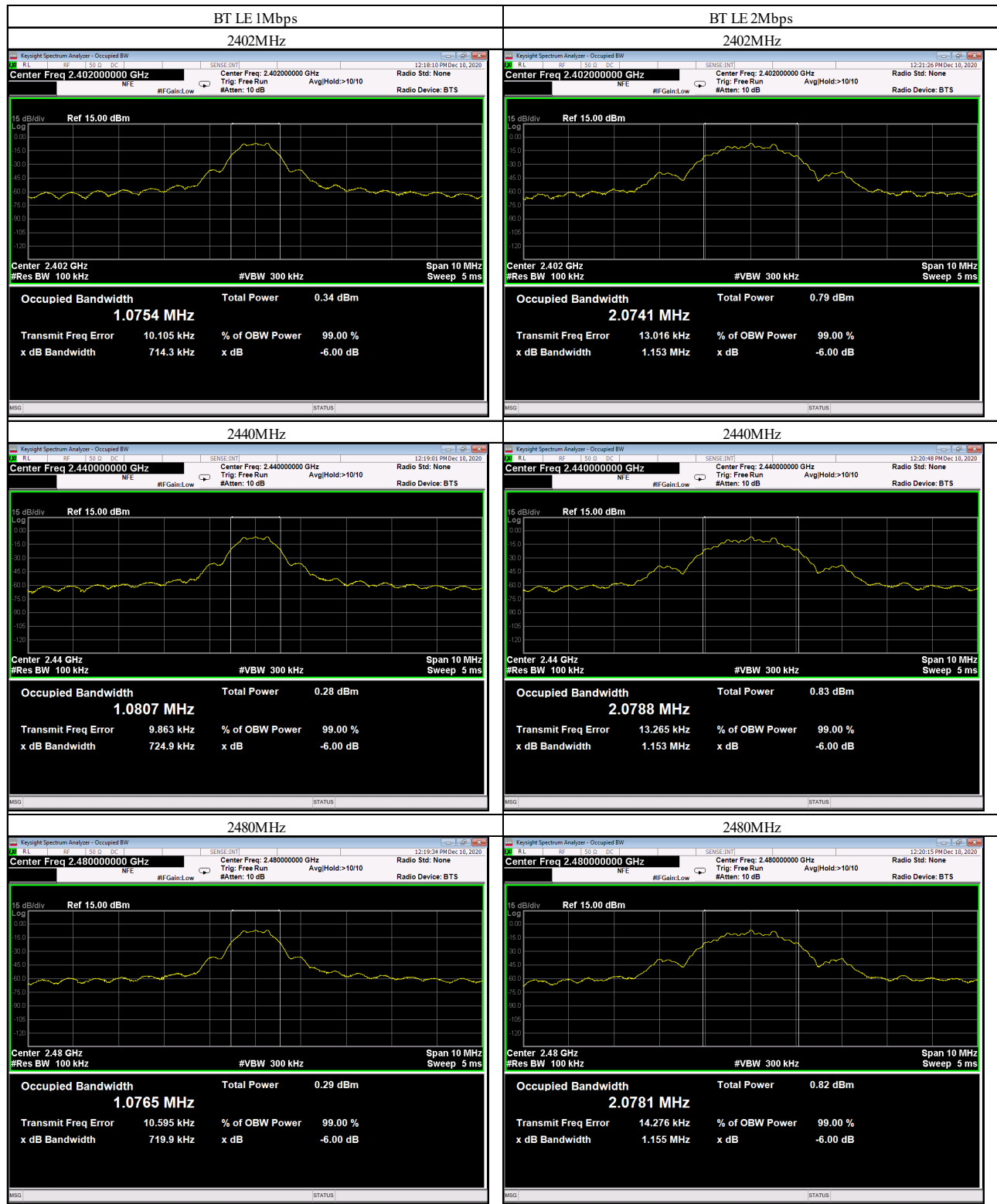




Spectrum Chart



7. PEAK CONDUCTED OUTPUT POWER

7.1. Test Procedure

- (1) Connect the EUT RF output port to peak power meter or spectrum analyzer (*1) via calibrated coaxial cable and suitable attenuator (if necessary).
- (2) Activates the EUT System and execute the software prepared for test, if necessary.
- (3) To find out the worst condition, the transmitting data rate of EUT is changed.
- (4) Measurement is started using the peak power meter or spectrum analyzer.

