11. MAXIMUM PEAK OUTPUT POWER

11.1 Operating environment

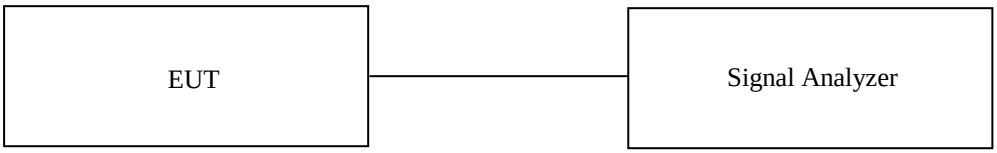
Temperature : 21.4 ℃

Relative humidity : 45.1 % R.H

11.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer.

The resolution bandwidth is set to ≥DTS Bandwidth, the video bandwidth is set to 3 times the resolution bandwidth.



11.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Apr. 05, 2017 (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 1 Mbps

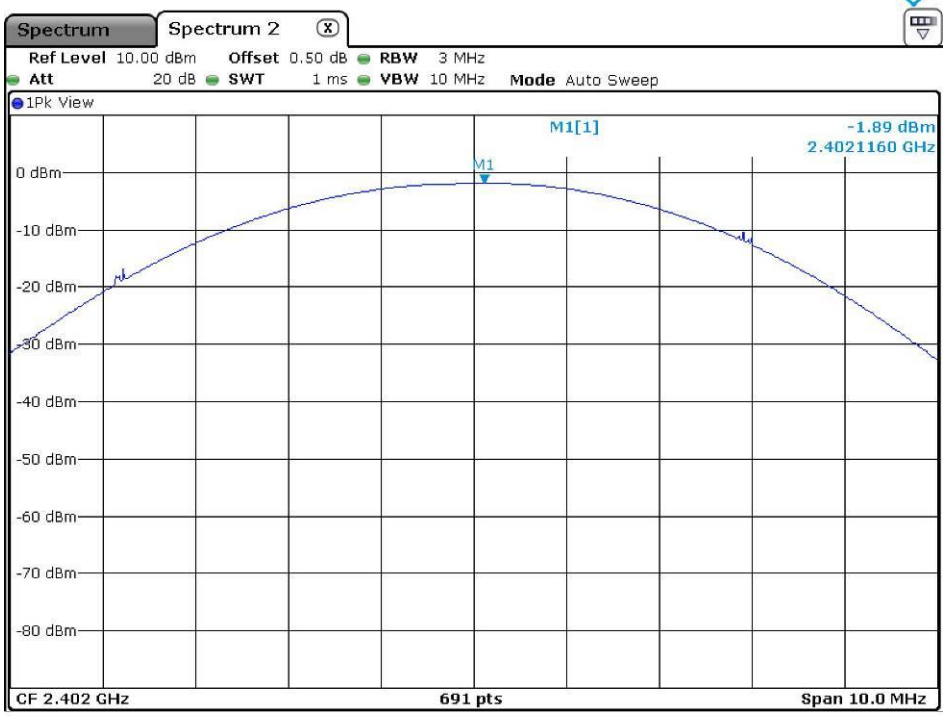
-. Test Date : December 14, 2017 ~ December 18, 2017

-. Test Result : Pass

CHANNEL	FREQUENCY (MHz)	MEASURED VLAUE (dBm)	LIMIT (dBm)	MARGIN (dB)
LOW	2 402.00	-1.89	21.00	22.89
MIDDLE	2 441.00	-1.74	21.00	22.74
HIGH	2 480.00	-1.17	21.00	22.17

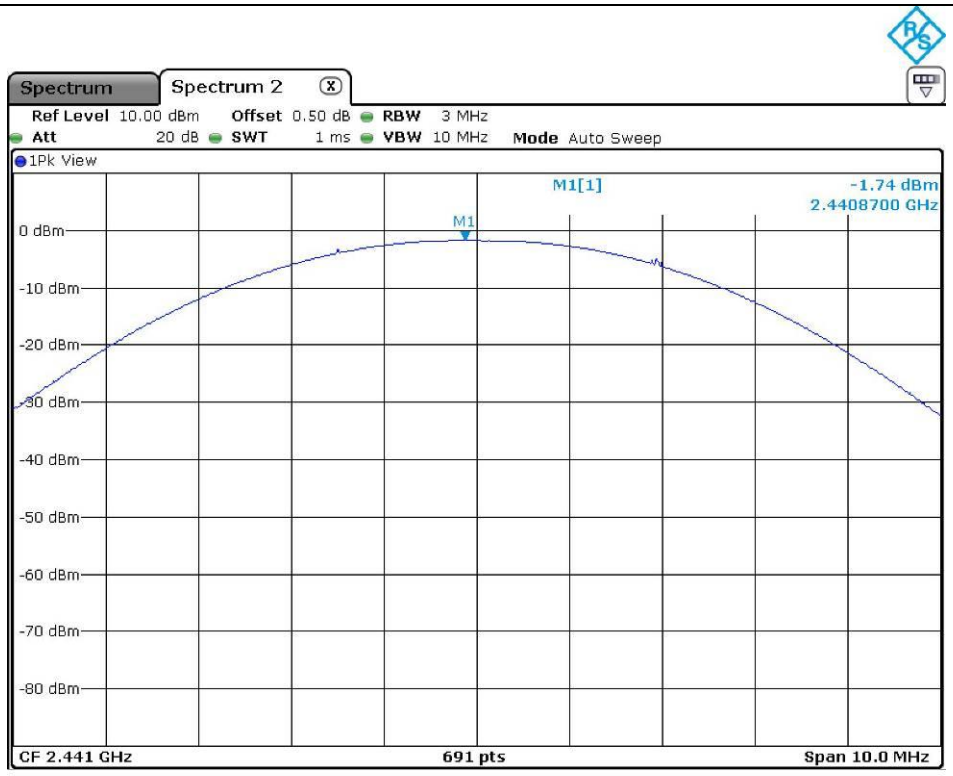
Remark. Margin = Limit – Measured Value (=Receiver Reading + Cable Loss)

Tested by: Tae-Ho, Kim / Manager

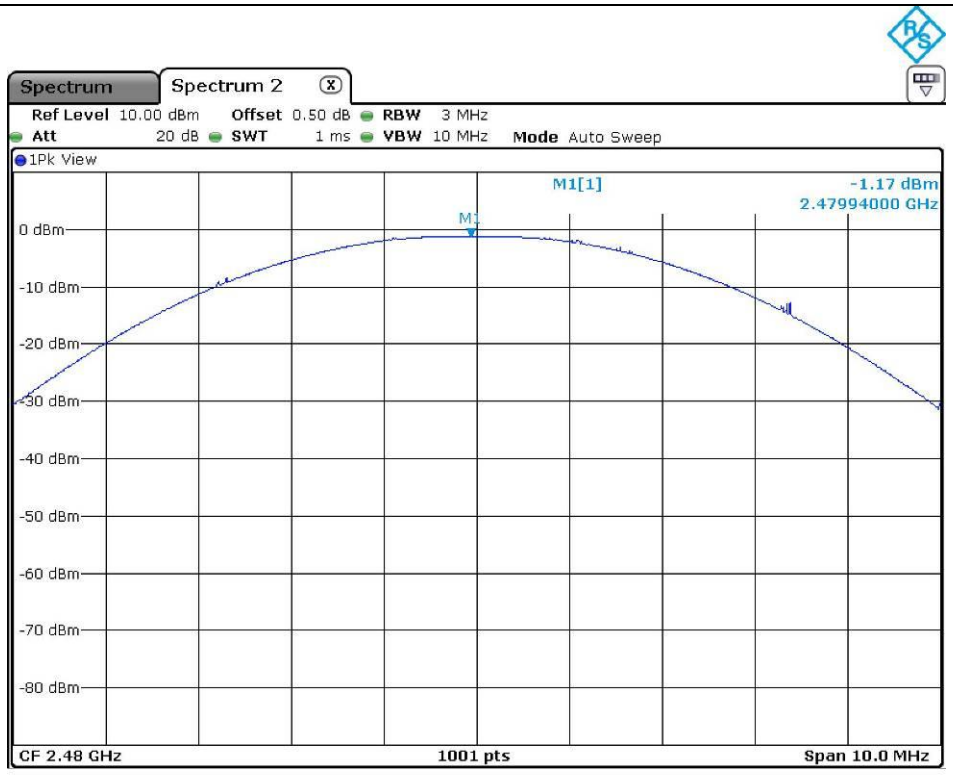


Low Channel

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



High Channel

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 2 Mbps

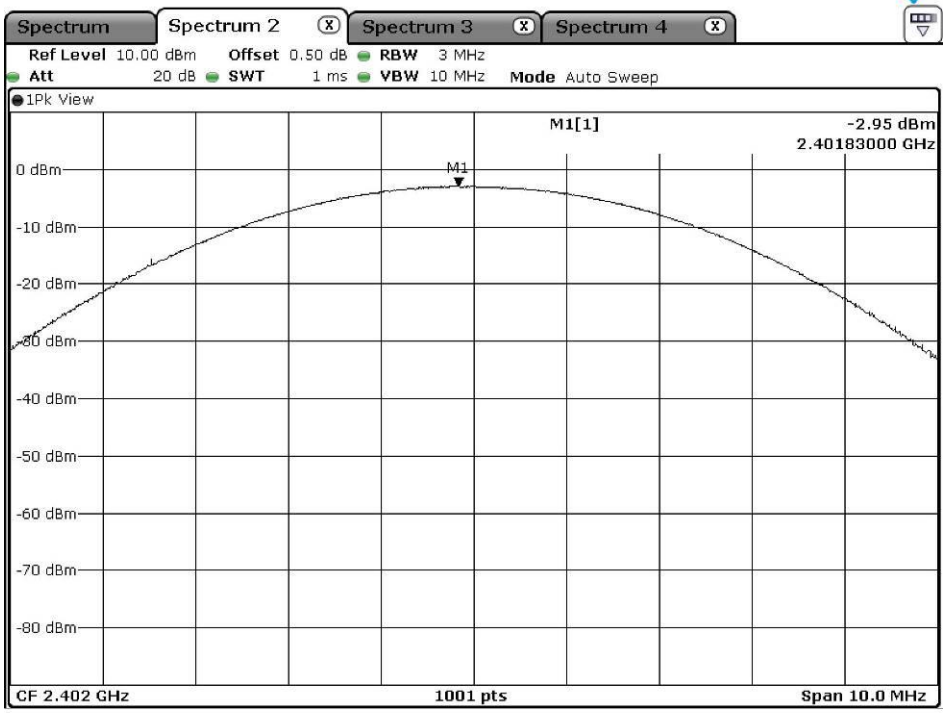
-. Test Date : December 14, 2017 ~ December 18, 2017

-. Test Result : Pass

CHANNEL	FREQUENCY (MHz)	MEASURED VLAUE (dBm)	LIMIT (dBm)	MARGIN (dB)
LOW	2 402.00	-2.95	21.00	23.95
MIDDLE	2 441.00	-2.32	21.00	23.32
HIGH	2 480.00	-1.66	21.00	22.66

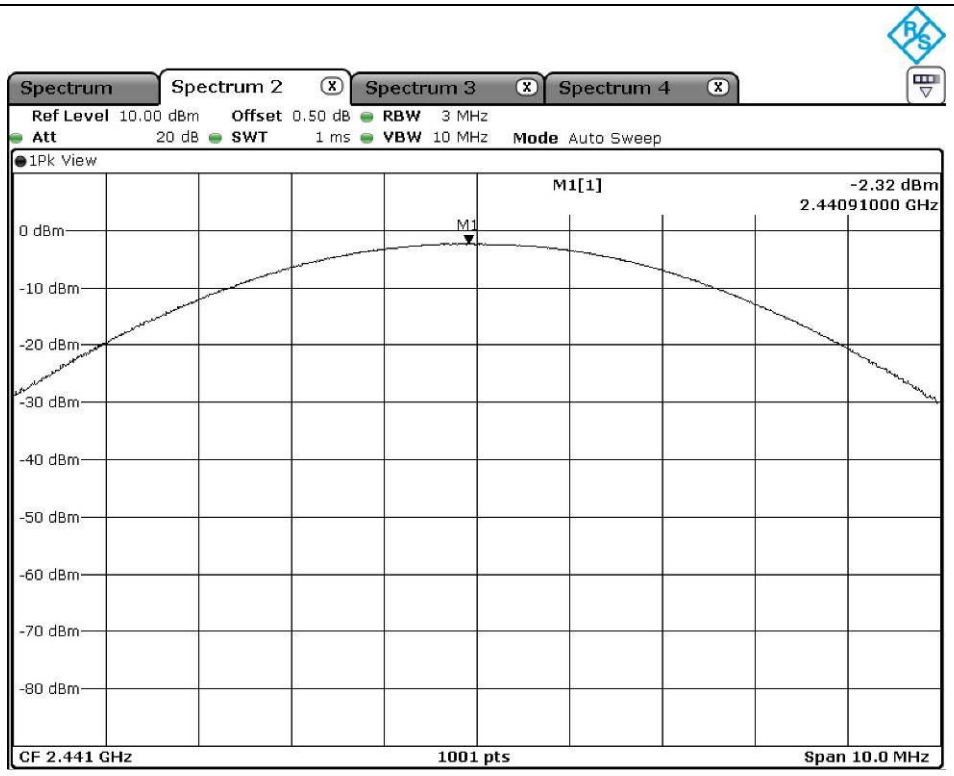
Remark. Margin = Limit – Measured Value (=Receiver Reading + Cable Loss)

Tested by: Tae-Ho, Kim / Manager

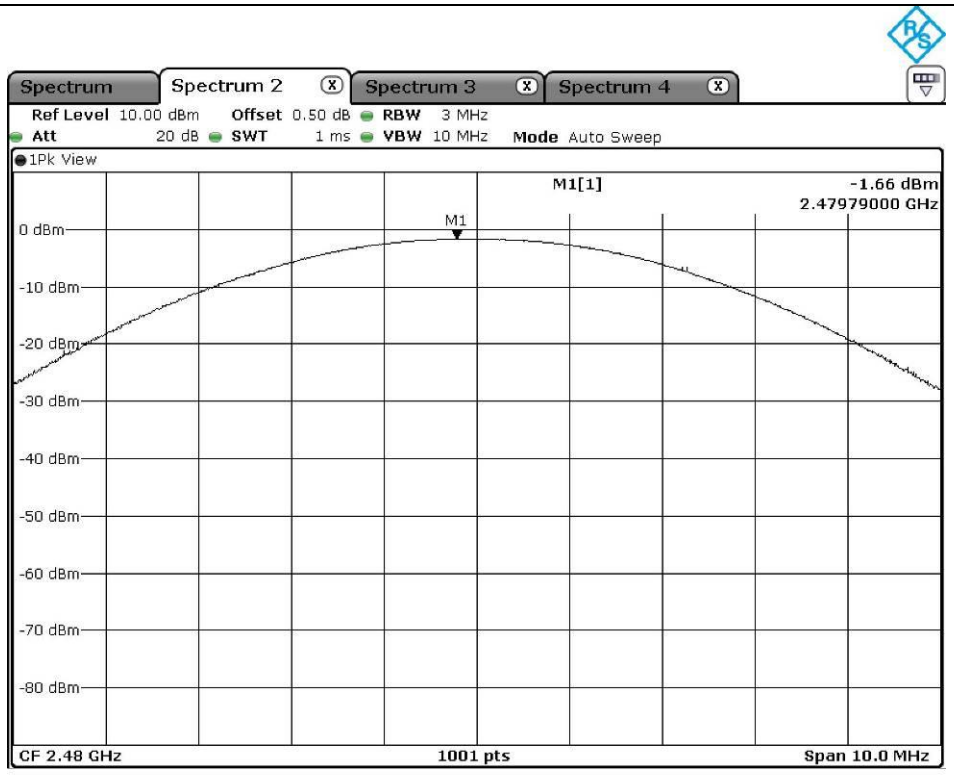


Low Channel

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



High Channel

11.6 Test data for 3 Mbps

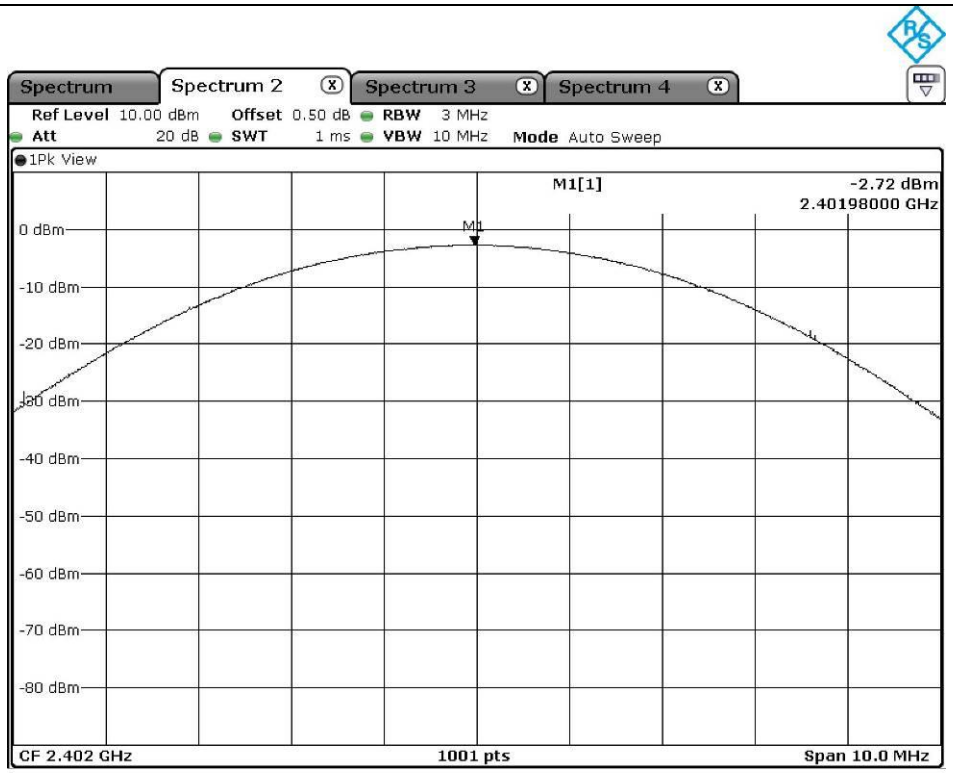
-. Test Date : December 14, 2017 ~ December 18, 2017

