



Appendix for Test report



Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_BT4.2	Ant1	2402	0.704	2401.652	2402.356	---	PASS
		2440	0.692	2439.656	2440.348	---	PASS
		2480	0.684	2479.652	2480.336	---	PASS
BLE_BT5.0	Ant1	2402	1.176	2401.424	2402.600	---	PASS
		2440	1.228	2439.360	2440.588	---	PASS
		2480	1.240	2479.356	2480.596	---	PASS



Test Graphs





BLE_BT5.0_Ant1_2402



BLE_BT5.0_Ant1_2440



BLE_BT5.0_Ant1_2480





Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_BT4.2	Ant1	2402	1.0283	2401.500	2402.529	---	PASS
		2440	1.0407	2439.494	2440.534	---	PASS
		2480	1.0369	2479.496	2480.533	---	PASS
BLE_BT5.0	Ant1	2402	2.0617	2400.995	2403.057	---	PASS
		2440	2.0562	2438.992	2441.048	---	PASS
		2480	2.0689	2478.985	2481.054	---	PASS



Test Graphs





BLE_BT5.0_Ant1_2402



BLE_BT5.0_Ant1_2440



BLE_BT5.0_Ant1_2480





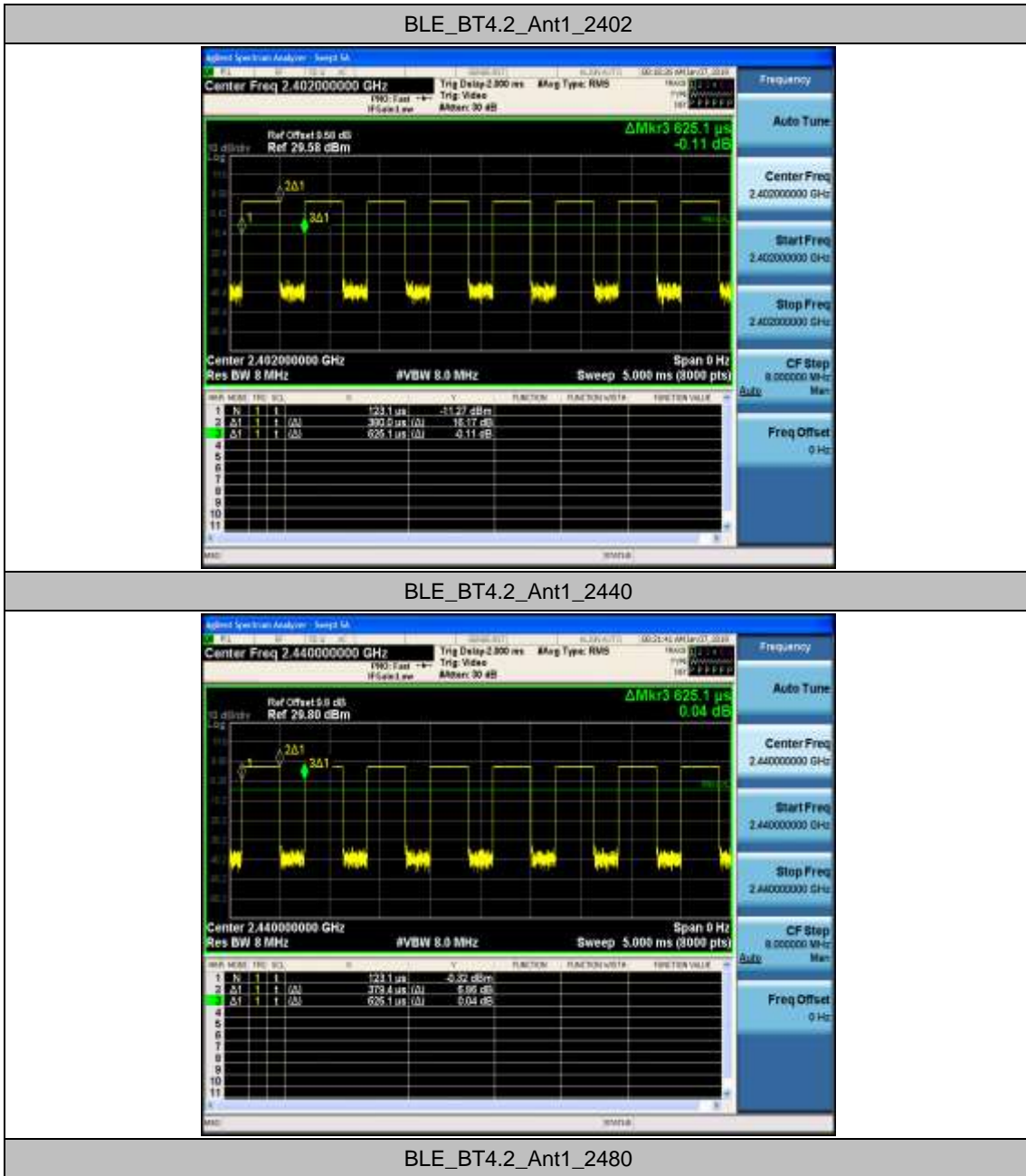
Appendix C: Duty Cycle

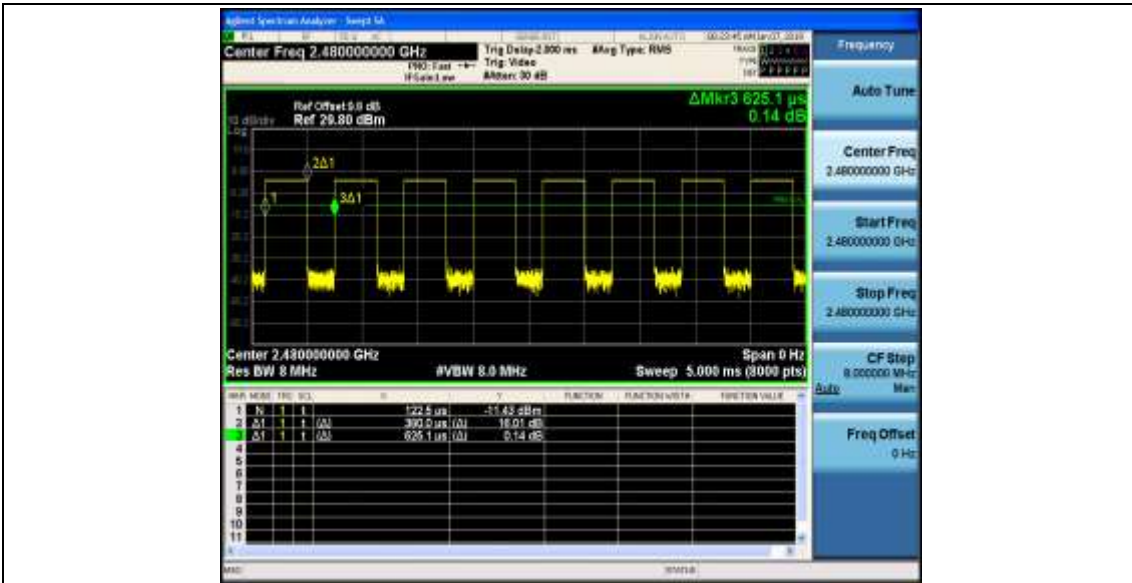
Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
BLE_BT4.2	Ant1	2402	0.38	0.63	60.80
		2440	0.38	0.63	60.70
		2480	0.38	0.63	60.80
BLE_BT5.0	Ant1	2402	1.07	1.87	56.92
		2440	1.07	1.88	56.90
		2480	1.07	1.88	56.90

