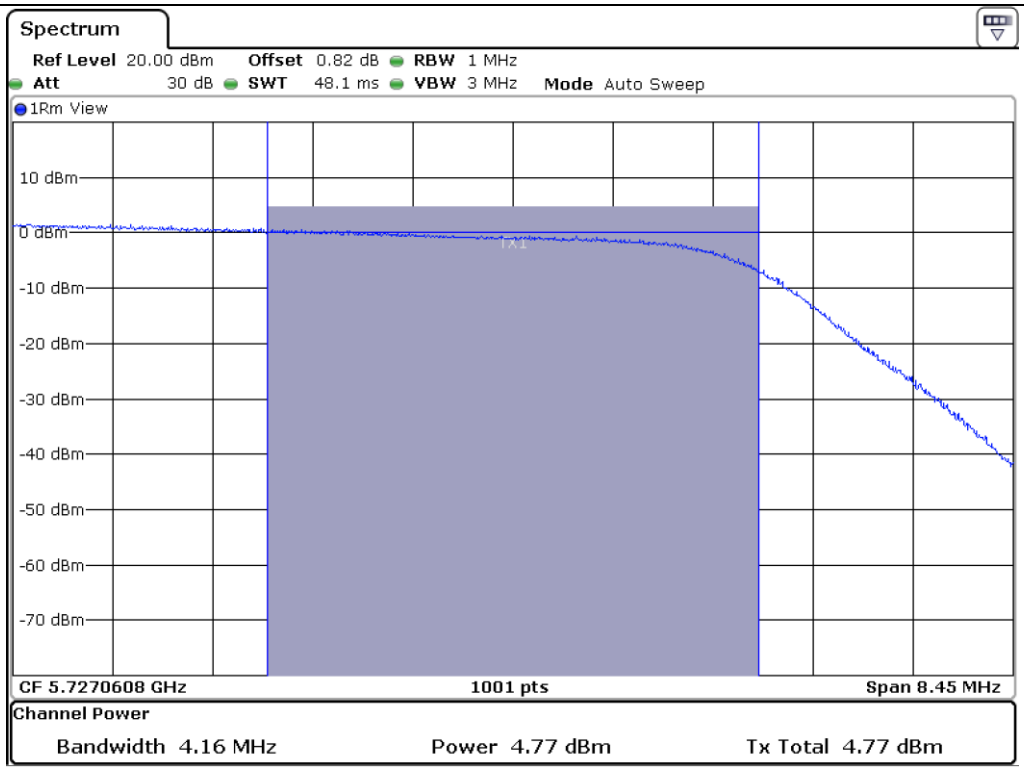
FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 720.00	3.14	11.00	7.86
5 725 ~ 5 850	5 720.00	-1.45	30.00	31.45

Remark: See next page for measurement data.

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)





ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

10.5.5 Test data for Staddle Channel_Antenna 1

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

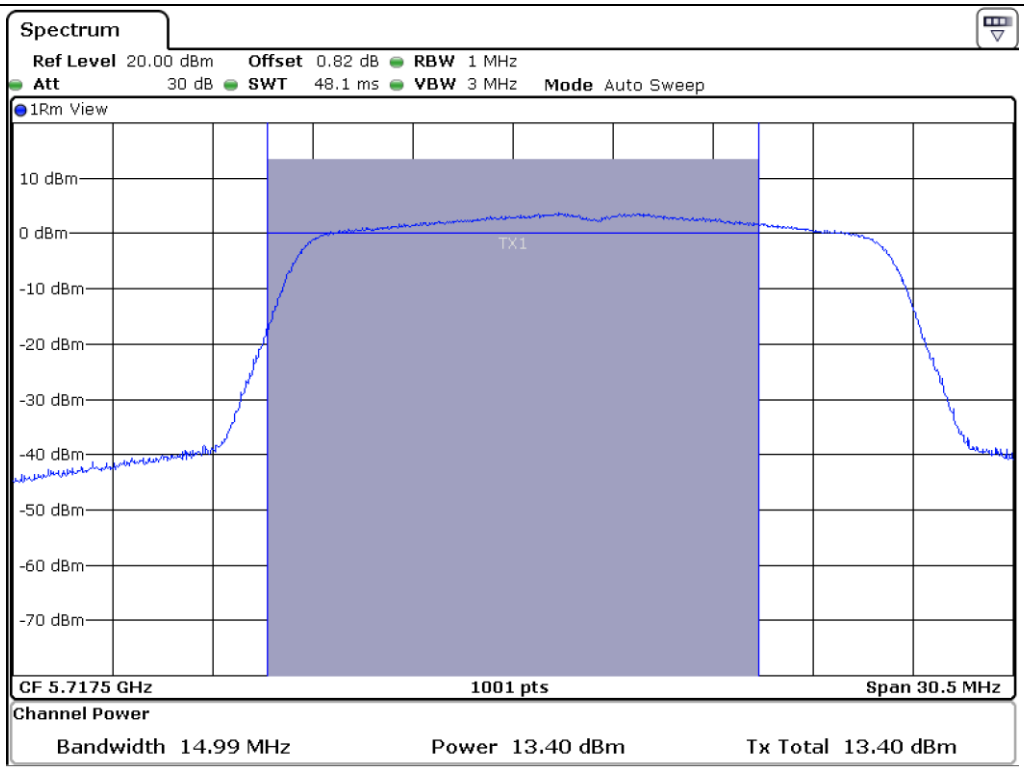
-. Test Result : Pass

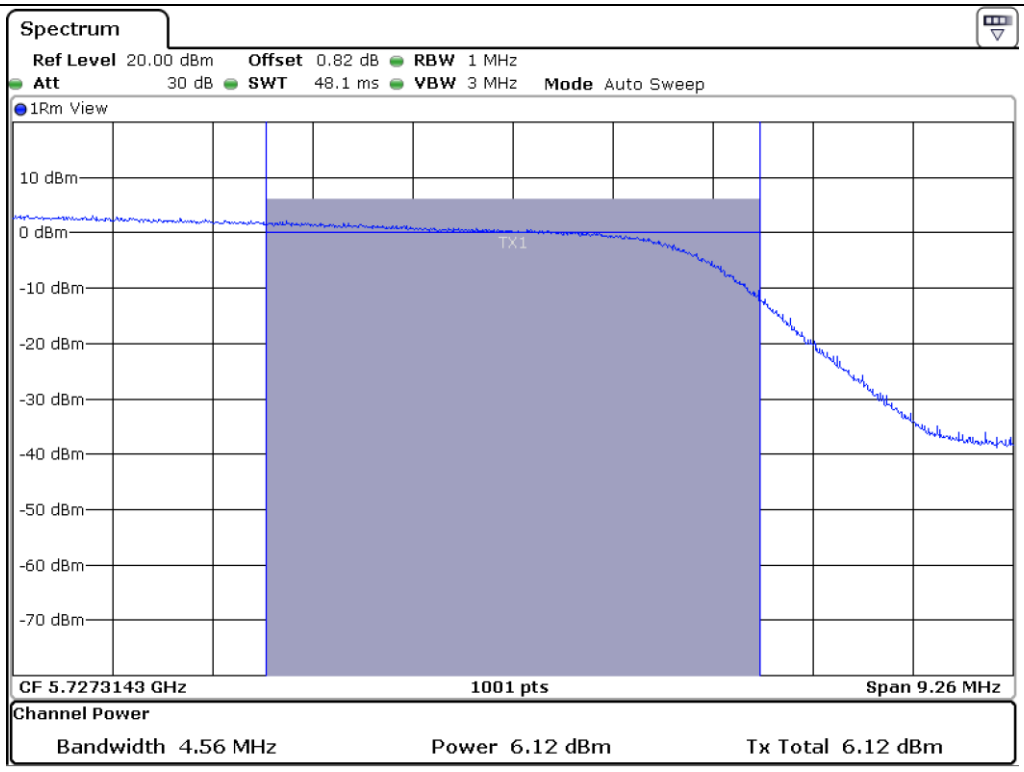
FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 720.00	5.22	11.00	5.78
5 725 ~ 5 850	5 720.00	0.66	30.00	29.34

Remark: See next page for measurement data.

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)





ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

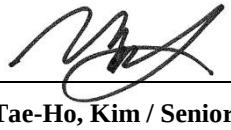
10.5.6 Test data for Staddle Channel_Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 720.00	7.31	11.00	3.69
5 725 ~ 5 850	5 720.00	2.74	30.00	27.26



Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

10.6 Test data for 802.11n_HT40 RLAN Mode

10.6.1 Test data for Antenna 0

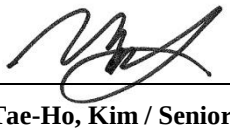
-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

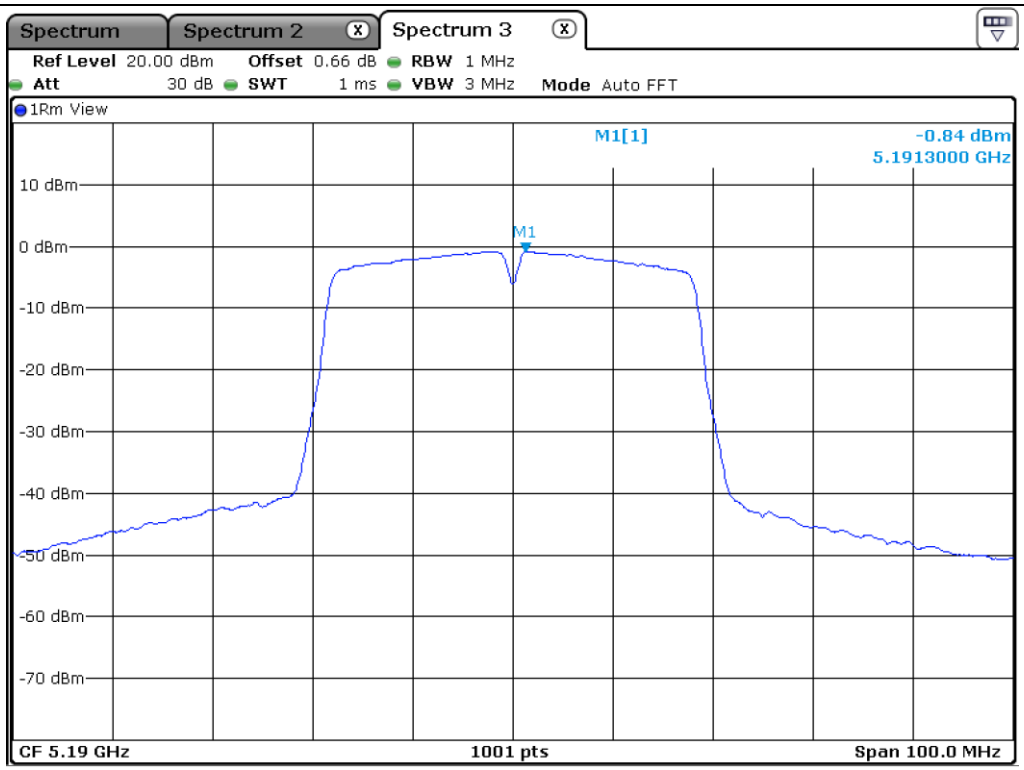
FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 190.00	-0.84	11.00	11.84
	High	5 230.00	-0.60	11.00	11.60
5 250 ~ 5 350	Low	5 270.00	-0.13	11.00	11.13
	High	5 310.00	-0.68	11.00	11.68
5 470 ~ 5 725	Low	5 510.00	-0.82	11.00	11.82
	Middle	5 550.00	0.18	11.00	10.82
	High	5 670.00	0.62	11.00	10.38
5 725 ~ 5 850	Low	5 755.00	-0.91	30.00	30.91
	High	5 795.00	0.17	30.00	29.83

Remark: See next page for measurement data.

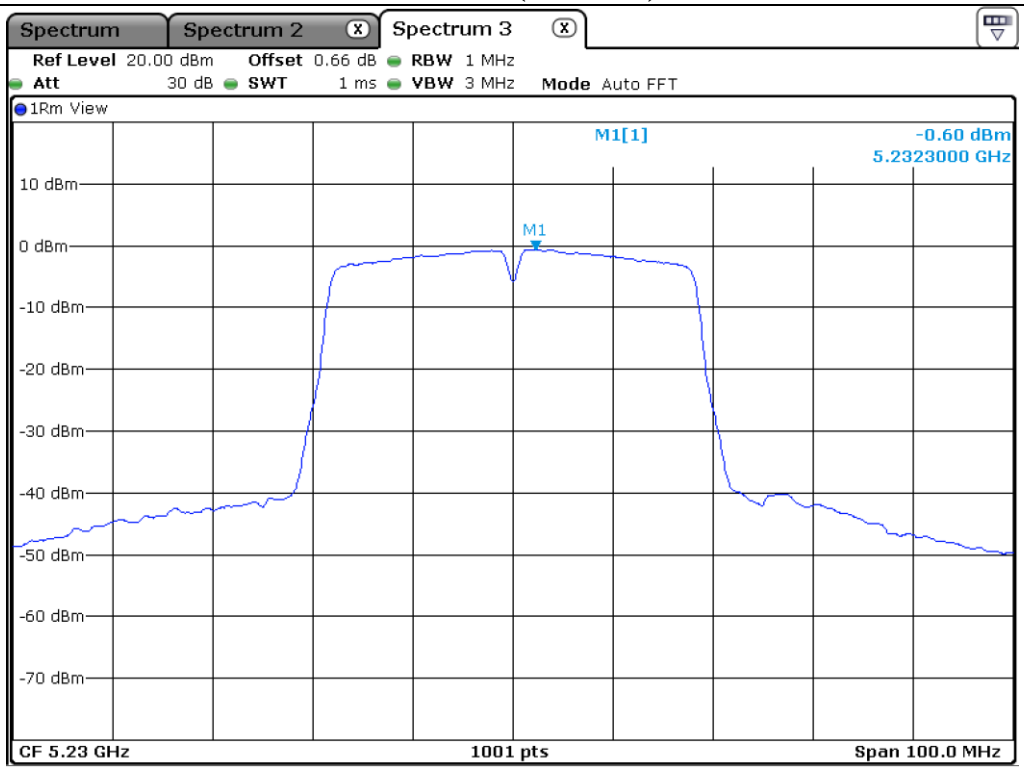


Tested by: Tae-Ho, Kim / Senior Manager

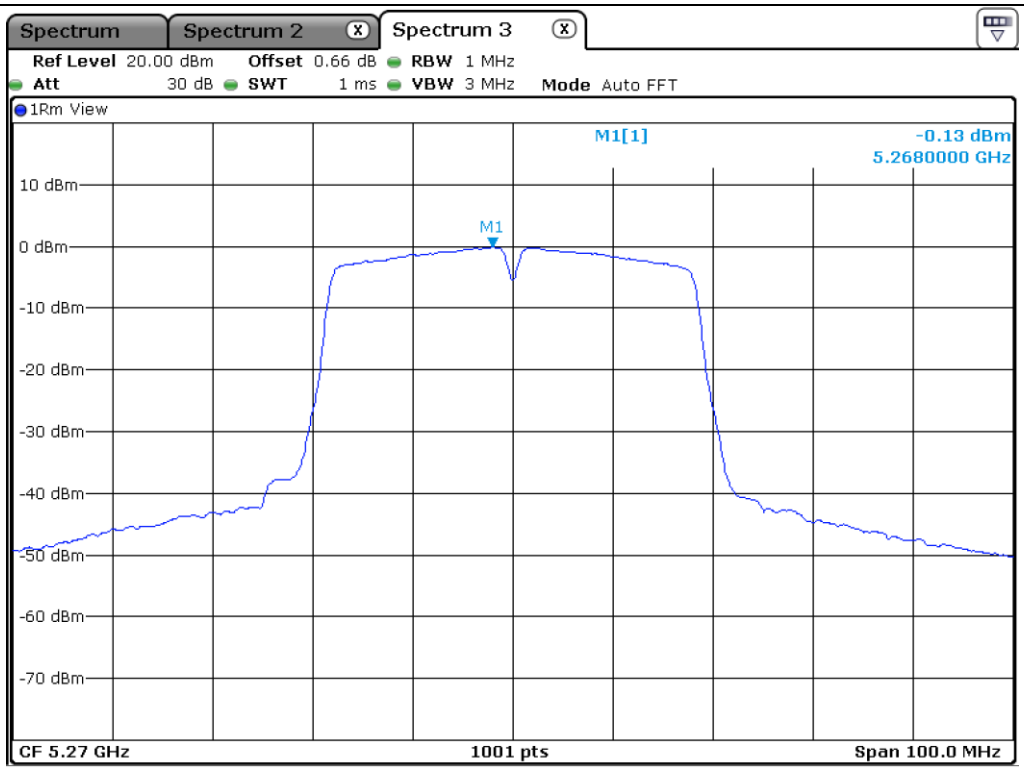
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



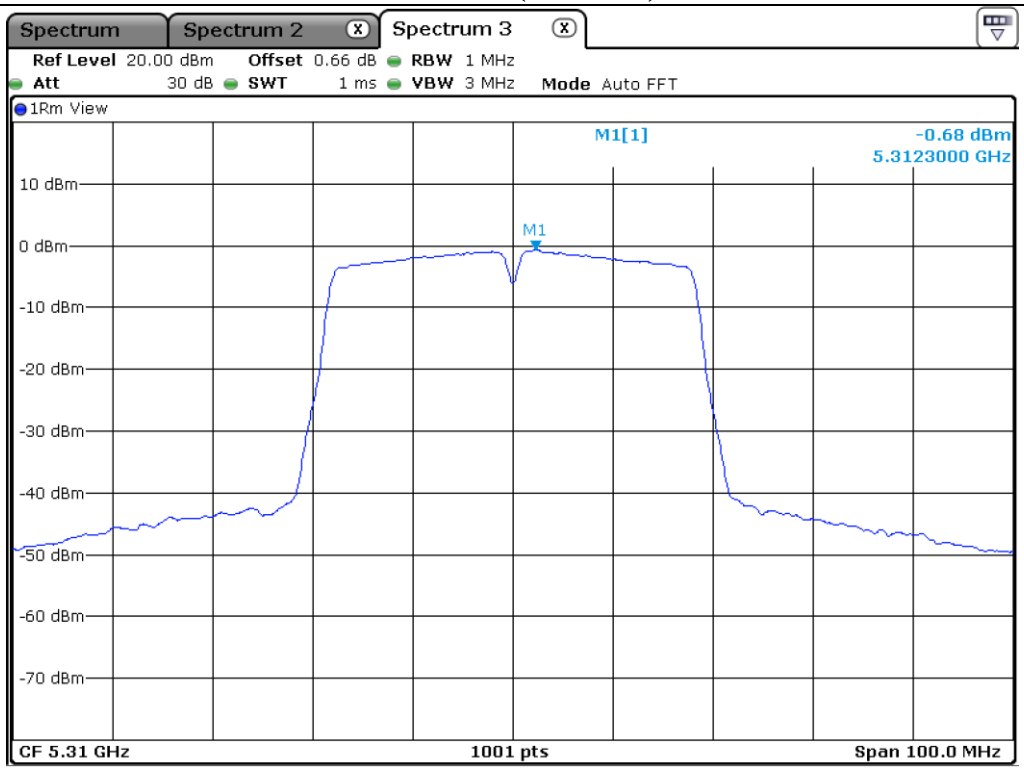
Low Channel (5 190 MHz)



High Channel (5 230 MHz)

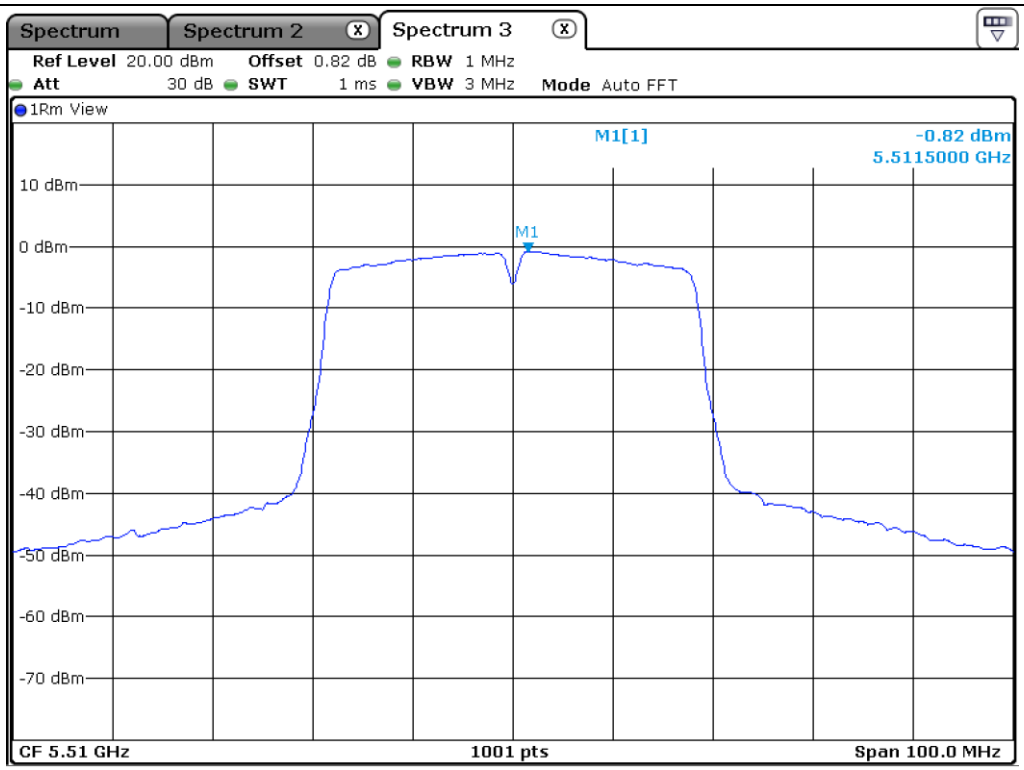


Low Channel (5 270 MHz)