-. Test Result : Pass

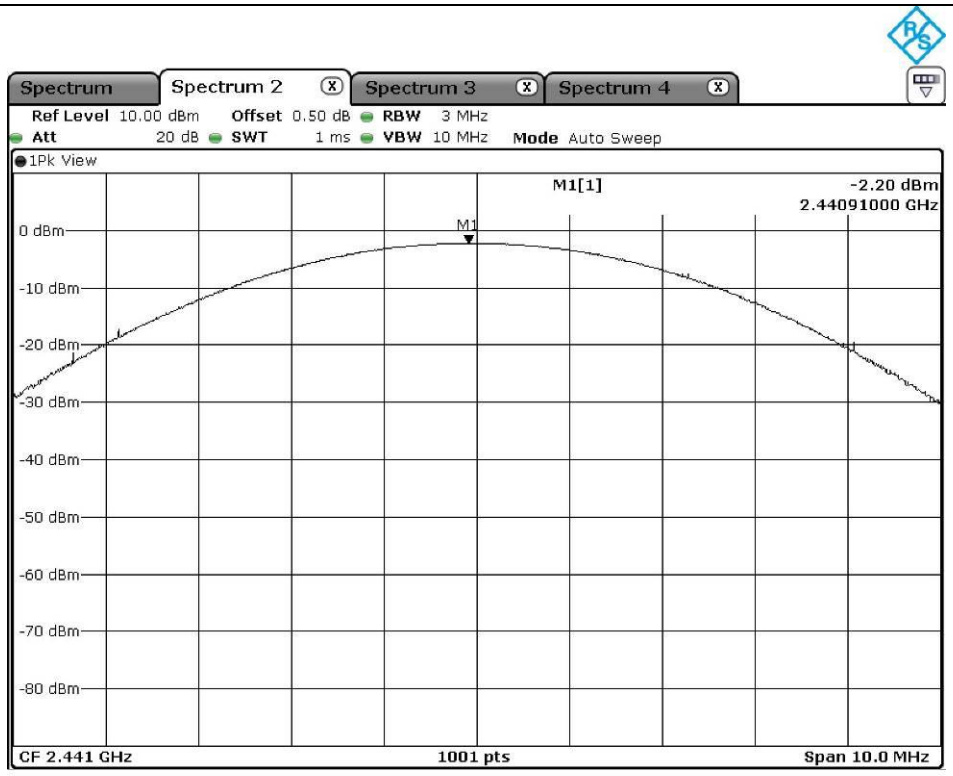
CHANNEL	FREQUENCY (MHz)	MEASURED VLAUE (dBm)	LIMIT (dBm)	MARGIN (dB)
LOW	2 402.00	-2.72	21.00	23.72
MIDDLE	2 441.00	-2.20	21.00	23.20
HIGH	2 480.00	-1.56	21.00	22.56

Remark. Margin = Limit – Measured Value (=Receiver Reading + Cable Loss)

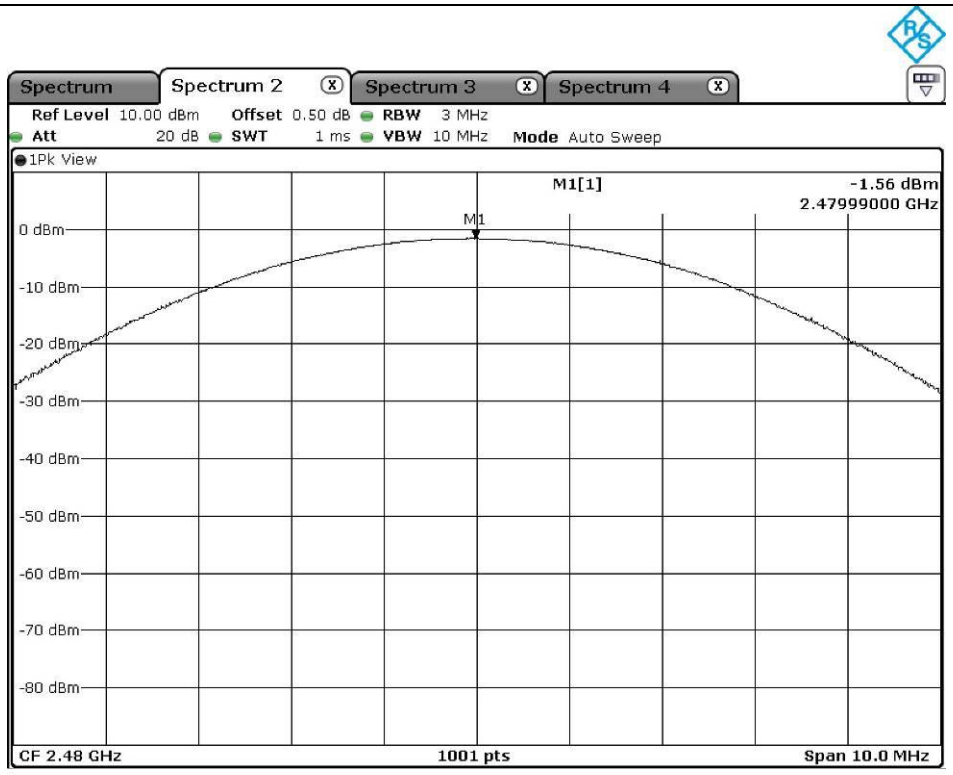
Tested by: Tae-Ho, Kim / Manager



Low Channel



Middle Channel



High Channel

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. 100 kHz BANDWIDTH OUTSIDE THE FREQUENCY BAND

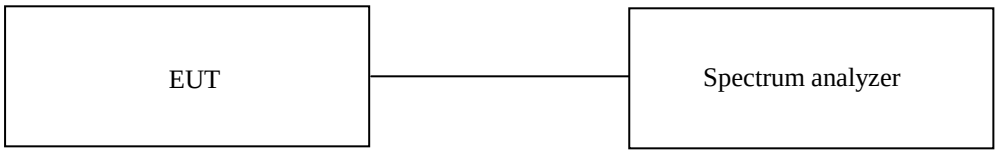
12.1 Operating environment

Temperature : 21.4 ℃

Relative humidity : 45.1 % R.H

12.2 Test set-up for conducted measurement

The antenna output of the EUT was connected to the spectrum analyzer. The resolution and video bandwidth is set to 100 kHz, and peak detection was used.



12.3 Test set-up for radiated measurement

The radiated emissions measurements were performed on the 3 m semi anechoic chamber. The EUT was placed on turntable approximately 1.5 m above the ground plane.

The frequency spectrum from 30 MHz to 26.5 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.

12.4 Test equipment used

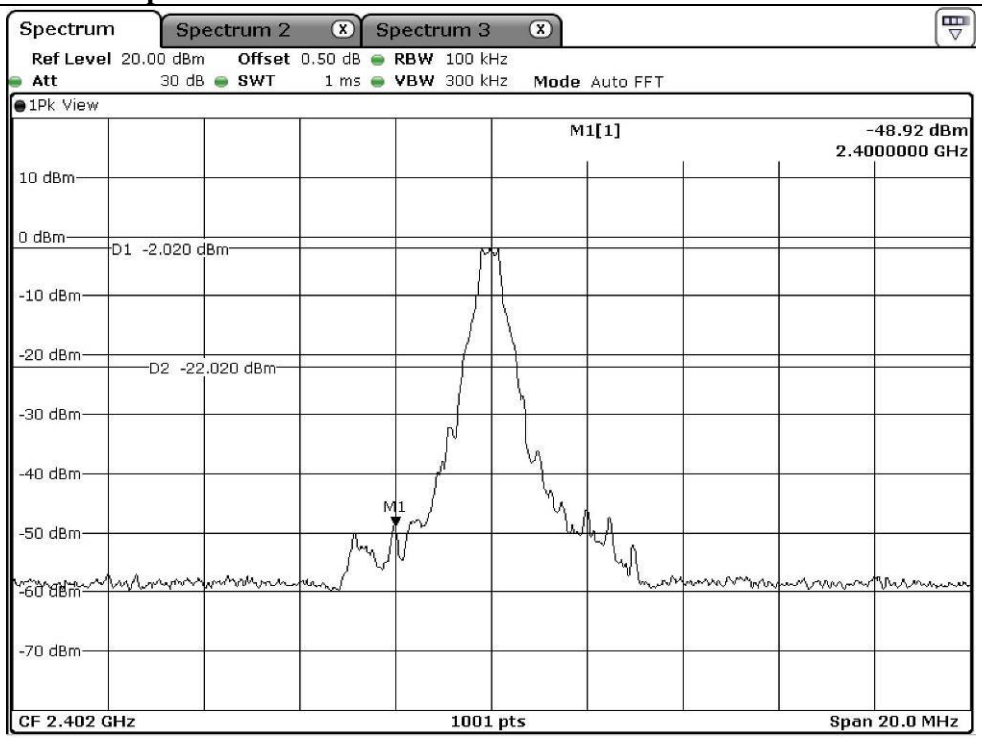
	Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Apr. 05, 2017 (1Y)
■ -	ESU	Rohde & Schwarz	EMI Test Receiver	100261	Apr. 06, 2017 (1Y)
■ -	310N	Sonoma Instrument	Pre-Amplifier	312544	Apr. 05, 2017 (1Y)
■ -	BBV9718	Schwarzbeck	Amplifier	310	Sep. 01, 2017 (1Y)
■	SCU40A	Rohde & Schwarz	Signal Conditioning unit	100436	Apr. 04, 2017 (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	9163-421	Apr. 15, 2016 (2Y)
■ -	BBHA9120D	Schwarzbeck	Horn Antenna	BBHA9120D295	May 26, 2017 (2Y)
■ -	BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170179	Jul. 28, 2017 (2Y)

All test equipment used is calibrated on a regular basis.

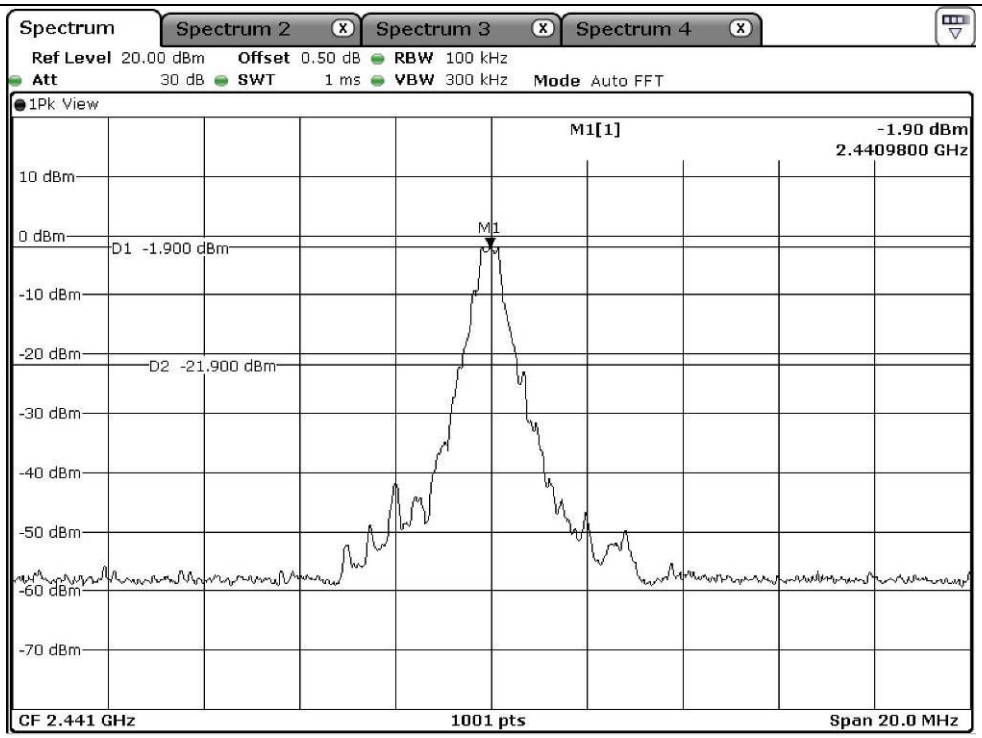
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.5 Test data for conducted emission