[Note]

- (*1) Spectrum Analyzer Set Up Conditions
- | | |
|----------------------|------------------------|
| Resolution bandwidth | : $\geq$ DTS bandwidth |
| Video bandwidth | : $\geq 3 \times$ RBW |
| Detector function | : Peak |

7.2. Test Results

BT LE

+4dBm

1Mbps

Measured Frequency (MHz)	Correction Factor (dB)	Meter Reading (dBm)	Peak Output Power (dBm)	Limit (dBm)	Margin for Limit (dB)
2402	10.30	-5.94	4.36	30.00	25.64
2440	10.30	-5.92	4.38	30.00	25.62
2480	10.30	-5.99	4.31	30.00	25.69

+4dBm

2Mbps

Measured Frequency (MHz)	Correction Factor (dB)	Meter Reading (dBm)	Peak Output Power (dBm)	Limit (dBm)	Margin for Limit (dB)
2402	10.30	-5.95	4.35	30.00	25.65
2440	10.30	-5.93	4.37	30.00	25.63
2480	10.30	-5.98	4.32	30.00	25.68

-40dBm

1Mbps

Measured Frequency (MHz)	Correction Factor (dB)	Meter Reading (dBm)	Peak Output Power (dBm)	Limit (dBm)	Margin for Limit (dB)
2402	10.90	-48.52	-37.62	30.00	67.62
2440	10.90	-48.69	-37.79	30.00	67.79
2480	10.90	-49.11	-38.21	30.00	68.21

-40dBm

2Mbps

Measured Frequency (MHz)	Correction Factor (dB)	Meter Reading (dBm)	Peak Output Power (dBm)	Limit (dBm)	Margin for Limit (dB)
2402	10.90	-48.62	-37.72	30.00	67.72
2440	10.90	-48.74	-37.84	30.00	67.84
2480	10.90	-49.09	-38.19	30.00	68.19



[Note]

Correction Factor includes the cable loss and attenuator loss.

[Calculation method]

Peak Output Power (dBm) = Meter Reading (dBm) + Correction Factor (dB)

Tested Date	Environment (before the test / after the test)			Power Supply Voltage (before the test / after the test)
	Temperature	Humidity	Atmospheric Pressure	
10 December 2020	24 °C / 24 °C	31 % / 31 %	1003 hPa	☐ DC V / V
				☒ AC 120V / 120V Freq. 60Hz / 60Hz

8. POWER SPECTRAL DENSITY (DTS only)

8.1. Test Procedure

- (1) Connect the EUT RF output port to spectrum analyzer (*1) via calibrated coaxial cable and suitable attenuator (if necessary).
- (2) Activates the EUT System and execute the software prepared for test, if necessary.
- (3) To find out the worst condition, the transmitting data rate of EUT is changed.
- (4) Record the spectral density perform peak search using the spectrum analyzer.

[Note]

(*1) Spectrum Analyzer Set Up Conditions

Center Frequency	: Carrier frequency
Frequency Span	: 1.5 times the emission bandwidth
Resolution bandwidth	: 3kHz
Video bandwidth	: $\geq 3 \times \text{RBW}$
Detector function	: Peak

8.2. Test Results

BT LE 1Mbps

Measured Frequency (MHz)	Correction Factor (dB)	Meter Reading (dBm)	Power Spectral Density (dBm)	Limit (dBm)	Margin for Limit (dB)
2402	10.90	-22.70	-11.80	8.00	19.80
2440	10.90	-22.63	-11.73	8.00	19.73
2480	10.90	-22.69	-11.79	8.00	19.79

BT LE 2Mbps

Measured Frequency (MHz)	Correction Factor (dB)	Meter Reading (dBm)	Power Spectral Density (dBm)	Limit (dBm)	Margin for Limit (dB)
2402	10.90	-24.33	-13.43	8.00	21.43
2440	10.90	-24.37	-13.47	8.00	21.47
2480	10.90	-24.65	-13.75	8.00	21.75

[Note]

(1) Correction Factor includes the cable loss and attenuator loss.