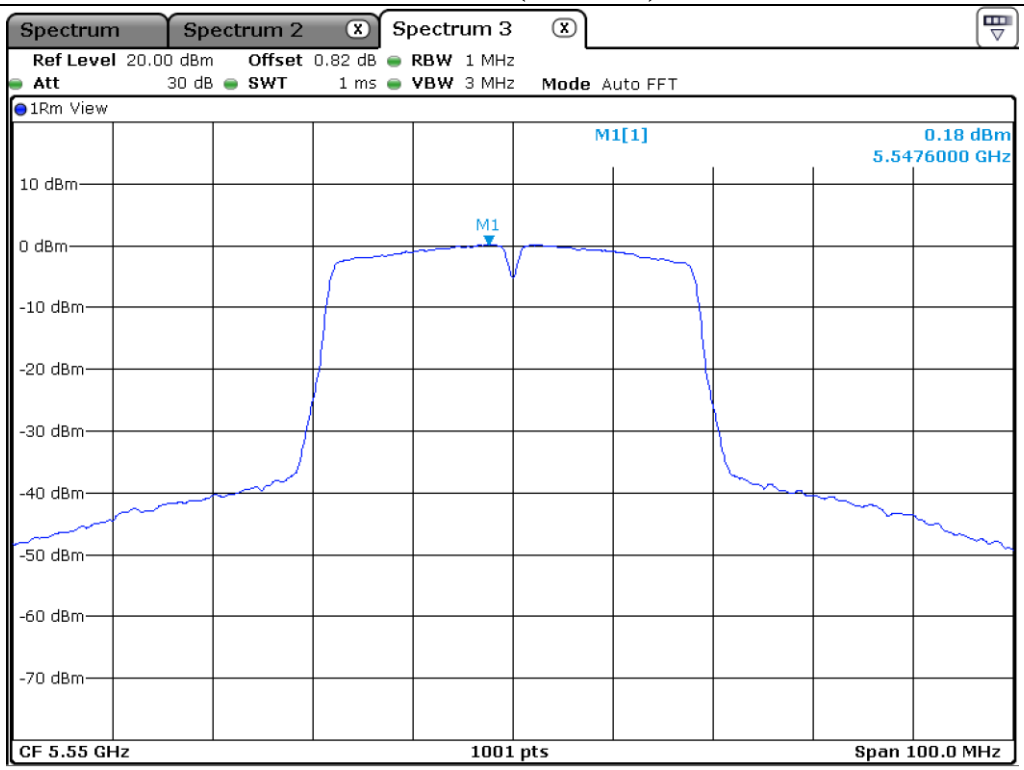


High Channel (5 310 MHz)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

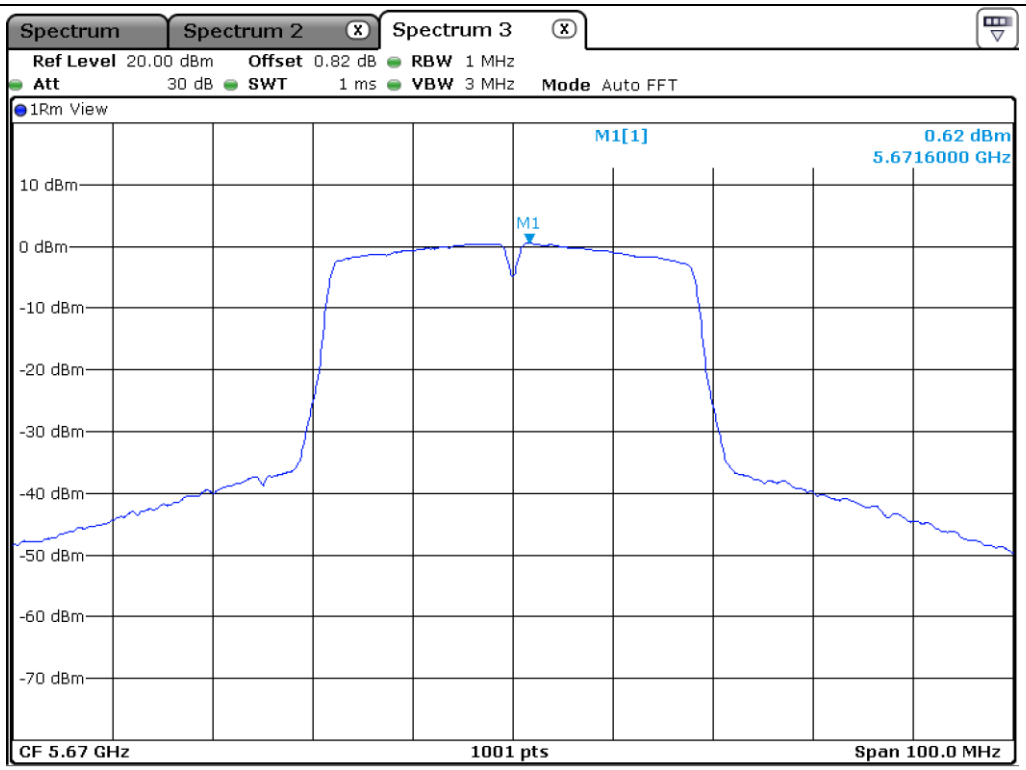


Low Channel (5 510 MHz)



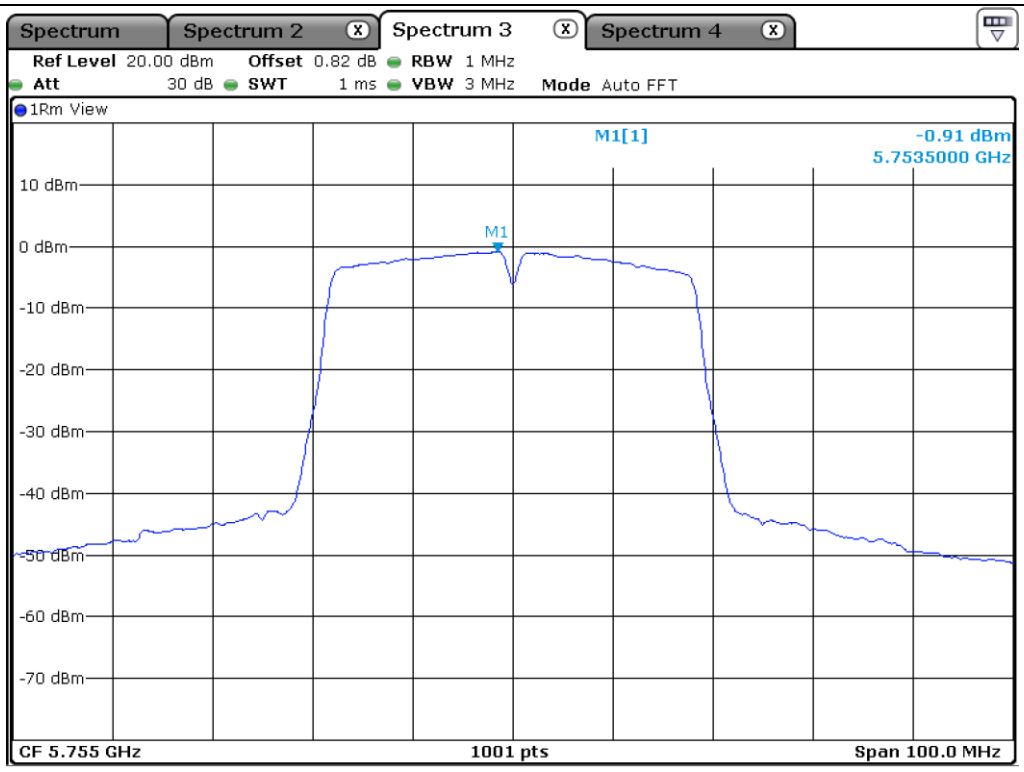
Middle Channel (5 550 MHz)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

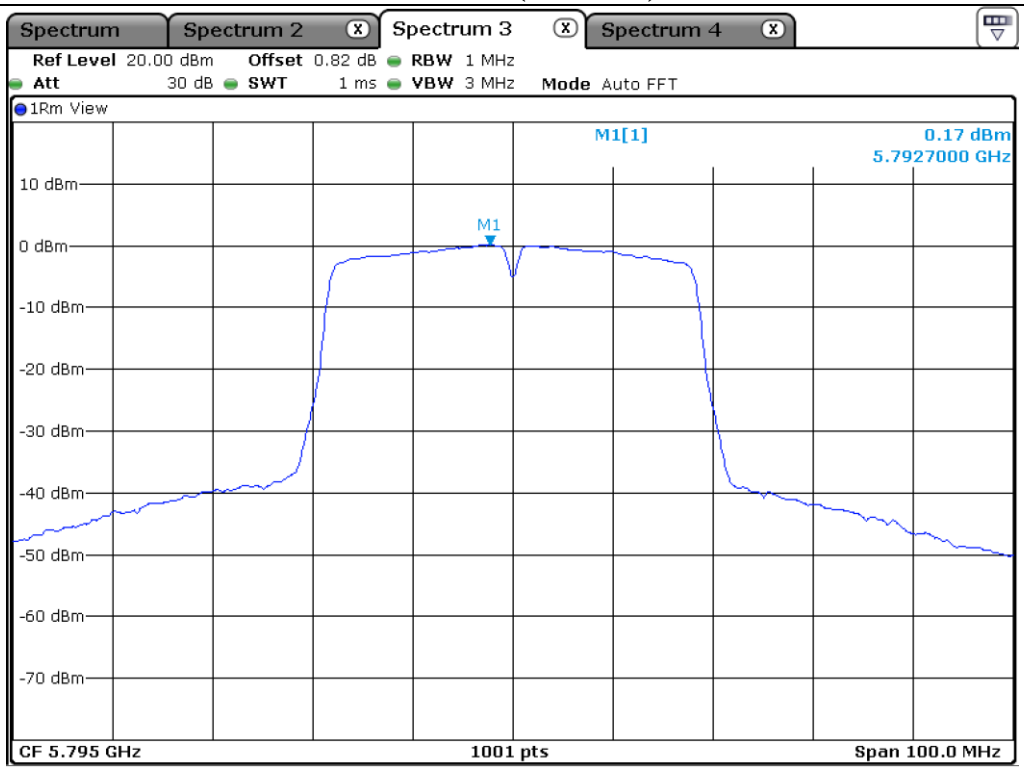


High Channel (5 670 MHz)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



Low Channel (5 755 MHz)



High Channel (5 795 MHz)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

10.6.2 Test data for Antenna 1

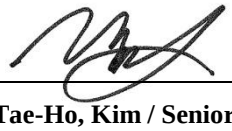
-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

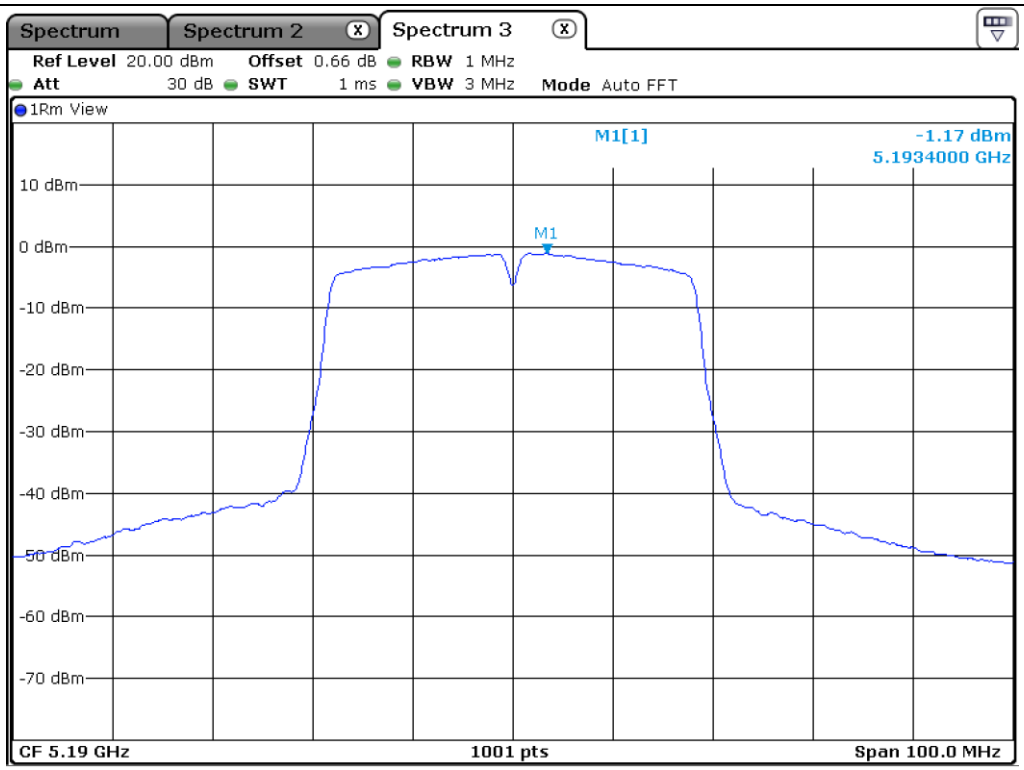
FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 190.00	-1.17	11.00	12.17
	High	5 230.00	-0.82	11.00	11.82
5 250 ~ 5 350	Low	5 270.00	-2.69	11.00	13.69
	High	5 310.00	-0.93	11.00	11.93
5 470 ~ 5 725	Low	5 510.00	-1.46	11.00	12.46
	Middle	5 550.00	-0.87	11.00	11.87
	High	5 670.00	-0.68	11.00	11.68
5 725 ~ 5 850	Low	5 755.00	-0.45	30.00	30.45
	High	5 795.00	-0.40	30.00	30.40

Remark: See next page for measurement data.

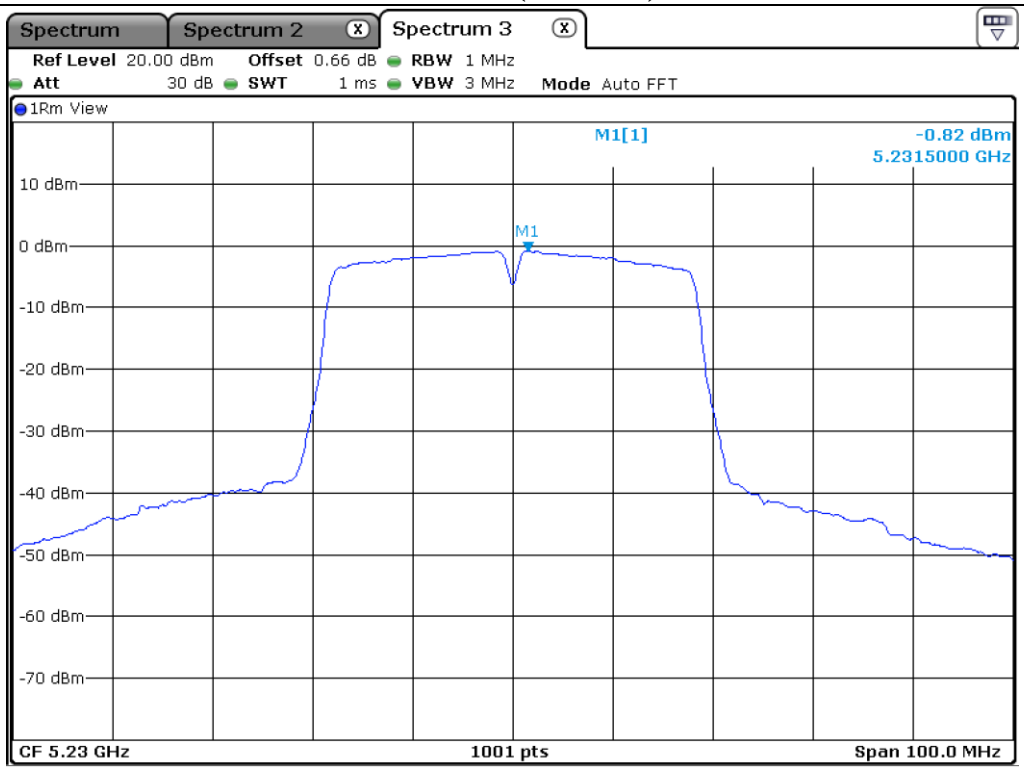


Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

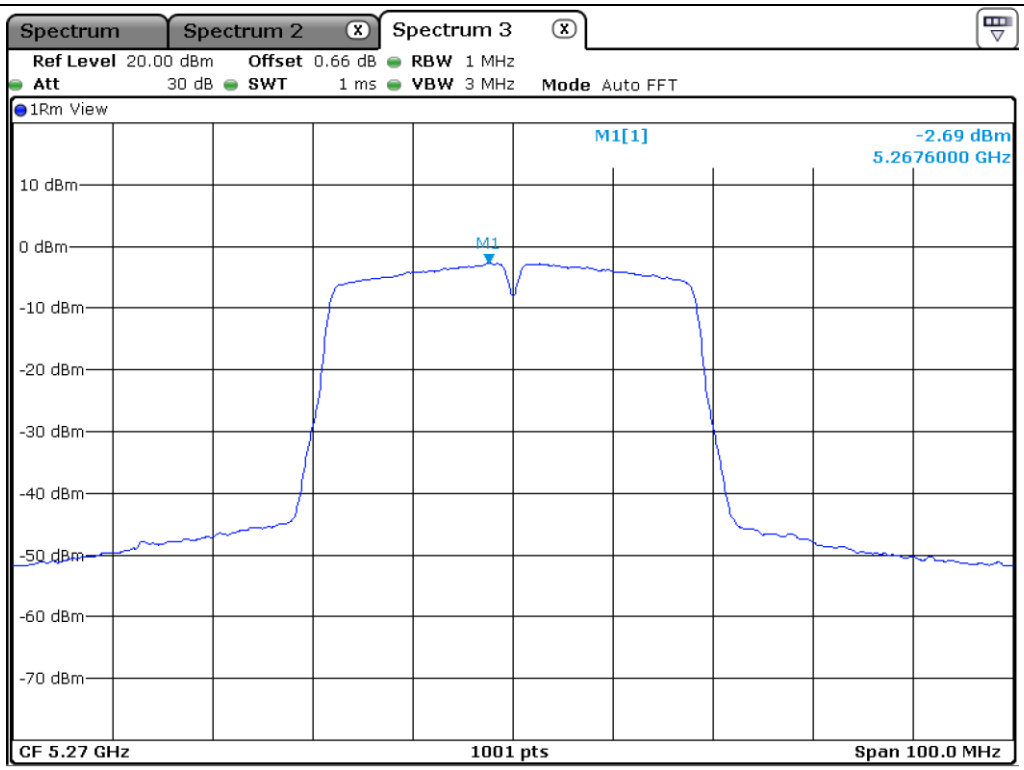


Low Channel (5 190 MHz)

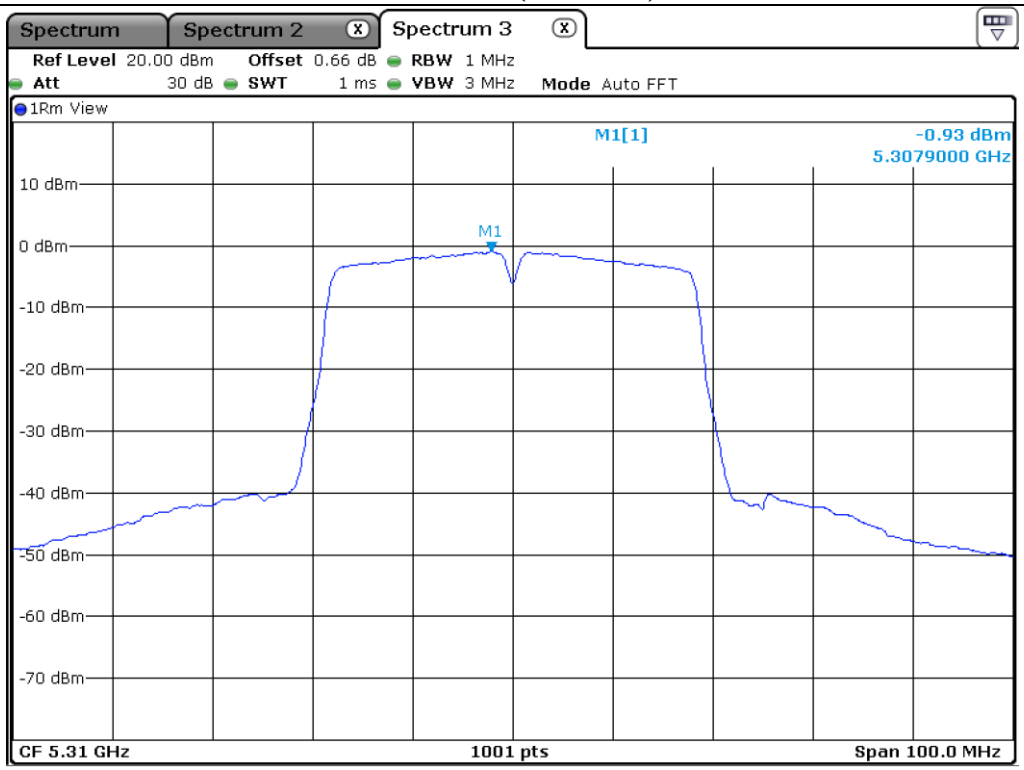


High Channel (5 230 MHz)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

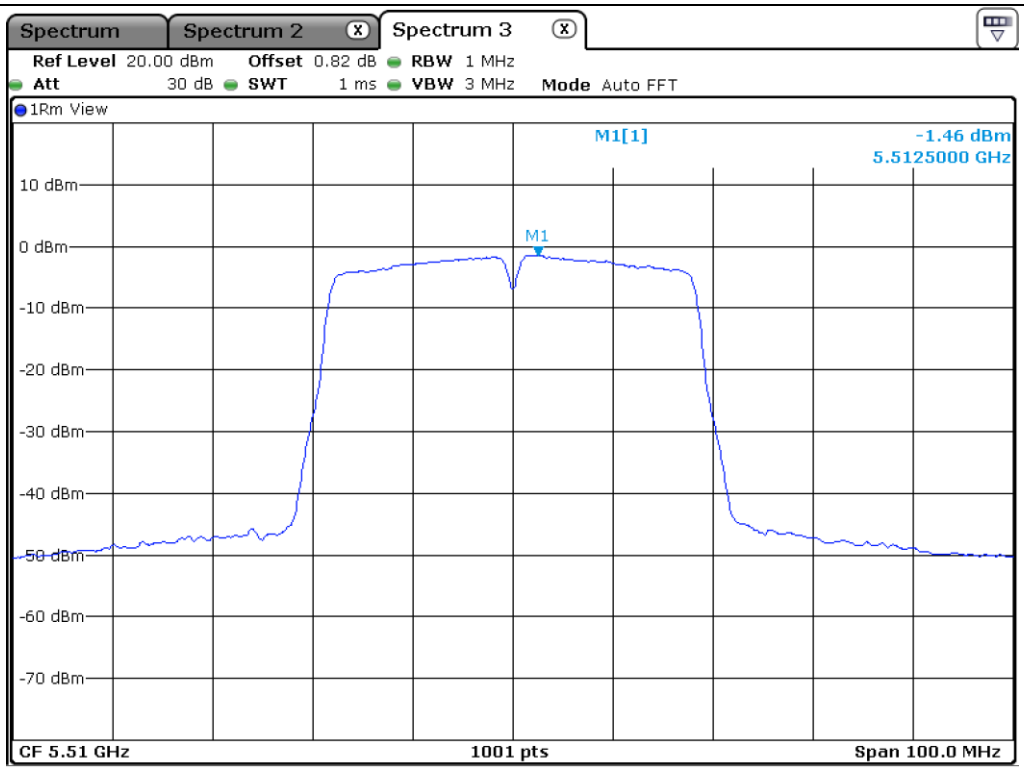


Low Channel (5 270 MHz)