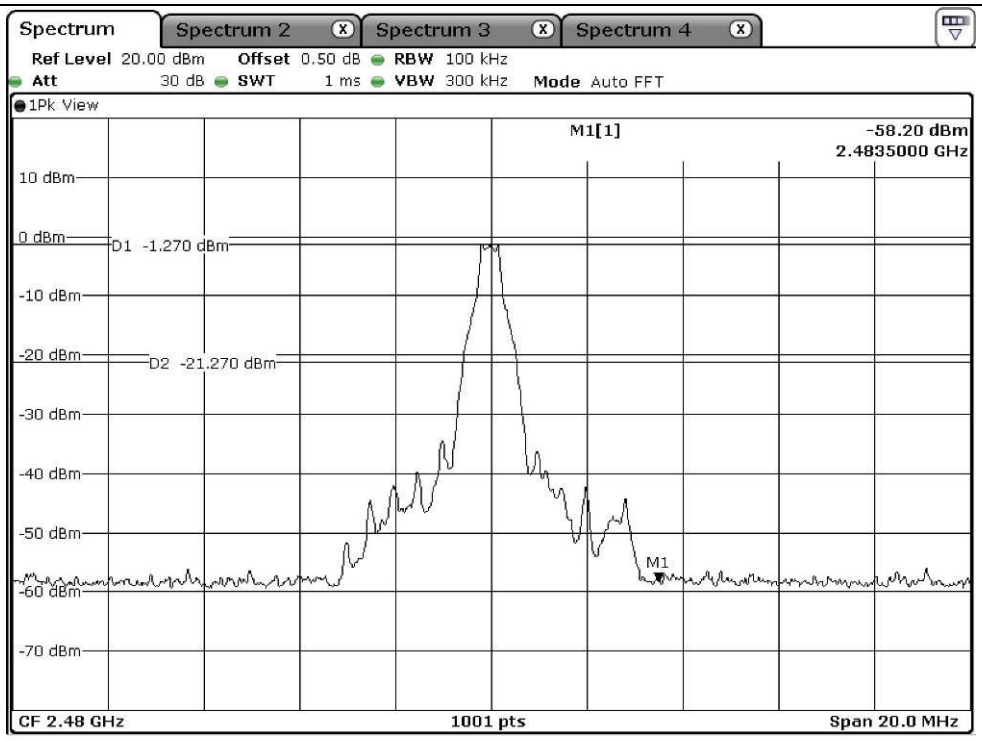
12.5.1 Test data for 1 Mbps



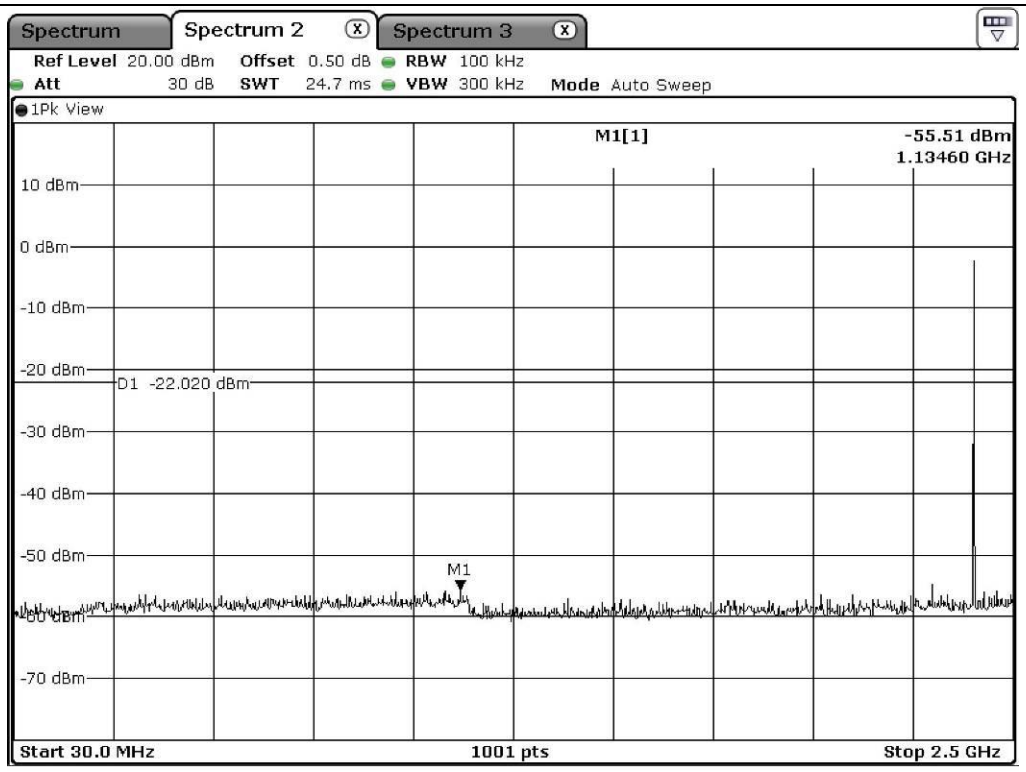
Low Channel



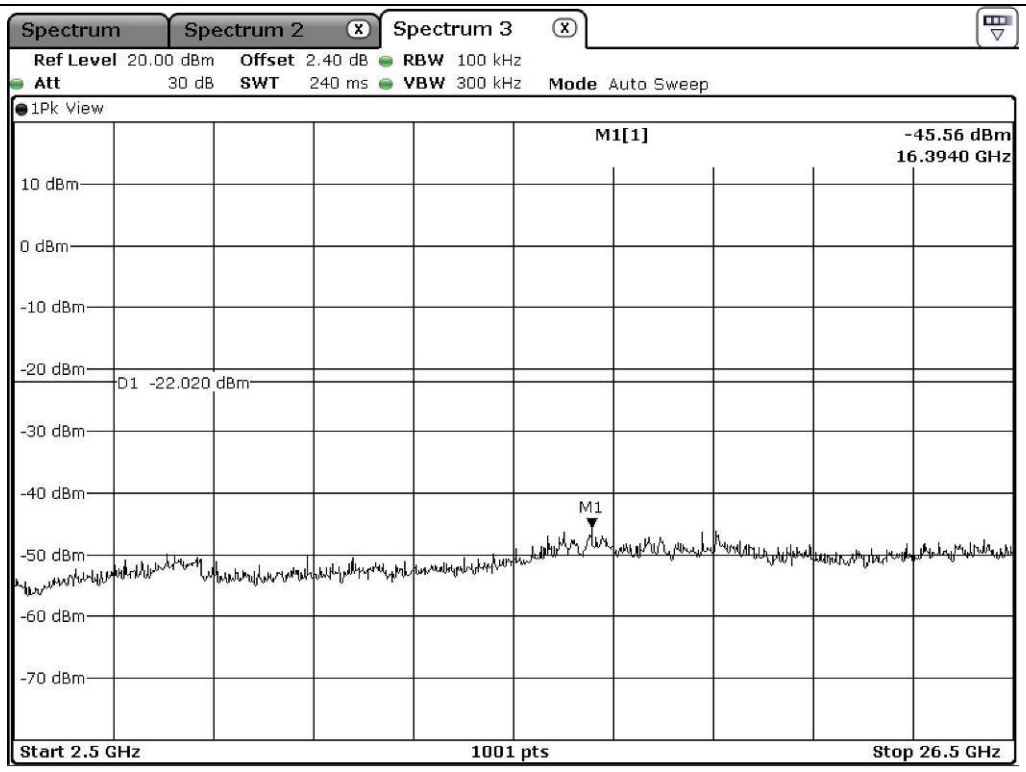
Middle Channel



High Channel

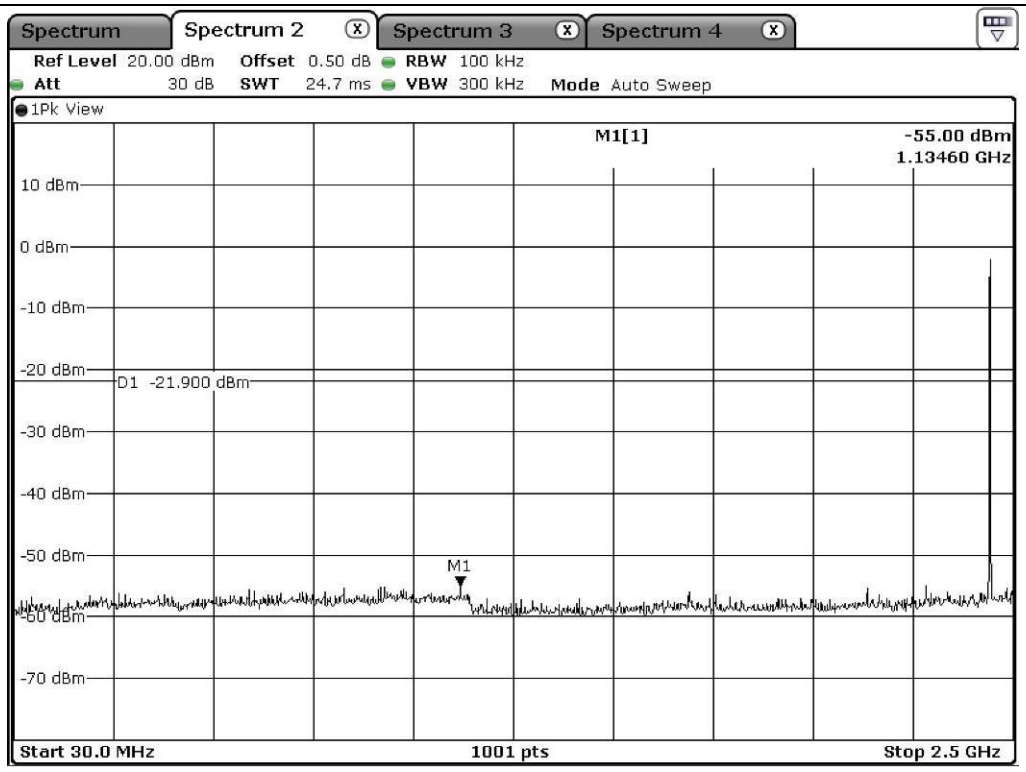


Low Channel

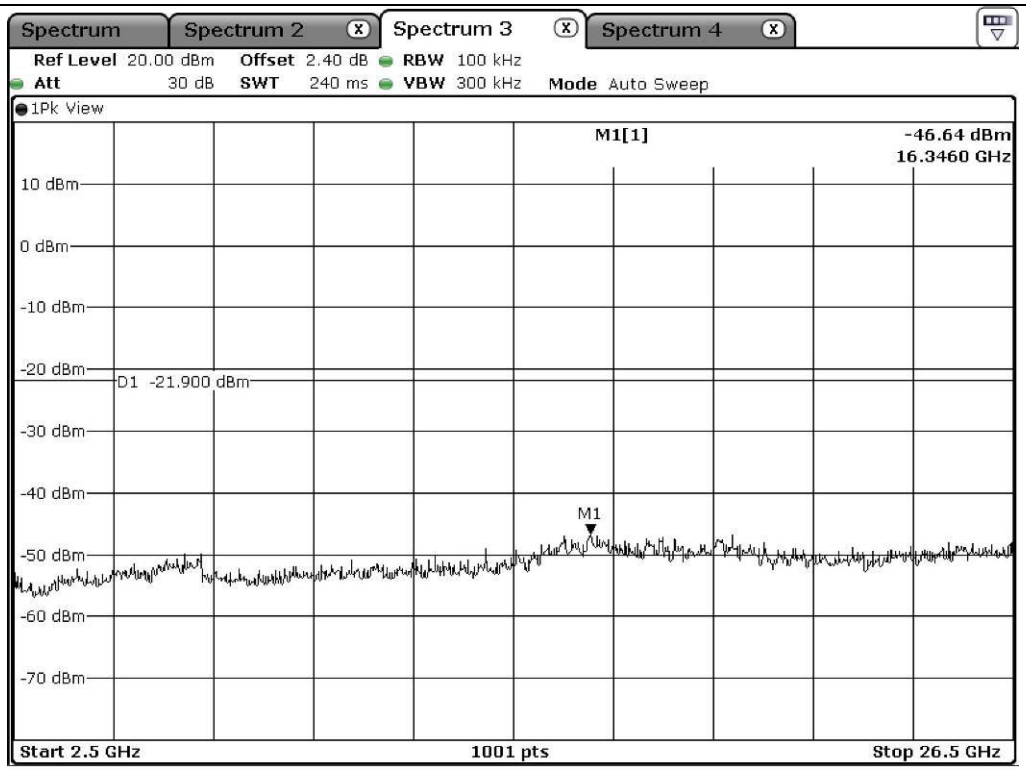


Low Channel

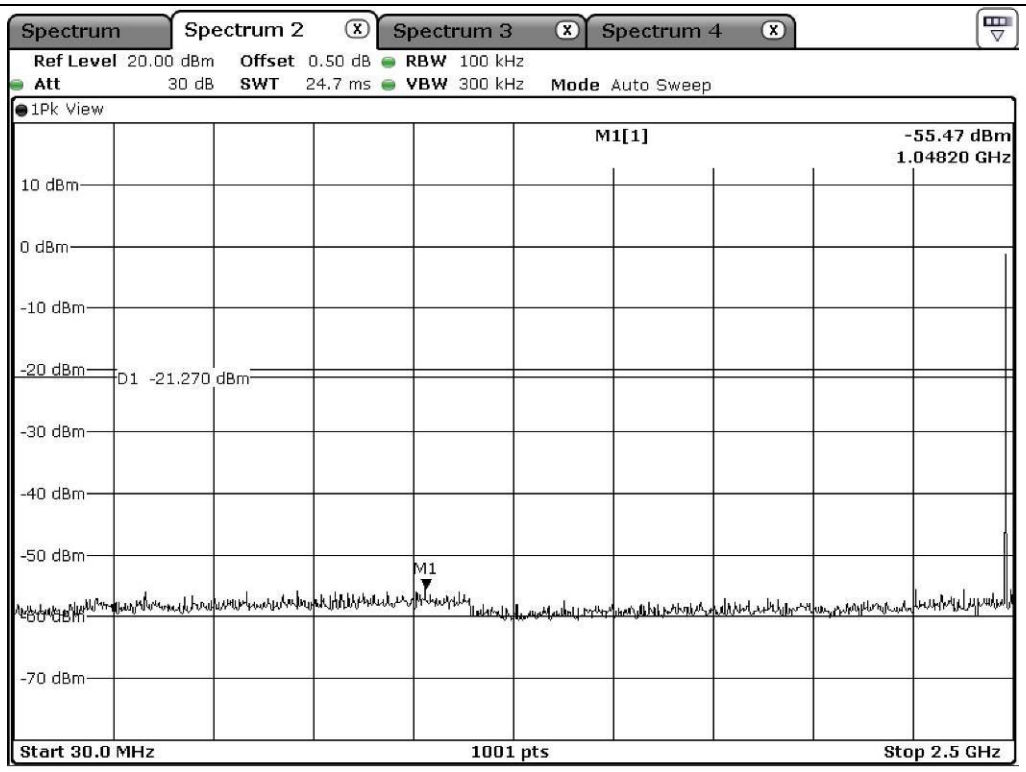
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