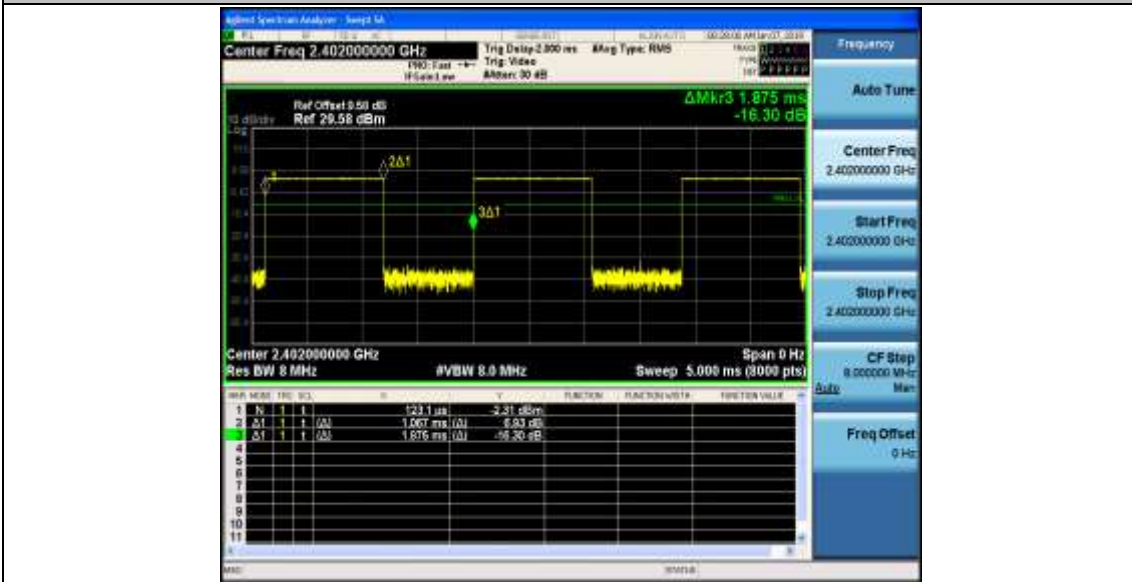


Test Graphs

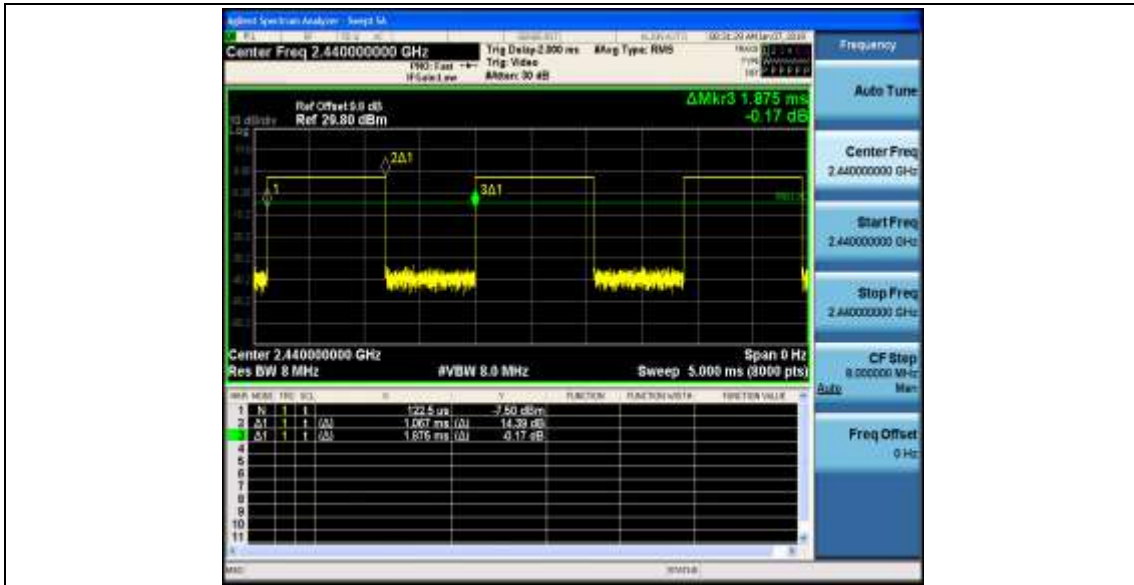




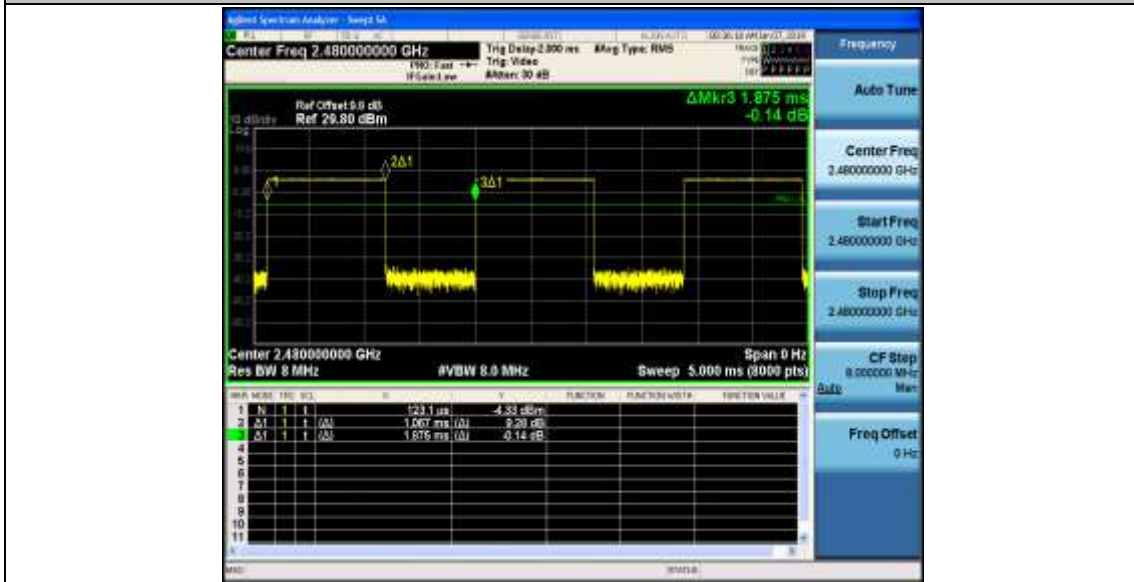
BLE_BT5.0_Ant1_2402



BLE_BT5.0_Ant1_2440



BLE_BT5.0_Ant1_2480





Appendix D: Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_BT4.2	Ant1	2402	6.07	30	PASS
		2440	7.19	30	PASS
		2480	5.97	30	PASS
BLE_BT5.0	Ant1	2402	6.07	30	PASS
		2440	7.20	30	PASS
		2480	5.94	30	PASS

Test Graphs

BLE_BT4.2_Ant1_2402



BLE_BT4.2_Ant1_2440



BLE_BT4.2_Ant1_2480



BLE_BT5.0_Ant1_2402



BLE_BT5.0_Ant1_2440



BLE_BT5.0_Ant1_2480





Appendix E: Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/10kHz]	Limit[dBm/3kHz]	Verdict
BLE_BT4.2	Ant1	2402	-4.29	8	PASS
		2440	-3.10	8	PASS
		2480	-4.40	8	PASS
BLE_BT5.0	Ant1	2402	-6.93	8	PASS
		2440	-5.77	8	PASS
		2480	-7.04	8	PASS

Test Graphs

BLE_BT4.2_Ant1_2402



BLE_BT4.2_Ant1_2440



BLE_BT4.2_Ant1_2480



BLE_BT5.0_Ant1_2402



BLE_BT5.0_Ant1_2440



BLE_BT5.0_Ant1_2480





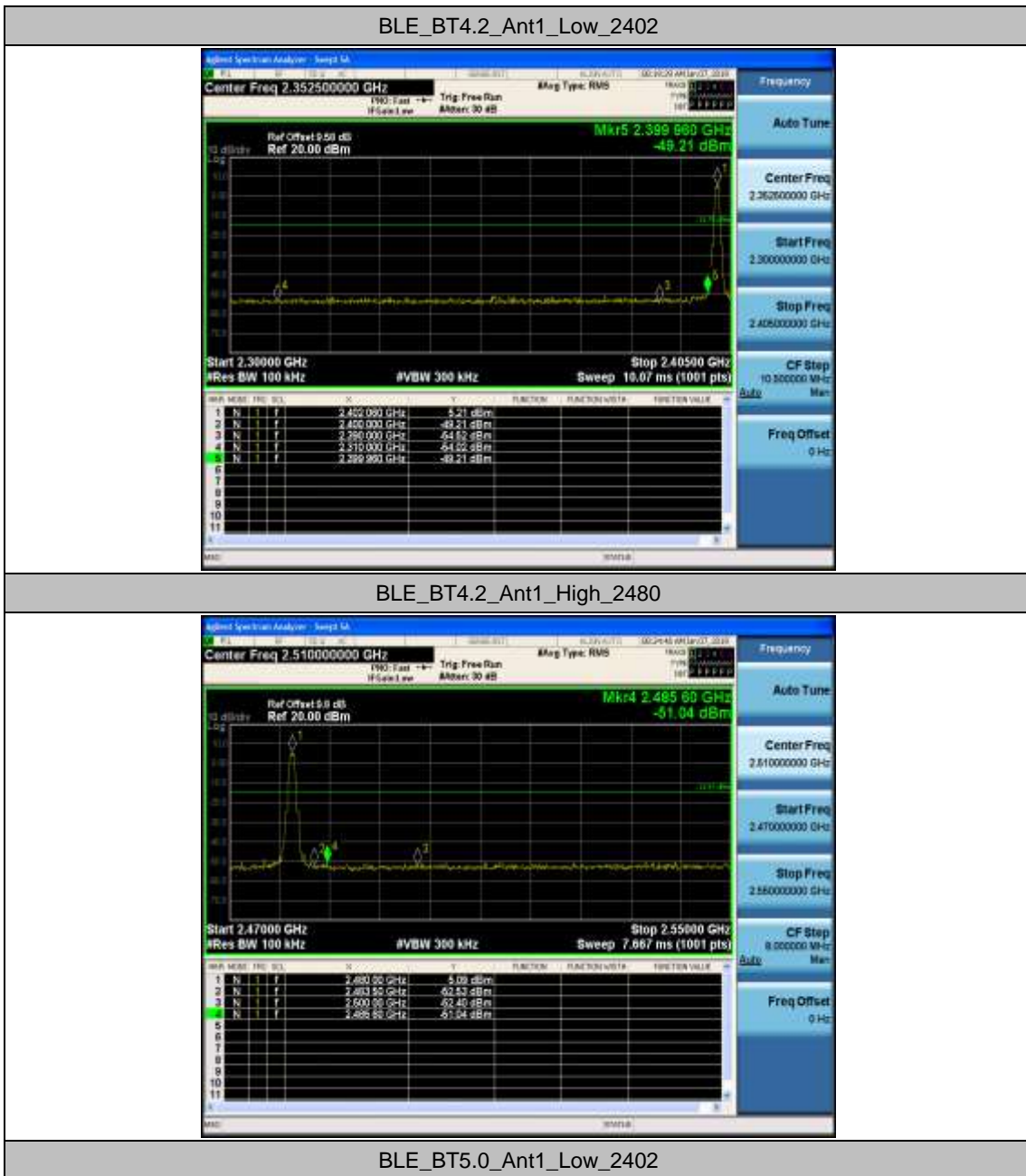
Appendix F: Band edge measurements

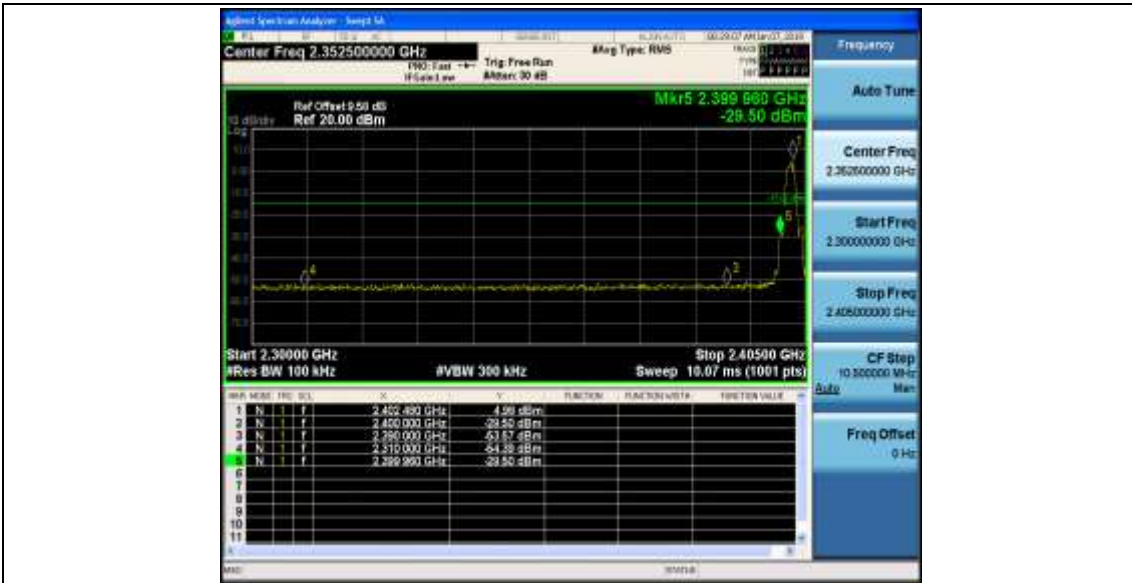
Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_BT4.2	Ant1	Low	2402	5.21	-49.21	-14.79	PASS
		High	2480	5.09	-51.04	-14.91	PASS
BLE_BT5.0	Ant1	Low	2402	4.98	-29.5	-15.02	PASS
		High	2480	4.53	-50.87	-15.47	PASS