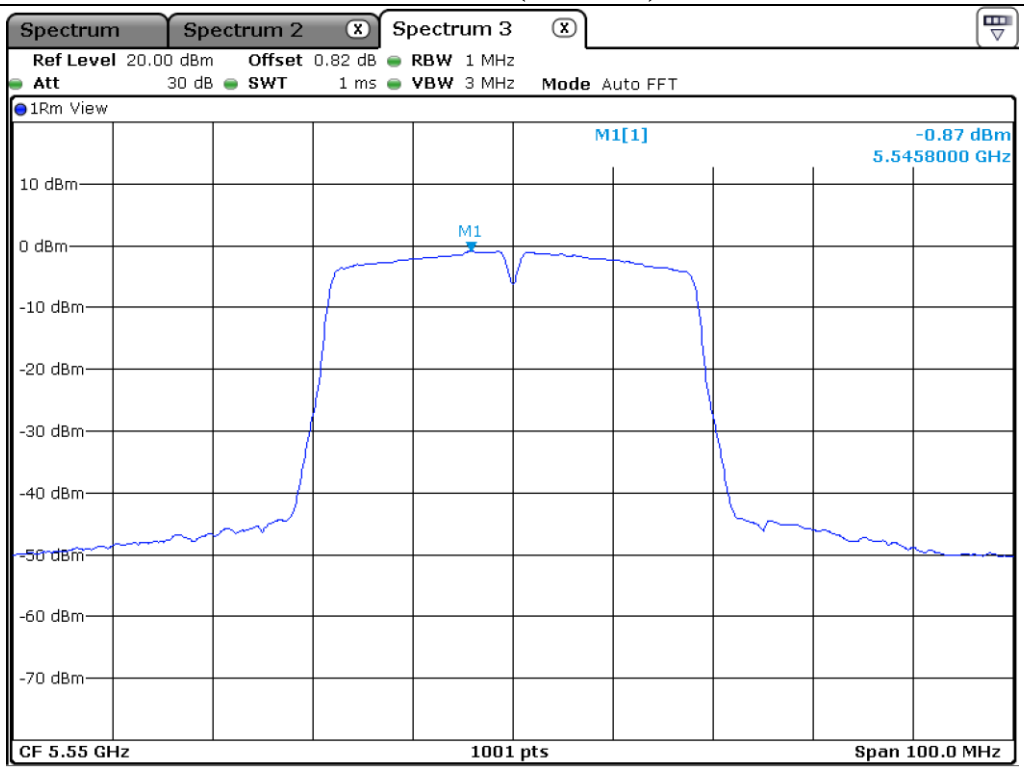


High Channel (5 310 MHz)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

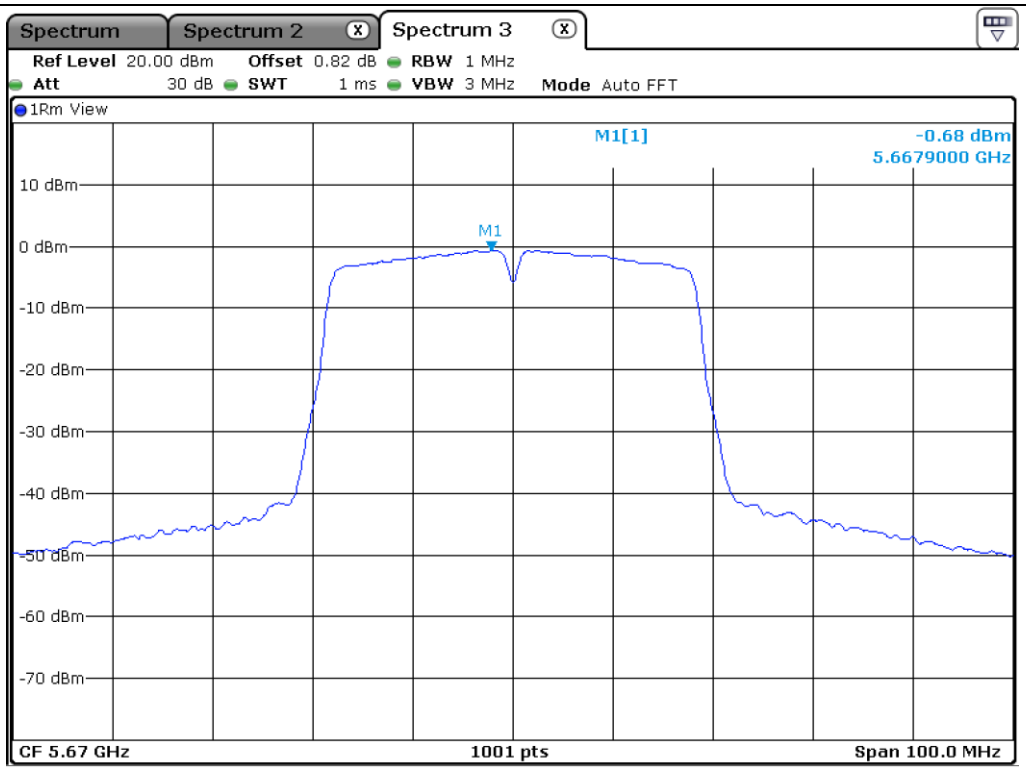


Low Channel (5 510 MHz)



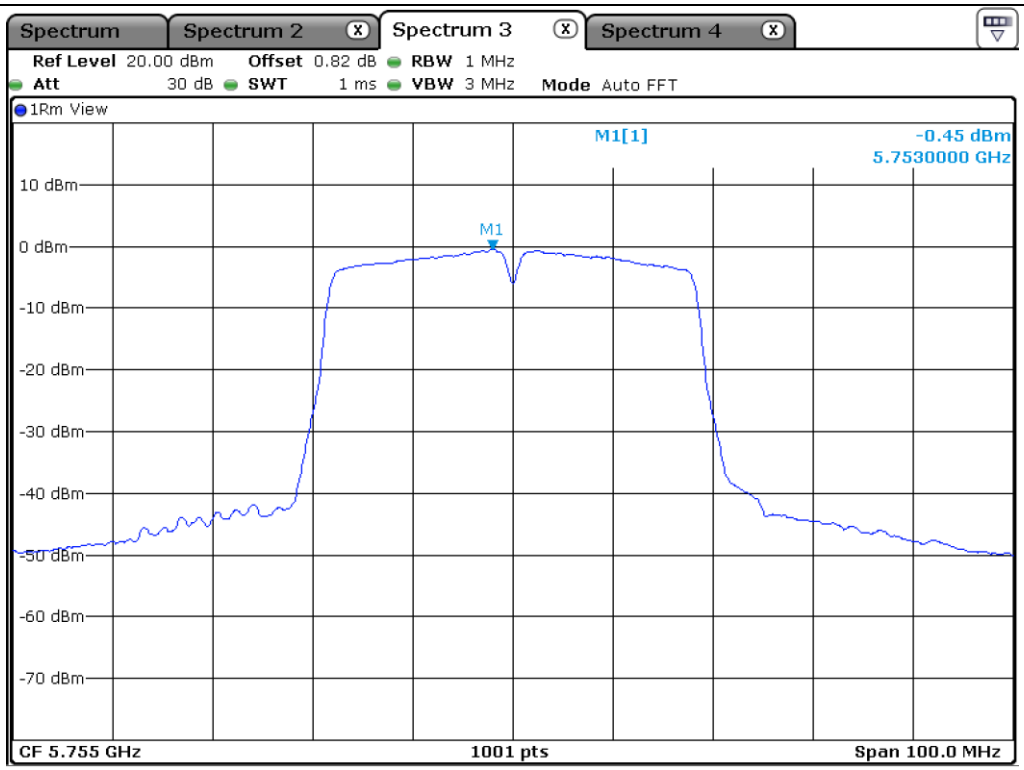
Middle Channel (5 550 MHz)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

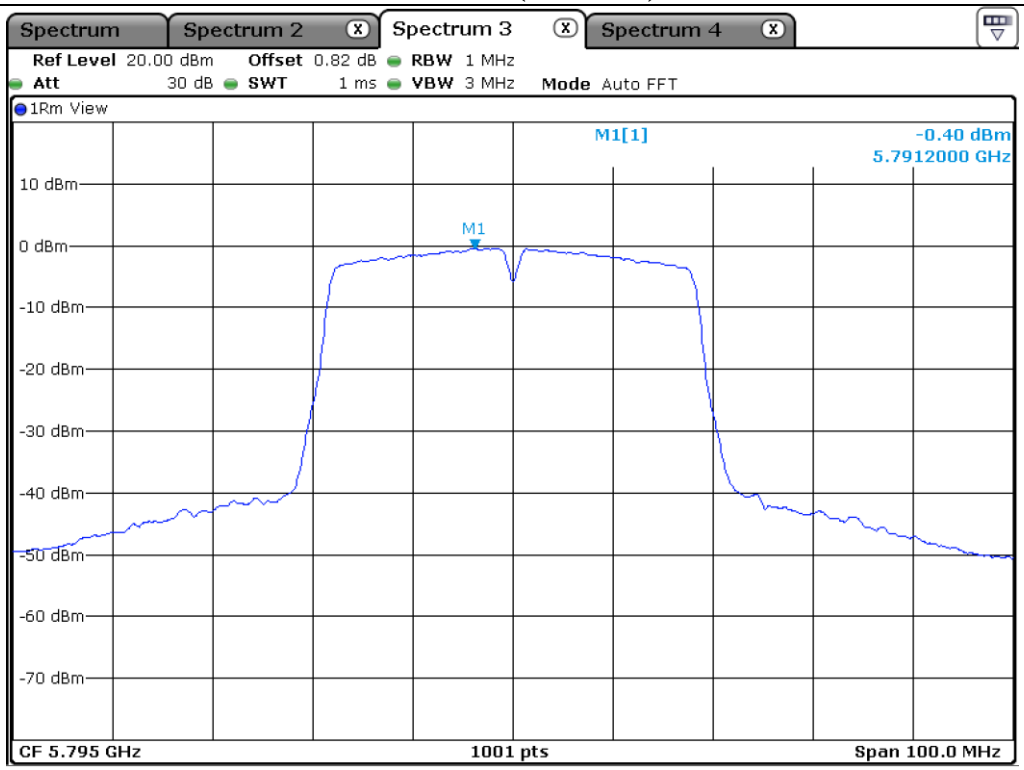


High Channel (5 670 MHz)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



Low Channel (5 755 MHz)



High Channel (5 795 MHz)

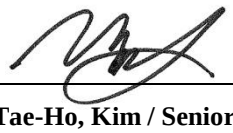
10.6.3 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 190.00	2.01	10.76	8.75
	High	5 230.00	2.30	10.76	8.46
5 250 ~ 5 350	Low	5 270.00	1.79	11.00	9.21
	High	5 310.00	2.21	11.00	8.79
5 470 ~ 5 725	Low	5 510.00	1.88	11.00	9.12
	Middle	5 550.00	2.70	11.00	8.30
	High	5 670.00	3.03	11.00	7.97
5 725 ~ 5 850	Low	5 755.00	2.34	30.00	27.66
	High	5 795.00	2.90	30.00	27.10



Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

10.6.4 Test data for Staddle Channel_Antenna 0

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

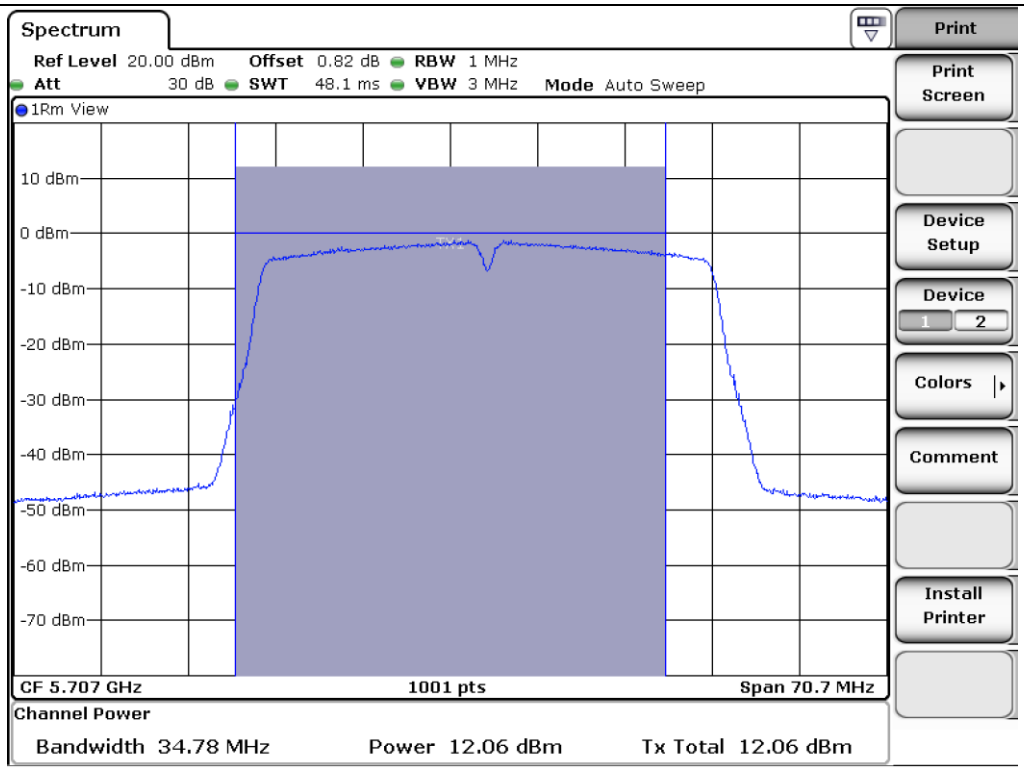
-. Test Result : Pass

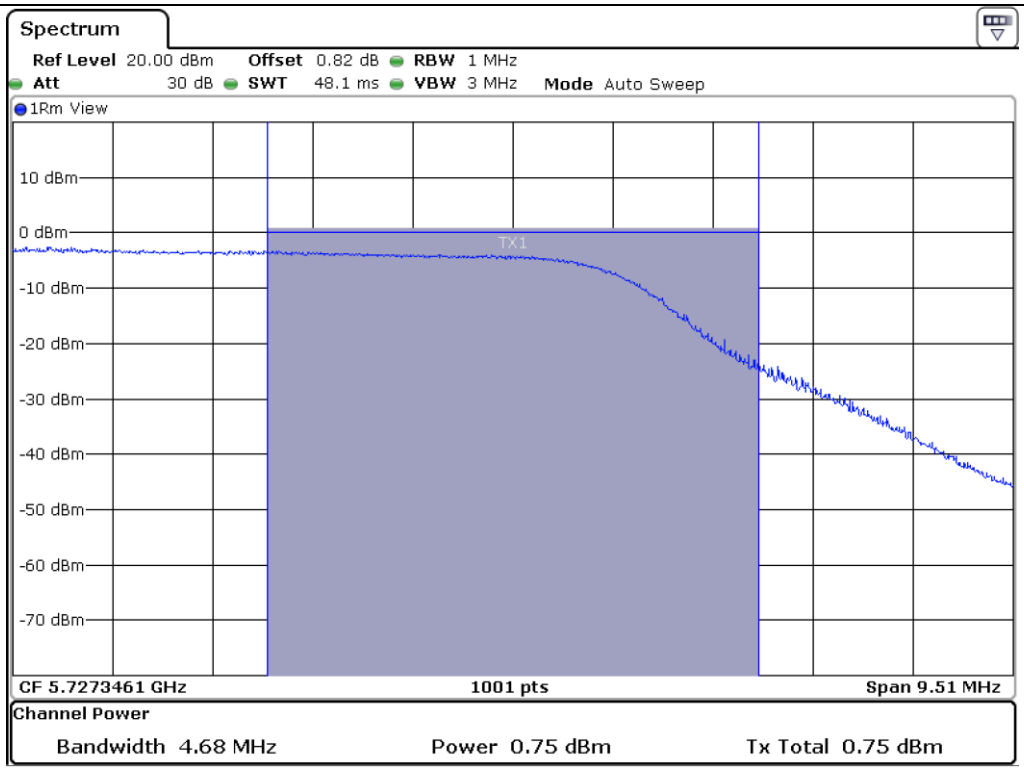
FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 710.00	-3.55	11.00	14.55
5 725 ~ 5 850	5 710.00	-8.66	30.00	38.66

Remark: See next page for measurement data.

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)





ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

10.6.5 Test data for Staddle Channel_Antenna 1

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

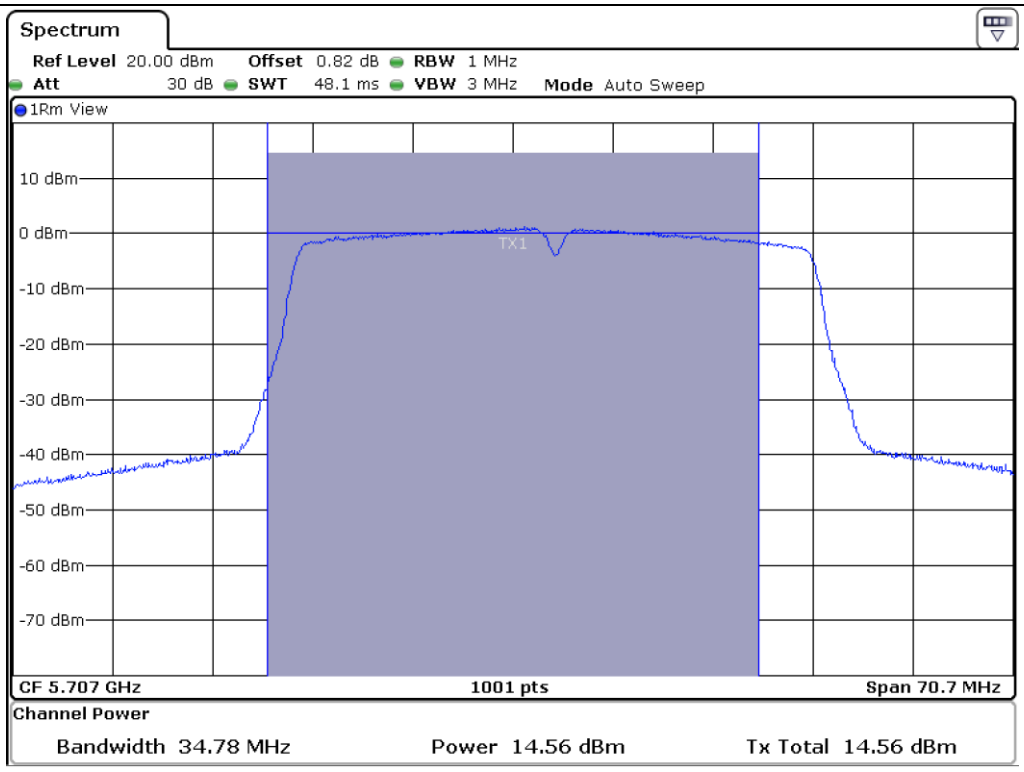
-. Test Result : Pass

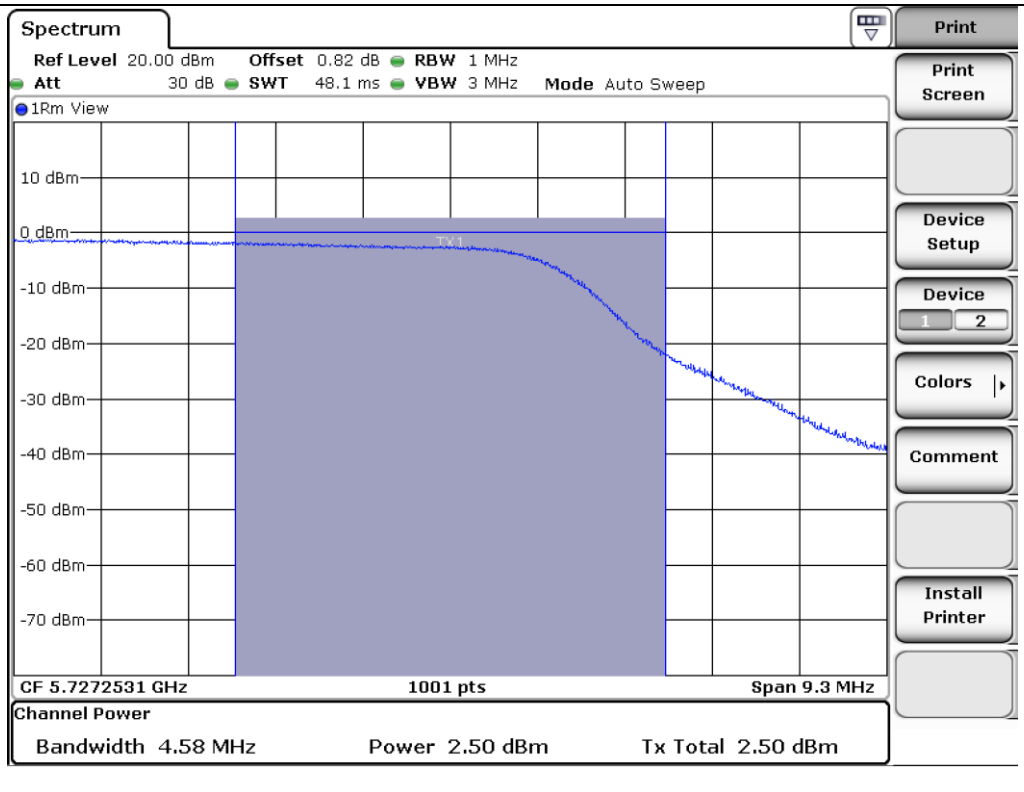
FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 710.00	-1.37	11.00	12.37
5 725 ~ 5 850	5 710.00	-6.97	30.00	36.97

Remark: See next page for measurement data.