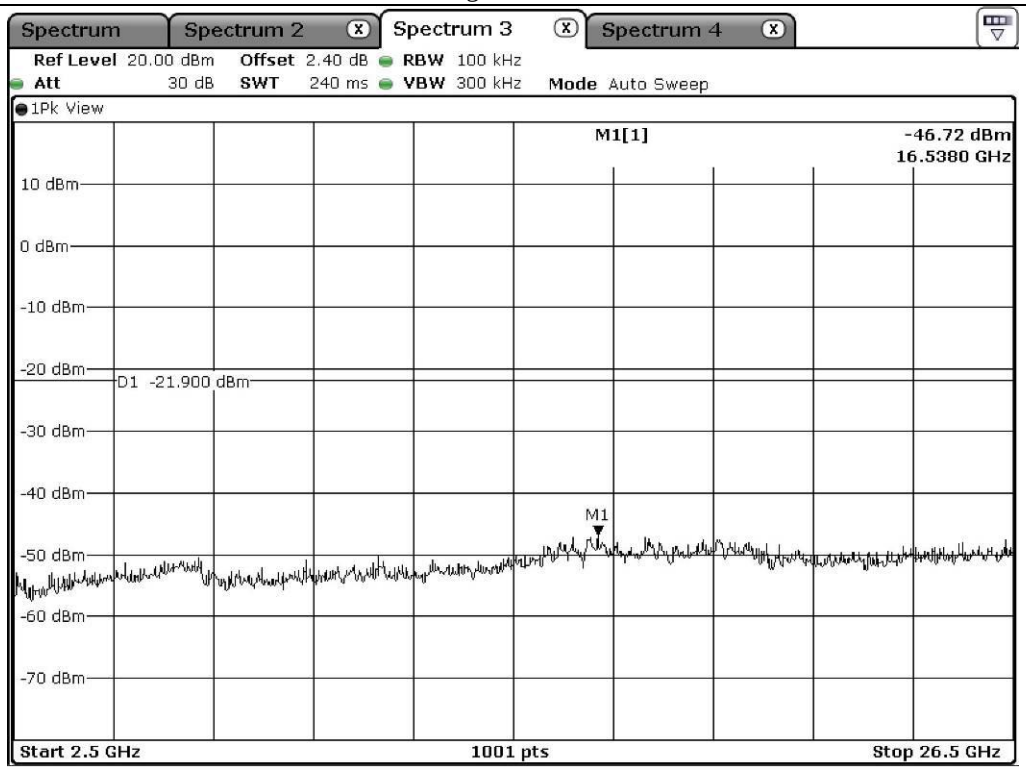
Middle Channel



Middle Channel



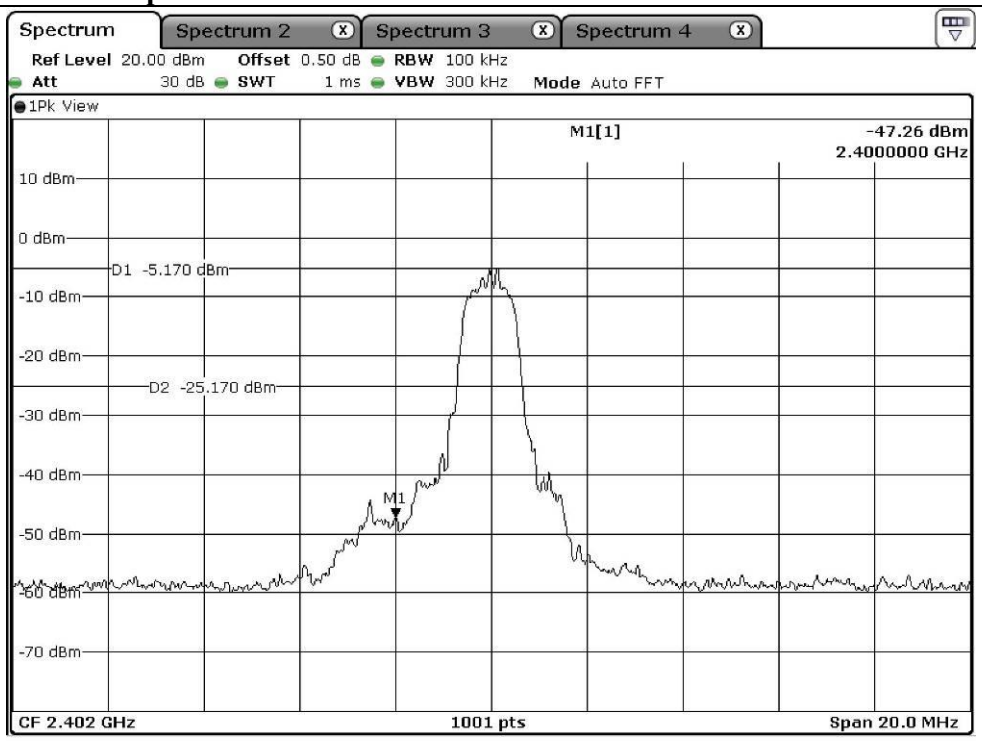
High Channel



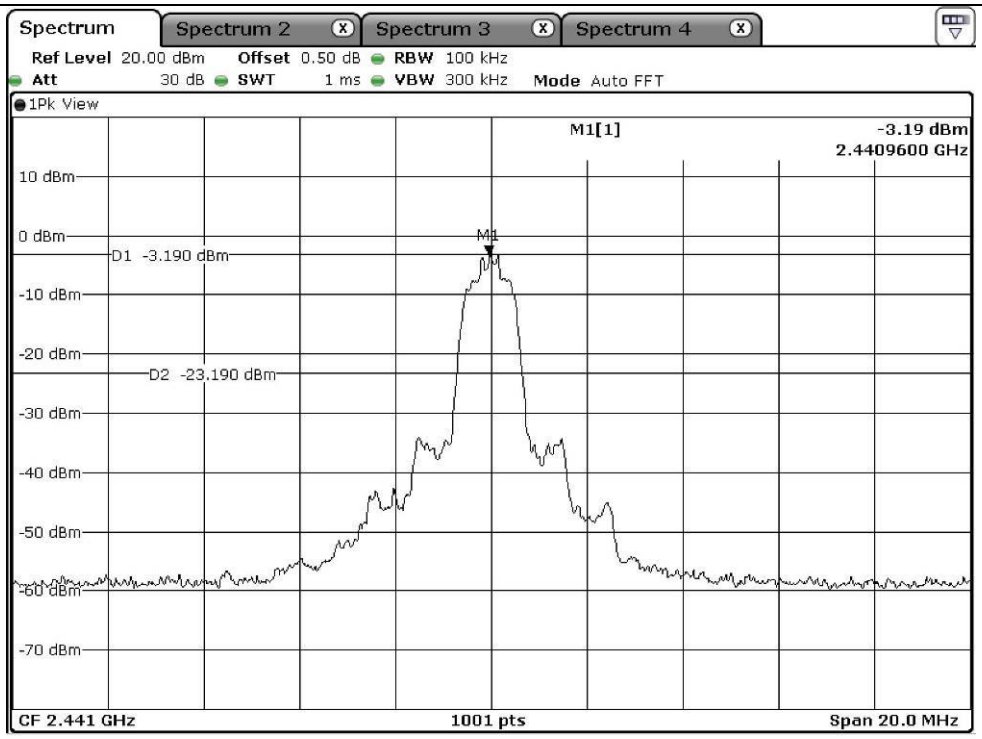
High Channel

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

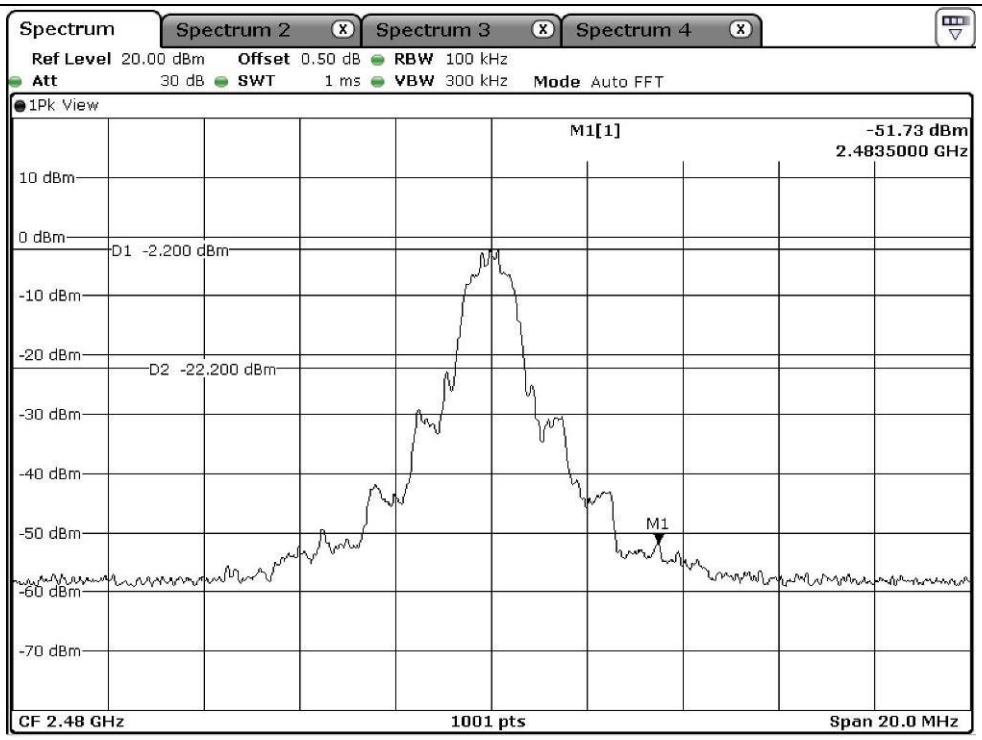
12.5.2 Test data for 2 Mbps



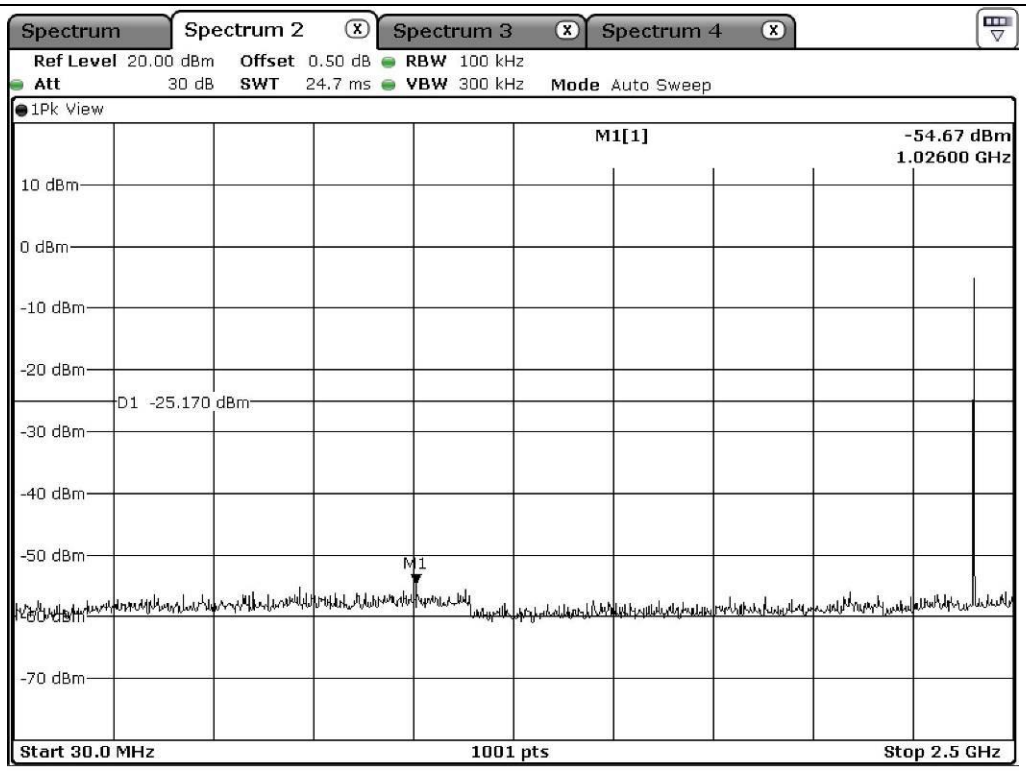
Low Channel



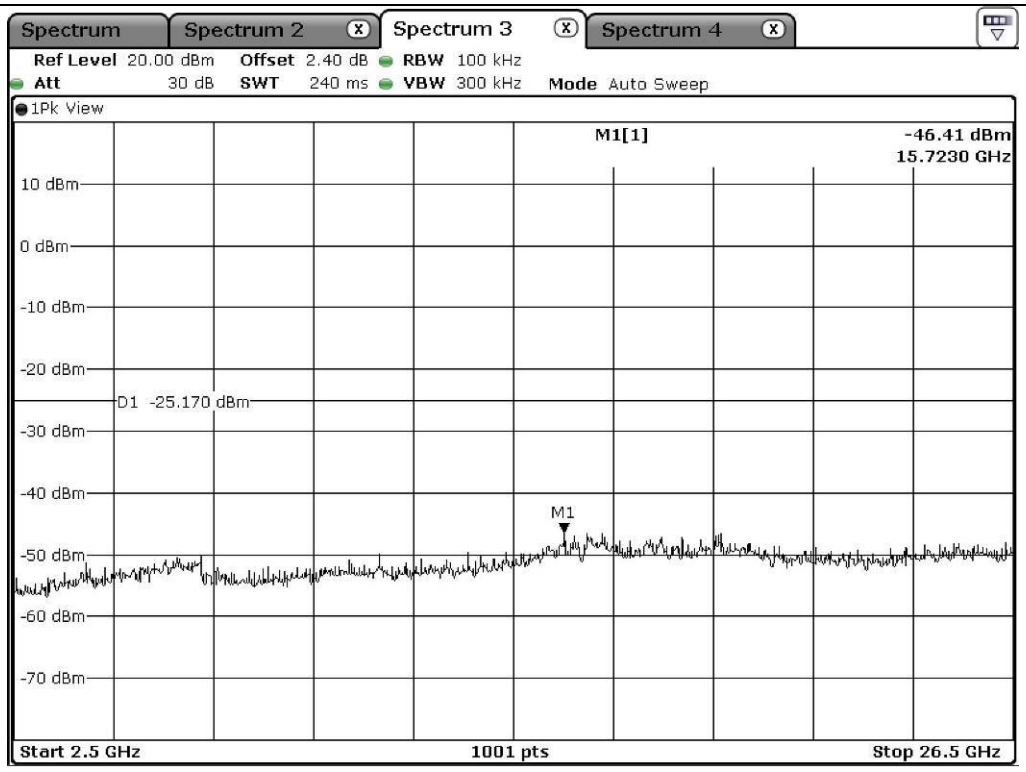
Middle Channel



High Channel

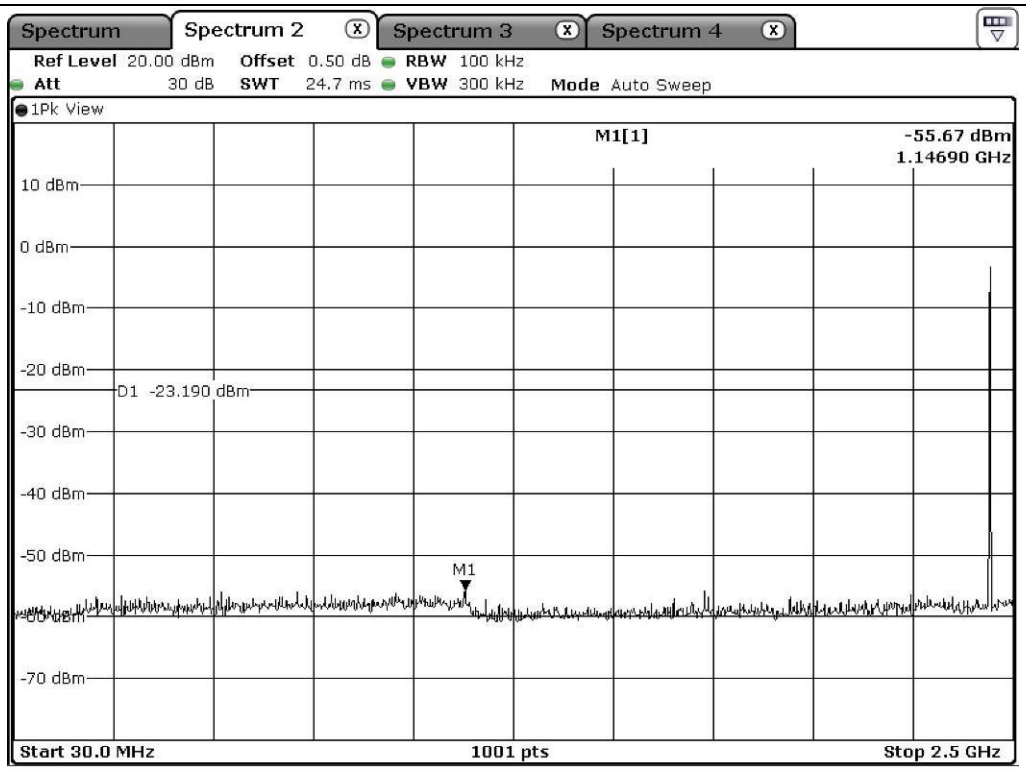


Low Channel

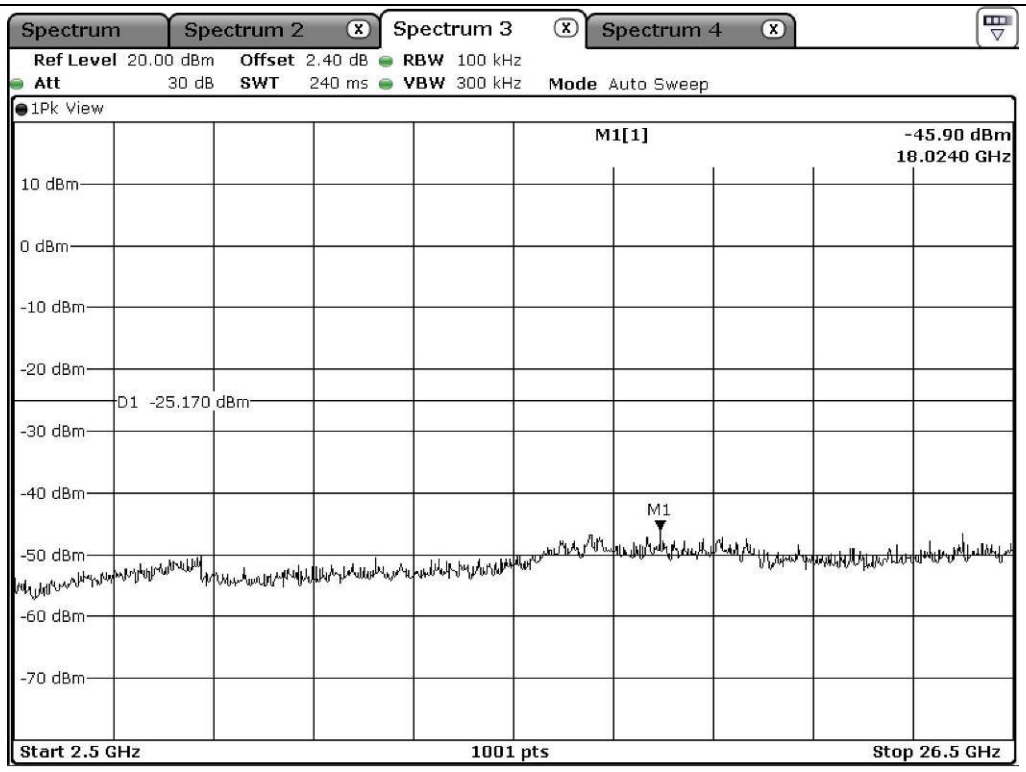


Low Channel

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

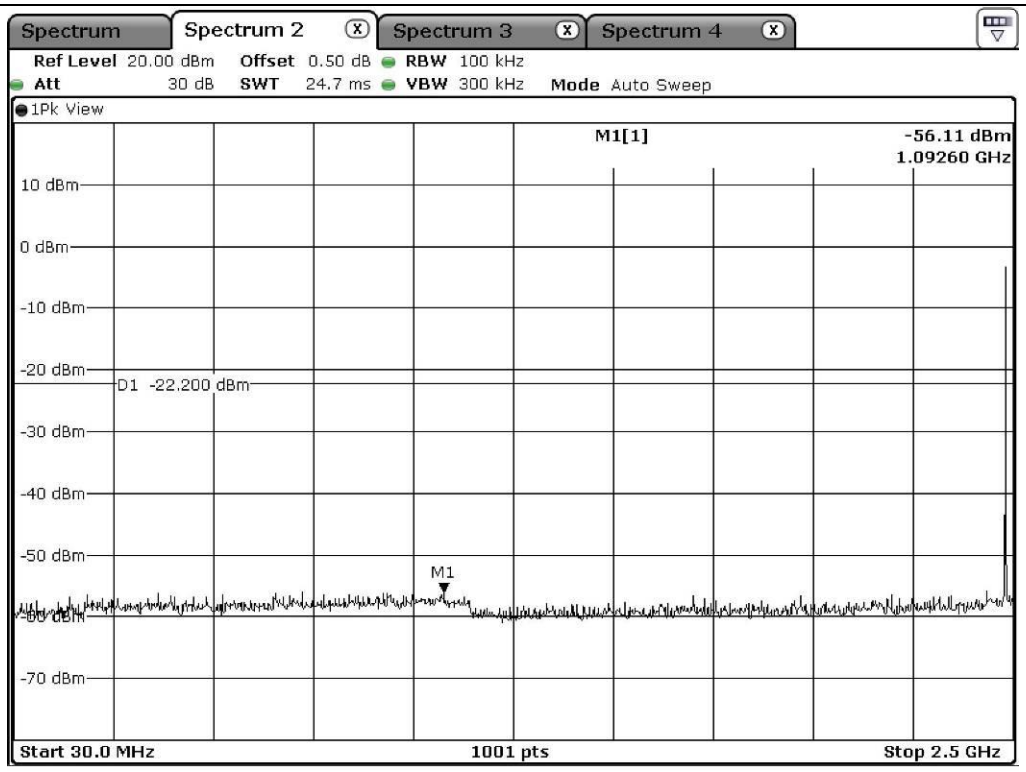


Middle Channel

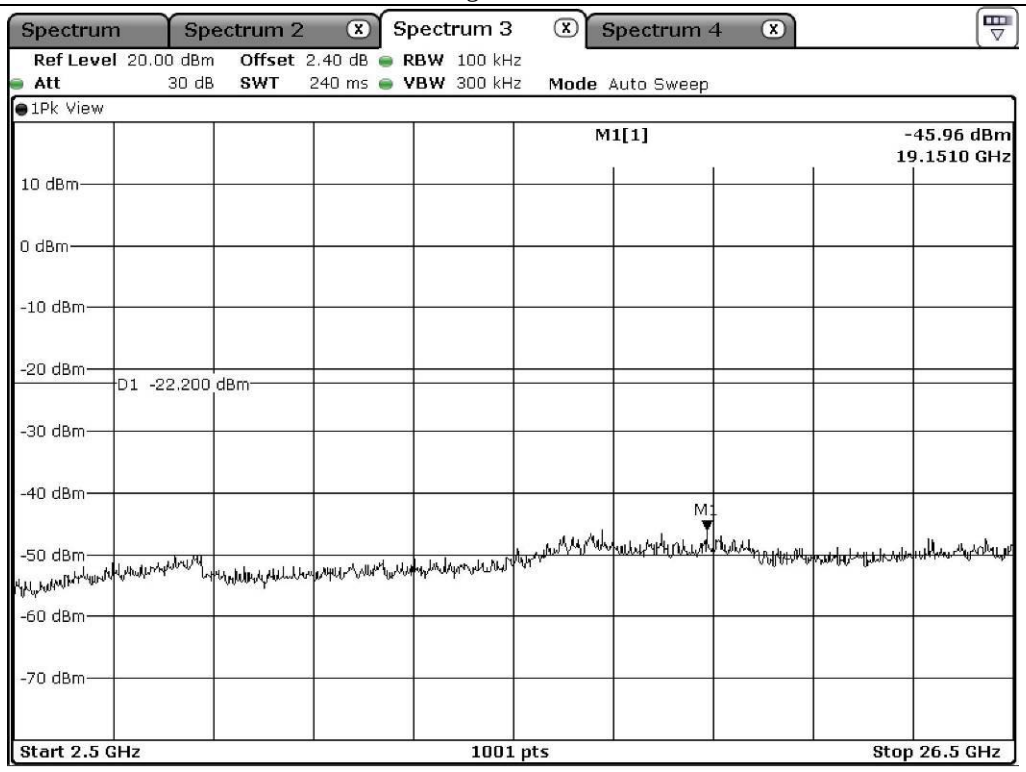


Middle Channel

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



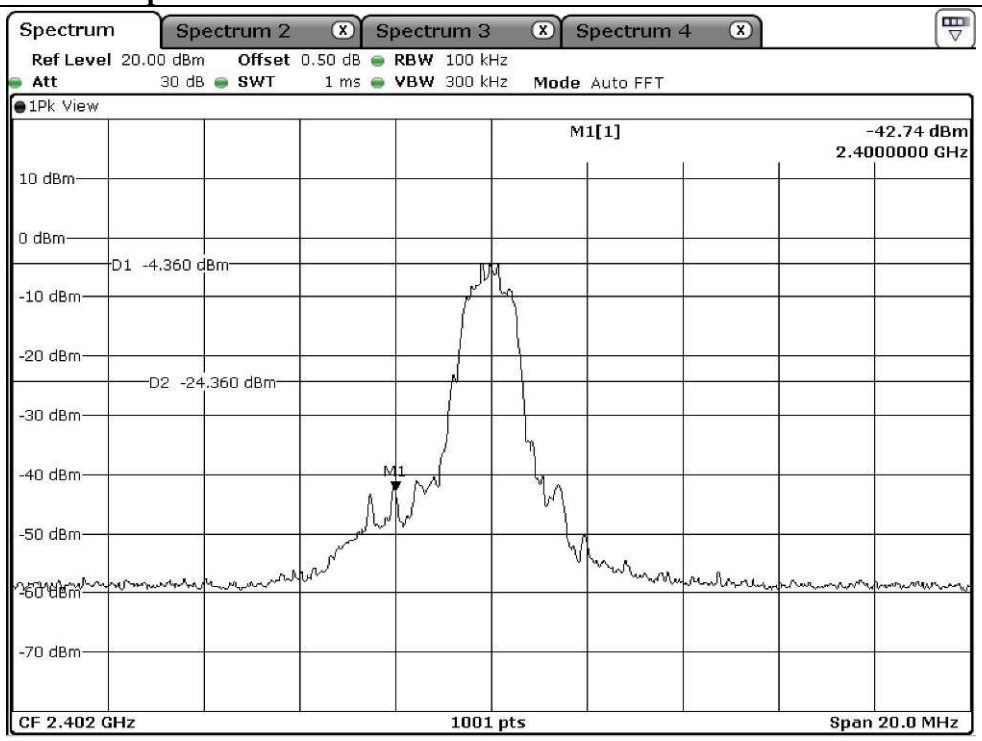
High Channel



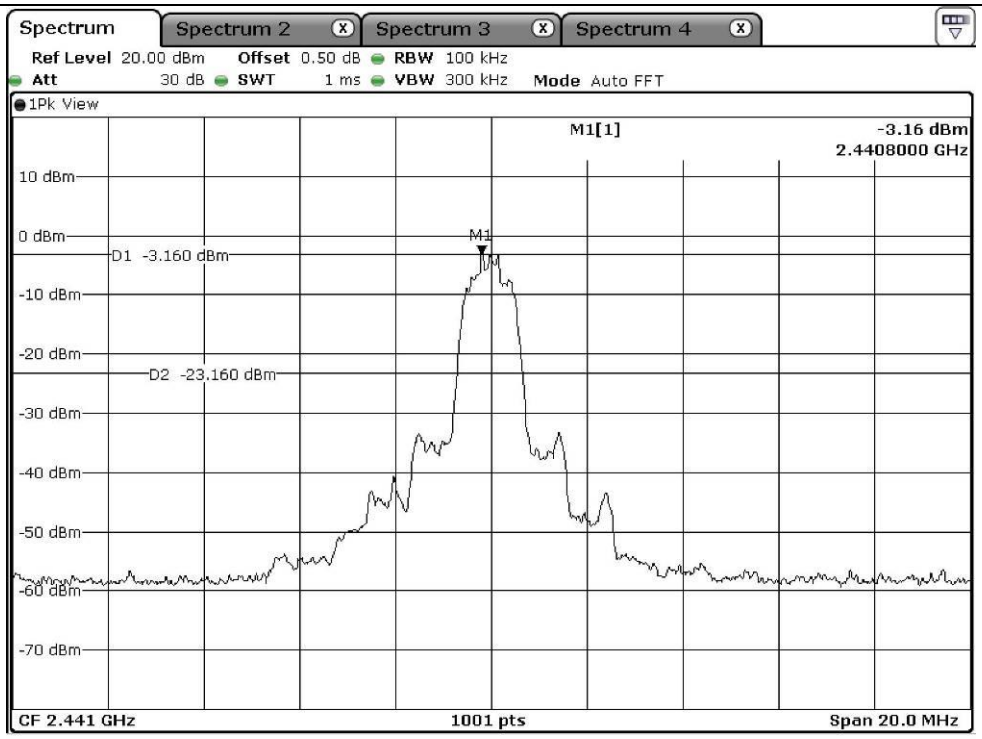
High Channel

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

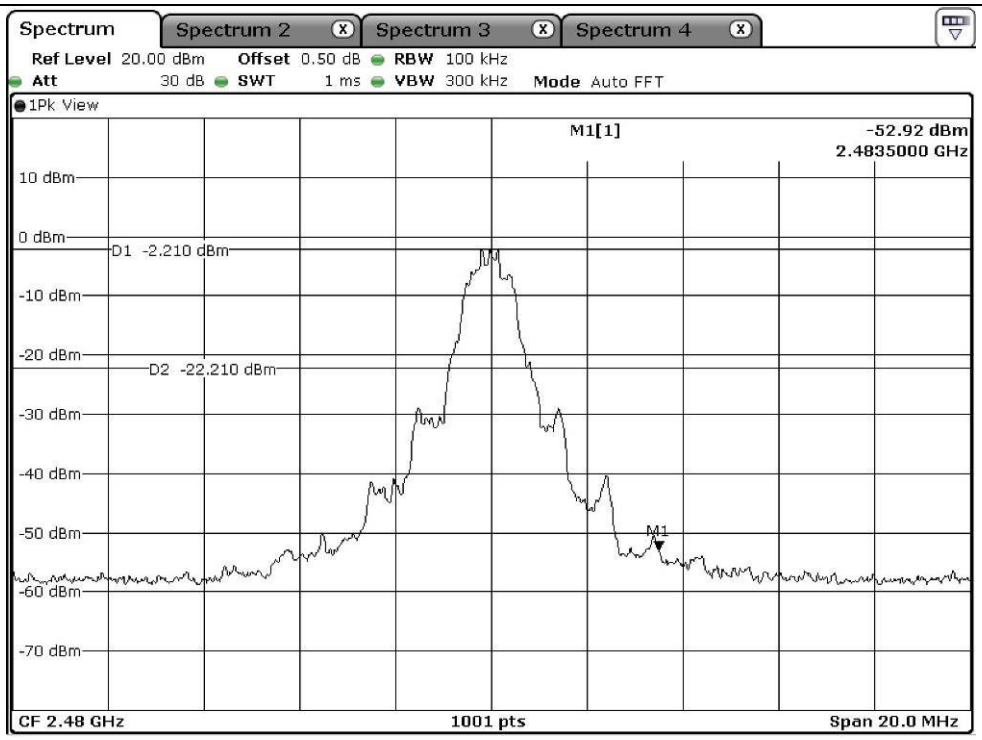
12.5.3 Test data for 3 Mbps



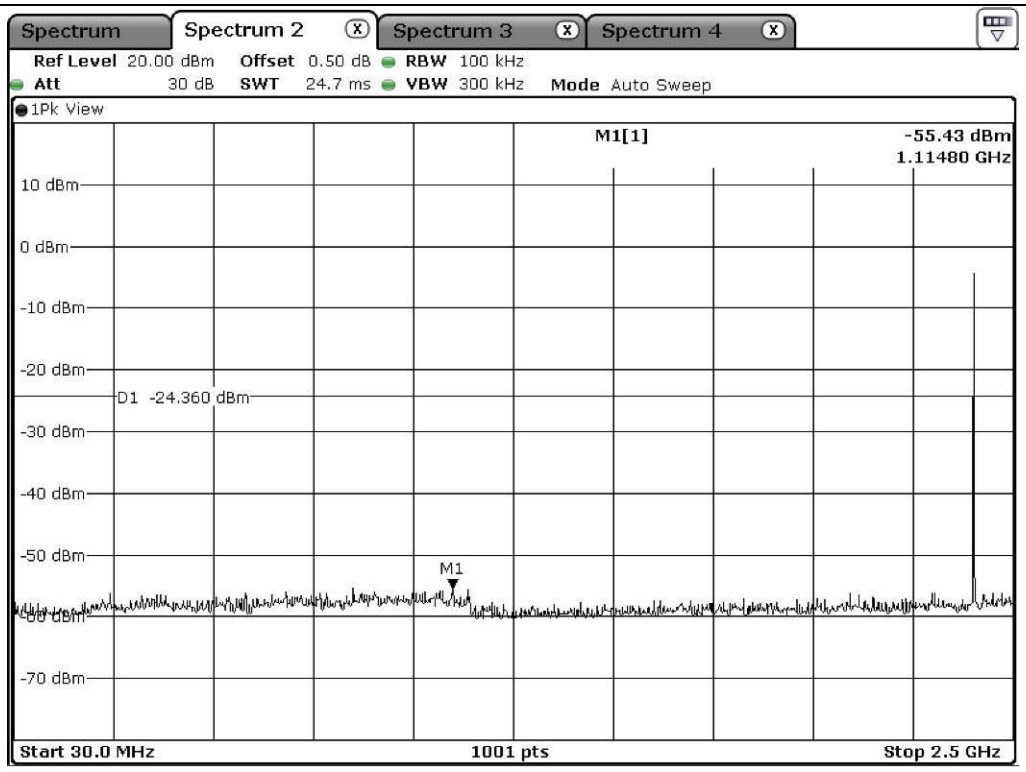
Low Channel



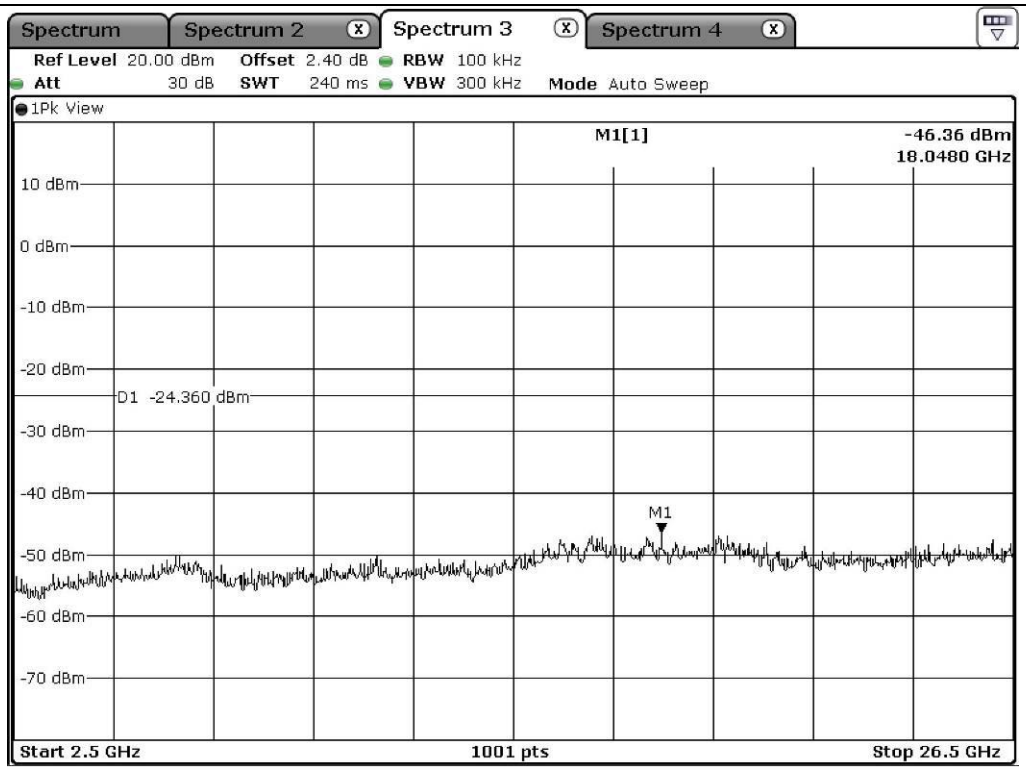
Middle Channel



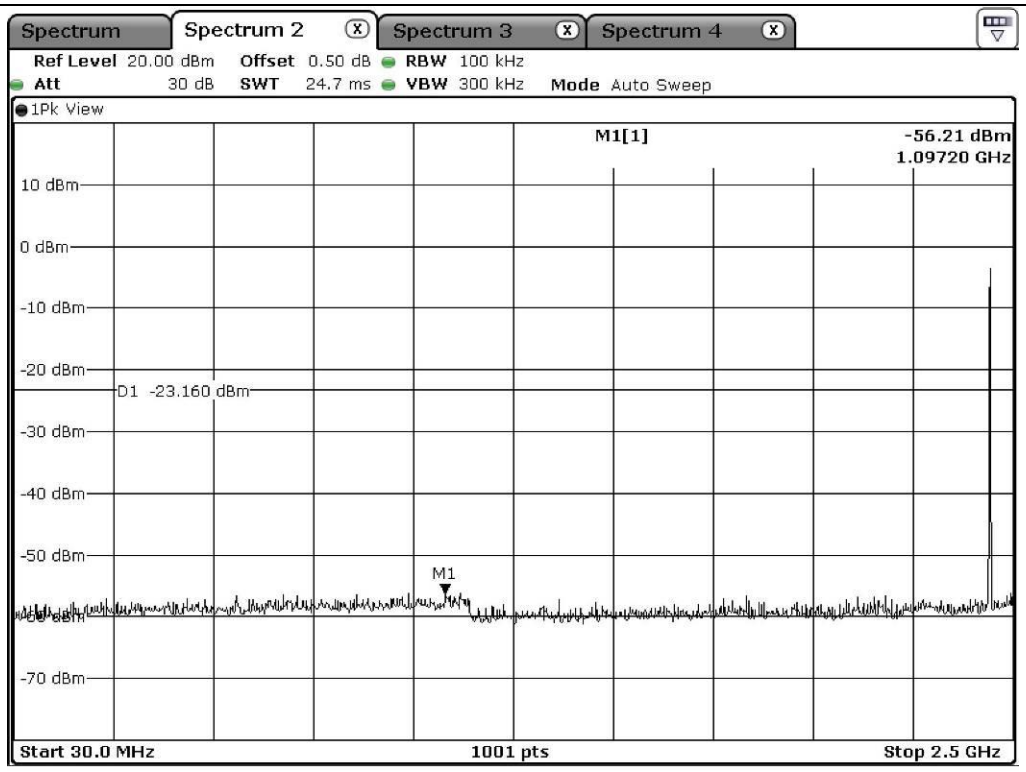
High Channel



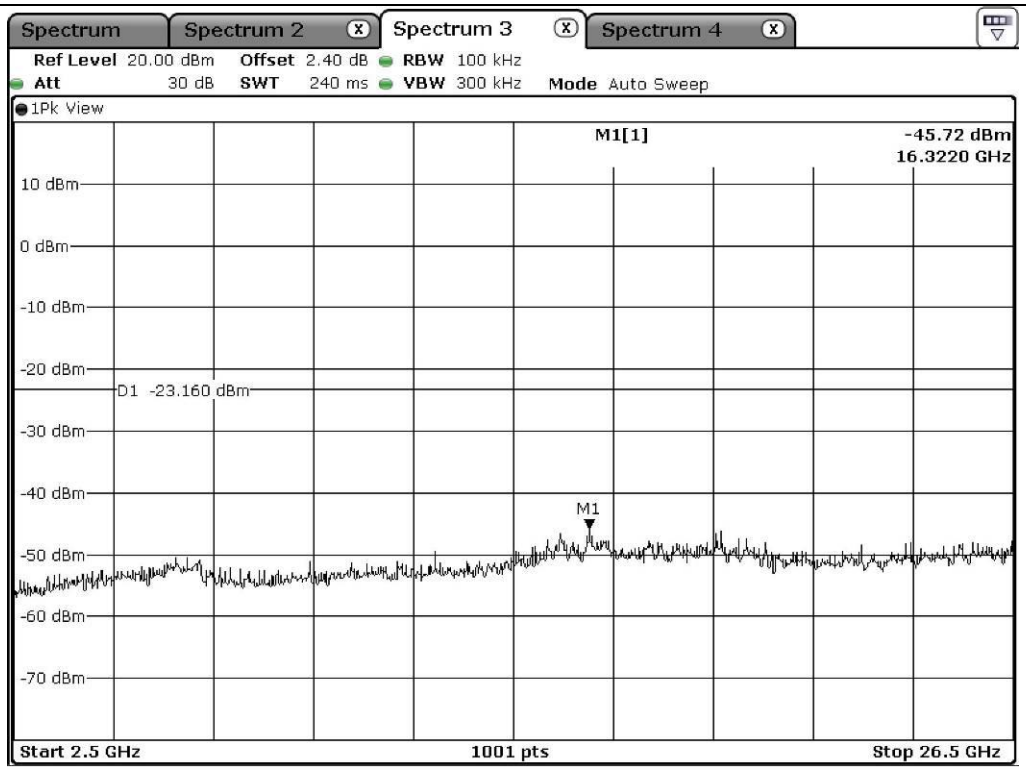
Low Channel



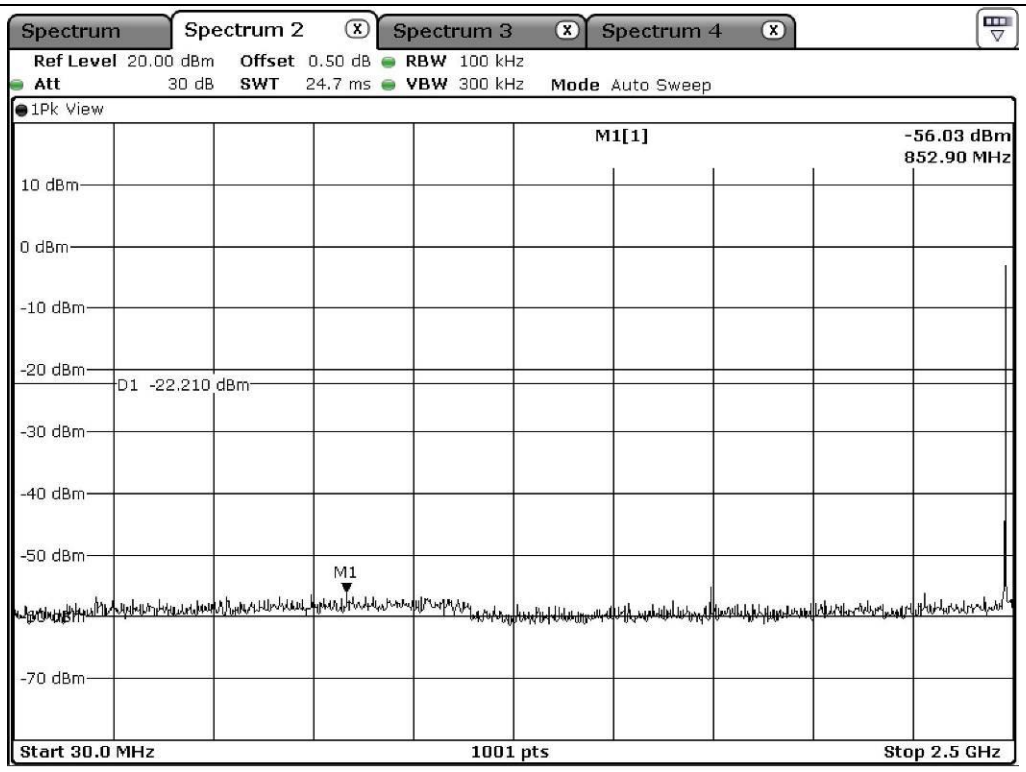
Low Channel



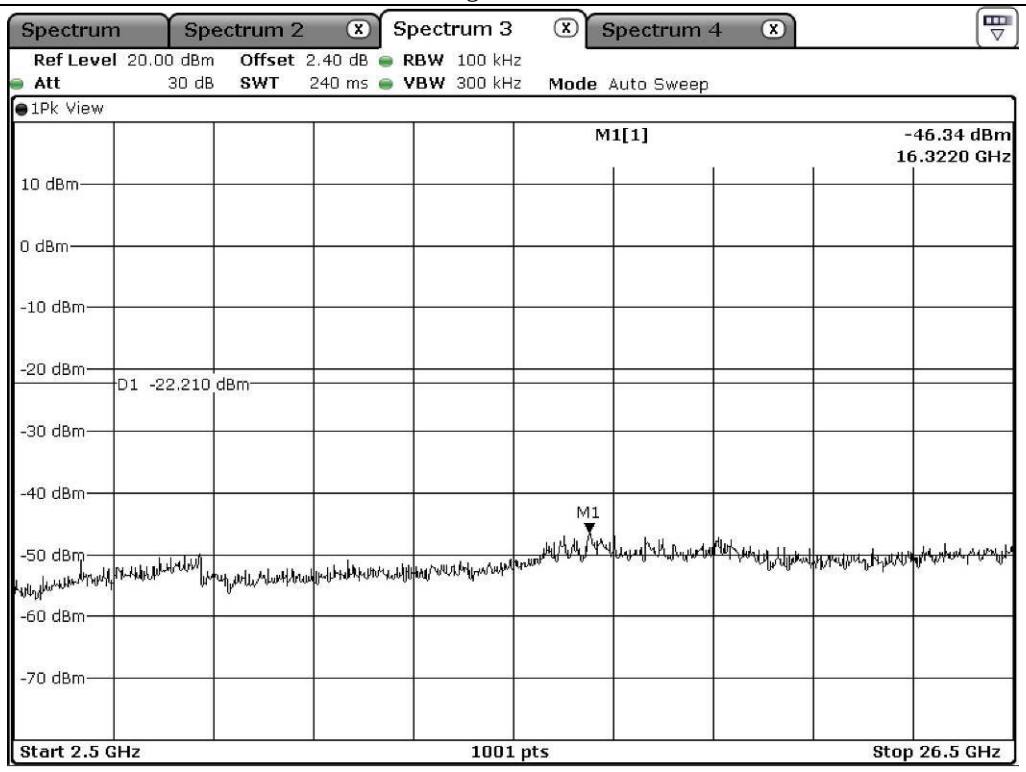
Middle Channel



Middle Channel



High Channel



High Channel

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

12.6 Test data for Transmitting mode radiated emission

12.6.1 Radiated Emission which fall in the Restricted Band

12.6.1.1 Test data for 1 Mbps

-. Test Date : December 14, 2017 ~ December 18, 2017

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

1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
2 375.65	36.83	Peak	H	26.94	9.20	34.76	38.21	74.00	35.79
2 376.05	28.86	Average	H				30.24	54.00	23.76
2 389.56	39.45	Peak	V				40.83	74.00	33.17
2 329.54	25.53	Average	V				26.91	54.00	27.09
Test Data for High Channel									
2 483.51	53.49	Peak	H	27.47	9.49	35.51	54.94	74.00	19.06
2 483.51	47.05	Average	H				48.50	54.00	5.50
2 483.51	46.37	Peak	V				47.82	74.00	26.18
2 483.51	39.34	Average	V				40.79	54.00	13.21

Tabulated test data for Restricted Band

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

Tested by: Tae-Ho, Kim / 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)

12.6.1.2 Test data for 2 Mbps

-. Test Date : December 14, 2017 ~ December 18, 2017

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

1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
2 346.80	37.02	Peak	H	26.94	9.20	34.76	38.40	74.00	35.60
2 375.97	27.91	Average	H				29.29	54.00	24.71
2 389.96	38.48	Peak	V				39.86	74.00	34.14
2 389.80	25.76	Average	V				27.14	54.00	26.86
Test Data for High Channel									
2 483.51	48.72	Peak	H	27.47	9.49	35.51	50.17	74.00	23.83
2 483.51	38.48	Average	H				39.93	54.00	14.07
2 483.51	42.44	Peak	V				43.89	74.00	30.11
2 483.51	31.48	Average	V				32.93	54.00	21.07

Tabulated test data for Restricted Band

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

Tested by: Tae-Ho, Kim / 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)

12.6.1.3 Test data for 3 Mbps