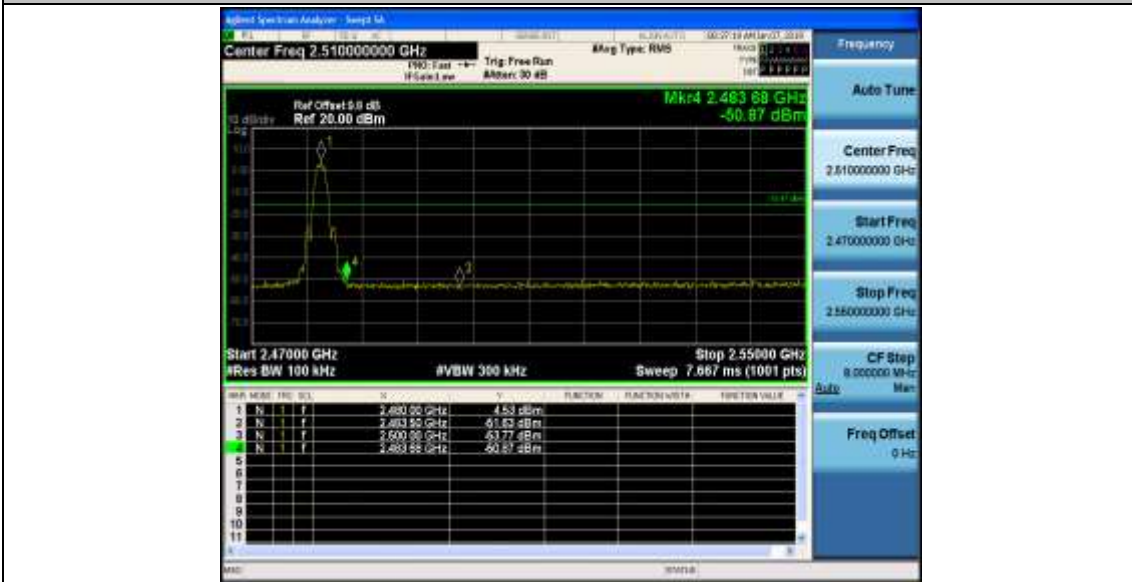


Test Graphs





BLE_BT5.0_Ant1_High_2480





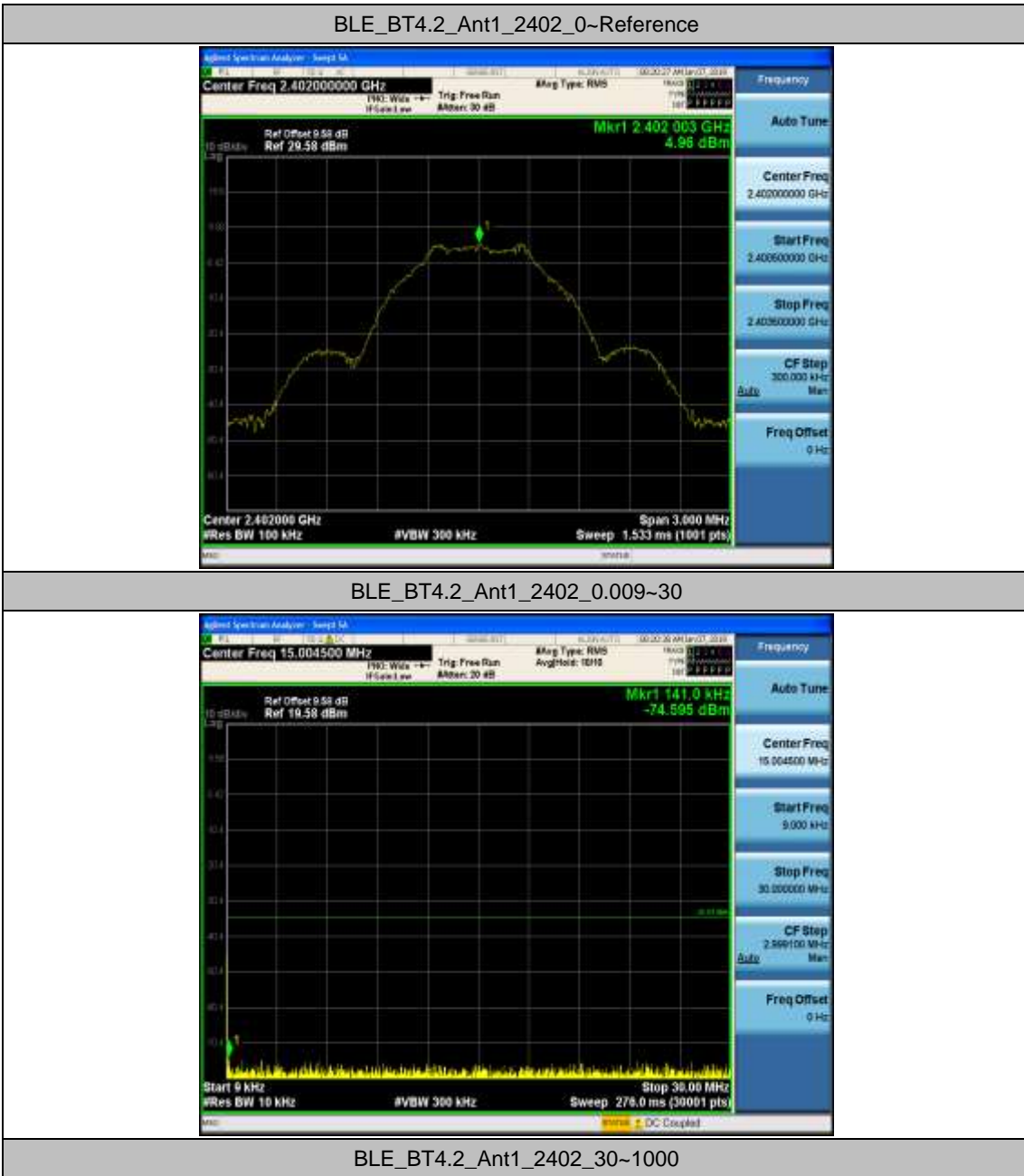
Appendix G: Conducted Spurious Emission

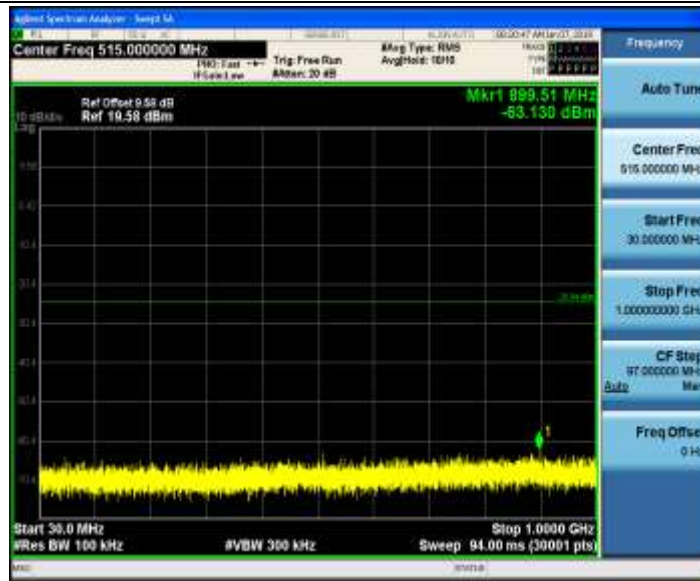
Test Result

TestMode	Antenna	Channel	FreqRange	RefLevel	Result	Limit	Verdict
BLE_BT4.2	Ant1	2402	Reference	4.96	4.96	---	PASS
			0.009~30	0.009~30	-74.6	-35.04	PASS
			30~1000	30~1000	-63.13	-25.04	PASS
			1000~26500	1000~26500	-38.81	-25.04	PASS
		2440	Reference	6.06	6.06	---	PASS
			0.009~30	0.009~30	-75.01	-33.94	PASS
			30~1000	30~1000	-61.97	-23.94	PASS
			1000~26500	1000~26500	-40.5	-23.94	PASS
		2480	Reference	4.81	4.81	---	PASS
			0.009~30	0.009~30	-74.54	-35.19	PASS
			30~1000	30~1000	-62.83	-25.19	PASS
			1000~26500	1000~26500	-40	-25.19	PASS
BLE_BT5.0	Ant1	2402	Reference	4.55	4.55	---	PASS
			0.009~30	0.009~30	-74.78	-35.45	PASS
			30~1000	30~1000	-62.09	-25.45	PASS
			1000~26500	1000~26500	-40.31	-25.45	PASS
		2440	Reference	5.70	5.70	---	PASS
			0.009~30	0.009~30	-73.97	-34.3	PASS
			30~1000	30~1000	-62.75	-24.3	PASS
			1000~26500	1000~26500	-40.05	-24.3	PASS
		2480	Reference	4.45	4.45	---	PASS
			0.009~30	0.009~30	-74.75	-35.55	PASS
			30~1000	30~1000	-62.96	-25.55	PASS
			1000~26500	1000~26500	-39.48	-25.55	PASS