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)





ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

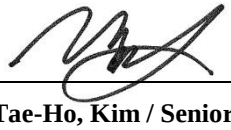
10.6.6 Test data for Staddle Channel_Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 710.00	0.69	11.00	10.31
5 725 ~ 5 850	5 710.00	-4.72	30.00	34.72



Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

10.7 Test data for 802.11ac_HT80 RLAN Mode

10.7.1 Test data for Antenna 0

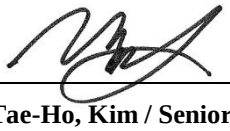
-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

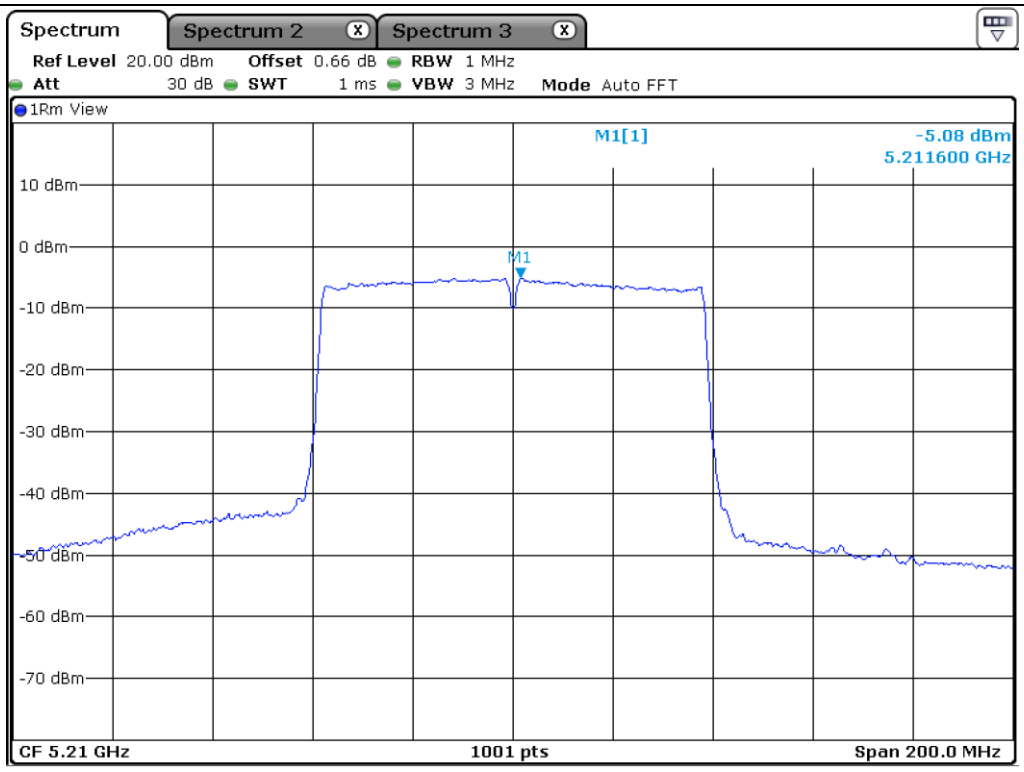
FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 210.00	-5.08	11.00	16.08
5 250 ~ 5 350	Low	5 290.00	-5.63	11.00	16.63
5 470 ~ 5 725	Low	5 530.00	-5.19	11.00	16.19
5 725 ~ 5 850	Low	5 775.00	-5.08	30.00	35.08

Remark: See next page for measurement data.

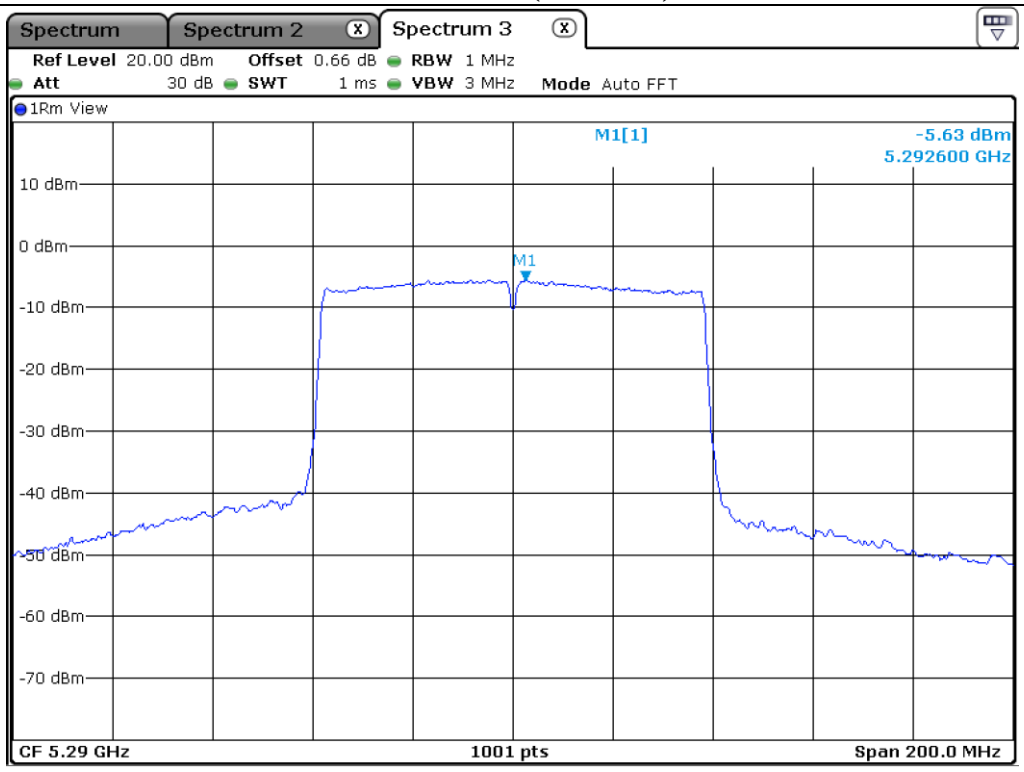


Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

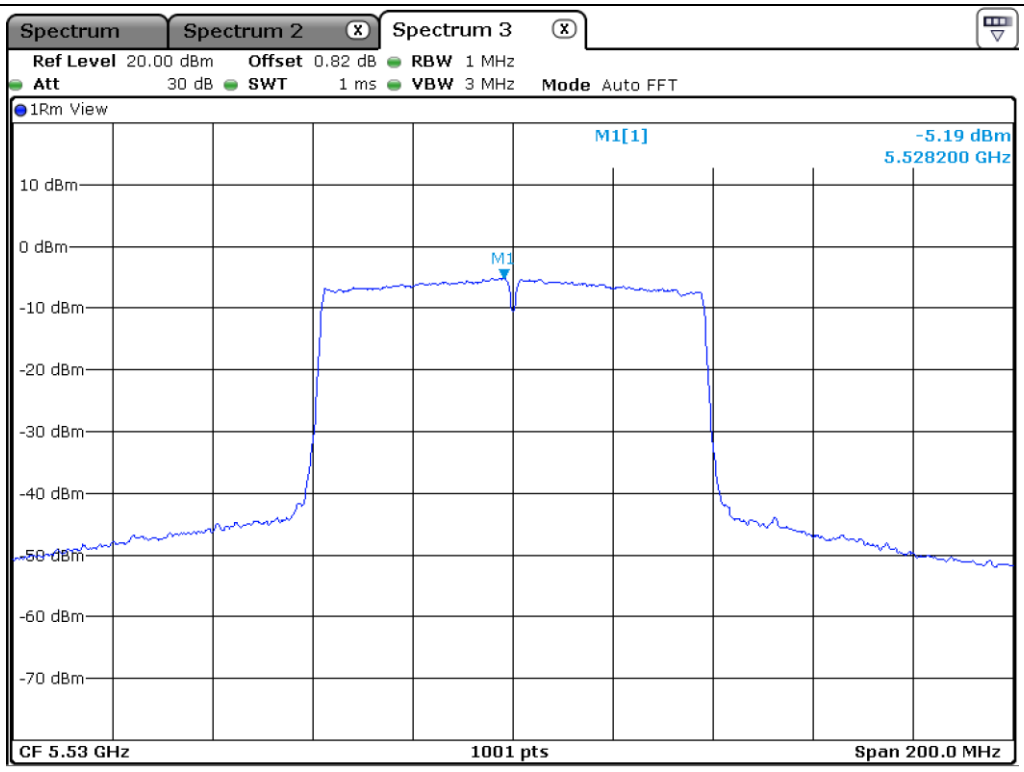


Middle Channel (5 210 MHz)

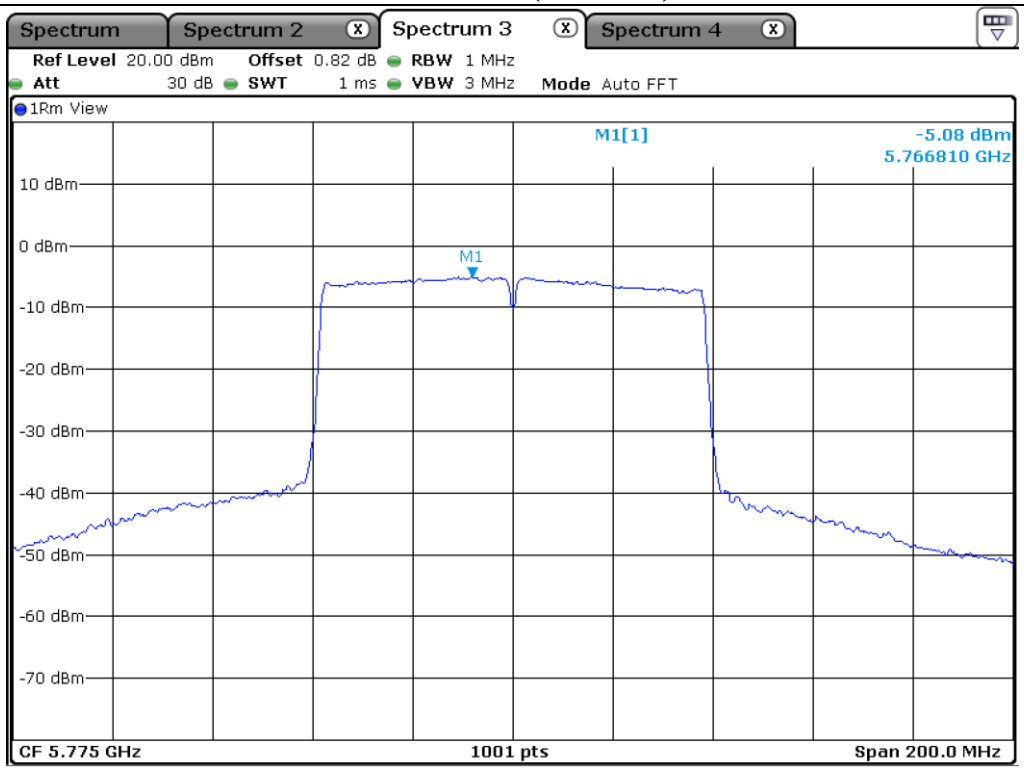


Middle Channel (5 290 MHz)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



Middle Channel (5 530 MHz)



Middle Channel (5 775 MHz)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

10.7.2 Test data for Antenna 1

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

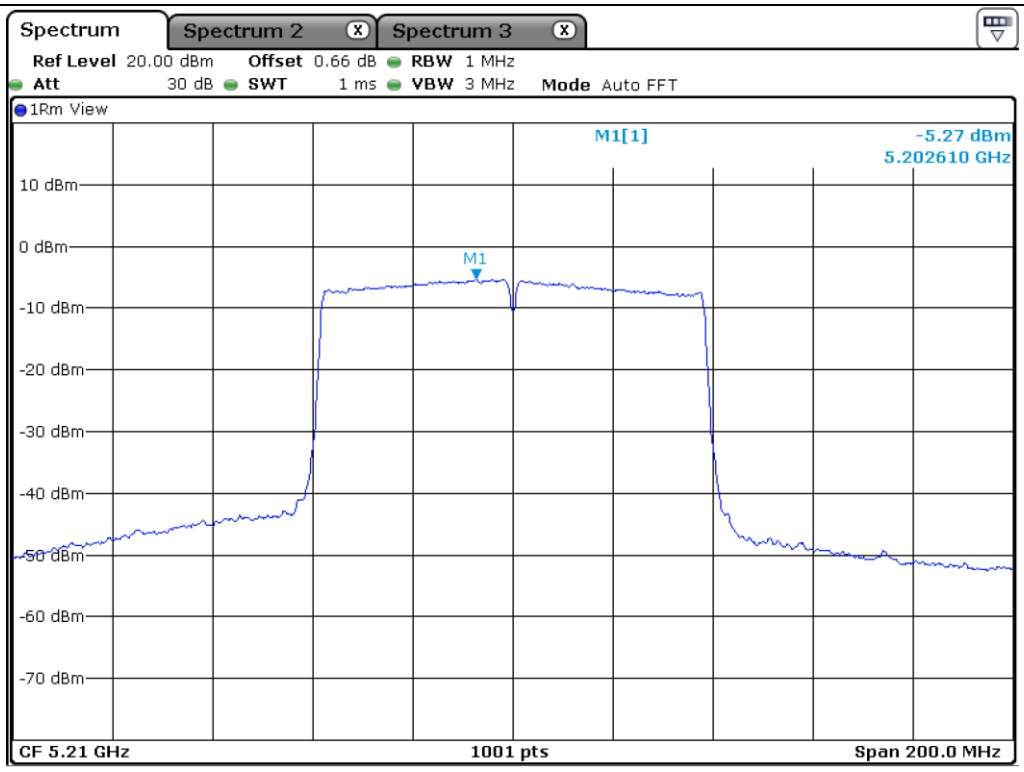
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 210.00	-5.27	11.00	16.27
5 250 ~ 5 350	Low	5 290.00	-5.87	11.00	16.87
5 470 ~ 5 725	Low	5 530.00	-5.97	11.00	16.97
5 725 ~ 5 850	Low	5 775.00	-5.18	30.00	35.18

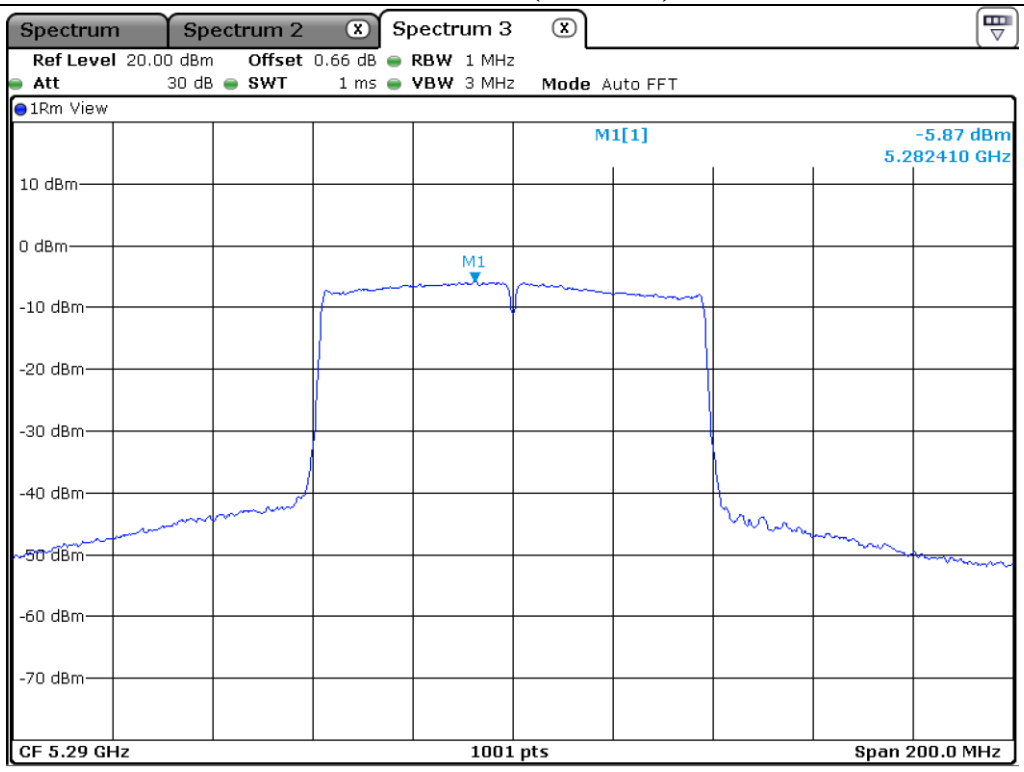
Remark: See next page for measurement data.

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

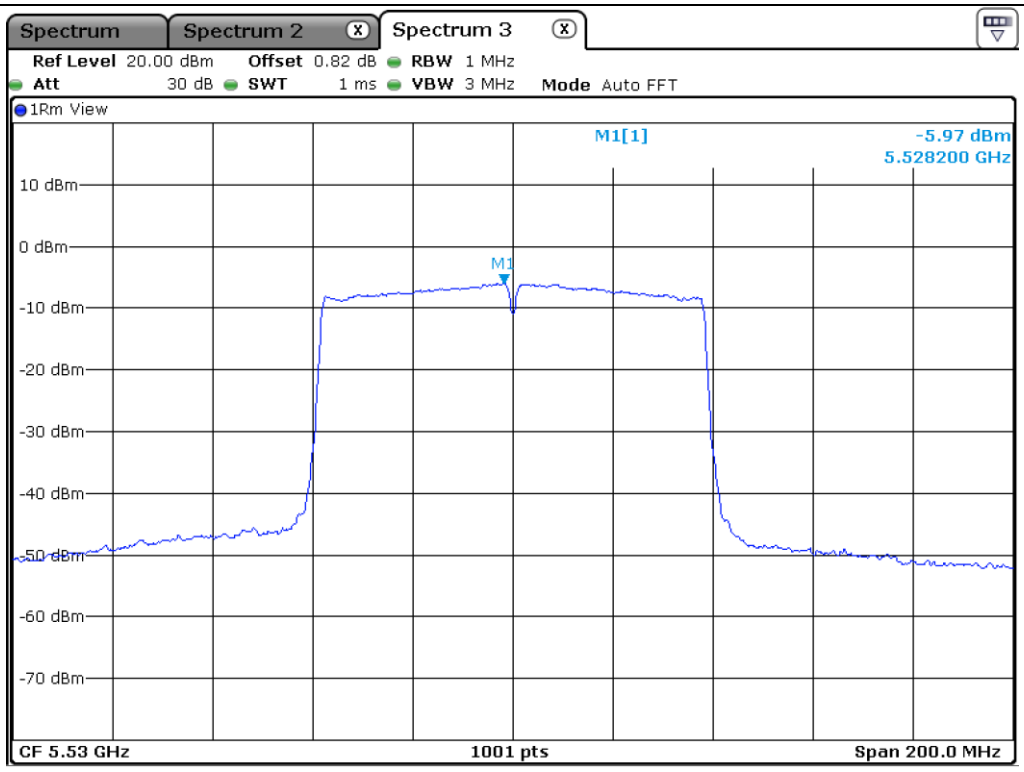


Middle Channel (5 210 MHz)

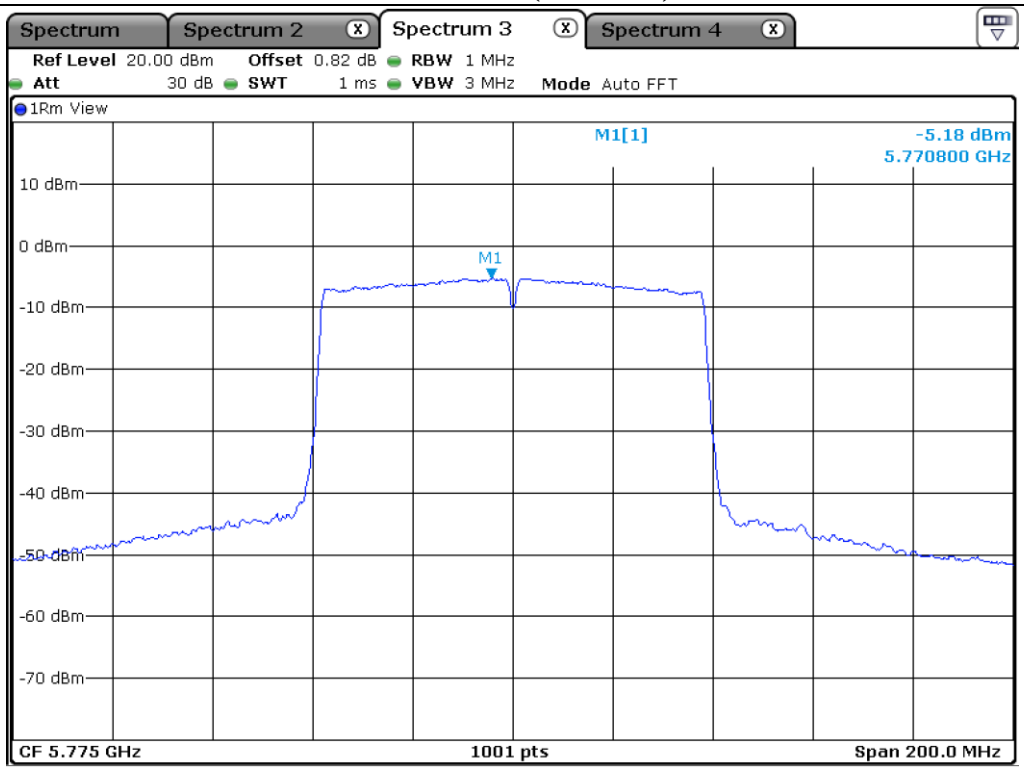


Middle Channel (5 290 MHz)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



Middle Channel (5 530 MHz)