-. Test Date : December 14, 2017 ~ December 18, 2017

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

1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
2 319.63	36.65	Peak	H	26.94	9.20	34.76	38.03	74.00	35.97
2 375.97	27.49	Average	H				28.87	54.00	25.13
2 389.56	38.87	Peak	V				40.25	74.00	33.75
2 375.97	25.55	Average	V				26.93	54.00	27.07
Test Data for High Channel									
2 483.51	49.23	Peak	H	27.47	9.49	35.51	50.68	74.00	23.32
2 483.51	38.55	Average	H				40.00	54.00	14.00
2 483.51	42.24	Peak	V				43.69	74.00	30.31
2 483.51	31.41	Average	V				32.86	54.00	21.14

Tabulated test data for Restricted Band

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

Tested by: Tae-Ho, Kim / Manager

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12.6.2 Radiated Emission which fall in the Band Edge

12.6.2.1 Test data for 1 Mbps

-. Test Date : December 14, 2017 ~ December 18, 2017

-. Resolution bandwidth : 100 kHz and Peak Detector for Peak Mode

100 kHz and RMS Detector for Average Mode

-. Video bandwidth : 300 kHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Result : PASSED

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel									
2 400.00	50.36	Peak	H	27.20	9.35	34.81	52.10	74.00	21.90
	43.00	Average	H				44.74	54.00	9.26
	39.04	Peak	V				40.78	74.00	33.22
	31.92	Average	V				33.66	54.00	20.34

Tabulated test data for Restricted Band

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

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

Total Level = Reading + Antenna Factor + Cable Loss – Pre-Amplifier Gain

Tested by: Tae-Ho, Kim / 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)

12.6.2.2 Test data for 2 Mbps

-. Test Date : December 14, 2017 ~ December 18, 2017

-. Resolution bandwidth : 100 kHz and Peak Detector for Peak Mode
100 kHz and RMS Detector for Average Mode

-. Video bandwidth : 300 kHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
2 400.00	58.91	Peak	H	27.20	9.35	34.81	60.65	74.00	13.35
	47.58	Average	H				49.32	54.00	4.68
	52.01	Peak	V				53.75	74.00	20.25
	40.97	Average	V				42.71	54.00	11.29

Tabulated test data for Restricted Band

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

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

Total Level = Reading + Antenna Factor + Cable Loss – Pre-Amplifier Gain

Tested by: Tae-Ho, Kim / 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)

12.6.2.3 Test data for 3 Mbps

-. Test Date : December 14, 2017 ~ December 18, 2017

-. Resolution bandwidth : 100 kHz and Peak Detector for Peak Mode
100 kHz and RMS Detector for Average Mode

-. Video bandwidth : 300 kHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Result : PASSED

Frequency (MHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
2 400.00	58.87	Peak	H	27.20	9.35	34.81	60.61	74.00	13.39
	47.82	Average	H				49.56	54.00	4.44
	52.07	Peak	V				53.81	74.00	20.19
	40.82	Average	V				42.56	54.00	11.44

Tabulated test data for Restricted Band

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

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

Total Level = Reading + Antenna Factor + Cable Loss – Pre-Amplifier Gain

Tested by: Tae-Ho, Kim / 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)