(2) See next page figure.

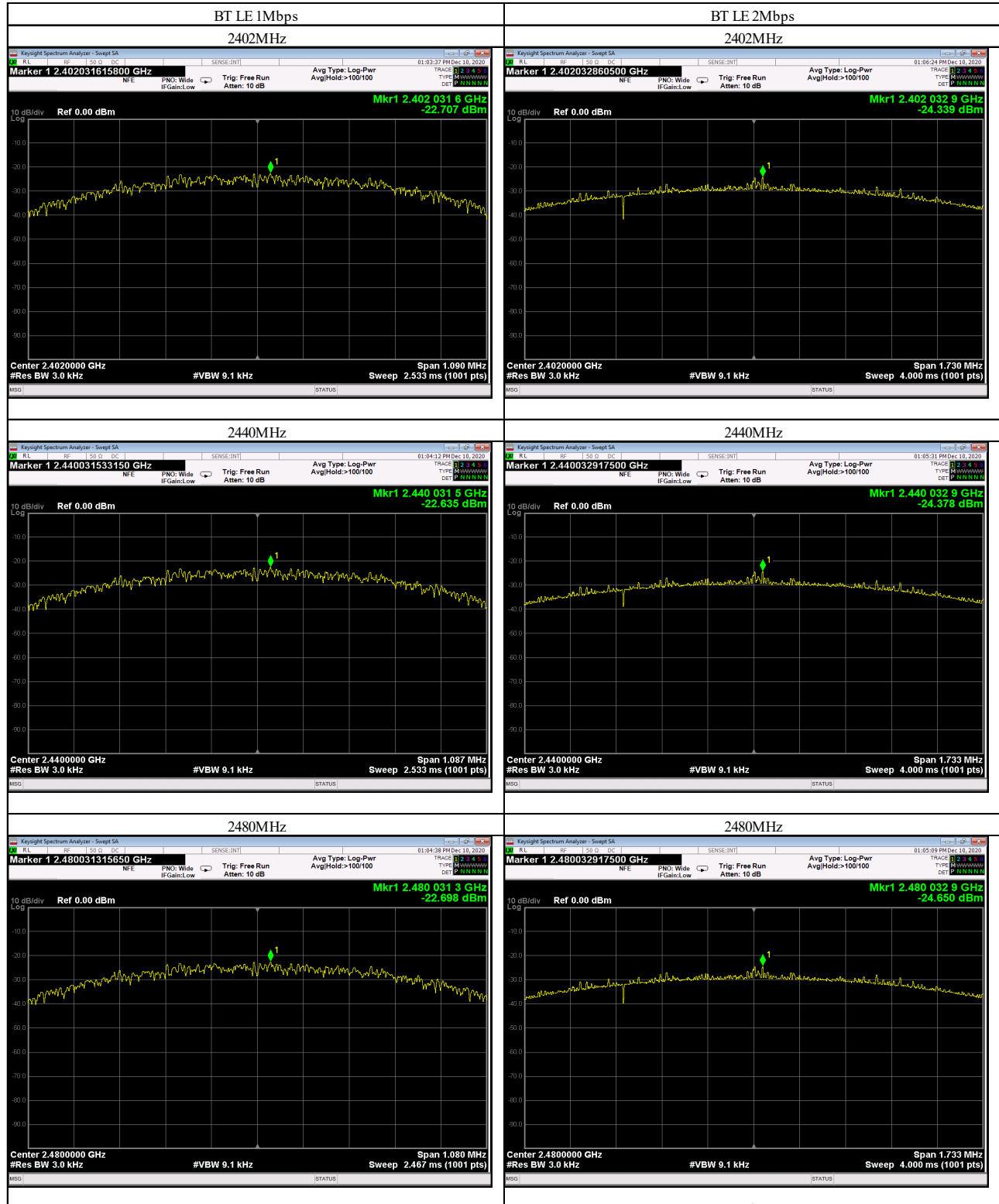
[Calculation method of Limit line]