Middle Channel (5 775 MHz)

10.7.3 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 210.00	-2.16	10.76	12.92
5 250 ~ 5 350	Low	5 290.00	-2.74	11.00	13.74
5 470 ~ 5 725	Low	5 530.00	-2.55	11.00	13.55
5 725 ~ 5 850	Low	5 775.00	-2.12	30.00	32.12

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

10.7.4 Test data for Staddle Channel_Antenna 0

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

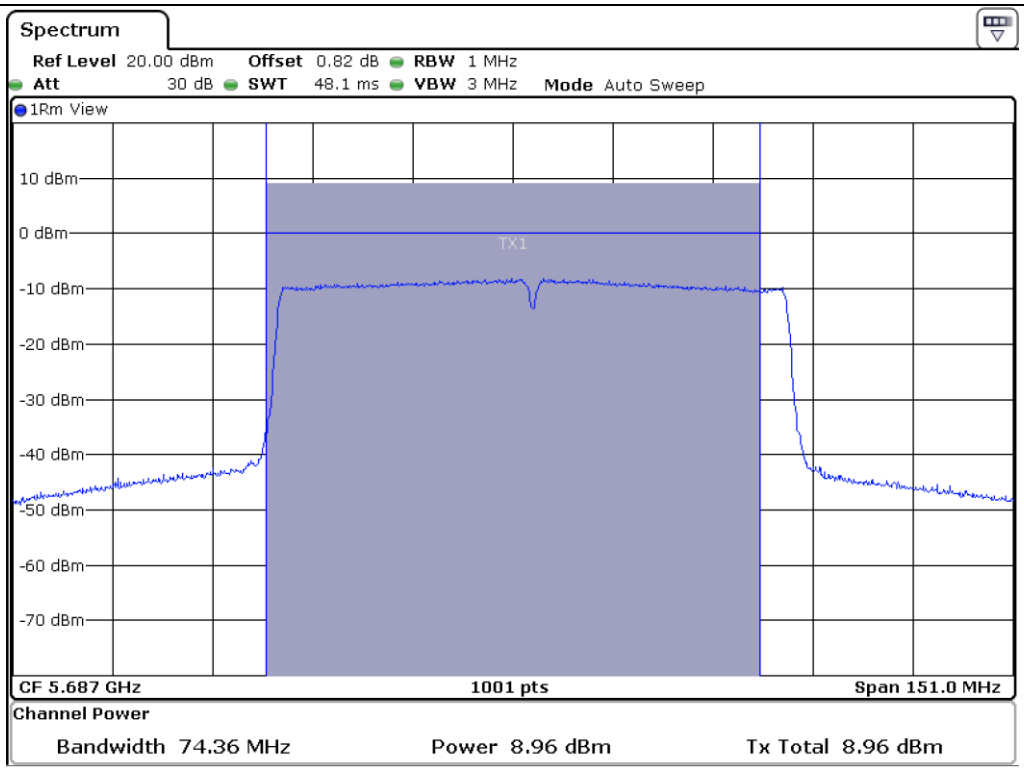
-. Test Result : Pass

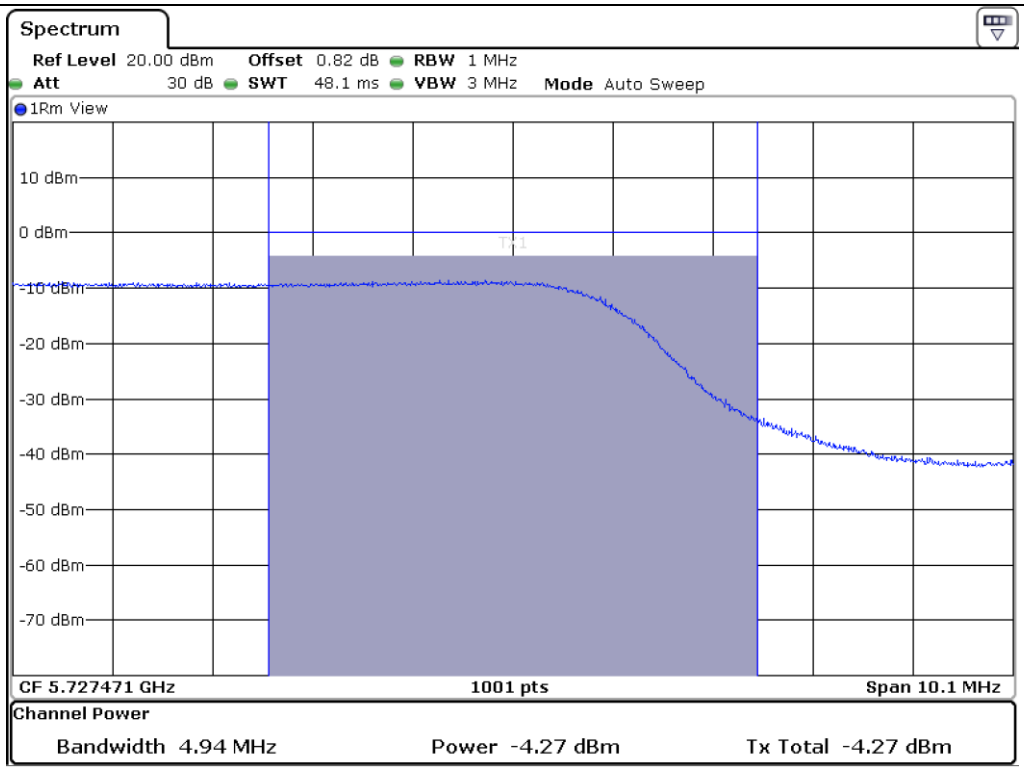
FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 690.00	-6.89	11.00	17.89
5 725 ~ 5 850	5 690.00	-11.33	30.00	41.33

Remark: See next page for measurement data.

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)





ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

10.7.5 Test data for Staddle Channel_Antenna 1

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

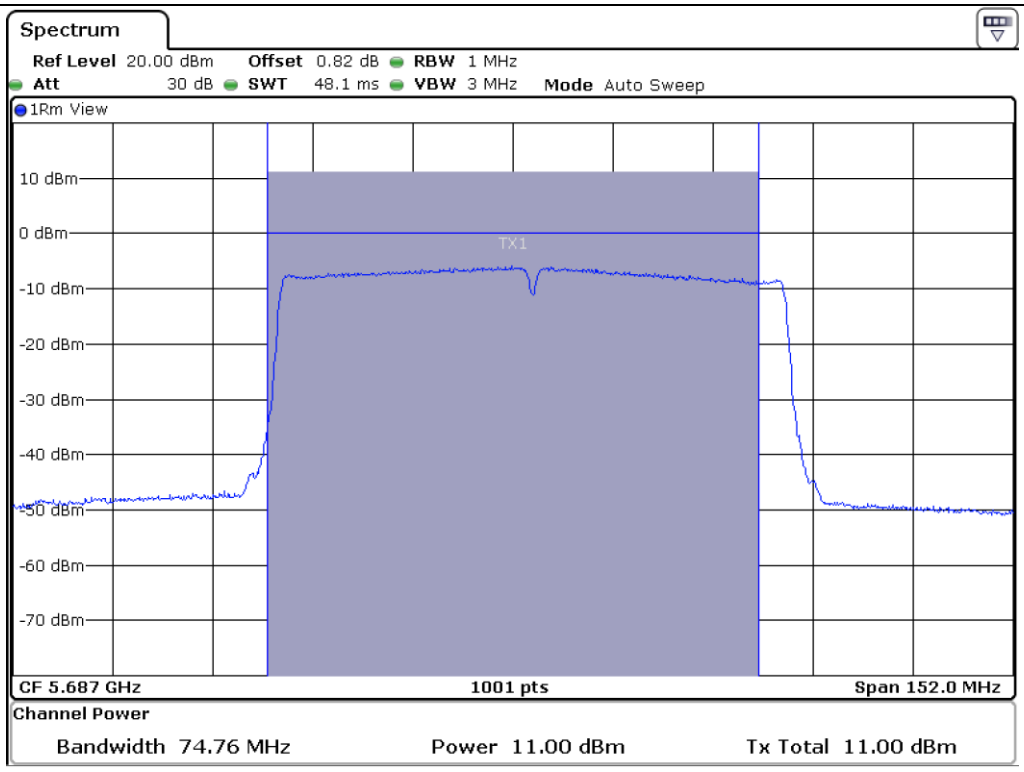
-. Test Result : Pass

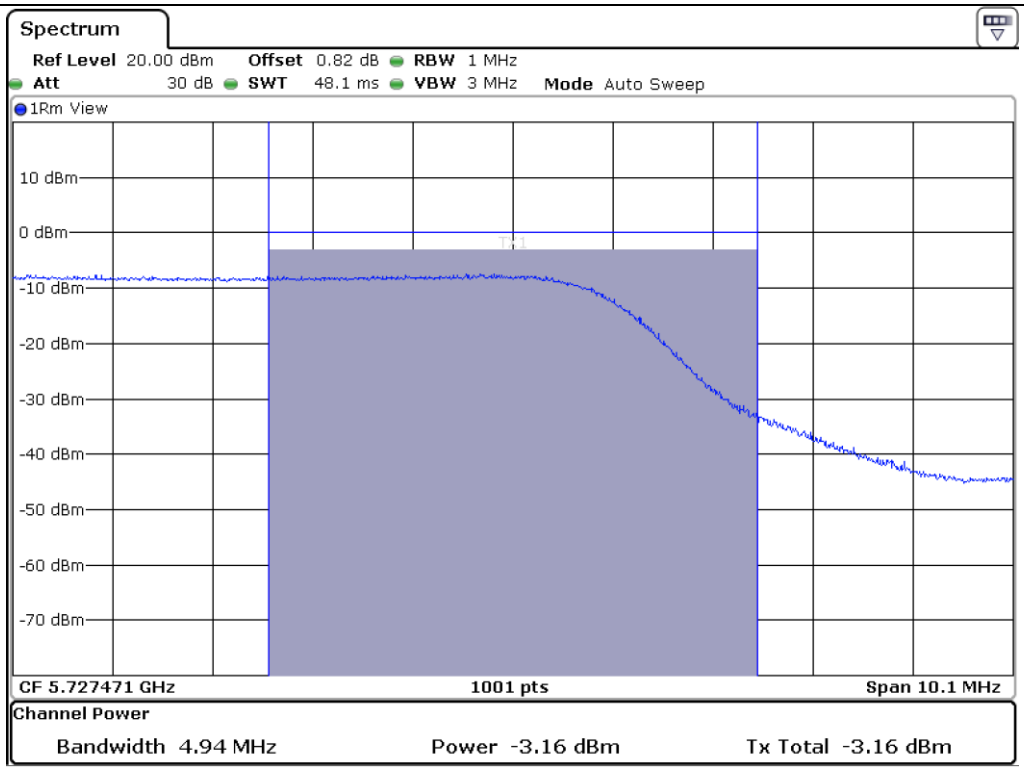
FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 690.00	-2.49	11.00	13.49
5 725 ~ 5 850	5 690.00	-7.52	30.00	37.52

Remark: See next page for measurement data.

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)





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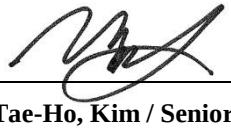
10.7.6 Test data for Staddle Channel_Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

FREQUENCY RANGE (MHz)	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 470 ~ 5 725	5 690.00	-1.14	11.00	12.14
5 725 ~ 5 850	5 690.00	-6.01	30.00	36.01



Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

11. FREQUENCY STABILITY WITH TEMPERATURE VARIATION

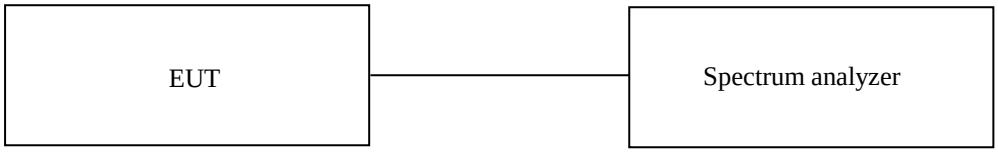
11.1 Operating environment

Temperature : 25 ℃

Relative humidity : 46 % R.H.

11.2 Test set-up

Turn EUT off and set chamber temperature to -20 ℃ and then allow sufficient time (approximately 20 min to 30 min after chamber reach the assigned temperature) for EUT to stabilize. Turn on the EUT and measure the EUT operating frequency and then turn off the EUT after the measurement. The temperature in the chamber was raised 10 ℃ step from -20 ℃ to +80 ℃. Repeat above method for frequency measurements every 10 ℃ step and then record all measured frequencies on each temperature step.



11.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Mar. 14, 2018 (1Y)
■ -	SSE-43CI-A	Samkun Tech	Humidity Chamber	60712	Feb. 23, 2018 (1Y)
■ -	H-3005D	FinePower	DC Power supply	FP09092008	Mar. 14, 2018 (1Y)

All test equipment used is calibrated on a regular basis.

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

11.4 Test Data for U-NII-1

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Result : Pass

Temperature (˚C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
-20	5 180 000 000	5 179 982 760	-17.240
-10		5 179 981 638	-18.362
0		5 179 981 103	-18.897
10		5 179 980 715	-19.285
20		5 179 980 210	-19.790
30		5 179 978 979	-21.021
40		5 179 976 196	-23.804
50		5 179 975 082	-24.918
-20	5 220 000 000	5 219 982 636	-17.364
-10		5 219 981 529	-18.471
0		5 219 981 336	-18.664
10		5 219 980 547	-19.453
20		5 219 980 242	-19.758
30		5 219 979 218	-20.782
40		5 219 977 271	-22.729
50		5 219 975 565	-24.435
-20	5 240 000 000	5 239 982 876	-17.124
-10		5 239 981 640	-18.360
0		5 239 981 206	-18.794
10		5 239 980 831	-19.169
20		5 239 980 122	-19.878
30		5 239 978 742	-21.258
40		5 239 977 879	-22.121
50		5 239 974 851	-25.149

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.(ANSI C63.10-2013)

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

11.5 Test Data for U-NII-2A

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Result : Pass

Temperature (˚C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
-20	5 260 000 000	5 259 982 233	-17.767
-10		5 259 981 685	-18.315
0		5 259 981 040	-18.960
10		5 259 980 894	-19.106
20		5 259 980 066	-19.934
30		5 259 978 132	-21.868
40		5 259 976 366	-23.634
50		5 259 974 486	-25.514
-20	5 300 000 000	5 299 982 455	-17.545
-10		5 299 981 868	-18.132
0		5 299 981 498	-18.502
10		5 299 980 712	-19.288
20		5 299 980 397	-19.603
30		5 299 979 529	-20.471
40		5 299 976 221	-23.779
50		5 299 974 180	-25.820
-20	5 320 000 000	5 319 982 875	-17.125
-10		5 319 981 910	-18.090
0		5 319 981 090	-18.910
10		5 319 980 629	-19.371
20		5 319 980 311	-19.689
30		5 319 979 026	-20.974
40		5 319 977 261	-22.739
50		5 319 974 525	-25.475

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.(ANSI C63.10-2013)

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

11.6 Test Data for U-NII-2C

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Result : Pass

Temperature (˚C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
-20	5 500 000 000	5 499 982 338	-17.662
-10		5 499 981 551	-18.449
0		5 499 981 079	-18.921
10		5 499 980 979	-19.021
20		5 499 980 425	-19.575
30		5 499 979 100	-20.900
40		5 499 976 284	-23.716
50		5 499 975 713	-24.287
-20	5 580 000 000	5 579 982 142	-17.858
-10		5 579 981 852	-18.148
0		5 579 981 125	-18.875
10		5 579 980 768	-19.232
20		5 579 980 451	-19.549
30		5 579 979 022	-20.978
40		5 579 977 482	-22.518
50		5 579 974 666	-25.334
-20	5 700 000 000	5 699 982 299	-17.701
-10		5 699 981 537	-18.463
0		5 699 981 056	-18.944
10		5 699 980 677	-19.323
20		5 699 980 430	-19.570
30		5 699 978 526	-21.474
40		5 699 977 068	-22.932
50		5 699 974 422	-25.578

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.(ANSI C63.10-2013)

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

11.7 Test Data for U-NII-3

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Result : Pass

Temperature (˚C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
-20	5 745 000 000	5 744 982 753	-17.247
-10		5 744 981 716	-18.284
0		5 744 981 339	-18.661
10		5 744 980 790	-19.210
20		5 744 980 445	-19.555
30		5 744 978 528	-21.472
40		5 744 976 660	-23.340
50		5 744 975 306	-24.694
-20	5 785 000 000	5 784 982 977	-17.023
-10		5 784 981 751	-18.249
0		5 784 981 407	-18.593
10		5 784 980 534	-19.466
20		5 784 980 473	-19.527
30		5 784 978 331	-21.669
40		5 784 976 357	-23.643
50		5 784 974 507	-25.493
-20	5 825 000 000	5 824 982 006	-17.994
-10		5 824 981 853	-18.147
0		5 824 981 210	-18.790
10		5 824 980 944	-19.056
20		5 824 980 005	-19.995
30		5 824 979 649	-20.351
40		5 824 976 443	-23.557
50		5 824 974 662	-25.338

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.(ANSI C63.10-2013)

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12. FREQUENCY STABILITY WITH VOLTAGE VARIATION

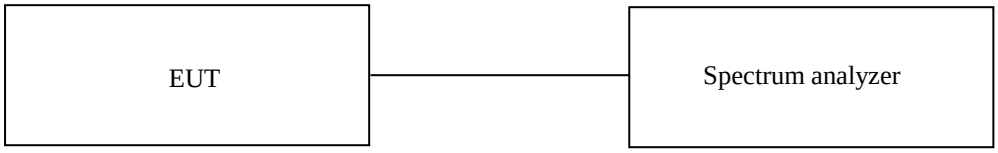
12.1 Operating environment

Temperature : 25 ℃

Relative humidity : 46 % R.H.

12.2 Test set-up

An external DC power supply was connected to the input of the EUT. The voltage of EUT set to 108.3 % of the nominal value and then was reduced to 91.6 % of nominal voltage. The output frequency was recorded at each step.



12.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Mar. 14, 2018 (1Y)
■ -	H-3005D	FinePower	DC Power supply	FP09092008	Mar. 14, 2018 (1Y)

All test equipment used is calibrated on a regular basis.

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.4 Test Data for U-NII-1

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Result : Pass

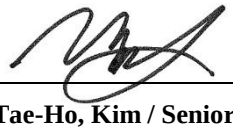
Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
5.0	5 180 000 000	5 179 979 750	-20.250
4.5		5 179 977 211	-22.789
5.5		5 179 975 764	-24.236
5.0	5 220 000 000	5 219 979 148	-20.852
4.5		5 219 977 122	-22.878
5.5		5 219 976 432	-23.568
5.0	5 240 000 000	5 239 979 885	-20.115
4.5		5 239 976 876	-23.124
5.5		5 239 975 300	-24.700

12.5 Test Data for U-NII-2A

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Result : Pass

Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
5.0	5 260 000 000	5 179 978 720	-21.280
4.5		5 179 977 240	-22.760
5.5		5 179 975 568	-24.432
5.0	5 300 000 000	5 219 979 793	-20.207
4.5		5 219 976 705	-23.295
5.5		5 219 975 849	-24.151
5.0	5 320 000 000	5 239 978 687	-21.313
4.5		5 239 976 977	-23.023
5.5		5 239 975 762	-24.238



Tested by: Tae-Ho, Kim / Senior Manager

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12.6 Test Data for U-NII-2C

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Result : Pass

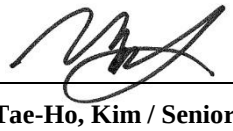
Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
5.0	5 500 000 000	5 179 979 354	-20.646
4.5		5 179 976 619	-23.381
5.5		5 179 976 203	-23.797
5.0	5 580 000 000	5 219 979 658	-20.342
4.5		5 219 977 303	-22.697
5.5		5 219 976 474	-23.526
5.0	5 700 000 000	5 239 979 028	-20.972
4.5		5 239 977 022	-22.978
5.5		5 239 976 328	-23.672

12.7 Test Data for U-NII-3

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Result : Pass

Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
5.0	5 745 000 000	5 179 978 351	-21.649
4.5		5 179 977 583	-22.417
5.5		5 179 976 475	-23.525
5.0	5 785 000 000	5 219 979 997	-20.003
4.5		5 219 976 864	-23.136
5.5		5 219 975 778	-24.222
5.0	5 825 000 000	5 239 978 261	-21.739
4.5		5 239 976 960	-23.040
5.5		5 239 976 123	-23.877



Tested by: Tae-Ho, Kim / Senior Manager

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13. RADIATED SPURIOUS EMISSIONS

13.1 Operating environment

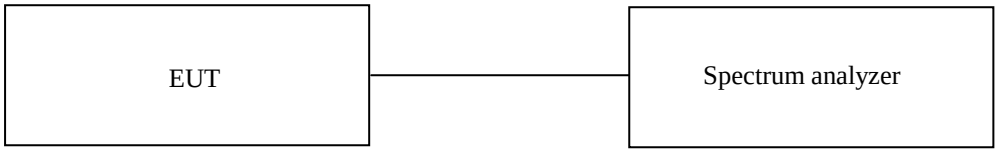
Temperature : 25 ℃

Relative humidity : 46 % R.H.