12.6.3 Spurious & Harmonic Radiated Emission above 1 GHz

12.6.3.1 Test data for 1 Mbps

-. Test Date : December 14, 2017 ~ December 18, 2017

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

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 26.5 GHz

-. Measurement distance : 3 m

-. Result : PASSED

Frequency (GHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
Test Data for Low Channel									
4 804.00	40.33	Peak	H	30.84	12.31	35.74	47.74	74.00	26.26
	35.80	Average	H				43.21	54.00	10.79
	40.59	Peak	V				48.00	74.00	26.00
	36.97	Average	V				44.38	54.00	9.62
Test Data for Middle Channel									
4 882.00	38.88	Peak	H	30.01	12.43	35.80	45.52	74.00	28.48
	33.69	Average	H				40.33	54.00	13.67
	38.55	Peak	V				45.19	74.00	28.81
	34.55	Average	V				41.19	54.00	12.81
Test Data for High Channel									
4 960.00	39.53	Peak	H	31.15	12.81	35.96	47.53	74.00	26.47
	35.48	Average	H				43.48	54.00	10.52
	38.50	Peak	V				46.50	74.00	27.50
	31.85	Average	V				39.85	54.00	14.15

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical, “*” Frequency fall in restricted band

Tested by: Tae-Ho, Kim / 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)

12.6.3.2 Test data for 2 Mbps

-. Test Date : December 14, 2017 ~ December 18, 2017

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

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 26.5 GHz

-. Measurement distance : 3 m

-. Result : PASSED

Frequency (GHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel									
4 804.00	38.95	Peak	H	30.84	12.31	35.74	46.36	74.00	27.64
	32.55	Average	H				39.96	54.00	14.04
	39.19	Peak	V				46.60	74.00	27.40
	33.26	Average	V				40.67	54.00	13.33
Test Data for Middle Channel									
4 882.00	38.15	Peak	H	30.01	12.43	35.80	44.79	74.00	29.21
	32.51	Average	H				39.15	54.00	14.85
	38.43	Peak	V				45.07	74.00	28.93
	32.41	Average	V				39.05	54.00	14.95
Test Data for High Channel									
4 960.00	39.11	Peak	H	31.15	12.81	35.96	47.11	74.00	26.89
	33.89	Average	H				41.89	54.00	12.11
	37.70	Peak	V				45.70	74.00	28.30
	31.59	Average	V				39.59	54.00	14.41

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical, “*” Frequency fall in restricted band

Tested by: Tae-Ho, Kim / Manager

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12.6.3.3 Test data for 3 Mbps

-. Test Date : December 14, 2017 ~ December 18, 2017

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

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 26.5 GHz

-. Measurement distance : 3 m

-. Result : PASSED

Frequency (GHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Test Data for Low Channel									
4 804.00	38.70	Peak	H	30.84	12.31	35.74	46.11	74.00	27.89
	32.34	Average	H				39.75	54.00	14.25
	39.23	Peak	V				46.64	74.00	27.36
	33.35	Average	V				40.76	54.00	13.24
Test Data for Middle Channel									
4 882.00	38.67	Peak	H	30.01	12.43	35.80	45.31	74.00	28.69
	32.38	Average	H				39.02	54.00	14.98
	38.90	Peak	V				45.54	74.00	28.46
	32.93	Average	V				39.57	54.00	14.43
Test Data for High Channel									
4 960.00	39.45	Peak	H	31.15	12.81	35.96	47.45	74.00	26.55
	34.32	Average	H				42.32	54.00	11.68
	38.55	Peak	V				46.55	74.00	27.45
	31.63	Average	V				39.63	54.00	14.37