Test Graphs





BLE_BT4.2_Ant1_2402_1000~26500



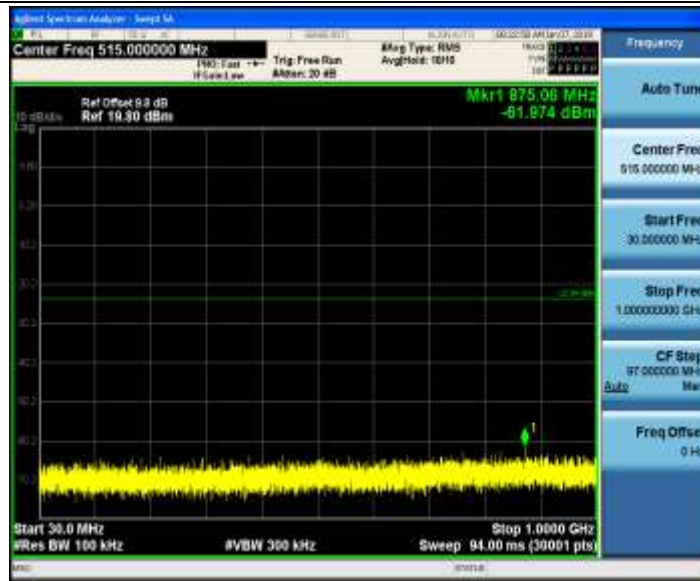
BLE_BT4.2_Ant1_2440_0~Reference



BLE_BT4.2_Ant1_2440_0.009~30



BLE_BT4.2_Ant1_2440_30~1000



BLE_BT4.2_Ant1_2440_1000~26500



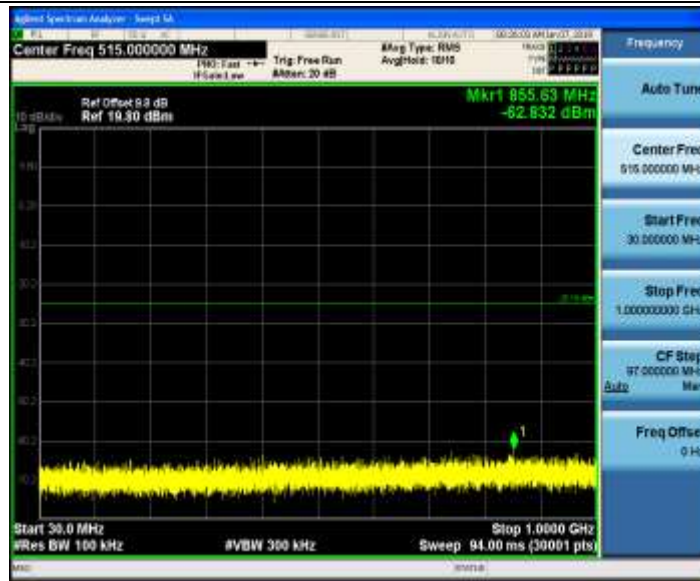
BLE_BT4.2_Ant1_2480_0~Reference



BLE_BT4.2_Ant1_2480_0.009~30



BLE_BT4.2_Ant1_2480_30~1000



BLE_BT4.2_Ant1_2480_1000~26500



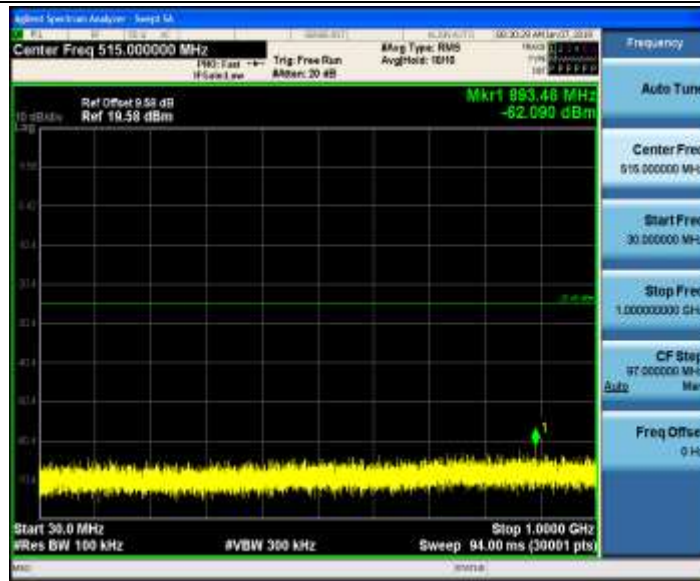
BLE_BT5.0_Ant1_2402_0~Reference



BLE_BT5.0_Ant1_2402_0.009~30



BLE_BT5.0_Ant1_2402_30~1000



BLE_BT5.0_Ant1_2402_1000~26500



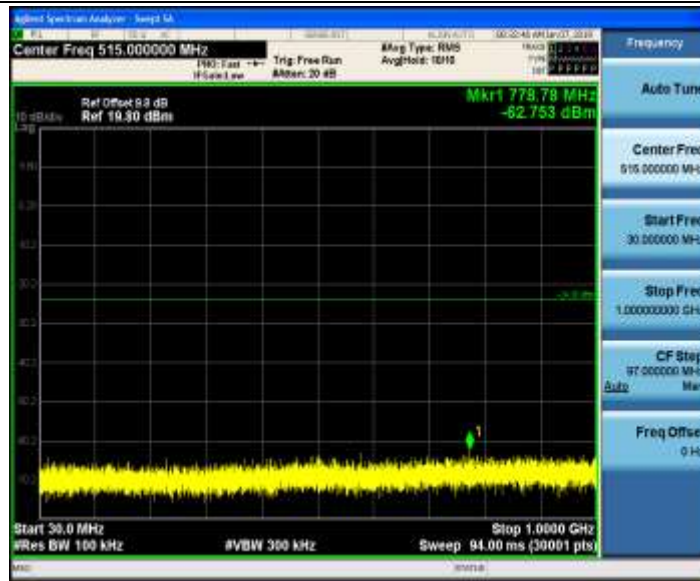
BLE_BT5.0_Ant1_2440_0~Reference



BLE_BT5.0_Ant1_2440_0.009~30



BLE_BT5.0_Ant1_2440_30~1000



BLE_BT5.0_Ant1_2440_1000~26500



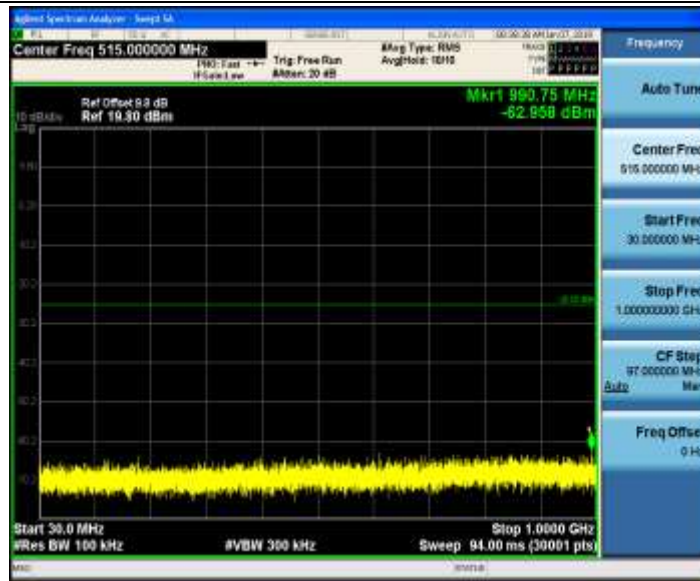
BLE_BT5.0_Ant1_2480_0~Reference



BLE_BT5.0_Ant1_2480_0.009~30



BLE_BT5.0_Ant1_2480_30~1000



BLE_BT5.0_Ant1_2480_1000~26500





Appendix H: Radiated Spurious Emission & Spurious in Restricted Band

Note: We tested all modes, but the data presented below is the worst case.

Below 1GHz, RBW = 100 kHz, VBW = 300 kHz.

Above 1GHz, RBW = 1 MHz, VBW = 3 MHz.

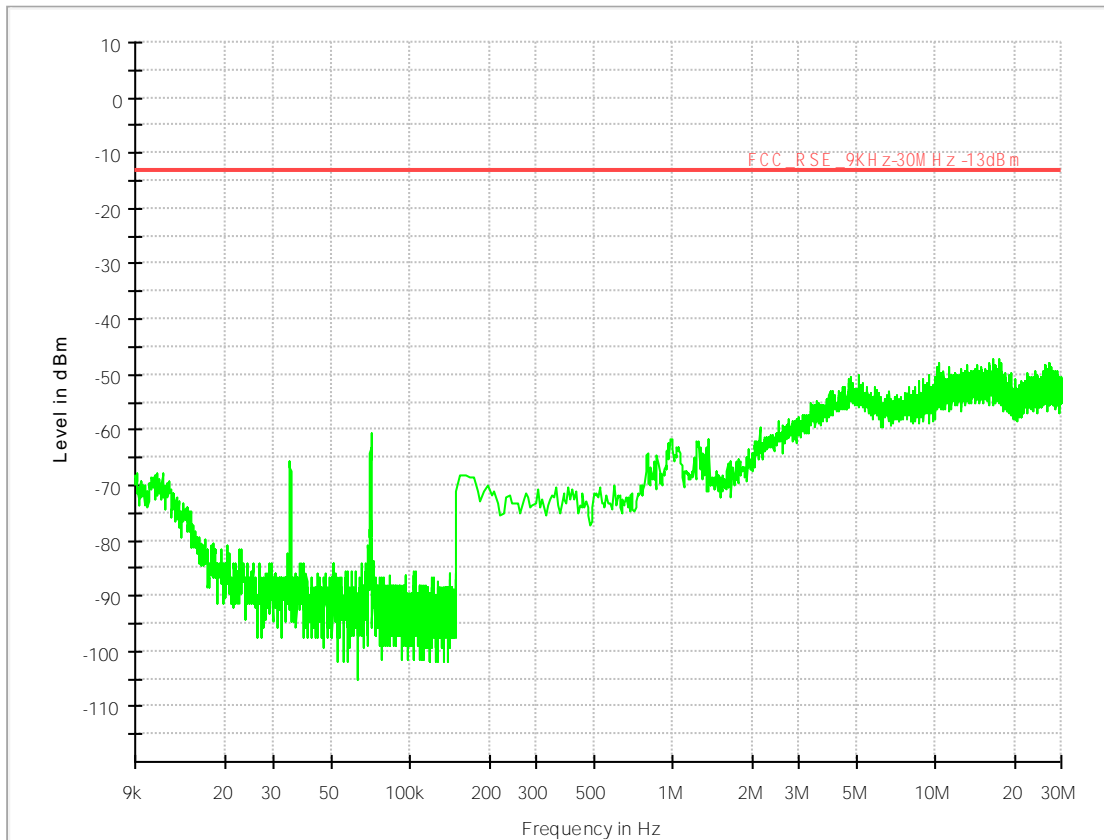
The simultaneous transmission has been considered



1 BLE_BT4.2

1.1 Part 1: Testing Range of “9 kHz to 30MHz”

Note 1: The test results and plot for testing range of “9 kHz to 30 MHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

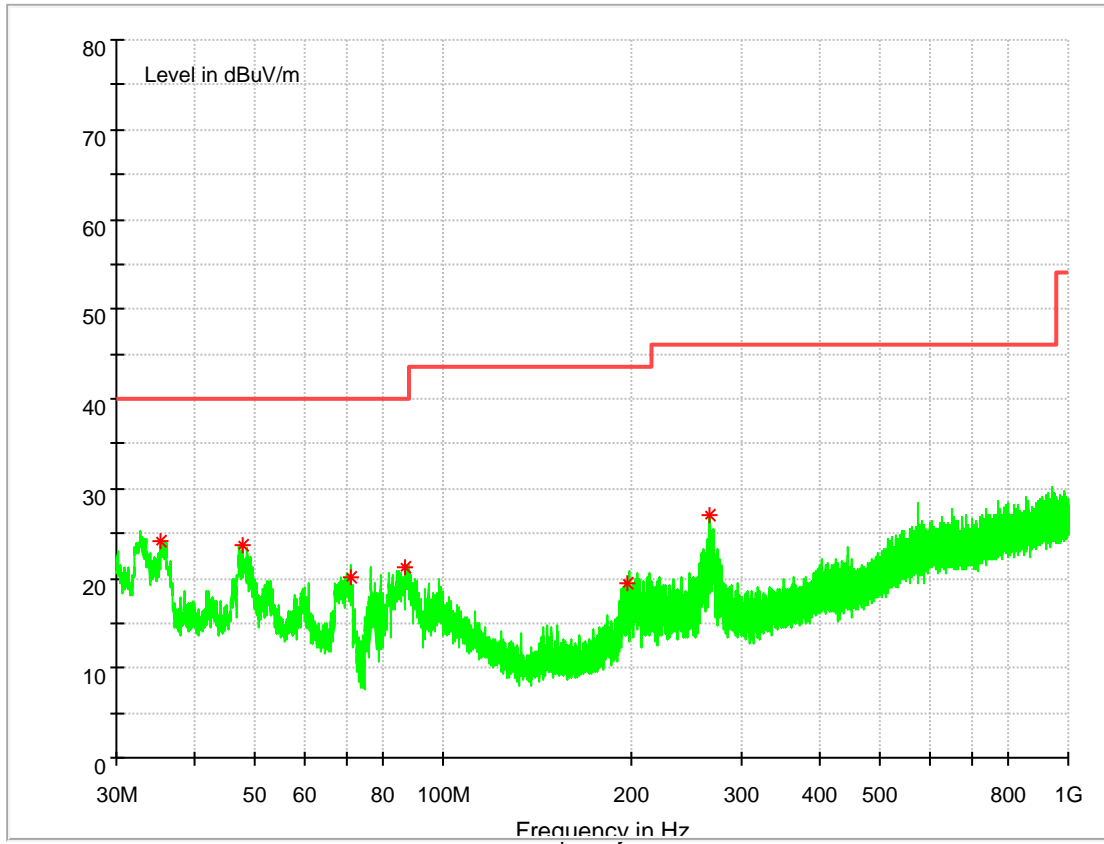




1.2 Part 2: Testing Range of “30 MHz to 1 GHz”

Note 1: The test results and plot for testing range of “30 MHz to 1 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

Note 2: The emissions in this range are mainly from the Platform Device (Notepad PC and its ancillary components).