13.2 Test set-up for conducted measurement

The radiated emissions measurements were on the 3 m semi anechoic chamber. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 30 MHz to 40 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.



13.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Mar. 14, 2018 (1Y)
■ -	ESU	Rohde & Schwarz	EMI Test Receiver	100261	Mar. 29, 2018 (1Y)
■ -	310N	Sonoma Instrument	Pre-Amplifier	312544	Mar. 28, 2018 (1Y)
■ -	BBV9718	Schwarzbeck	Amplifier	310	Mar. 30, 2018 (1Y)
■ -	DT3000-3t	Innco System	Turn Table	DT3000/093	N/A
■ -	MA-4000XPET	Innco System	Antenna Master	MA4000/509	N/A
■ -	VULB9163	Schwarzbeck	TRILOG Broadband Antenna	9163-419	Aug. 05, 2016 (2Y)
■ -	BBHA9120D	Schwarzbeck	Horn Antenna	BBHA9120D295	Aug. 16, 2017 (2Y)
■ -	BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170179	Jul. 28, 2017 (2Y)

All test equipment used is calibrated on a regular basis.

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13.4 Test data for Below 30 MHz

-. Test Date : September 28, 2018 ~ October 24, 2018

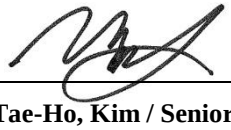
-. Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)

-. Frequency range : 9 kHz ~ 30 MHz

-. Measurement distance : 3 m

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBµV/m)	Limits (dBµV/m)	Margin (dB)
It was not observed any emissions from the EUT.									



Tested by: Tae-Ho, Kim / Senior Manager

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13.5 Test data for 30 MHz ~ 1 000 MHz

Humidity Level : 46 % R.H. Temperature: 25 ℃

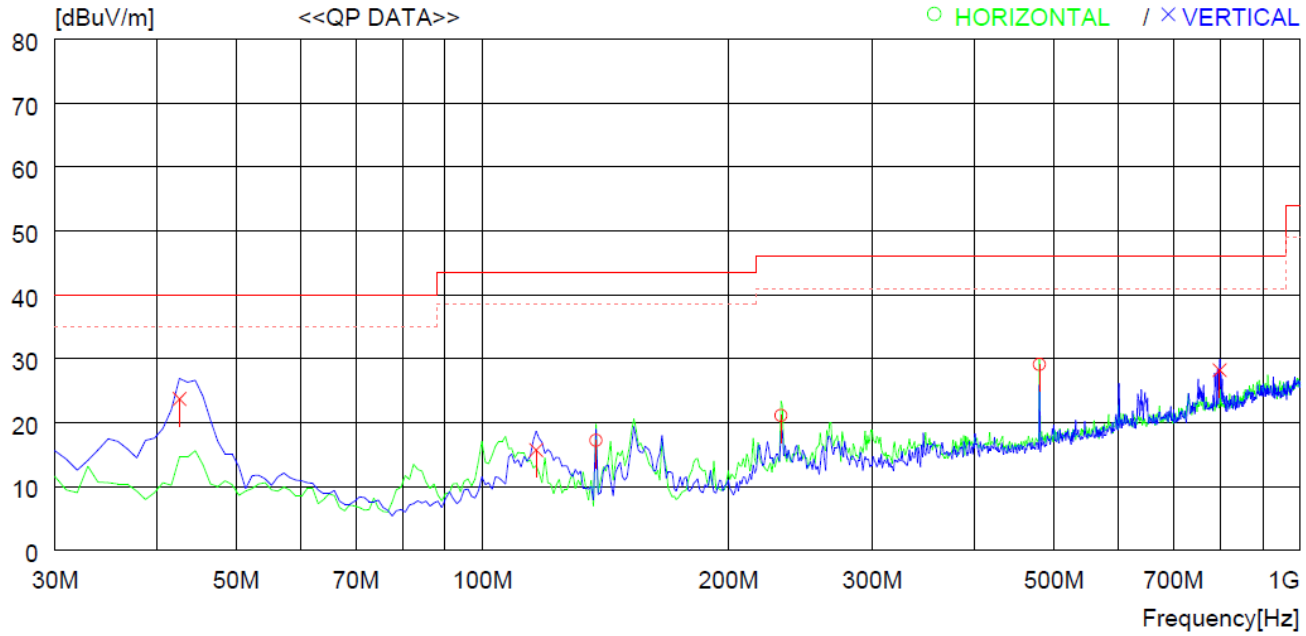
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.247

Result : PASSED

EUT : Wi-Fi/BT Transceiver Date: September 28, 2018 ~ October 24, 2018

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)

-.Antenna 0, Antenna 1 and Multiple transmit tested, but the worst data were recorded.



No.	FREQ	READING QP	ANT FACTOR	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal ------										
1	137.670	38.9	8.6	2.7	33.0	17.2	43.5	26.3	400	359
2	231.760	38.5	12.0	3.5	32.9	21.1	46.0	24.9	200	359
3	480.081	40.3	16.9	5.1	33.2	29.1	46.0	16.9	100	0
----- Vertical ------										
4	42.610	41.4	13.9	1.5	33.1	23.7	40.0	16.3	100	359
5	116.330	35.1	11.1	2.5	33.0	15.7	43.5	27.8	100	148
6	797.262	33.7	21.0	6.6	33.1	28.2	46.0	17.8	100	359

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

13.6 Test data for Above 1 GHz

13.6.1 Test data for Frequency UNII I

13.6.1.1 Test data for 802.11a RLAN Mode

13.6.1.1.1 Test data for Antenna 0

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
10 360.00	34.67	Peak	H	39.66	16.38	34.74	55.97	68.20	12.23
	33.43	Peak	V				54.73	68.20	13.47
Middle Channel									
10 440.00	33.58	Peak	H	39.84	16.74	34.76	55.40	68.20	12.80
	32.83	Peak	V				54.65	68.20	13.55
High Channel									
10 480.00	34.16	Peak	H	40.02	17.09	34.77	56.50	68.20	11.70
	34.24	Peak	V				56.58	68.20	11.62

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

13.6.1.1.2 Test data for Antenna 1

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

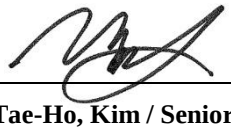
-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
10 360.00	34.68	Peak	H	39.66	16.38	34.74	55.98	68.20	12.22
	33.74	Peak	V				55.04	68.20	13.16
Middle Channel									
10 440.00	33.64	Peak	H	39.84	16.74	34.76	55.46	68.20	12.74
	33.54	Peak	V				55.36	68.20	12.84
High Channel									
10 480.00	33.17	Peak	H	40.02	17.09	34.77	55.51	68.20	12.69
	33.49	Peak	V				55.83	68.20	12.37

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)



Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

13.6.1.2 Test data for 802.11n_HT20 RLAN Mode

13.6.1.2.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
10 360.00	34.41	Peak	H	39.66	16.38	34.74	55.71	68.20	12.49
	33.06	Peak	V				54.36	68.20	13.84
Middle Channel									
10 440.00	33.54	Peak	H	39.84	16.74	34.76	55.36	68.20	12.84
	33.34	Peak	V				55.16	68.20	13.04
High Channel									
10 480.00	33.60	Peak	H	40.02	17.09	34.77	55.94	68.20	12.26
	34.83	Peak	V				57.17	68.20	11.03

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

13.6.1.3 Test data for 802.11n_HT40 RLAN Mode

13.6.1.3.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

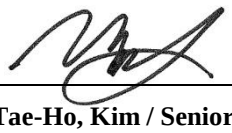
-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
10 380.00	33.75	Peak	H	39.93	16.88	34.74	55.82	68.20	12.38
	32.48	Peak	V				54.55	68.20	13.65
High Channel									
10 460.00	32.69	Peak	H	40.02	17.05	34.77	54.99	68.20	13.21
	33.33	Peak	V				55.63	68.20	12.57

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)



Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

13.6.1.4 Test data for 802.11ac_HT80 RLAN Mode

13.6.1.4.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

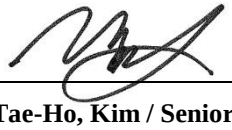
-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Middle Channel									
10 420.00	34.89	Peak	H	39.98	16.97	34.76	57.08	68.20	11.12
	34.34	Peak	V				56.53	68.20	11.67

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)



Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

13.6.2 Test data for Frequency UNII 2A

13.6.2.1 Test data for 802.11a RLAN Mode

13.6.2.1.1 Test data for Antenna 0

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
10 520.00	35.62	Peak	H	39.97	17.03	34.53	58.09	68.20	10.11
	33.81	Peak	V				56.28	68.20	11.92
Middle Channel									
10 600.00	34.69	Peak	H	40.02	17.26	34.38	57.59	74.00	16.41
	23.51	Average	H				46.41	54.00	7.59
	34.46	Peak	V				57.36	74.00	16.64
	23.72	Average	V				46.62	54.00	7.38
High Channel									
10 640.00	35.52	Peak	H	40.09	17.32	34.26	58.67	74.00	15.33
	23.59	Average	H				46.74	54.00	7.26
	34.28	Peak	V				57.43	74.00	16.57
	22.84	Average	V				45.99	54.00	8.01

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

13.6.2.1.2 Test data for Antenna 1

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
10 520.00	35.94	Peak	H	39.97	17.03	34.53	58.41	68.20	9.79
	34.70	Peak	V				57.17	68.20	11.03
Middle Channel									
10 600.00	34.78	Peak	H	40.02	17.26	34.38	57.68	74.00	16.32
	24.29	Average	H				47.19	54.00	6.81
	34.23	Peak	V				57.13	74.00	16.87
	23.46	Average	V				46.36	54.00	7.64
High Channel									
10 640.00	36.23	Peak	H	40.09	17.32	34.26	59.38	74.00	14.62
	22.93	Average	H				46.08	54.00	7.92
	35.11	Peak	V				58.26	74.00	15.74
	23.46	Average	V				46.61	54.00	7.39

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

13.6.2.2 Test data for 802.11n_HT20 RLAN Mode

13.6.2.2.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
10 520.00	36.36	Peak	H	39.97	17.03	34.53	58.83	68.20	9.37
	34.35	Peak	V				56.82	68.20	11.38
Middle Channel									
10 600.00	35.09	Peak	H	40.02	17.26	34.38	57.99	74.00	16.01
	23.71	Average	H				46.61	54.00	7.39
	34.17	Peak	V				57.07	74.00	16.93
	24.29	Average	V				47.19	54.00	6.81
High Channel									
10 640.00	34.67	Peak	H	40.09	17.32	34.26	57.82	74.00	16.18
	23.88	Average	H				47.03	54.00	6.97
	34.07	Peak	V				57.22	74.00	16.78
	22.69	Average	V				45.84	54.00	8.16

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

13.6.2.3 Test data for 802.11n_HT40 RLAN Mode

13.6.2.3.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

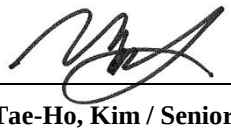
-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
10 540.00	34.68	Peak	H	39.99	17.11	34.43	57.35	68.20	10.85
	33.73	Peak	V				56.40	68.20	11.80
High Channel									
10 620.00	34.20	Peak	H	40.07	17.29	34.31	57.25	74.00	16.75
	24.01	Average	H				47.06	54.00	6.94
	33.60	Peak	V				56.65	74.00	17.35
	21.86	Average	V				44.91	54.00	9.09

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)



Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

13.6.2.4 Test data for 802.11ac_HT80 RLAN Mode

13.6.2.4.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Middle Channel									
10 580.00	35.35	Peak	H	40.05	17.23	34.36	58.27	68.20	9.93
	33.18	Peak	V				56.10	68.20	12.10

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

13.6.3 Test data for Frequency UNII 2C

13.6.3.1 Test data for 802.11a RLAN Mode

13.6.3.1.1 Test data for Antenna 0

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

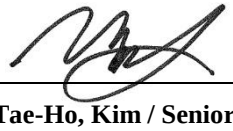
-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
11 000.00	35.34	Peak	H	40.06	17.56	34.26	58.70	74.00	15.30
	23.33	Average	H				46.69	54.00	7.31
	33.54	Peak	V				56.90	74.00	17.10
	24.15	Average	V				47.51	54.00	6.49
Middle Channel									
11 160.00	34.43	Peak	H	40.11	17.83	33.95	58.42	74.00	15.58
	22.89	Average	H				46.88	54.00	7.12
	34.55	Peak	V				58.54	74.00	15.46
	23.33	Average	V				47.32	54.00	6.68
High Channel									
11 400.00	34.44	Peak	H	40.09	18.14	33.79	58.88	74.00	15.12
	23.25	Average	H				47.69	54.00	6.31
	33.62	Peak	V				58.06	74.00	15.94
	21.08	Average	V				45.52	54.00	8.48

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)



Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

13.6.3.1.2 Test data for Antenna 1

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

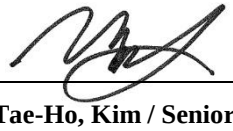
-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
11 000.00	34.33	Peak	H	40.06	17.56	34.26	57.69	74.00	16.31
	23.10	Average	H				46.46	54.00	7.54
	33.42	Peak	V				56.78	74.00	17.22
	25.24	Average	V				48.60	54.00	5.40
Middle Channel									
11 160.00	34.07	Peak	H	40.11	17.83	33.95	58.06	74.00	15.94
	23.73	Average	H				47.72	54.00	6.28
	35.00	Peak	V				58.99	74.00	15.01
	22.77	Average	V				46.76	54.00	7.24
High Channel									
11 400.00	33.35	Peak	H	40.09	18.14	33.79	57.79	74.00	16.21
	24.32	Average	H				48.76	54.00	5.24
	33.68	Peak	V				58.12	74.00	15.88
	21.48	Average	V				45.92	54.00	8.08

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)



Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

13.6.3.2 Test data for 802.11n_HT20 RLAN Mode

13.6.3.2.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
11 000.00	34.20	Peak	H	40.06	17.56	34.26	57.56	74.00	16.44
	23.90	Average	H				47.26	54.00	6.74
	33.73	Peak	V				57.09	74.00	16.91
	24.89	Average	V				48.25	54.00	5.75
Middle Channel									
11 160.00	34.90	Peak	H	40.11	17.83	33.95	58.89	74.00	15.11
	24.43	Average	H				48.42	54.00	5.58
	33.19	Peak	V				57.18	74.00	16.82
	23.35	Average	V				47.34	54.00	6.66
High Channel									
11 400.00	33.13	Peak	H	40.09	18.14	33.79	57.57	74.00	16.43
	24.20	Average	H				48.64	54.00	5.36
	32.35	Peak	V				56.79	74.00	17.21
	22.82	Average	V				47.26	54.00	6.74

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

13.6.3.3 Test data for 802.11n_HT40 RLAN Mode

13.6.3.3.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
11 020.00	35.06	Peak	H	40.07	17.69	34.13	58.69	74.00	15.31
	24.46	Average	H				48.09	54.00	5.91
	34.93	Peak	V				58.56	74.00	15.44
	24.60	Average	V				48.23	54.00	5.77
Middle Channel									
11 100.00	34.61	Peak	H	40.10	17.75	34.08	58.38	74.00	15.62
	23.47	Average	H				47.24	54.00	6.76
	33.91	Peak	V				57.68	74.00	16.32
	22.10	Average	V				45.87	54.00	8.13
High Channel									
11 340.00	34.12	Peak	H	40.09	18.06	33.85	58.42	74.00	15.58
	23.34	Average	H				47.64	54.00	6.36
	32.47	Peak	V				56.77	74.00	17.23
	22.06	Average	V				46.36	54.00	7.64

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

13.6.3.4 Test data for 802.11ac_HT80 RLAN Mode

13.6.3.4.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Middle Channel									
11 060.00	34.23	Peak	H	40.08	17.86	34.02	58.15	68.20	10.05
	34.64	Peak	V				58.56	68.20	9.64

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)

Tested by: Tae-Ho, Kim / Senior Manager

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13.6.4 Test data for Frequency UNII 3

13.6.4.1 Test data for 802.11a RLAN Mode

13.6.4.1.1 Test data for Antenna 0

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
11 490.00	35.53	Peak	H	40.07	18.32	33.75	60.17	74.00	13.83
	23.68	Average	H				48.32	54.00	5.68
	34.29	Peak	V				58.93	74.00	15.07
	25.23	Average	V				49.87	54.00	4.13
Middle Channel									
11 570.00	35.44	Peak	H	39.78	18.94	33.64	60.52	74.00	13.48
	24.13	Average	H				49.21	54.00	4.79
	34.52	Peak	V				59.60	74.00	14.40
	22.93	Average	V				48.01	54.00	5.99
High Channel									
11 650.00	33.73	Peak	H	39.49	19.56	33.61	59.17	74.00	14.83
	23.30	Average	H				48.74	54.00	5.26
	33.41	Peak	V				58.85	74.00	15.15
	22.04	Average	V				47.48	54.00	6.52

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)

Tested by: Tae-Ho, Kim / Senior Manager

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13.6.4.1.2 Test data for Antenna 1

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

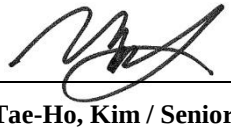
-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
11 490.00	35.32	Peak	H	40.07	18.32	33.75	59.96	74.00	14.04
	24.26	Average	H				48.90	54.00	5.10
	34.50	Peak	V				59.14	74.00	14.86
	23.55	Average	V				48.19	54.00	5.81
Middle Channel									
11 570.00	34.58	Peak	H	39.78	18.94	33.64	59.66	74.00	14.34
	23.37	Average	H				48.45	54.00	5.55
	34.27	Peak	V				59.35	74.00	14.65
	22.04	Average	V				47.12	54.00	6.88
High Channel									
11 650.00	33.30	Peak	H	39.49	19.56	33.61	58.74	74.00	15.26
	23.73	Average	H				49.17	54.00	4.83
	33.52	Peak	V				58.96	74.00	15.04
	22.08	Average	V				47.52	54.00	6.48

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)



Tested by: Tae-Ho, Kim / Senior Manager

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13.6.4.2 Test data for 802.11n_HT20 RLAN Mode

13.6.4.2.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
11 490.00	35.38	Peak	H	40.07	18.32	33.75	60.02	74.00	13.98
	24.34	Average	H				48.98	54.00	5.02
	34.08	Peak	V				58.72	74.00	15.28
	24.33	Average	V				48.97	54.00	5.03
Middle Channel									
11 570.00	35.36	Peak	H	39.78	18.94	33.64	60.44	74.00	13.56
	22.93	Average	H				48.01	54.00	5.99
	33.11	Peak	V				58.19	74.00	15.81
	23.06	Average	V				48.14	54.00	5.86
High Channel									
11 650.00	33.63	Peak	H	39.49	19.56	33.61	59.07	74.00	14.93
	24.69	Average	H				50.13	54.00	3.87
	33.40	Peak	V				58.84	74.00	15.16
	21.00	Average	V				46.44	54.00	7.56

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)

Tested by: Tae-Ho, Kim / Senior Manager

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13.6.4.3 Test data for 802.11n_HT40 RLAN Mode

13.6.4.3.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

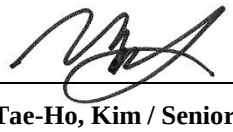
-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
11 510.00	34.84	Peak	H	39.78	18.94	33.63	59.93	74.00	14.07
	24.41	Average	H				49.50	54.00	4.50
	33.46	Peak	V				58.55	74.00	15.45
	23.81	Average	V				48.90	54.00	5.10
High Channel									
11 590.00	34.47	Peak	H	39.66	19.19	33.62	59.70	74.00	14.30
	23.45	Average	H				48.68	54.00	5.32
	33.33	Peak	V				58.56	74.00	15.44
	21.90	Average	V				47.13	54.00	6.87

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)



Tested by: Tae-Ho, Kim / Senior Manager

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13.6.4.4 Test data for 802.11ac_HT80 RLAN Mode

13.6.4.4.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Middle Channel									
11 550.00	34.18	Peak	H	39.70	19.07	33.63	59.32	68.20	8.88
	33.69	Peak	V				58.83	68.20	9.37

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)

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14. RADIATED RESTRICTED BAND EDGE MEASUREMENTS

14.1 Operating environment

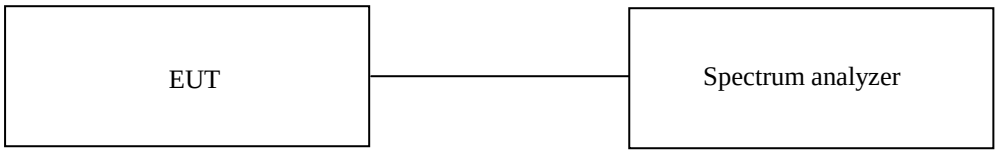
Temperature : 25 ℃

Relative humidity : 46 % R.H.

14.2 Test set-up for conducted measurement

The radiated emissions measurements were performed on the 3 m, open-field test site. The EUT was placed on a non-conductive turntable above the ground plane.

The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.



14.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Mar. 14, 2018 (1Y)
■ -	ESU	Rohde & Schwarz	EMI Test Receiver	100261	Mar. 29, 2018 (1Y)
■ -	310N	Sonoma Instrument	Pre-Amplifier	312544	Mar. 28, 2018 (1Y)
■ -	BBV9718	Schwarzbeck	Amplifier	310	Mar. 30, 2018 (1Y)
■ -	DT3000-3t	Innco System	Turn Table	DT3000/093	N/A
■ -	MA-4000XPET	Innco System	Antenna Master	MA4000/509	N/A
■ -	VULB9163	Schwarzbeck	TRILOG Broadband Antenna	9163-419	Aug. 05, 2016 (2Y)
■ -	BBHA9120D	Schwarzbeck	Horn Antenna	BBHA9120D295	Aug. 16, 2017 (2Y)
■ -	BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170179	Jul. 28, 2017 (2Y)

All test equipment used is calibrated on a regular basis.