Spectral Density (dBm) = Meter Reading (dBm) + Correction Factor (dB)

Tested Date	Environment (before the test / after the test)			Power Supply Voltage (before the test / after the test)
	Temperature	Humidity	Atmospheric Pressure	
10 December 2020	24 °C / 24 °C	31 % / 31 %	1003 hPa	☐ DC V / V
				☒ AC 120V / 120V Freq. 60Hz / 60Hz



Spectrum Chart



9. SPURIOUS EMISSION & RESTRICTED BAND EDGES

9.1. Test Procedure

Radiated measurement

- (1) The EUT is placed in accordance with ANSI C63.10.
- (2) The EUT is activated as to simulate an worst datarate.
- (3) To find out the maximum emission of the configuration of the EUT System, the position of the cables are changed, then preliminary radiated measurement are performed using the spectrum analyzer, the loop antenna, the broad band antenna and the horn antenna.
- (4) The spectrums are scanned from 9kHz to 30MHz and collect the highest emissions on the spectrum analyzer (*1) relative to the limits in the whole range.
In the frequency 30MHz to 1GHz, it is performed using the spectrum analyzer (*1) and the broad band antenna.
In the frequency above 1GHz, it is performed using the spectrum analyzer (*1) and the horn antenna.
- (5) The highest emissions are measured from 9kHz to 30MHz at the specified distance using the test receiver (*2) and the loop antenna.
In the frequency 30MHz to 1GHz, it is performed using the test receiver (*2) and the broad band antenna or tuned dipole.
In the frequency above 1GHz, the measurements are performed by Bore-sight method using the spectrum analyzer (*3) and the horn antenna (*4).

Conducted measurement

- (1) Connect the EUT RF output port to the spectrum analyzer (*5) via calibrated coaxial cable and suitable attenuator (if necessary).
- (2) The EUT is activated as to simulate an worst data rate.

[Note]

(*1) Spectrum Analyzer Set Up Conditions (Pre-measurement)

- Frequency range : 9kHz – 150kHz / 150kHz – 30MHz / 30MHz – 1GHz
/ 1GHz – Upper frequency of measurement range
- Resolution bandwidth : 30Hz / 10kHz / 100kHz / 1MHz
- Detector function : Peak

(*2) Test Receiver Set Up Conditions

- Frequency range : 9kHz – 150kHz / 150kHz – 30MHz / 30MHz – 1GHz
- Detector function : Quasi – Peak
- IF bandwidth : 200Hz / 9kHz / 120kHz (6dB Bandwidth)

(*3) Peak measurement Set Up Conditions

- Resolution bandwidth : 1MHz (Impulse Bandwidth)
- Video bandwidth : 3 x RBW
- Detector function : Peak

Average measurement Set Up Conditions

- Resolution bandwidth : 1MHz (Impulse Bandwidth)
- Video bandwidth : 3 x RBW
- Detector function : RMS
- Trace : Trace Average 100 times
- Y axis : Linear

Non-Restricted Band measurement Set Up Conditions

- Resolution bandwidth : 100kHz
- Video bandwidth : 3 x RBW
- Detector function : Peak

(*4) Cover Area of Horn Antenna (3dB Beamwidth)

Frequency [GHz]	Cover Area [m] at distance 3m	Cover Area [m] at distance 1m
1.0-6.0	1.89	-
5.8-12.4	0.63	0.21
12.4-40.0	0.47	0.16

(*5) Spectrum Analyzer Set Up Conditions

- Frequency range : 9kHz – 150kHz / 150kHz – 30MHz / Above 30MHz (FHSS)
- Resolution bandwidth : 300Hz / 10kHz / 100kHz
- Video bandwidth : 3 x RBW
- Detector function : Peak



9.2. Test Software List

KEC No.	Software Name	Version	Manufacture
TF-059	TEPTO Radiated emission automatic measurement	2.6.0164	TSJ
TF-143	EP7/RE automatic measurement	8.00.80	TOYO