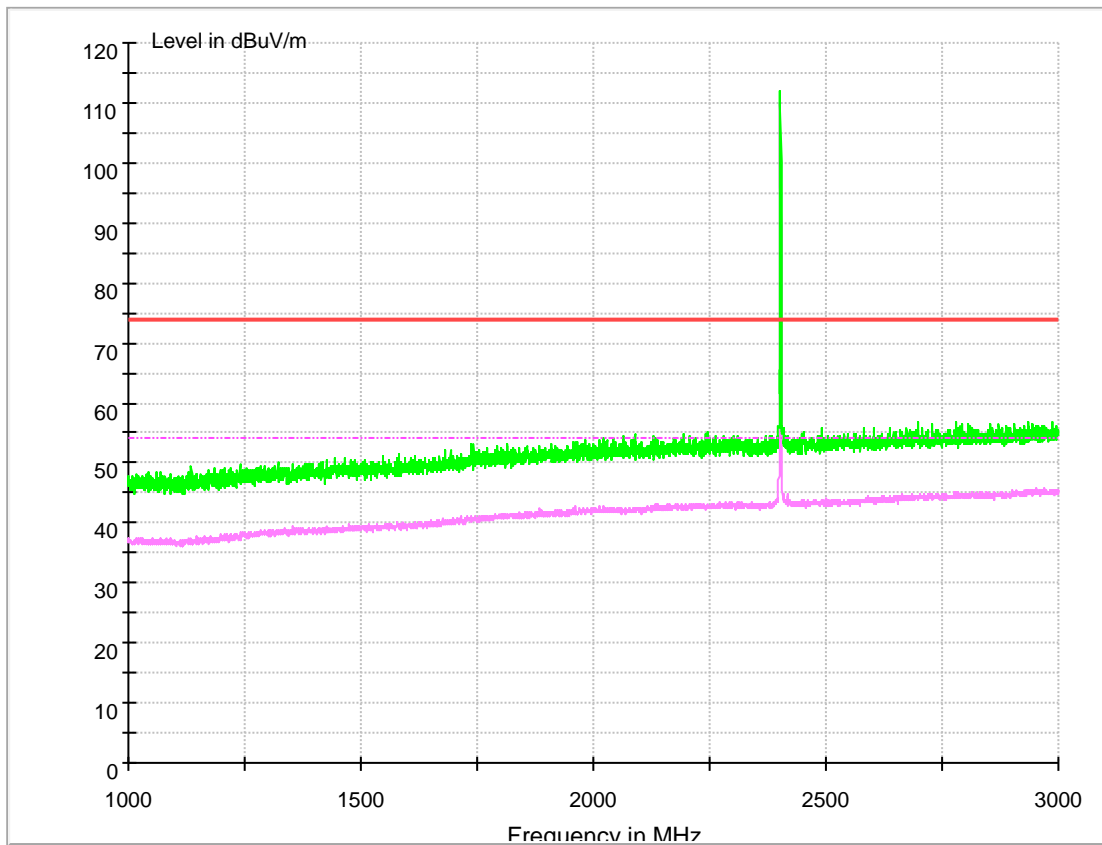


Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Transd. (dB)
35.335000	24.24	40.00	15.76	100.0	V	336.0	13.1
47.621667	23.66	40.00	16.34	100.0	V	164.0	14.2
71.095667	20.18	40.00	19.82	100.0	V	225.0	9.4
87.036000	21.32	40.00	18.68	100.0	V	123.0	12.0
197.131000	19.52	43.50	23.98	100.0	V	233.0	12.1
267.553000	27.01	46.00	18.99	100.0	H	129.0	14.1

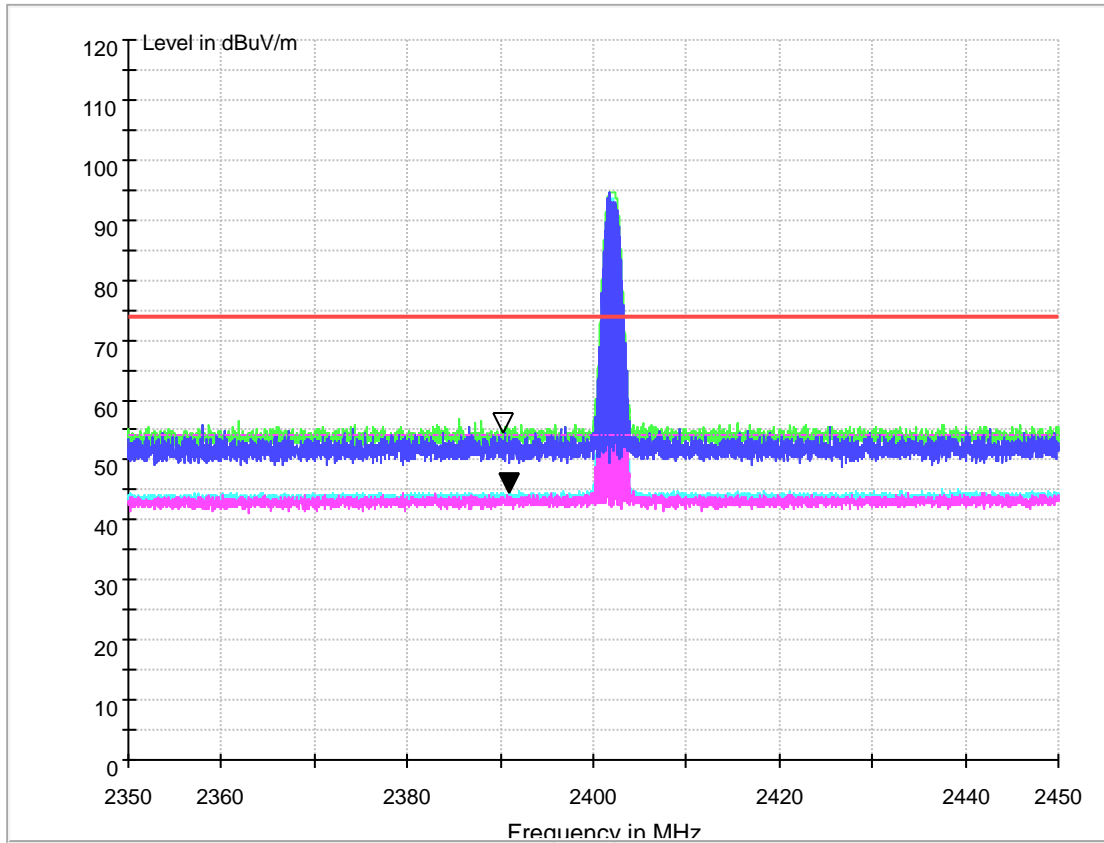
1.3 Part 3: Testing Range of “1GHz to 3GHz”

- Note 1: The testing range of “1GHz to 3 GHz” is for checking radiated emissions located in restricted bands near the EUT operating bands.
- Note 2: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB μ V/m) and Average Limit (54 dB μ V/m).
- Note 3: The peak spike exceeds the limit line is EUT's operating frequency.

1.3.1 Test Mode: BT4.2



1.3.1.1 Channel 0



MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h	Transd. (dB)
2390	44.928	54.00	9.072	150.0	H	57.0	-6.8

MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2390	54.714	74.00	19.286	150.0	H	43.0	-6.8

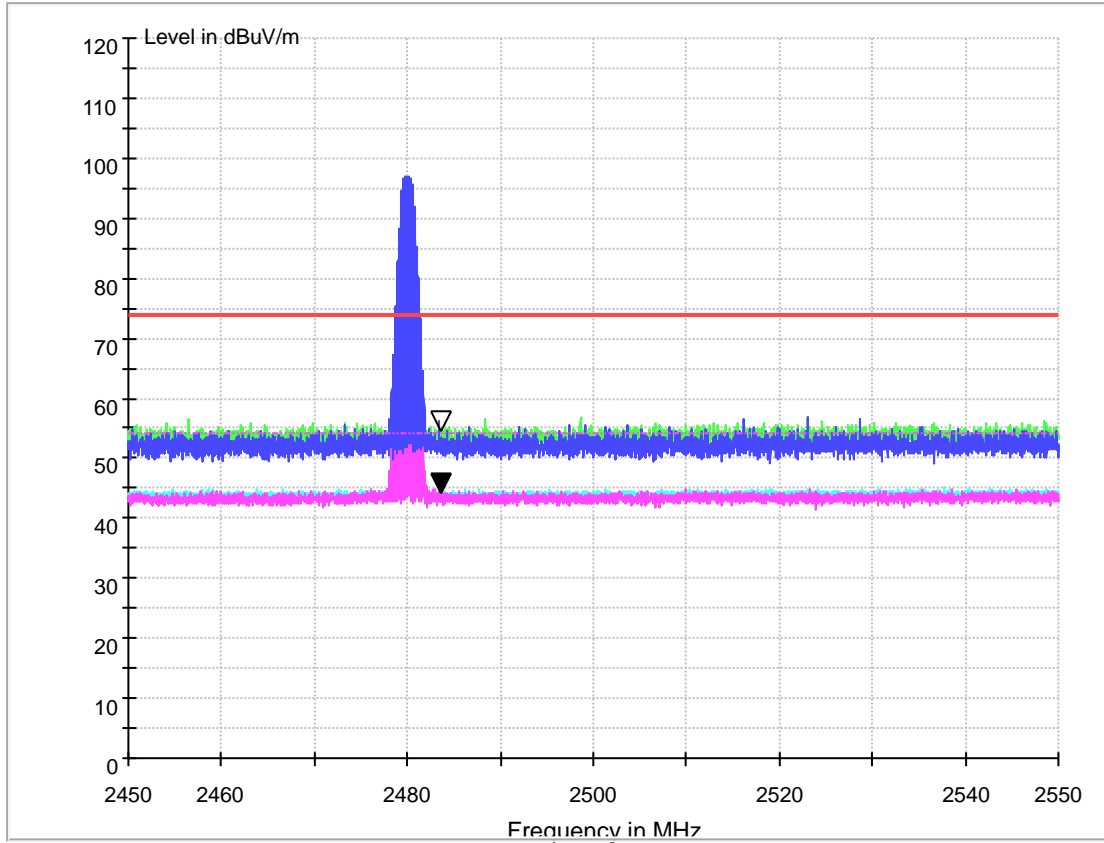
Note:

1, Level = Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

2, Margin = Limit – Level

1.3.1.2 Channel 39



MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h	Transd. (dB)
2483.5	44.342	54.00	9.658	150.0	H	57.0	-10.2

MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2483.5	54.663	74.00	19.337	150.0	H	-8.0	-10.2

Note:

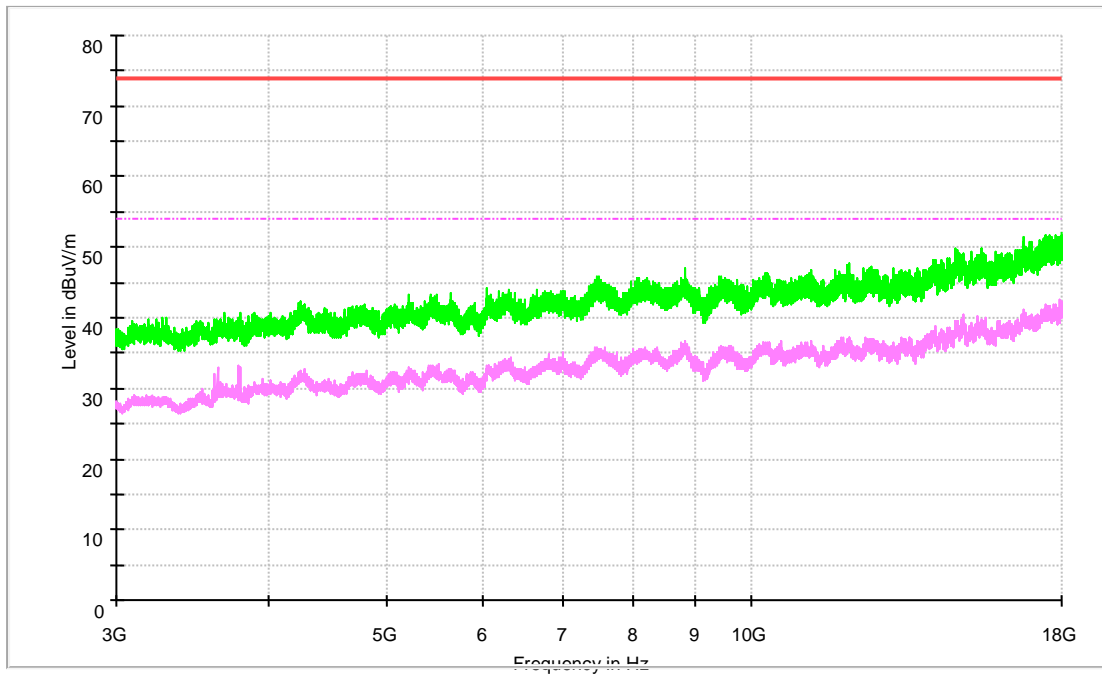
1, Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