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14.4 Test data for Frequency UNII I

14.4.1 Test data for 802.11a RLAN Mode

14.4.1.1 Test data for Antenna 0

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

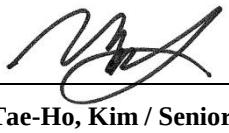
-. Result : Pass

Frequency (GHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
5 090.58	47.06	Peak	H	31.28	12.65	35.85	55.14	74.00	18.86
4 970.70	33.88	Average	H				41.96	54.00	12.04
5 074.35	47.70	Peak	V				55.78	74.00	18.22
5 092.60	33.85	Average	V				41.93	54.00	12.07

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)



Tested by: Tae-Ho, Kim / Senior Manager

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14.4.1.2 Test data for Antenna 1

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

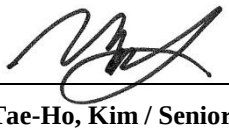
-. Result : Pass

Frequency (GHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
5 010.06	47.09	Peak	H	31.28	12.65	35.85	55.17	74.00	18.83
5 091.60	34.03	Average	H				42.11	54.00	11.89
5 058.12	46.98	Peak	V				55.06	74.00	18.94
4 641.00	33.85	Average	V				41.93	54.00	12.07

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)



Tested by: Tae-Ho, Kim / Senior Manager

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14.4.2 Test data for 802.11n_HT20 RLAN Mode

14.4.2.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

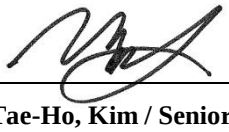
-. Result : Pass

Frequency (GHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 026.95	47.17	Peak	H	31.28	12.65	35.85	55.25	74.00	18.75
5 103.50	33.83	Average	H				41.91	54.00	12.09
4 650.32	46.79	Peak	V				54.87	74.00	19.13
5 105.50	33.84	Average	V				41.92	54.00	12.08

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Tae-Ho, Kim / Senior Manager

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14.4.3 Test data for 802.11n_HT40 RLAN Mode

14.4.3.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

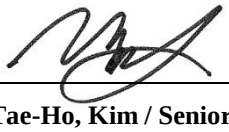
-. Result : Pass

Frequency (GHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 144.48	45.35	Peak	H	31.28	12.65	35.85	53.43	74.00	20.57
5 091.60	33.82	Average	H				41.90	54.00	12.10
4 832.79	45.04	Peak	V				53.12	74.00	20.88
5 096.60	33.88	Average	V				41.96	54.00	12.04

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Tae-Ho, Kim / Senior Manager

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14.4.4 Test data for 802.11ac_HT80 RLAN Mode

14.4.4.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-. Result : Pass

Frequency (GHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 028.25	45.48	Peak	H	31.28	12.65	35.85	53.56	74.00	20.44
5 103.50	33.82	Average	H				41.90	54.00	12.10
5 064.61	44.89	Peak	V				52.97	74.00	21.03
5 082.60	33.94	Average	V				42.02	54.00	11.98

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)

Tested by: Tae-Ho, Kim / Senior Manager

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14.5 Test data for Frequency UNII 2A

14.5.1 Test data for 802.11a RLAN Mode

14.5.1.1 Test data for Antenna 0

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

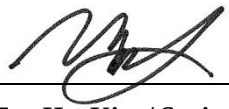
-. Result : Pass

Frequency (GHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
5 453.02	44.27	Peak	H	31.50	12.33	35.74	52.36	74.00	21.64
5 350.05	34.62	Average	H				42.71	54.00	11.29
5 457.53	44.25	Peak	V				52.34	74.00	21.66
5 453.24	34.37	Average	V				42.46	54.00	11.54

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)



Tested by: Tae-Ho, Kim / Senior Manager

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14.5.1.2 Test data for Antenna 1

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

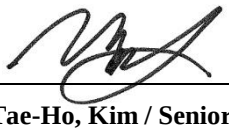
-. Result : Pass

Frequency (GHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
5 354.56	44.42	Peak	H	31.50	12.33	35.74	52.51	74.00	21.49
5 450.27	34.41	Average	H				42.50	54.00	11.50
5 435.00	44.40	Peak	V				52.49	74.00	21.51
5 455.88	34.37	Average	V				42.46	54.00	11.54

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)



Tested by: Tae-Ho, Kim / Senior Manager

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14.5.2 Test data for 802.11n_HT20 RLAN Mode

14.5.2.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

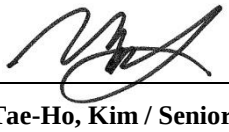
-. Result : Pass

Frequency (GHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 350.05	44.32	Peak	H	31.50	12.33	35.74	52.41	74.00	21.59
5 350.05	34.58	Average	H				42.67	54.00	11.33
5 449.84	44.09	Peak	V				52.18	74.00	21.82
5 450.05	34.38	Average	V				42.47	54.00	11.53

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

14.5.3 Test data for 802.11n_HT40 RLAN Mode

14.5.3.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-. Result : Pass

Frequency (GHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 350.16	47.88	Peak	H	31.50	12.33	35.74	55.97	74.00	18.03
5 350.05	34.73	Average	H				42.82	54.00	11.18
5 350.05	47.88	Peak	V				55.97	74.00	18.03
5 350.05	34.80	Average	V				42.89	54.00	11.11

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)

Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

14.5.4 Test data for 802.11ac_HT80 RLAN Mode

14.5.4.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

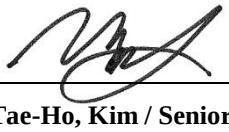
-. Result : Pass

Frequency (GHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 356.76	46.59	Peak	H	31.50	12.33	35.74	54.68	74.00	19.32
5 350.05	34.72	Average	H				42.81	54.00	11.19
5 350.16	45.58	Peak	V				53.67	74.00	20.33
5 350.05	34.67	Average	V				42.76	54.00	11.24

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

14.6 Test data for Frequency UNII 2C

14.6.1 Test data for 802.11a RLAN Mode

14.6.1.1 Test data for Antenna 0

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

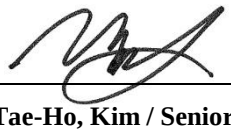
-. Result : Pass

Frequency (GHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
5 393.90	44.26	Peak	H	31.60	12.17	35.63	52.40	74.00	21.60
5 452.91	34.39	Average	H				42.53	54.00	11.47
5 358.41	44.24	Peak	V				52.38	74.00	21.62
5 450.49	34.44	Average	V				42.58	54.00	11.42

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)



Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

14.6.1.2 Test data for Antenna 1

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

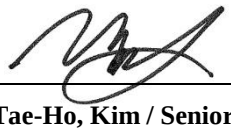
-. Result : Pass

Frequency (GHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
5 430.49	44.24	Peak	H	31.60	12.17	35.63	52.38	74.00	21.62
5 453.02	34.40	Average	H				42.54	54.00	11.46
5 381.15	44.28	Peak	V				52.42	74.00	21.58
5 450.27	34.43	Average	V				42.57	54.00	11.43

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBµV/m) - Emission Level (dBµV/m)



Tested by: Tae-Ho, Kim / Senior Manager

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14.6.2 Test data for 802.11n_HT20 RLAN Mode

14.6.2.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

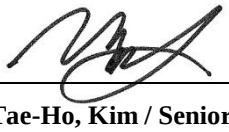
-. Result : Pass

Frequency (GHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 393.90	44.57	Peak	H	31.60	12.17	35.63	52.71	74.00	21.29
5 453.02	34.42	Average	H				42.56	54.00	11.44
5 445.33	44.81	Peak	V				52.95	74.00	21.05
5 450.05	34.43	Average	V				42.57	54.00	11.43

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Tae-Ho, Kim / Senior Manager

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

14.6.3 Test data for 802.11n_HT40 RLAN Mode

14.6.3.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

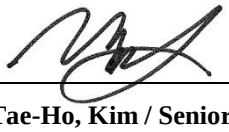
-. Result : Pass

Frequency (GHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 434.56	44.75	Peak	H	31.60	12.17	35.63	52.89	74.00	21.11
5 453.02	34.42	Average	H				42.56	54.00	11.44
5 425.77	44.06	Peak	V				52.20	74.00	21.80
5 455.88	34.41	Average	V				42.55	54.00	11.45

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



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14.6.4 Test data for 802.11ac_HT80 RLAN Mode

14.6.4.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-. Result : Pass

Frequency (GHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 422.25	43.91	Peak	H	31.60	12.17	35.63	52.05	74.00	21.95
5 455.88	34.38	Average	H				42.52	54.00	11.48
5 394.01	44.29	Peak	V				52.43	74.00	21.57
5 450.05	34.38	Average	V				42.52	54.00	11.48

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)

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14.7 Test data for Frequency U-NII-3

14.7.1 Test data for 802.11a RLAN Mode

14.7.1.1 Test data for Antenna 0

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-. Result : Pass

Frequency (GHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
5 650.00	44.96	Peak	H	32.17	12.09	35.18	54.04	80.00	25.96
5 710.00	45.09	Peak	H				54.17	119.80	65.63
5 715.00	45.36	Peak	H				54.44	121.20	66.76
5 725.00	50.90	Peak	H				59.98	134.00	74.02
5 724.86	49.76	Peak	H				58.84	133.68	74.84
5 650.00	44.55	Peak	V				53.63	80.00	26.37
5 710.00	45.30	Peak	V				54.38	119.80	65.42
5 715.00	45.62	Peak	V				54.70	121.20	66.50
5 725.00	54.03	Peak	V				63.11	134.00	70.89
5 724.84	53.57	Peak	V				62.65	133.64	70.99

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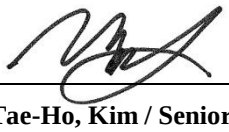
High Channel									
5 850.00	45.69	Peak	H	32.17	12.09	35.18	54.77	134.00	79.23
5 855.00	45.05	Peak	H				54.13	122.60	68.47
5 875.00	45.32	Peak	H				54.40	117.00	62.60
5 925.00	44.86	Peak	H				53.94	80.00	26.06
5 889.34	46.52	Peak	H				55.60	106.39	50.79
5 850.00	45.23	Peak	V				54.31	134.00	79.69
5 855.00	45.00	Peak	V				54.08	122.60	68.52
5 875.00	45.65	Peak	V				54.73	117.00	62.27
5 925.00	45.77	Peak	V				54.85	80.00	25.15
5 850.60	46.60	Peak	V				55.68	132.63	76.95

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Tae-Ho, Kim / Senior Manager

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14.7.1.2 Test data for Antenna 1

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-. Result : Pass

Frequency (GHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
5 650.00	44.96	Peak	H	32.17	12.09	35.18	54.04	80.00	25.96
5 710.00	44.73	Peak	H				53.81	119.80	65.99
5 715.00	45.68	Peak	H				54.76	121.20	66.44
5 725.00	50.14	Peak	H				59.22	134.00	74.78
5 724.86	48.67	Peak	H				57.75	133.68	75.93
5 650.00	45.14	Peak	V				54.22	80.00	25.78
5 710.00	44.48	Peak	V				53.56	119.80	66.24
5 715.00	45.25	Peak	V				54.33	121.20	66.87
5 725.00	47.52	Peak	V				56.60	134.00	77.40
5 724.31	49.17	Peak	V				58.25	132.43	74.18

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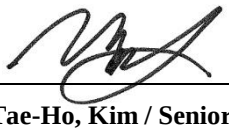
High Channel									
5 850.00	45.29	Peak	H	32.17	12.09	35.18	54.37	134.00	79.63
5 855.00	45.48	Peak	H				54.56	122.60	68.04
5 875.00	45.00	Peak	H				54.08	117.00	62.92
5 925.00	45.10	Peak	H				54.18	80.00	25.82
5 901.15	45.91	Peak	H				54.99	97.65	42.66
5 850.00	45.42	Peak	V				54.50	134.00	79.50
5 855.00	45.30	Peak	V				54.38	122.60	68.22
5 875.00	45.52	Peak	V				54.60	117.00	62.40
5 925.00	45.60	Peak	V				54.68	80.00	25.32
5 865.99	46.62	Peak	V				55.70	119.52	63.82

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Tae-Ho, Kim / Senior Manager

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14.7.2 Test data for 802.11n_HT20 RLAN Mode

14.7.2.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-. Result : Pass

Frequency (GHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
5 650.00	44.71	Peak	H	32.17	12.09	35.18	53.79	80.00	26.21
5 710.00	44.45	Peak	H				53.53	119.80	66.27
5 715.00	44.81	Peak	H				53.89	121.20	67.31
5 725.00	48.75	Peak	H				57.83	134.00	76.17
5 724.86	48.89	Peak	H				57.97	133.68	75.71
5 650.00	45.91	Peak	V				54.99	80.00	25.01
5 710.00	45.01	Peak	V				54.09	119.80	65.71
5 715.00	45.66	Peak	V				54.74	121.20	66.46
5 725.00	49.66	Peak	V				58.74	134.00	75.26
5 724.84	52.01	Peak	V				61.09	133.64	72.55

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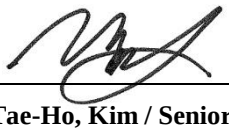
High Channel									
5 850.00	45.39	Peak	H	32.17	12.09	35.18	54.47	134.00	79.53
5 855.00	45.72	Peak	H				54.80	122.60	67.80
5 875.00	44.45	Peak	H				53.53	117.00	63.47
5 925.00	45.49	Peak	H				54.57	80.00	25.43
5 920.66	46.19	Peak	H				55.27	83.21	27.94
5 850.00	45.76	Peak	V				54.84	134.00	79.16
5 855.00	44.82	Peak	V				53.90	122.60	68.70
5 875.00	45.32	Peak	V				54.40	117.00	62.60
5 925.00	44.43	Peak	V				53.51	80.00	26.49
5 865.71	46.27	Peak	V				55.35	119.60	64.25

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



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14.7.3 Test data for 802.11n_HT40 RLAN Mode

14.7.3.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-. Result : Pass

Frequency (GHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
5 650.00	44.87	Peak	H	32.17	12.09	35.18	53.95	80.00	26.05
5 710.00	45.25	Peak	H				54.33	119.80	65.47
5 715.00	47.50	Peak	H				56.58	121.20	64.62
5 725.00	47.92	Peak	H				57.00	134.00	77.00
5 724.86	50.76	Peak	H				59.84	133.68	73.84
5 650.00	45.96	Peak	V				55.04	80.00	24.96
5 710.00	45.88	Peak	V				54.96	119.80	64.84
5 715.00	49.99	Peak	V				59.07	121.20	62.13
5 725.00	51.93	Peak	V				61.01	134.00	72.99
5 724.86	53.76	Peak	V				62.84	133.68	70.84

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High Channel									
5 850.00	45.26	Peak	H	32.17	12.09	35.18	54.34	134.00	79.66
5 855.00	45.49	Peak	H				54.57	122.60	68.03
5 875.00	44.67	Peak	H				53.75	117.00	63.25
5 925.00	44.71	Peak	H				53.79	80.00	26.21
5 856.92	45.96	Peak	H				55.04	122.06	67.02
5 850.00	45.50	Peak	V				54.58	134.00	79.42
5 855.00	45.06	Peak	V				54.14	122.60	68.46
5 875.00	45.10	Peak	V				54.18	117.00	62.82
5 925.00	44.96	Peak	V				54.04	80.00	25.96
5 916.54	46.51	Peak	V				55.59	86.26	30.67

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)

Tested by: Tae-Ho, Kim / Senior Manager

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14.7.4 Test data for 802.11ac_HT80 RLAN Mode

14.7.4.1 Test data for Multiple Transmit

-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : > 98 %

-. Result : Pass

Frequency (GHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Low Channel									
5 650.00	45.36	Peak	H	32.17	12.09	35.18	54.44	80.00	25.56
5 710.00	47.63	Peak	H				56.71	119.80	63.09
5 715.00	48.55	Peak	H				57.63	121.20	63.57
5 725.00	50.61	Peak	H				59.69	134.00	74.31
5 724.86	51.98	Peak	H				61.06	133.68	72.62
5 650.00	44.63	Peak	V				53.71	80.00	26.29
5 710.00	51.26	Peak	V				60.34	119.80	59.46
5 715.00	53.68	Peak	V				62.76	121.20	58.44
5 725.00	54.50	Peak	V				63.58	134.00	70.42
5 716.35	54.53	Peak	V				63.61	121.58	57.97

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High Channel									
5 850.00	45.62	Peak	H	32.17	12.09	35.18	54.70	134.00	79.30
5 855.00	45.08	Peak	H				54.16	122.60	68.44
5 875.00	44.84	Peak	H				53.92	117.00	63.08
5 925.00	44.76	Peak	H				53.84	80.00	26.16
5 867.64	46.40	Peak	H				55.48	119.06	63.58
5 850.00	50.87	Peak	V				59.95	134.00	74.05
5 855.00	48.51	Peak	V				57.59	122.60	65.01
5 875.00	46.21	Peak	V				55.29	117.00	61.71
5 925.00	45.06	Peak	V				54.14	80.00	25.86
5 850.88	49.34	Peak	V				58.42	131.99	73.57

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)

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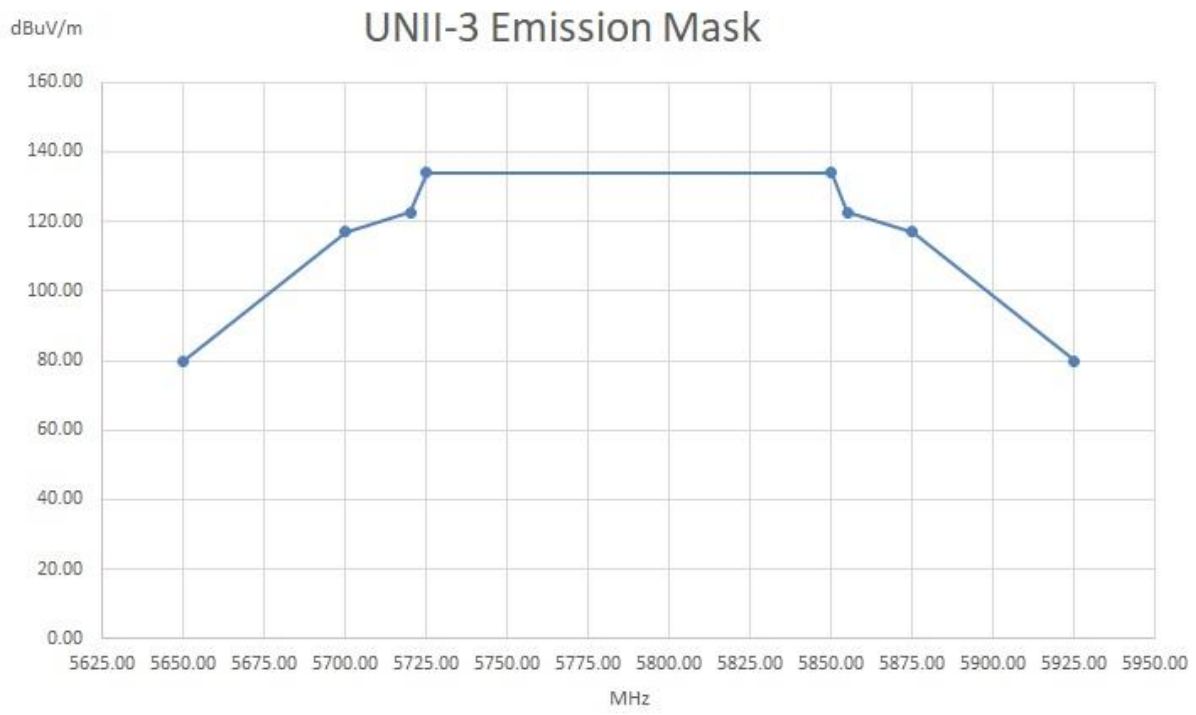
14.7.5 U-NII-3 Emission Limits

14.7.5.1 Emission Mask Plots



Remark.

-. Title 47 → Part 15 → Subpart E—UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE DEVICES

§ 15.407 General technical requirements.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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15. CONDUCTED EMISSION TEST

15.1 Operating environment

Temperature : 25 ℃

Relative humidity : 46 % R.H.

15.2 Test set-up

The EUT was placed on a wooden table, 0.8 m height above the floor. Power was fed to the EUT through a 50 Ω / 50 μH + 5 Ω Artificial Mains Network (AMN). The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

15.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ -	ESCI	Rohde & Schwarz	Test Receiver	101012	Oct. 22, 2018 (1Y)
☐ -	ESHS10	Rohde & Schwarz	Test Receiver	834467/007	Mar. 29, 2018 (1Y)
☐ -	NSLK8128	Schwarzbeck	AMN	8128-216	Mar. 29, 2018 (1Y)
■ -	NSLK8126	Schwarzbeck	AMN	8126-404	Apr. 04, 2018 (1Y)
☐ -	3825/2	EMCO	AMN	9109-1869	Apr. 11, 2018 (1Y)
■ -	3825/2	EMCO	AMN	9109-1867	Mar. 28, 2018 (1Y)

All test equipment used is calibrated on a regular basis.