9.3. Test Results

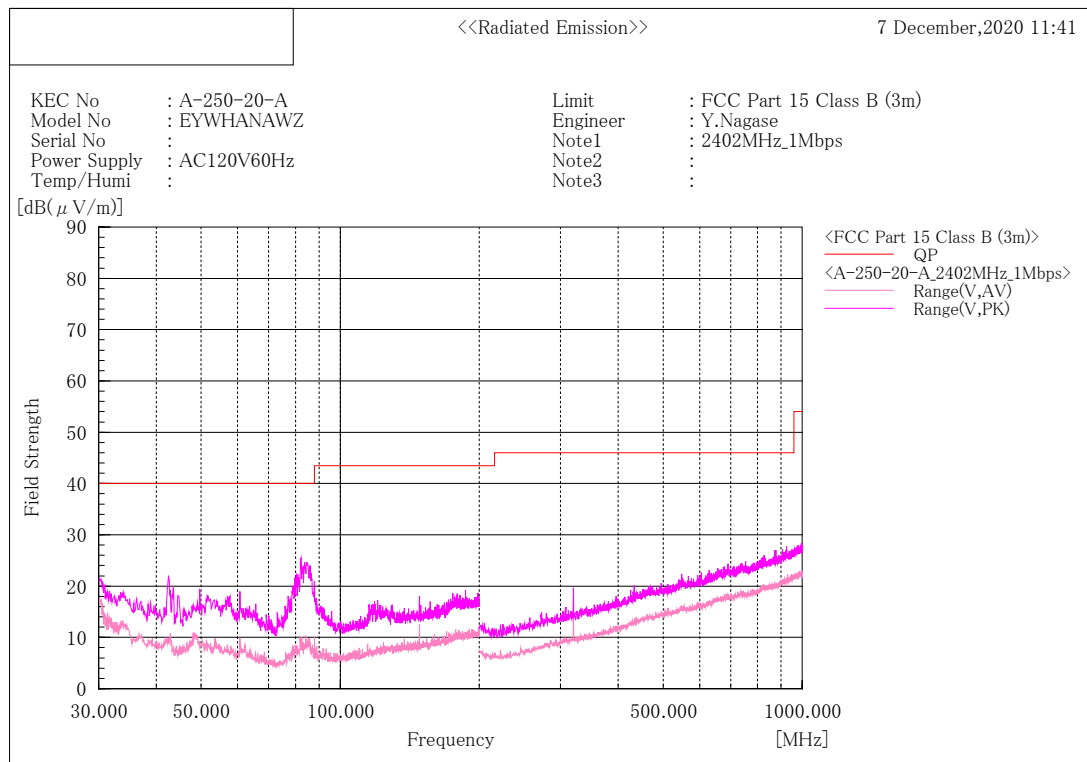
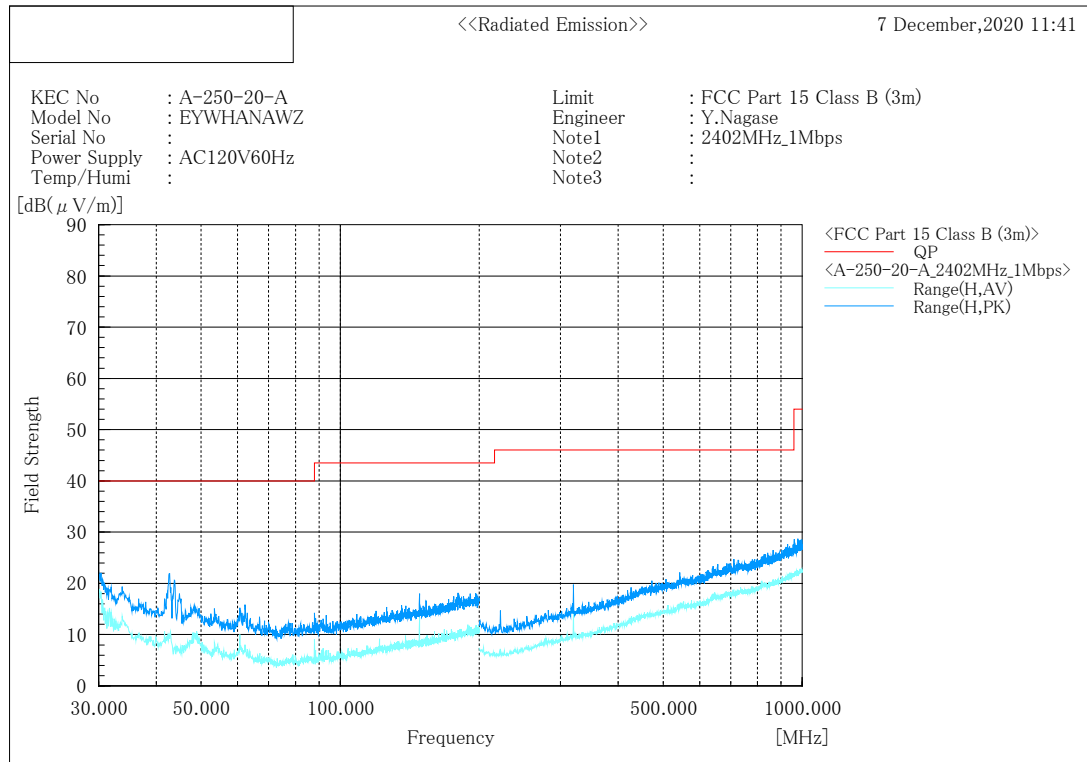
(Radiated measurement)