2, Margin=Limit – Leve

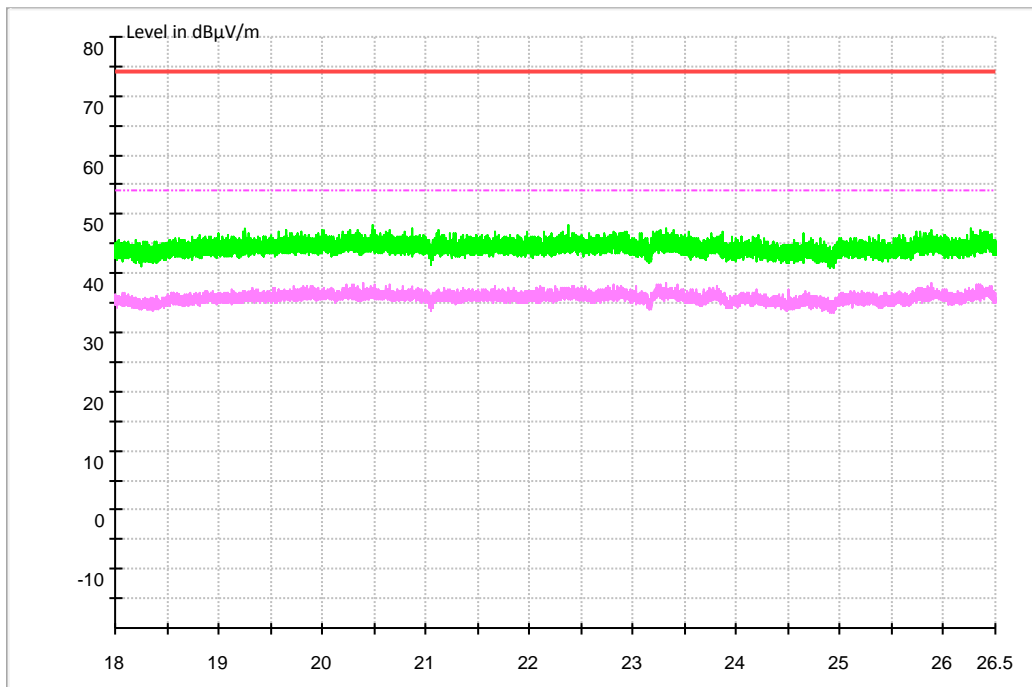
1.4 Part 4: Testing Range of “3 GHz to 18 GHz”

- Note 1: The test results and plot for testing range of “3 GHz to 18 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.
- Note 2: The testing range of “3 GHz to 18 GHz” is for checking radiated emissions located in restricted bands faraway from the EUT operating bands.
- Note 3: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB μ V/m) and Average Limit (54 dB μ V/m).



1.5 Part 5: Testing Range of “18 GHz to 26.5 GHz”

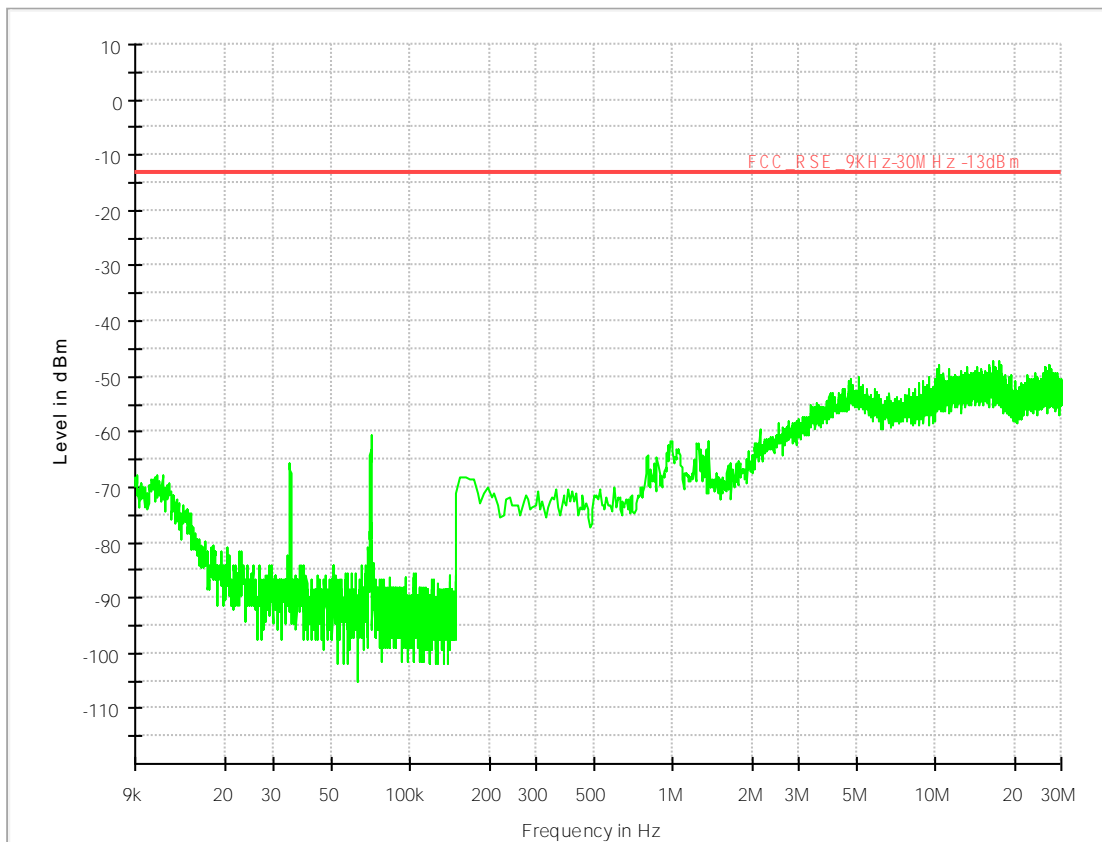
- Note 1: The test results and plot for testing range of “18 GHz to 26.5 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.
- Note 2: The testing range of “18 GHz to 26.5 GHz” is for checking radiated emissions located in restricted bands faraway from the EUT operating bands.
- Note 3: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB μ V/m) and Average Limit (54 dB μ V/m).



2 BLE_BT5.0

2.1 Part 1: Testing Range of “9 kHz to 30MHz”

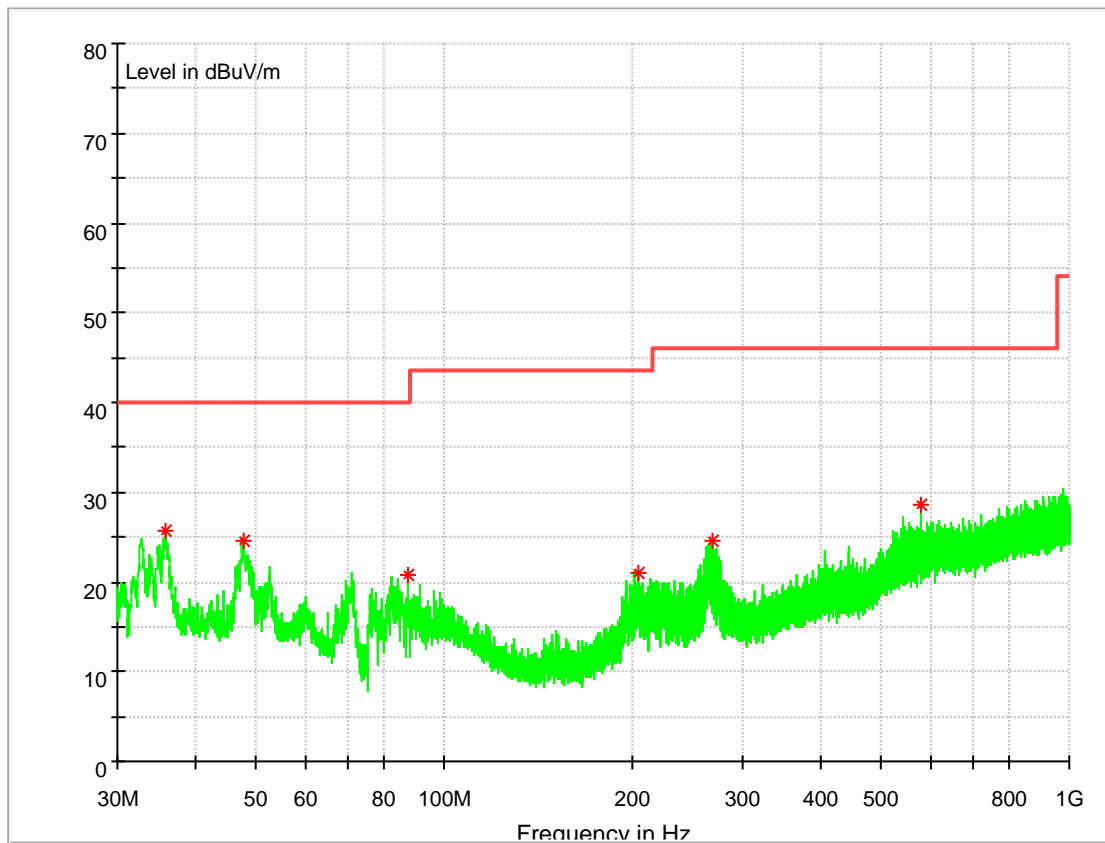
Note 1: The test results and plot for testing range of “9 kHz to 30 MHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.



2.2 Part 2: Testing Range of “30 MHz to 1 GHz”

Note 1: The test results and plot for testing range of “30 MHz to 1 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

Note 2: The emissions in this range are mainly from the Platform Device (Notepad PC and its ancillary components).



Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Transd. (dB)
35.787667	25.68	40.00	14.32	100.0	V	0.0	13.2



47.783333	24.56	40.00	15.44	100.0	V	220.0	14.2
87.424000	20.82	40.00	19.18	100.0	V	134.0	12.2
203.985667	20.89	43.50	22.61	100.0	V	311.0	12.3
267.876333	24.52	46.00	21.48	100.0	V	97.0	14.1
577.015333	28.52	46.00	17.48	100.0	H	19.0	20.4

Note:

1, Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

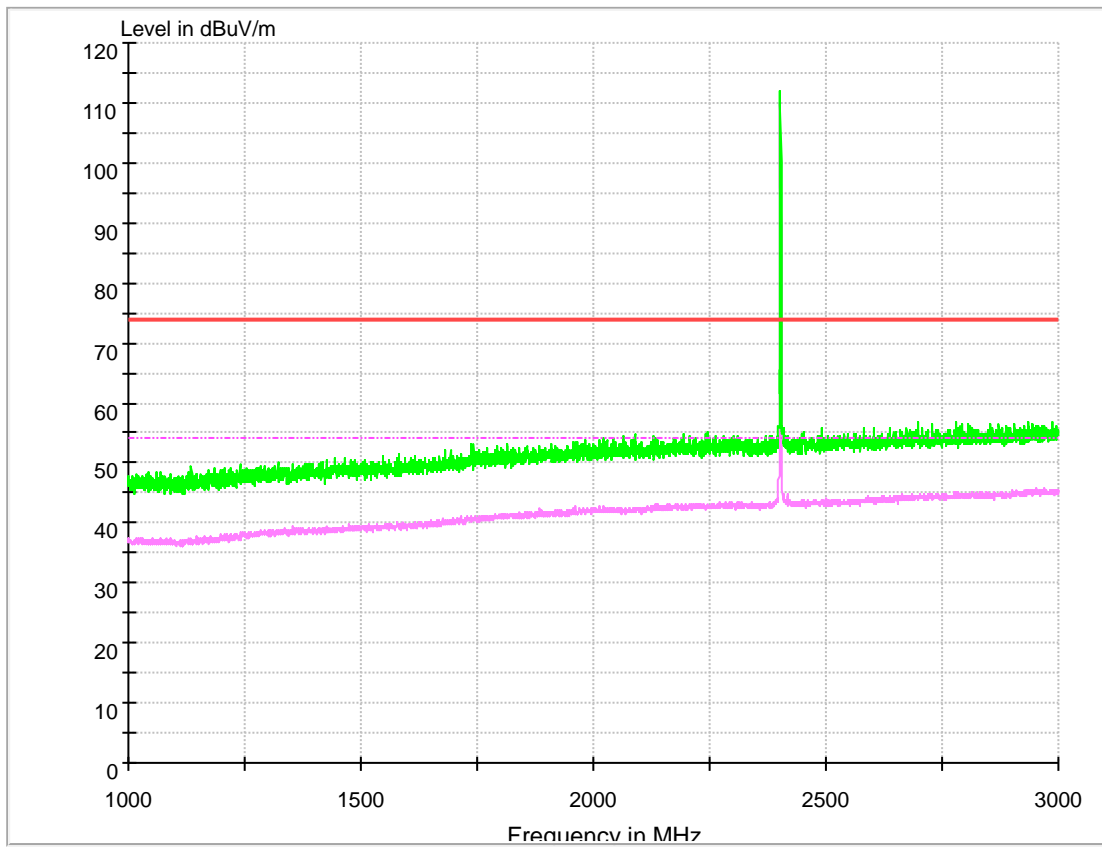
The reading level is calculated by software which is not shown in the sheet.

2, Margin=Limit - Level

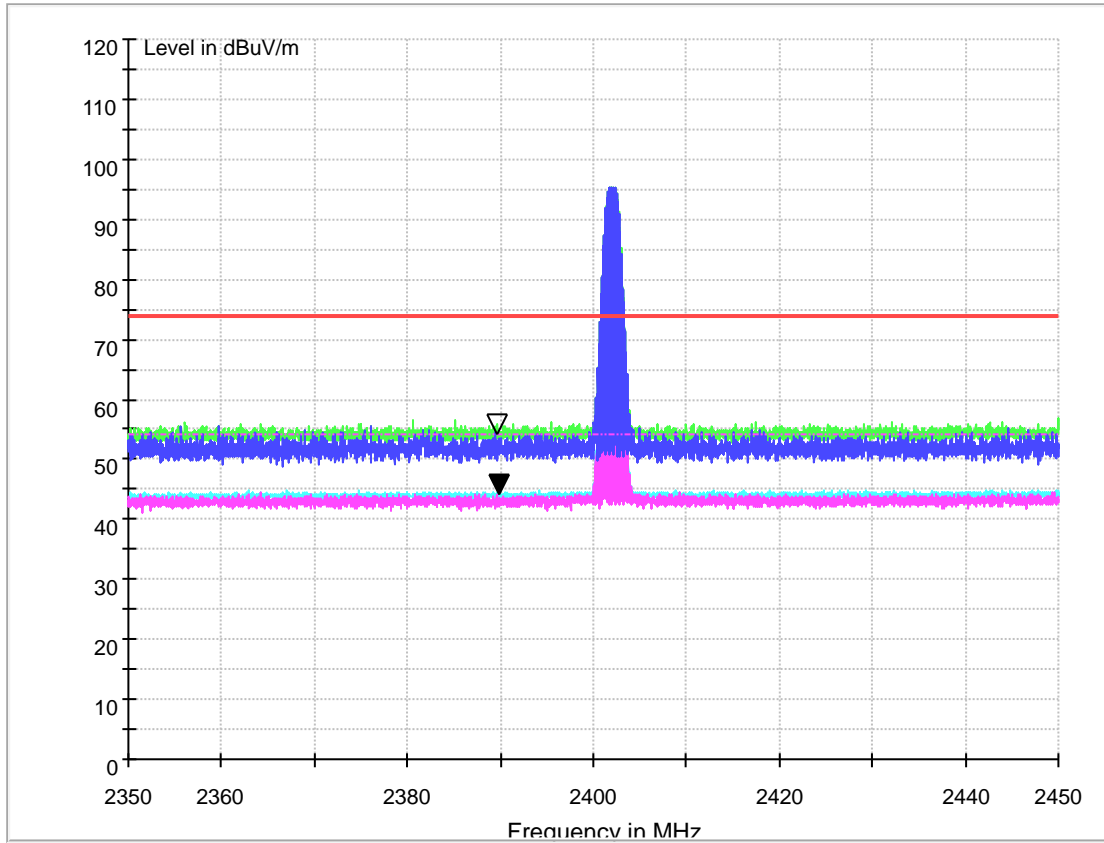
2.3 Part 3: Testing Range of “1GHz to 3GHz”

- Note 1: The testing range of “1GHz to 3 GHz” is for checking radiated emissions located in restricted bands near the EUT operating bands.
- Note 2: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB μ V/m) and Average Limit (54 dB μ V/m).
- Note 3: The peak spike exceeds the limit line is EUT's operating frequency.

2.3.1 Test Mode: BT5.0



2.3.1.1 Channel 0



MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2390	44.306	54.00	9.694	150.0	H	57.0	-6.8

MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2390	54.577	74.00	19.423	150.0	H	46.0	-6.8

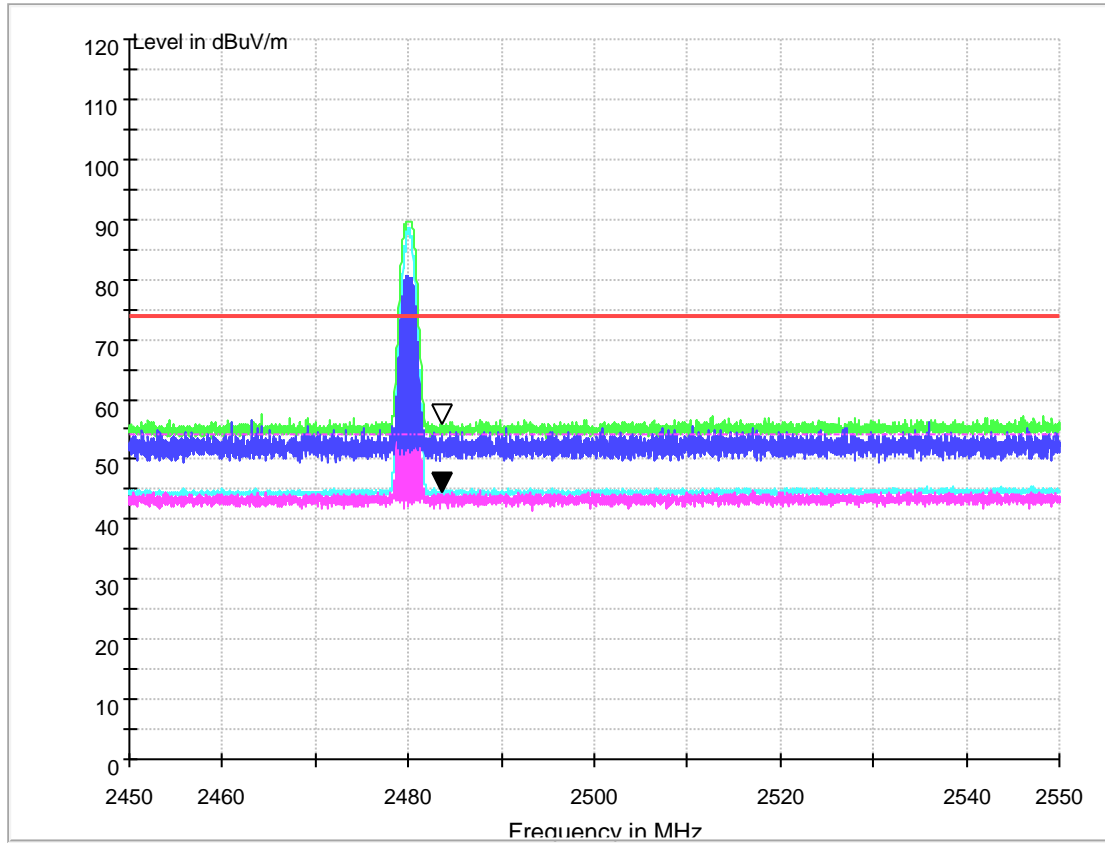
Note:

1, Level = Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

2, Margin = Limit – Level

2.3.1.2 Channel 39



MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2483.5	44.847	54.00	9.153	150.0	H	57.0	-10.2

MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth h (deg)	Transd. (dB)
2483.5	56.074	74.00	17.926	150.0	H	46.0	-10.2

Note:

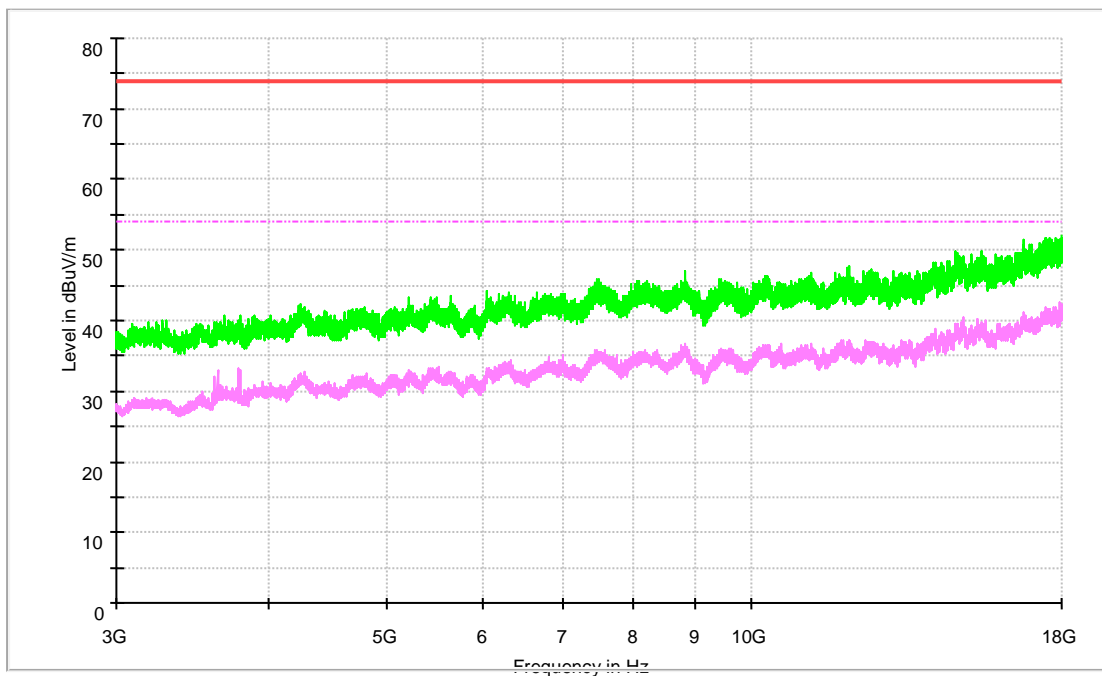
1, Level = Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