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical, “*” Frequency fall in restricted band

Tested by: Tae-Ho, Kim / Manager

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13. RADIATED EMISSION TEST

13.1 Operating environment

Temperature : 21.4 ℃

Relative humidity : 45.1 % R.H

13.2 Test set-up

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

13.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Apr. 05, 2017 (1Y)
■ -	ESU	Rohde & Schwarz	EMI Test Receiver	100261	Apr. 06, 2017 (1Y)
■ -	310N	Sonoma Instrument	Pre-Amplifier	312544	Apr. 05, 2017 (1Y)
■ -	BBV9718	Schwarzbeck	Amplifier	310	Sep. 01, 2017 (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	9163-421	Apr. 15, 2016 (2Y)
■ -	BBHA9120D	Schwarzbeck	Horn Antenna	BBHA9120D295	May 26, 2017 (2Y)
■ -	BBHA 9170	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 1 Mbps

13.4.1 Test data for 30 MHz ~ 1 000 MHz

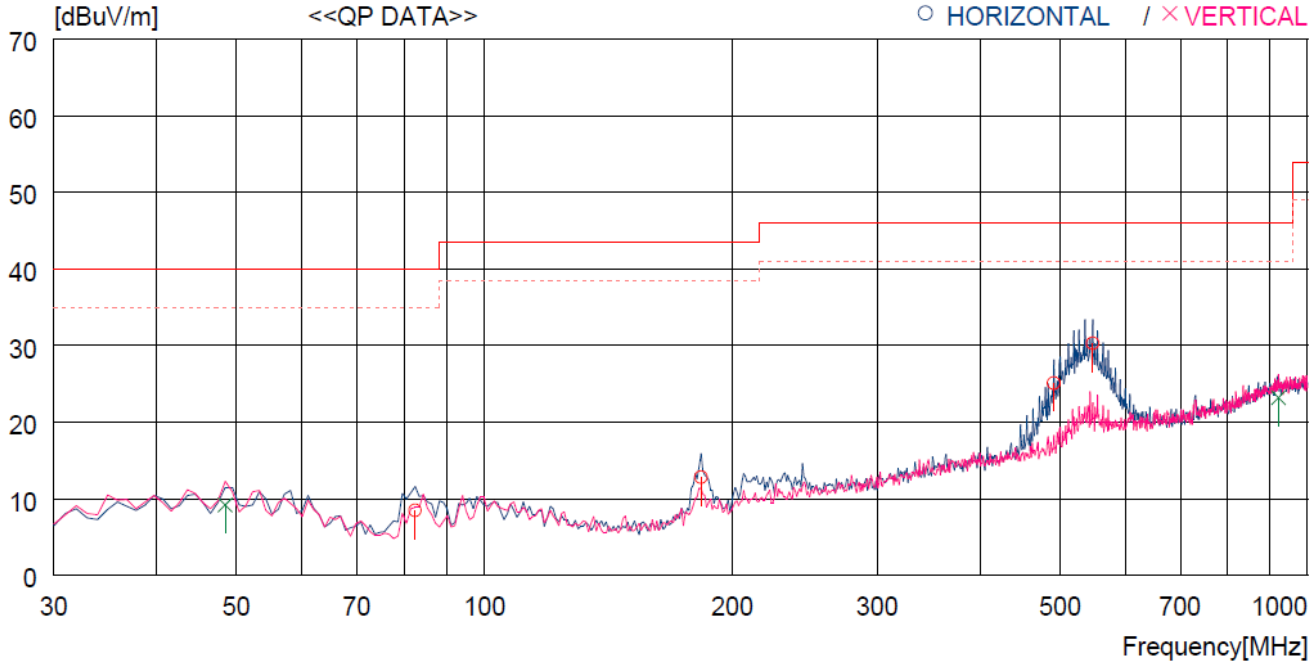
-. Test Date : December 14, 2017 ~ December 18, 2017

-. Resolution bandwidth : 120 kHz

-. Frequency range : 30 MHz ~ 1 000 MHz

-. Measurement distance : 3 m

-. Operating condition : Low Channel



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	82.380	31.2	8.1	2.2	33.0	8.5	40.0	31.5	300	359
2	183.260	32.9	9.8	3.2	33.1	12.8	43.5	30.7	400	0
3	491.721	36.3	17.0	5.1	33.3	25.1	46.0	20.9	100	359
4	547.980	40.8	17.5	5.3	33.3	30.3	46.0	15.7	200	343
----- Vertical ------										
5	48.430	26.8	13.8	1.7	33.1	9.2	40.0	30.8	300	0
6	921.418	26.4	22.1	7.1	32.4	23.2	46.0	22.8	200	2

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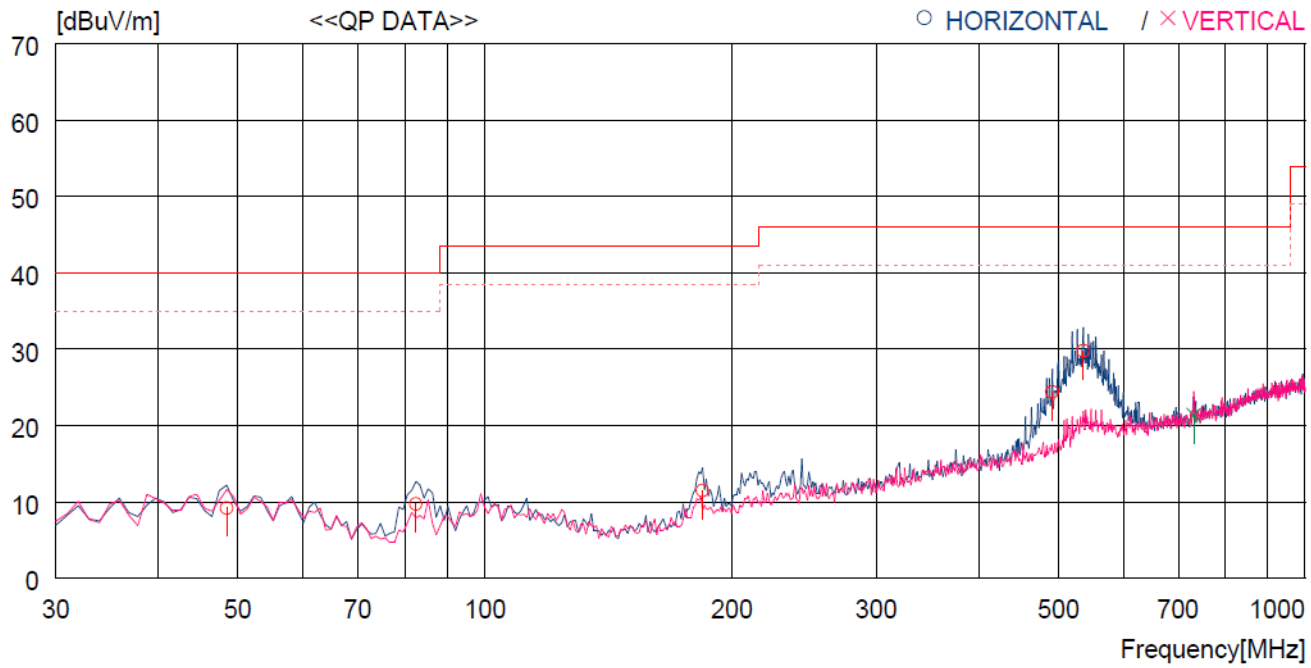
Operating condition : Middle Channel



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	48.430	26.8	13.8	1.7	33.1	9.2	40.0	30.8	400	0
2	82.380	32.4	8.1	2.2	33.0	9.7	40.0	30.3	300	98
3	184.230	31.5	9.9	3.2	33.1	11.5	43.5	32.0	400	0
4	491.721	35.6	17.0	5.1	33.3	24.4	46.0	21.6	100	359
5	536.340	40.3	17.5	5.3	33.3	29.8	46.0	16.2	100	346
----- Vertical ------										
6	731.304	28.6	20.0	6.2	33.4	21.4	46.0	24.6	300	309

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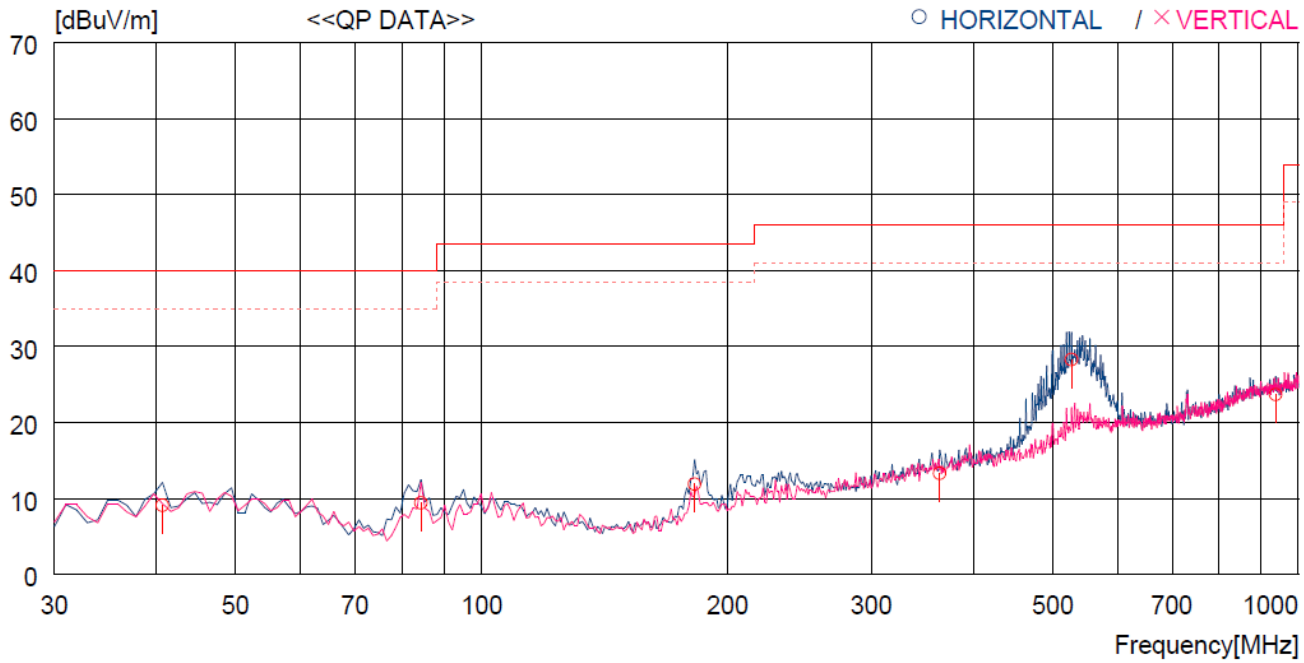
Operating condition : High Channel



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	40.670	27.1	13.5	1.6	33.1	9.1	40.0	30.9	100	359
2	84.320	31.7	8.5	2.2	33.0	9.4	40.0	30.6	300	104
3	182.290	32.1	9.7	3.2	33.1	11.9	43.5	31.6	400	323
4	363.680	27.5	14.5	4.4	33.1	13.3	46.0	32.7	100	355
5	527.610	38.9	17.5	5.2	33.3	28.3	46.0	17.7	100	359
6	937.908	26.9	21.9	7.1	32.2	23.7	46.0	22.3	400	0

Tested by: Tae-Ho, Kim / 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)

13.4.2 Test data for Below 30 MHz

-. Test Date : December 14, 2017 ~ December 18, 2017

-. 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

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

13.4.3 Test data for above 1 GHz

-. Test Date : December 14, 2017 ~ December 18, 2017

-. 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 ~ 26.5 GHz

-. Measurement distance : 3 m

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

Tested by: Tae-Ho, Kim / Manager

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13.5 Test data for 2 Mbps

13.5.1 Test data for 30 MHz ~ 1 000 MHz

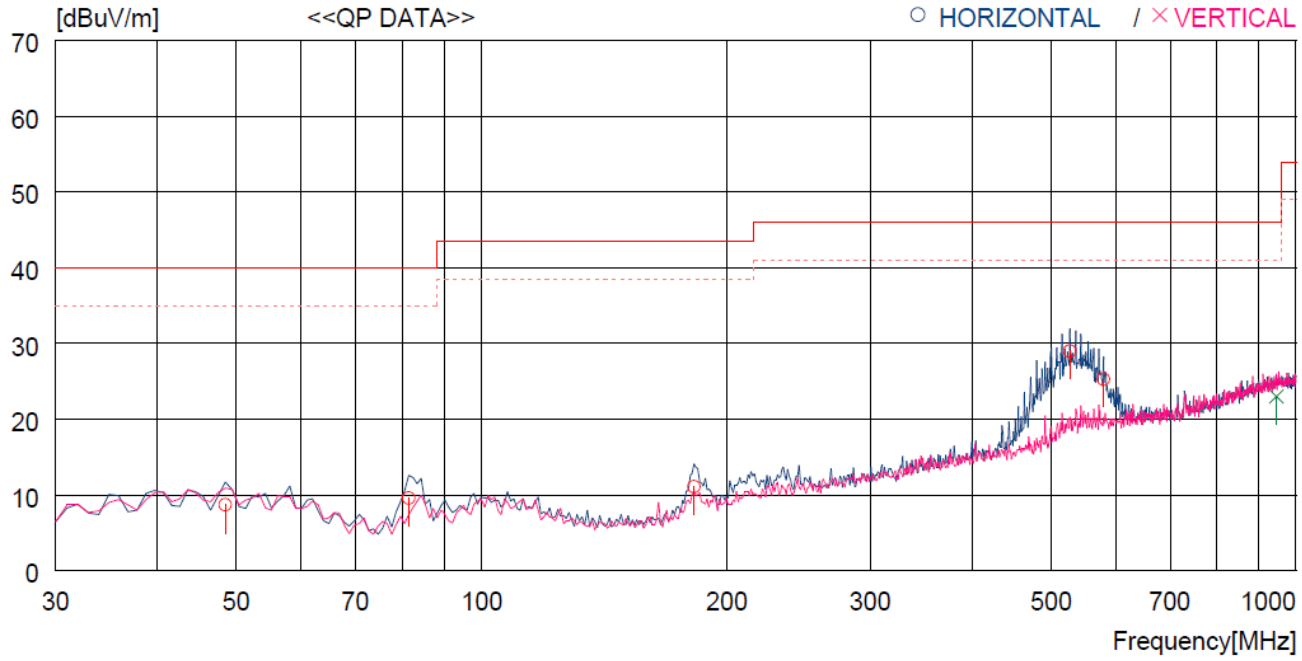
-. Test Date : December 14, 2017 ~ December 18, 2017

-. Resolution bandwidth : 120 kHz

-. Frequency range : 30 MHz ~ 1 000 MHz

-. Measurement distance : 3 m

-. Operating condition : Low Channel



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	48.430	26.3	13.8	1.7	33.1	8.7	40.0	31.3	200	0
2	81.410	32.6	7.8	2.2	33.0	9.6	40.0	30.4	300	359
3	182.290	31.3	9.7	3.2	33.1	11.1	43.5	32.4	400	4
4	527.610	39.6	17.5	5.2	33.3	29.0	46.0	17.0	100	359
5	579.989	34.7	18.4	5.5	33.3	25.3	46.0	20.7	200	0
----- Vertical ------										
6	945.668	26.2	21.9	7.1	32.2	23.0	46.0	23.0	300	0