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15.4 Test data

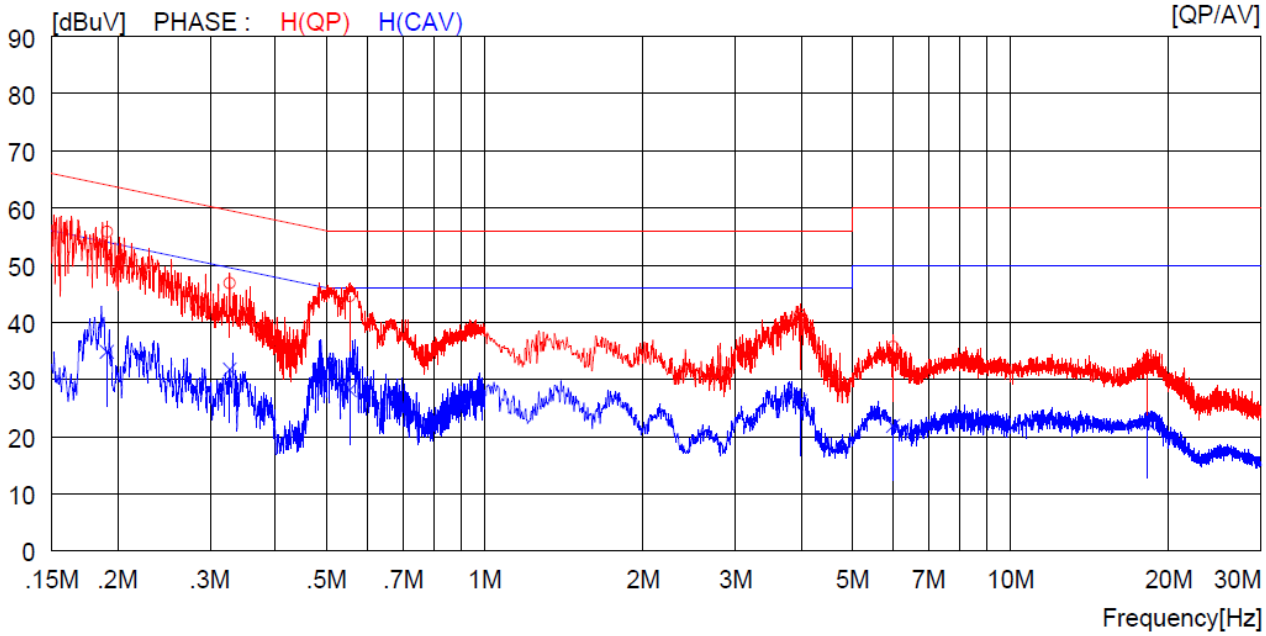
-. Test Date : September 28, 2018 ~ October 24, 2018

-. Resolution bandwidth : 9 kHz

-. Frequency range : 0.15 MHz ~ 30 MHz

-. Tested Line : HOT LINE

-.Antenna 0, Antenna 1 and Multiple transmit tested, but the worst data were recorded.



NO	FREQ	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.19100	45.9	----	9.9	55.8	----	64.0	----	8.2	----	H(QP)
2	0.32700	36.8	----	10.0	46.8	----	59.5	----	12.7	----	H(QP)
3	0.55300	34.5	----	10.0	44.5	----	56.0	----	11.5	----	H(QP)
4	3.98000	31.1	----	10.2	41.3	----	56.0	----	14.7	----	H(QP)
5	5.98500	25.5	----	10.2	35.7	----	60.0	----	24.3	----	H(QP)
6	18.28000	22.9	----	10.4	33.3	----	60.0	----	26.7	----	H(QP)
7	0.19100	----	24.9	9.9	----	34.8	----	54.0	----	19.2	H(CAV)
8	0.32700	----	21.8	10.0	----	31.8	----	49.5	----	17.7	H(CAV)
9	0.55300	----	18.1	10.0	----	28.1	----	46.0	----	17.9	H(CAV)
10	3.98000	----	16.0	10.2	----	26.2	----	46.0	----	19.8	H(CAV)
11	5.98500	----	11.7	10.2	----	21.9	----	50.0	----	28.1	H(CAV)
12	18.28000	----	11.9	10.4	----	22.3	----	50.0	----	27.7	H(CAV)

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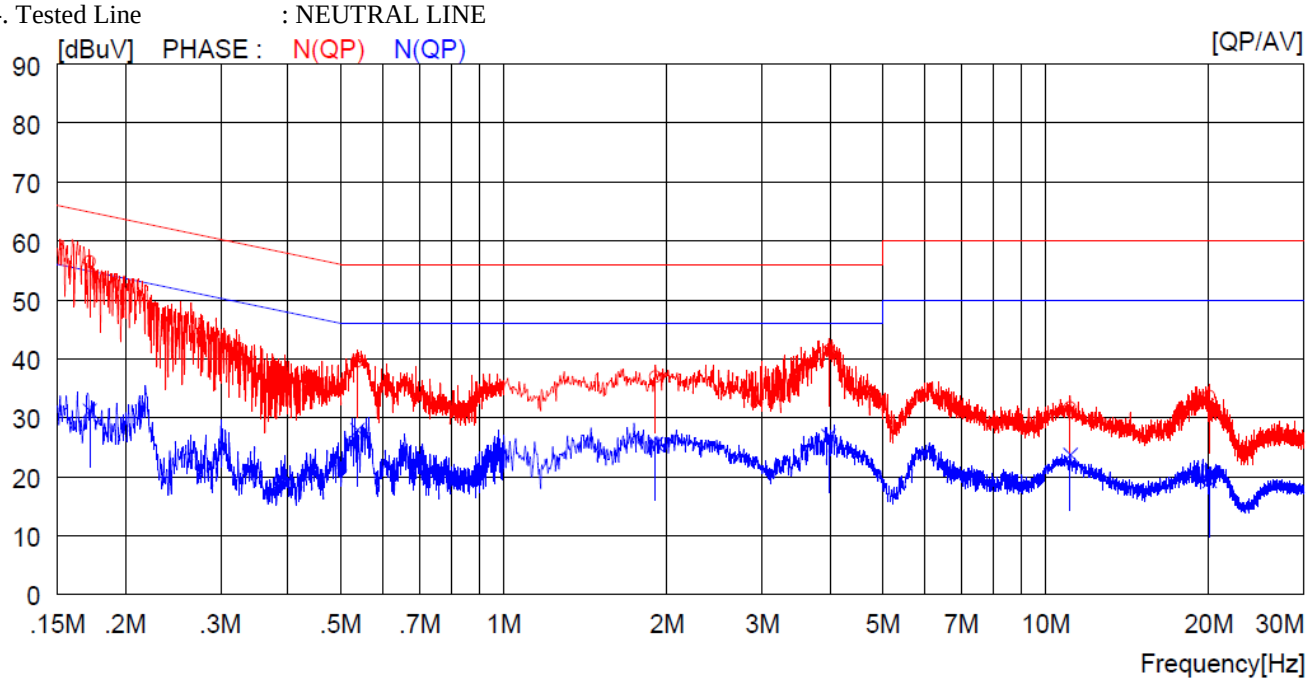
-. Tested Line : NEUTRAL LINE



NO	FREQ	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.17200	46.6	----	9.9	56.5	----	64.9	----	8.4	----	N(QP)
2	0.53700	29.6	----	10.0	39.6	----	56.0	----	16.4	----	N(QP)
3	1.90800	27.0	----	10.0	37.0	----	56.0	----	19.0	----	N(QP)
4	3.97600	31.2	----	10.2	41.4	----	56.0	----	14.6	----	N(QP)
5	11.11000	21.5	----	10.2	31.7	----	60.0	----	28.3	----	N(QP)
6	20.06000	23.1	----	10.5	33.6	----	60.0	----	26.4	----	N(QP)
7	0.17200	----	21.3	9.9	----	31.2	----	54.9	----	23.7	N(CAV)
8	0.53700	----	17.9	10.0	----	27.9	----	46.0	----	18.1	N(CAV)
9	1.90800	----	15.5	10.0	----	25.5	----	46.0	----	20.5	N(CAV)
10	3.97600	----	16.7	10.2	----	26.9	----	46.0	----	19.1	N(CAV)
11	11.11000	----	13.5	10.2	----	23.7	----	50.0	----	26.3	N(CAV)
12	20.06000	----	8.7	10.5	----	19.2	----	50.0	----	30.8	N(CAV)

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

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16. DYNAMIC FREQUENCY SELECTION (DFS)

16.1 Operating environment

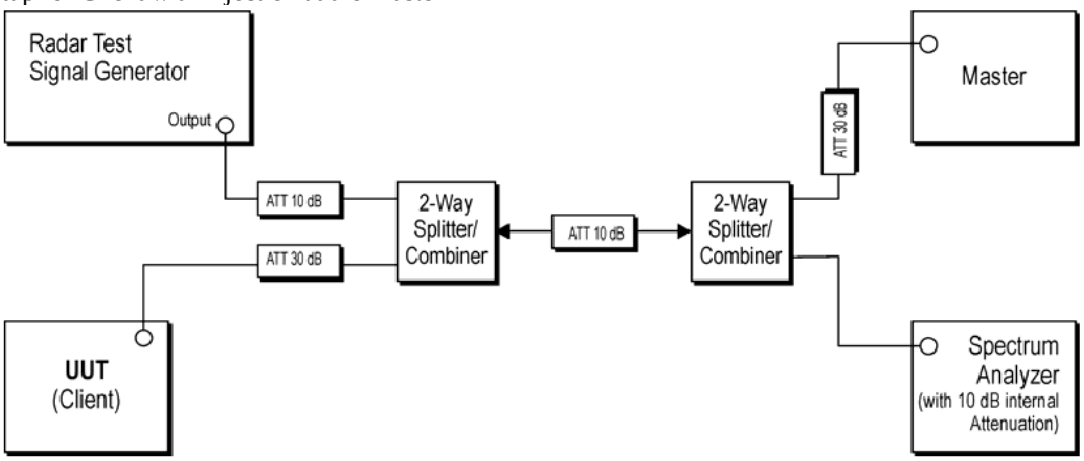
Temperature : 25 ℃

Relative humidity : 46 % R.H.

16.2 Test set-ups

The FCC 06-96 and RSS-210 A9.3 describes a conducted test setup. A conducted test setup was user this testing. Figure 1 shows the typical test setup. Each one channel selected between 5 250 MHz and 5 350 MHz, 5 470 MHz and 5 725 MHz is chosen for the testing.

Figure 1. Setup for Client with injection at the Master



16.3 DFS Test Signals

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (µsec)	PRI (µsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a	Roundup $\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{PRI_{\mu sec}}\right)\right\}$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 µ sec, with a minimum increment of 1 µ sec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Table 6 – Long Pulse Radar Test Waveform

Radar Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Number of Pulses per *Burst*	Number of *Bursts*	Minimum Percentage of Successful Detection	Minimum Number of Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

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16.4 Technical Requirement Specification

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode		
	Master	Client (without DFS)	Client (with DFS)
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
Uniform Spreading	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client (without DFS)	Client (with DFS)
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required	Yes

16.5 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Mar. 14, 2018 (1Y)
■ -	D-05180-2	RLC Electronis Inc.	Combiner	0813	N/A
■ -	11636B	Hewlett Packard	Combiner	12268	N/A
■ -	SMJ100A	R/S	Signal Generator	101038	Aug. 23, 2018 (1Y)
■ -	H-3005D	FinePower	DC Power supply	FP09092008	Mar. 14, 2018 (1Y)
■	AIR-AP1252AG-K-K9	CISCO	AP	FGL1439Z0KE	N/A

All test equipment used is calibrated on a regular basis.

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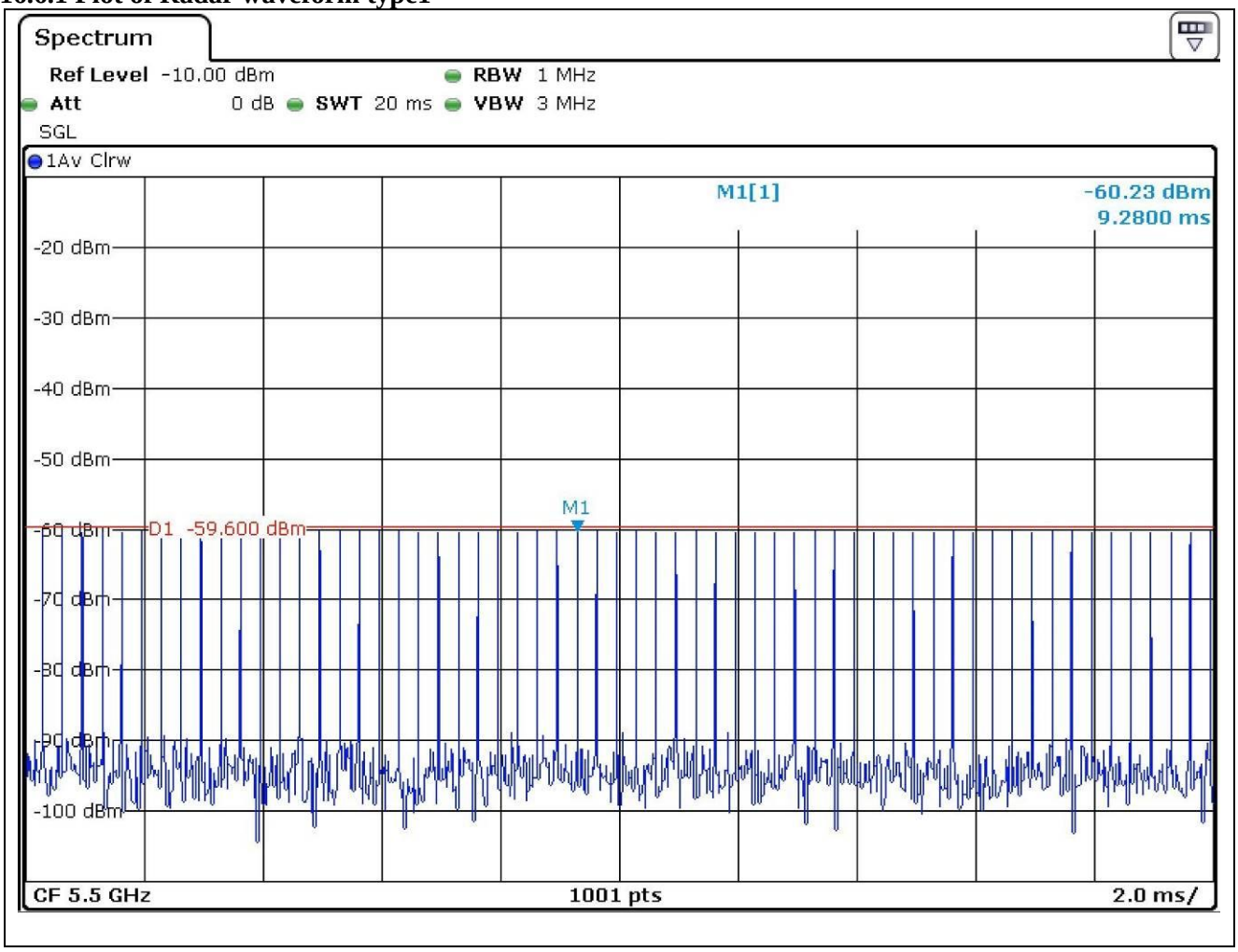
16.6 Test data

-. Test Date : September 28, 2018 ~ October 24, 2018

Frequency (MHz)	Channel move time(s)		Channel closing transmission time(ms)	
	Measured	Limit	Measured	Limit
5 500	0.476	10	0.8	60

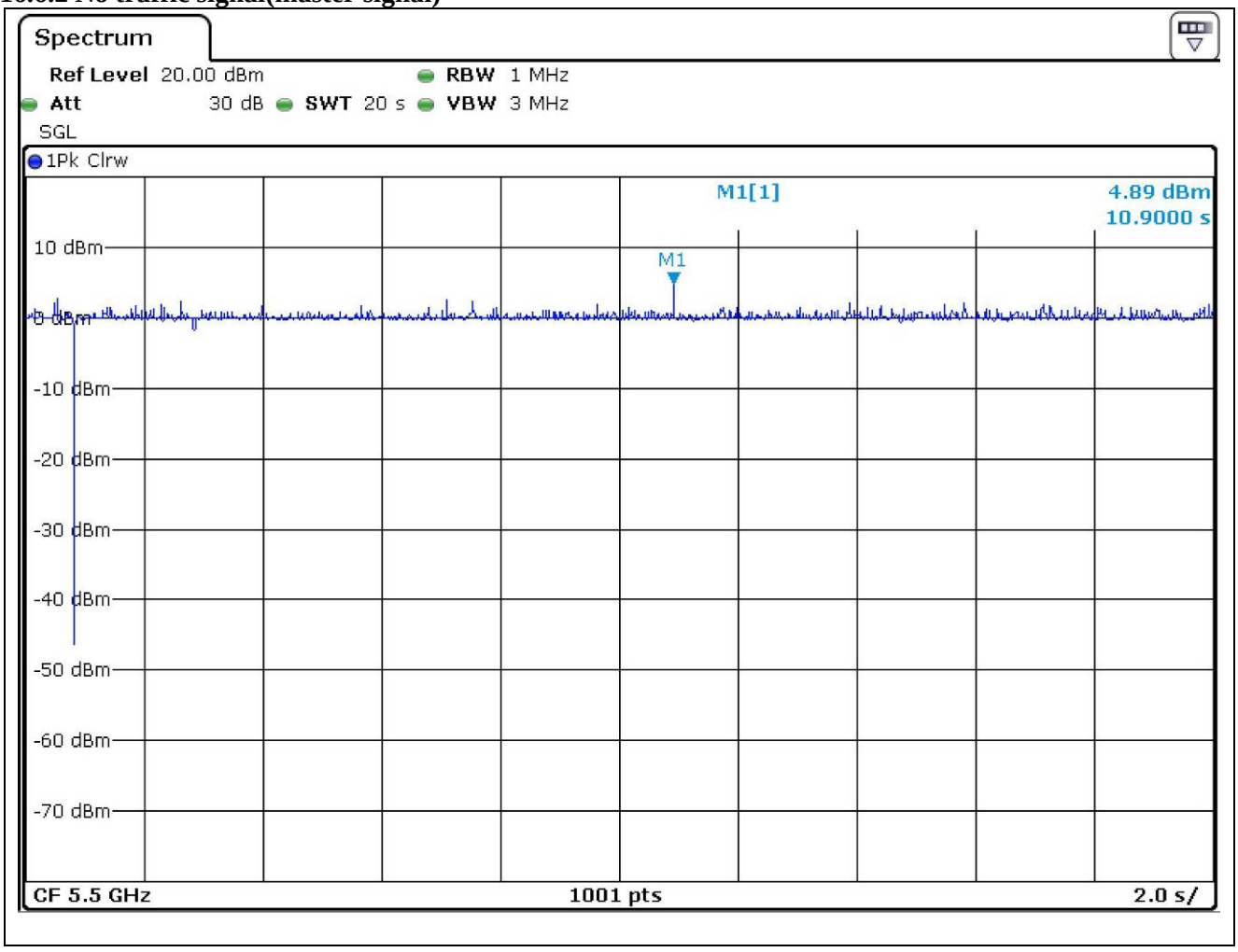
Note. Channel closing transmission time: 4 * 0.2 ms = 0.8 ms

16.6.1 Plot of Radar waveform type1

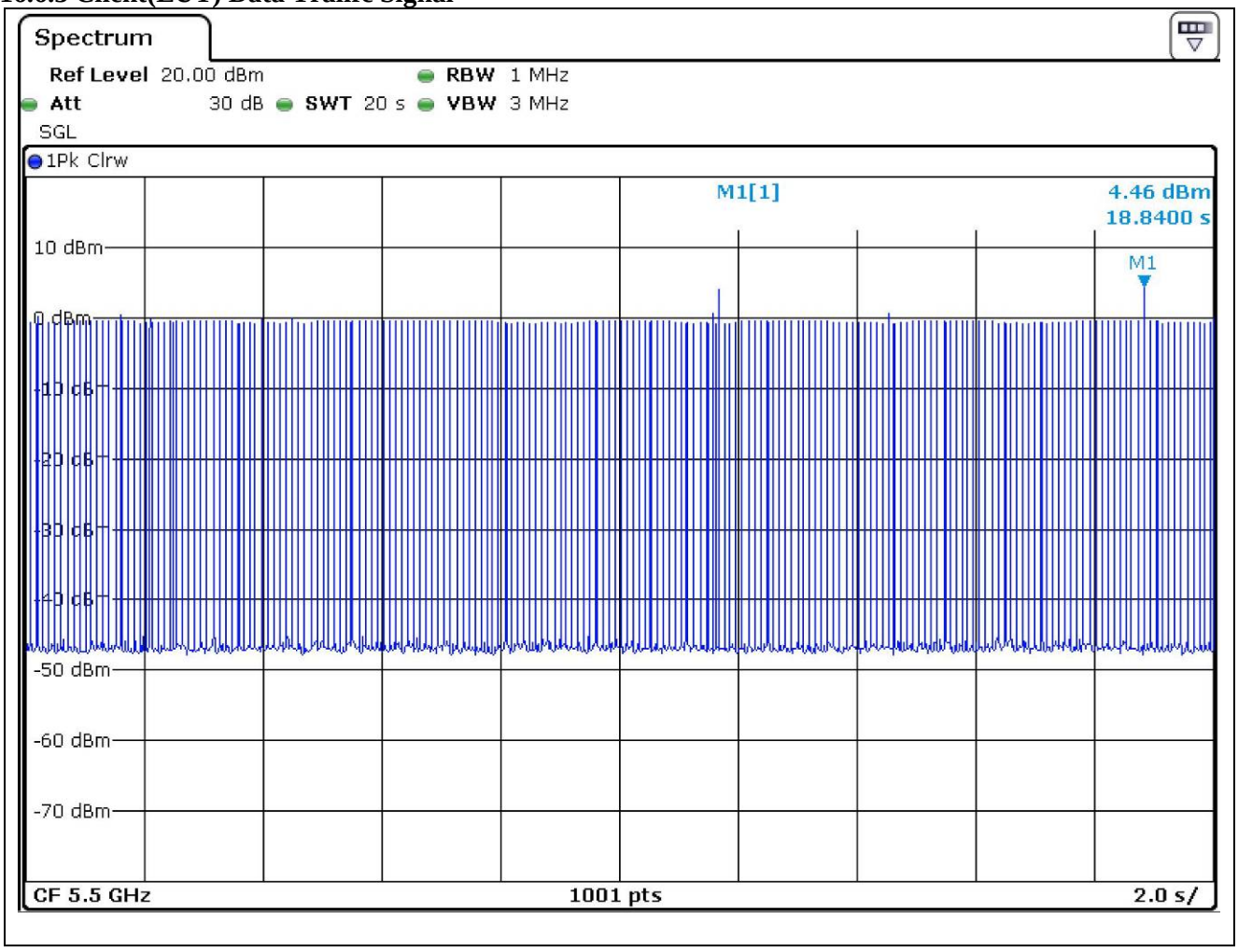


Note: The calibrated conducted DFS detection threshold level is set to -60.23 dBm (-62+1+1.95=-59.05 dBm)

16.6.2 No traffic signal(master signal)



16.6.3 Client(EUT) Data Traiifc Signal



16.6.4 Channel move and Channel Closing transmission time