2, Margin = Limit – Level

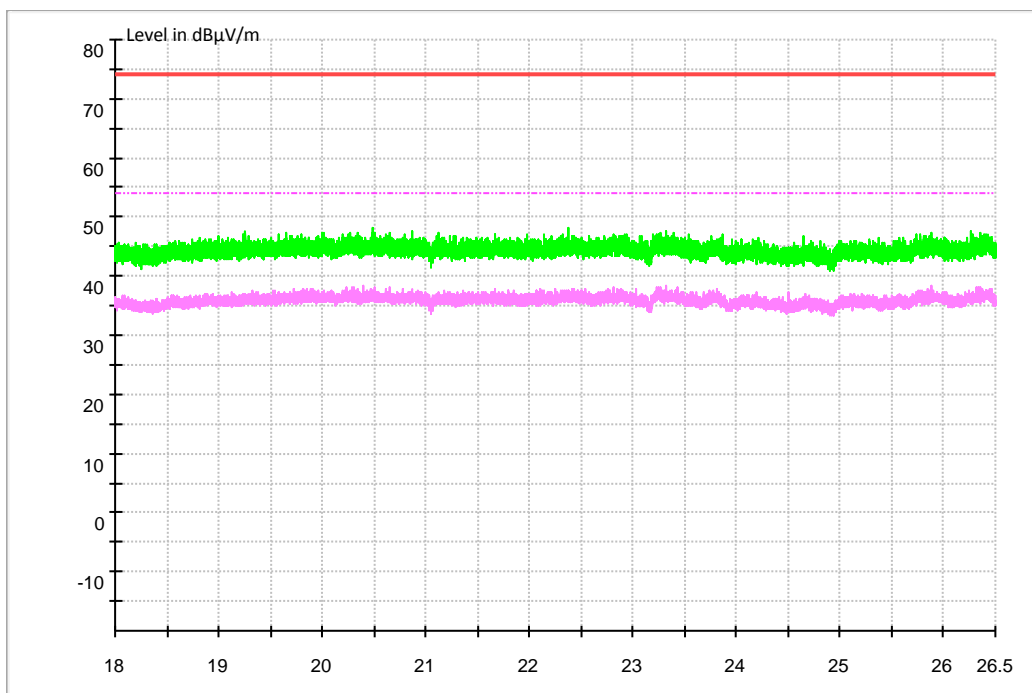
2.4 Part 4: Testing Range of “3 GHz to 18 GHz”

- Note 1: The test results and plot for testing range of “3 GHz to 18 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.
- Note 2: The testing range of “3 GHz to 18 GHz” is for checking radiated emissions located in restricted bands faraway from the EUT operating bands.
- Note 3: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB μ V/m) and Average Limit (54 dB μ V/m).



2.5 Part 5: Testing Range of “18 GHz to 26.5 GHz”

- Note 1: The test results and plot for testing range of “18 GHz to 26.5 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.
- Note 2: The testing range of “18 GHz to 26.5 GHz” is for checking radiated emissions located in restricted bands faraway from the EUT operating bands.
- Note 3: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB μ V/m) and Average Limit (54 dB μ V/m).



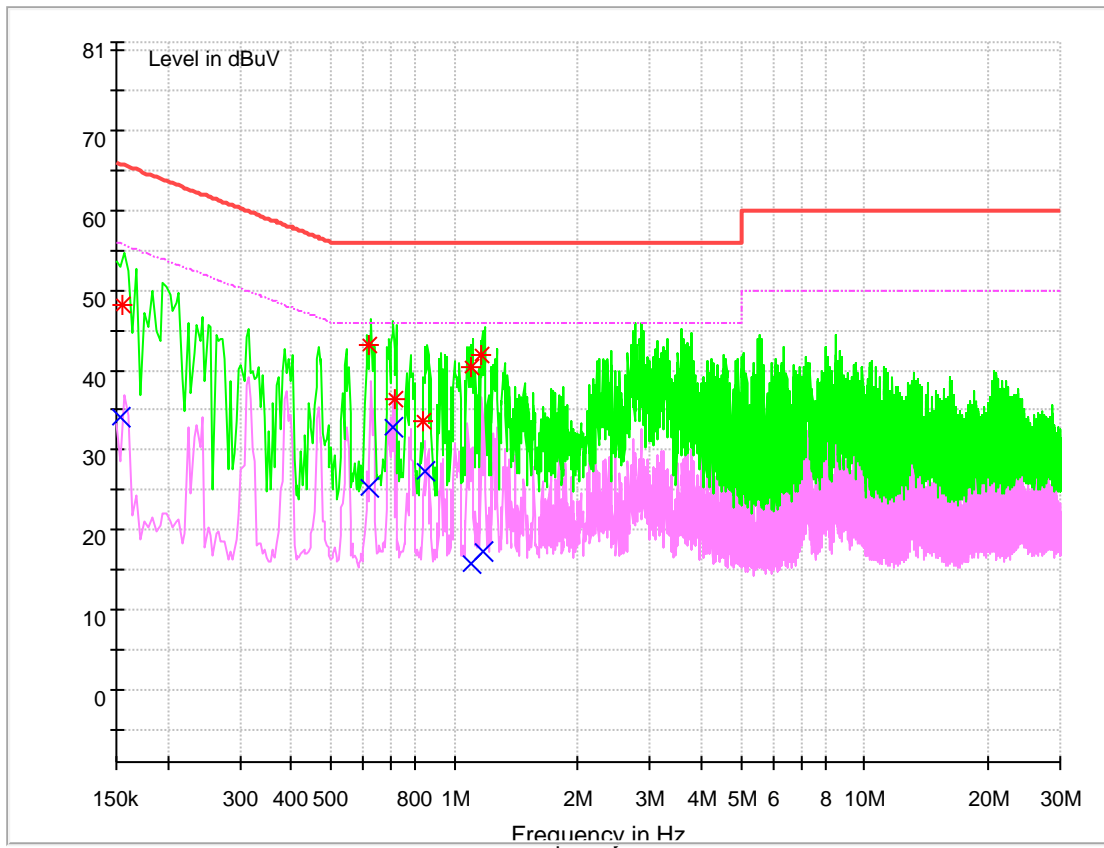


Appendix I: Conducted Emission at Power Port

1 BLE_BT4.2

Note: RBW =9 kHz, VBW = 30 kHz

Channel 39



**MEASUREMENT RESULT: QK Detector**

Frequency (MHz)	Level (dB μ V)	Limit (dB μ V)	Transd. (dB)	Margin (dB)	Line	PE
0.155622	48.20	65.69	9.7	17.49	L1	FLO
0.616874	43.12	56.00	9.7	12.88	L1	FLO
0.718875	36.44	56.00	9.7	19.56	N	FLO
0.835887	33.62	56.00	9.7	22.38	L1	FLO
1.095181	40.32	56.00	9.7	15.68	L1	FLO
1.156556	41.87	56.00	10.4	14.13	N	FLO

MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dB μ V)	Limit (dB μ V)	Transd. (dB)	Margin (dB)	Line	PE
0.154170	34.24	55.77	9.7	21.54	N	FLO
0.617272	25.35	46.00	9.7	20.65	L1	FLO
0.705753	32.83	46.00	9.7	13.17	L1	FLO
0.847373	27.46	46.00	9.7	18.54	N	FLO
1.095970	15.77	46.00	9.7	30.23	L1	FLO
1.173187	17.35	46.00	10.4	28.65	L1	FLO

Note:

1, Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

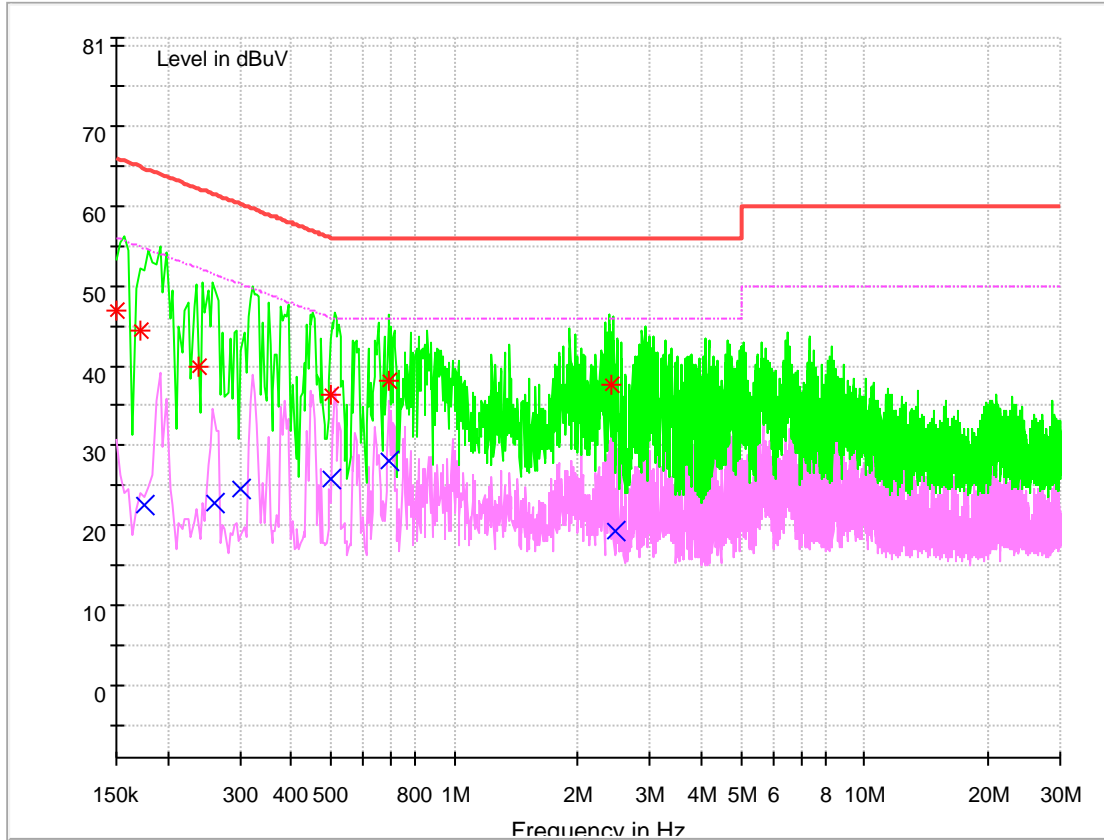
2, Margin=Limit - Level



2 BLE_BT5.0

Note: RBW =9 kHz, VBW = 30 kHz

Channel 39



MEASUREMENT RESULT: QP Detector

Frequency (MHz)	Level (dB μ V)	Limit (dB μ V)	Transd. (dB)	Margin (dB)	Line	PE
0.150582	46.84	65.97	9.7	19.13	N	FLO
0.171780	44.36	64.87	9.7	20.51	N	FLO
0.237139	39.91	62.20	9.7	22.29	N	FLO
0.499207	36.25	56.01	9.7	19.76	L1	FLO
0.692642	38.07	56.00	9.7	17.93	N	FLO
2.413718	37.52	56.00	10.4	18.48	L1	FLO

**MEASUREMENT RESULT: AV Detector**

Frequency (MHz)	Level (dB μ V)	Limit (dB μ V)	Transd. (dB)	Margin (dB)	Line	PE
0.175512	22.51	54.70	9.7	32.19	N	FLO
0.261460	22.78	51.39	9.7	28.61	N	FLO
0.301638	24.54	50.20	9.7	25.66	L1	FLO
0.500362	25.78	46.00	9.7	20.22	N	FLO
0.689531	28.22	46.00	9.7	17.78	N	FLO
2.463426	19.23	46.00	10.5	26.77	N	FLO

Note:

1, Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

2, Margin=Limit - Level

END