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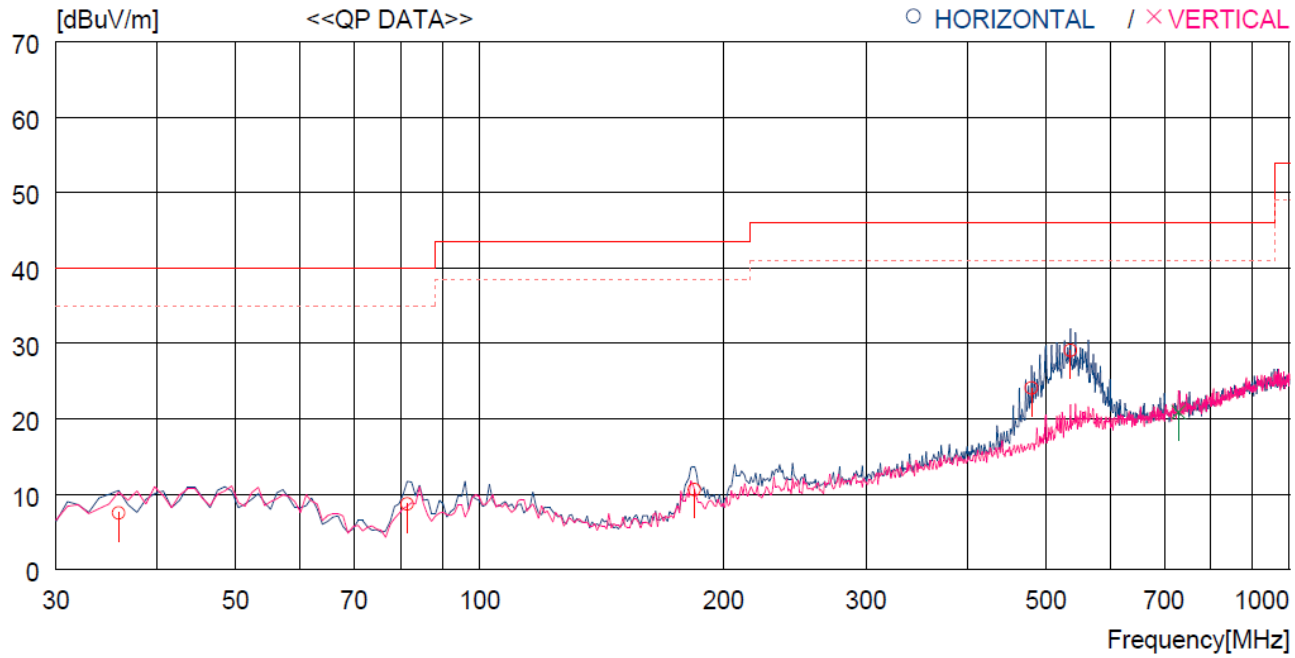
Operating condition : Middle Channel



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	35.820	26.7	12.5	1.4	33.1	7.5	40.0	32.5	300	359
2	81.410	31.7	7.8	2.2	33.0	8.7	40.0	31.3	100	140
3	184.230	30.6	9.9	3.2	33.1	10.6	43.5	32.9	400	313
4	480.081	35.5	16.8	5.1	33.3	24.1	46.0	21.9	100	359
5	536.340	39.6	17.5	5.3	33.3	29.1	46.0	16.9	100	348
----- Vertical ------										
6	729.364	28.2	19.9	6.2	33.4	20.9	46.0	25.1	300	0

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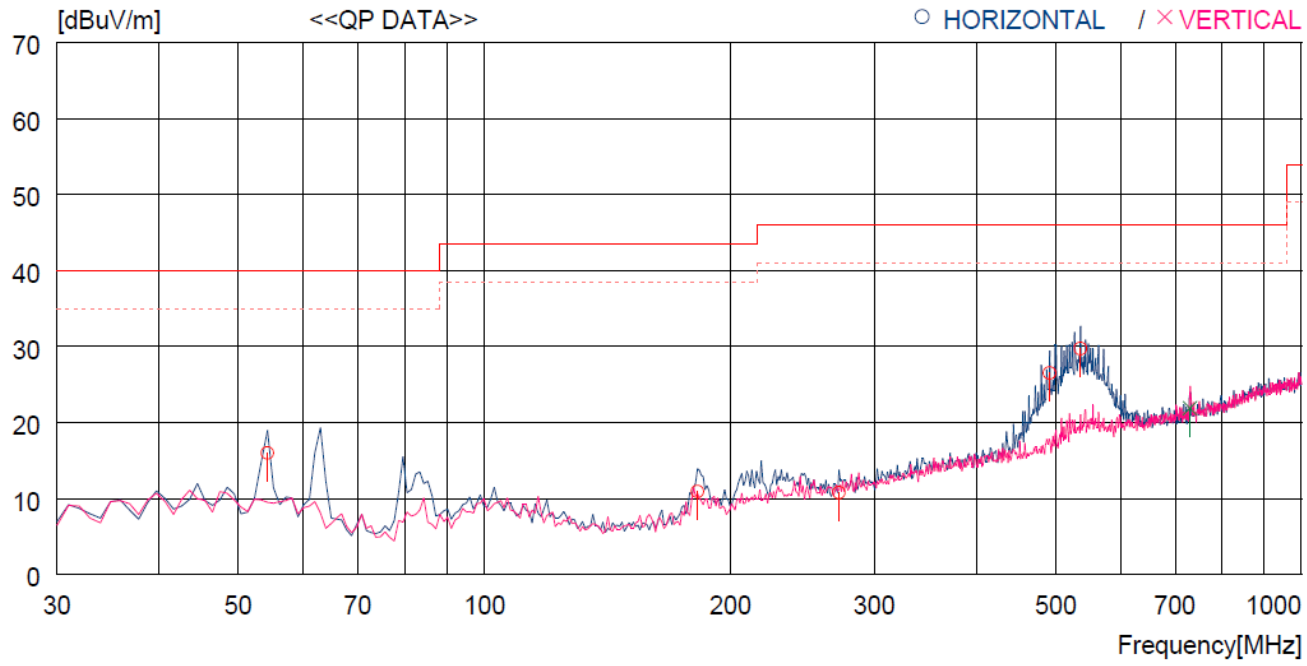
Operating condition : High Channel



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	54.250	33.5	13.8	1.8	33.1	16.0	40.0	24.0	100	68
2	182.290	31.1	9.7	3.2	33.1	10.9	43.5	32.6	400	49
3	271.530	27.7	12.3	3.8	33.0	10.8	46.0	35.2	100	139
4	491.721	37.7	17.0	5.1	33.3	26.5	46.0	19.5	100	359
5	536.340	40.3	17.5	5.3	33.3	29.8	46.0	16.3	100	348
----- Vertical ------										
6	730.334	29.2	19.9	6.2	33.4	21.9	46.0	24.1	200	359

Tested by: Tae-Ho, Kim / 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)

13.5.2 Test data for Below 30 MHz

-. Test Date : December 14, 2017 ~ December 18, 2017

-. 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

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

13.5.3 Test data for above 1 GHz

-. Test Date : December 14, 2017 ~ December 18, 2017

-. 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 ~ 26.5 GHz

-. Measurement distance : 3 m

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

Tested by: Tae-Ho, Kim / 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 3 Mbps

13.6.1 Test data for 30 MHz ~ 1 000 MHz

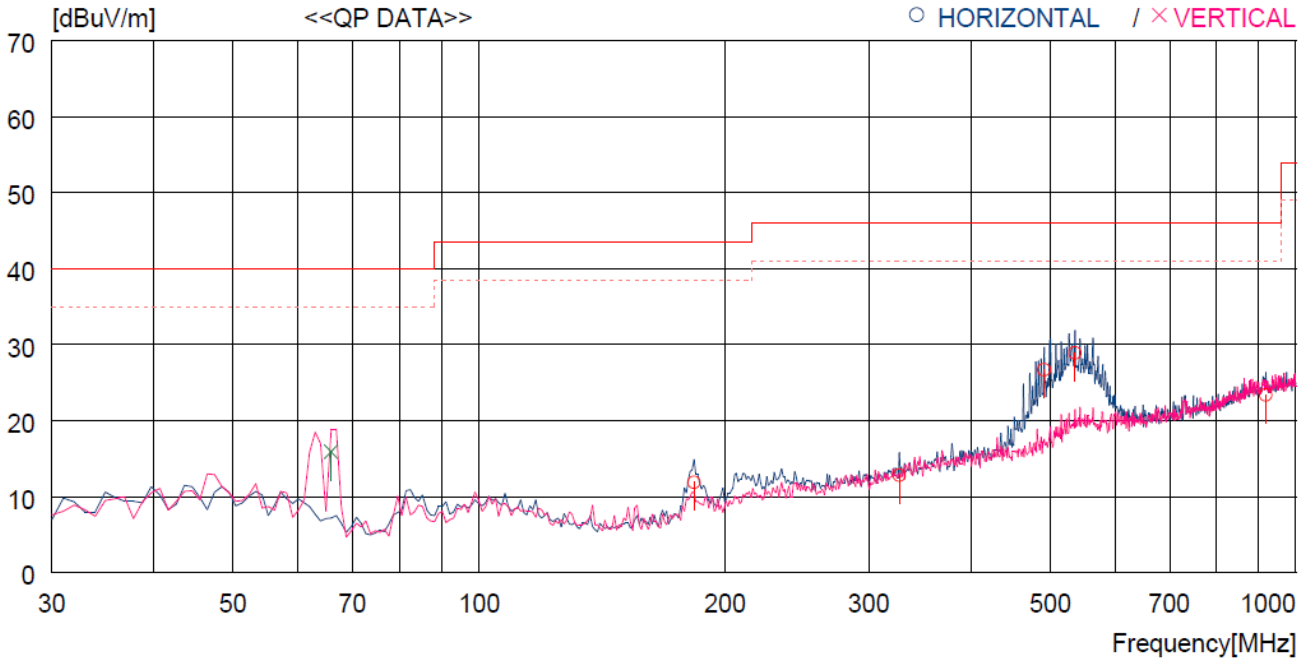
-. Test Date : December 14, 2017 ~ December 18, 2017

-. Resolution bandwidth : 120 kHz

-. Frequency range : 30 MHz ~ 1 000 MHz

-. Measurement distance : 3 m

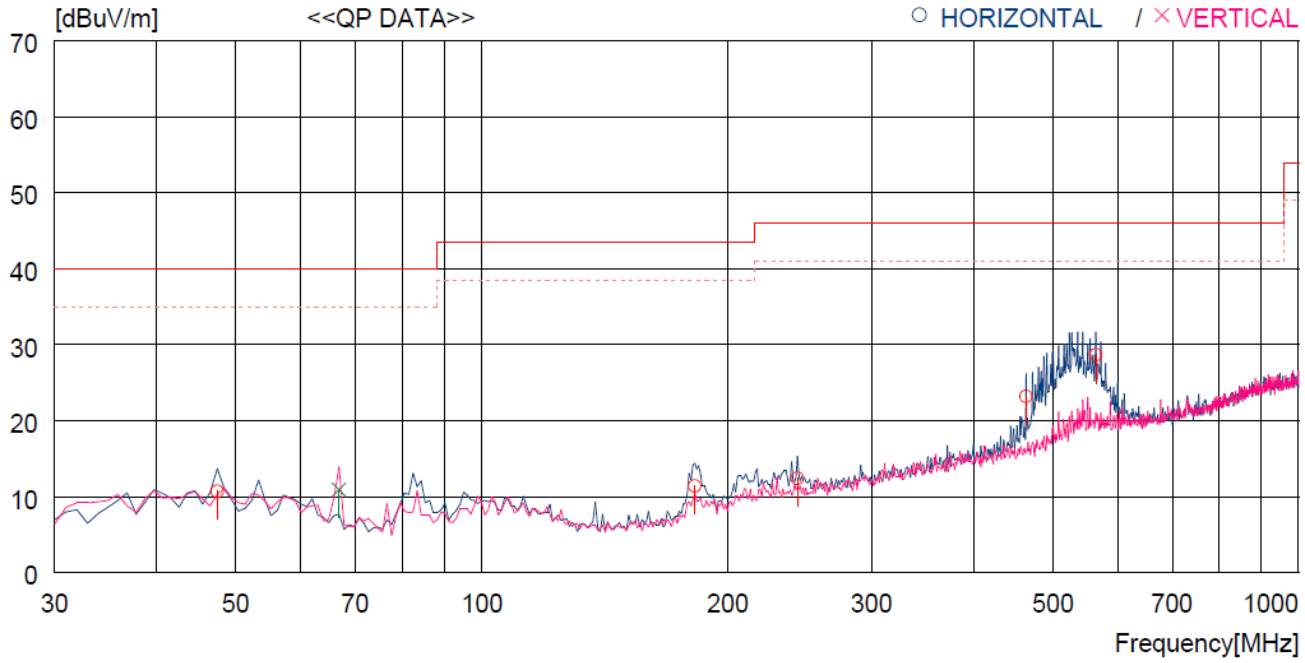
-. Operating condition : Low Channel



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	183.260	32.0	9.8	3.2	33.1	11.9	43.5	31.6	400	48
2	326.820	27.8	13.9	4.2	33.1	12.8	46.0	33.2	100	359
3	491.721	37.9	17.0	5.1	33.3	26.7	46.0	19.3	100	359
4	536.340	39.4	17.5	5.3	33.3	28.9	46.0	17.1	100	359
5	918.508	26.6	22.1	7.1	32.4	23.4	46.0	22.6	100	356
----- Vertical ------										
6	65.890	35.9	11.2	1.9	33.1	15.9	40.0	24.1	200	76

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

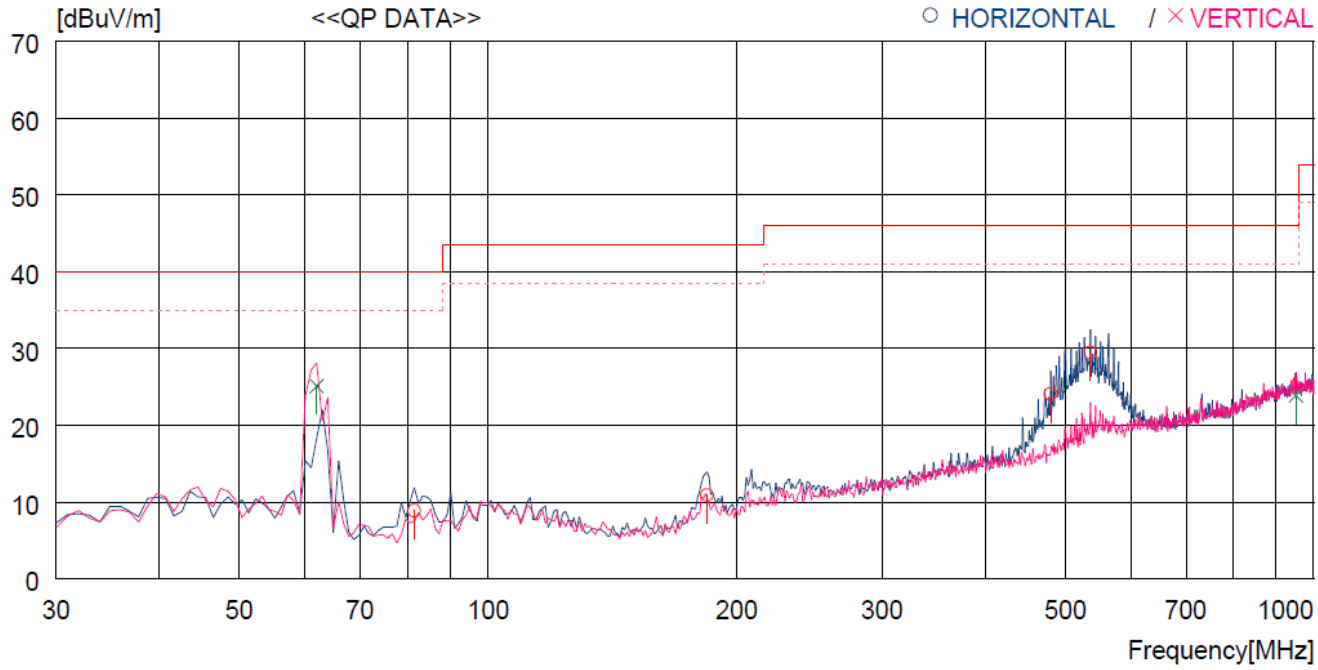
Operating condition : Middle Channel



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	47.460	28.3	13.8	1.7	33.1	10.7	40.0	29.3	400	0
2	182.290	31.6	9.7	3.2	33.1	11.4	43.5	32.1	300	65
3	243.400	29.7	12.2	3.6	33.1	12.4	46.0	33.6	300	286
4	463.591	35.0	16.5	4.9	33.2	23.2	46.0	22.8	100	359
5	564.469	38.9	17.7	5.4	33.3	28.7	46.0	17.3	100	359
----- Vertical ------										
6	66.860	31.2	10.9	1.9	33.1	10.9	40.0	29.1	400	359

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

Operating condition : High Channel



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	81.410	31.9	7.8	2.2	33.0	8.9	40.0	31.1	300	122
2	184.230	30.9	9.9	3.2	33.1	10.9	43.5	32.6	300	359
3	480.081	35.5	16.8	5.1	33.3	24.1	46.0	21.9	100	359
4	536.340	40.0	17.5	5.3	33.3	29.5	46.0	16.5	100	359
----- Vertical ------										
5	62.010	43.7	12.6	1.9	33.1	25.1	40.0	14.9	100	333
6	951.487	26.8	22.0	7.2	32.1	23.9	46.0	22.1	400	295

Tested by: Tae-Ho, Kim / 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 Below 30 MHz

-. Test Date : December 14, 2017 ~ December 18, 2017

-. 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

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

13.6.3 Test data for above 1 GHz

-. Test Date : December 14, 2017 ~ December 18, 2017

-. 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 ~ 26.5 GHz

-. Measurement distance : 3 m

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

Tested by: Tae-Ho, Kim / 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)