BT LE 2402MHz 1Mbps

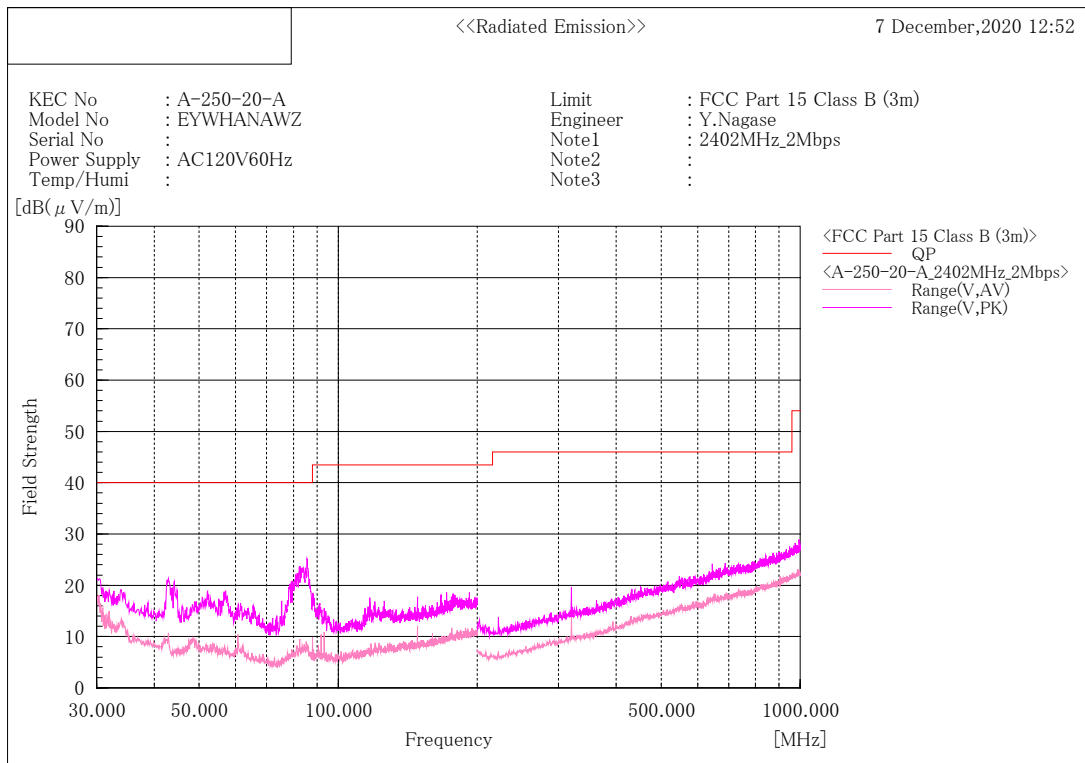
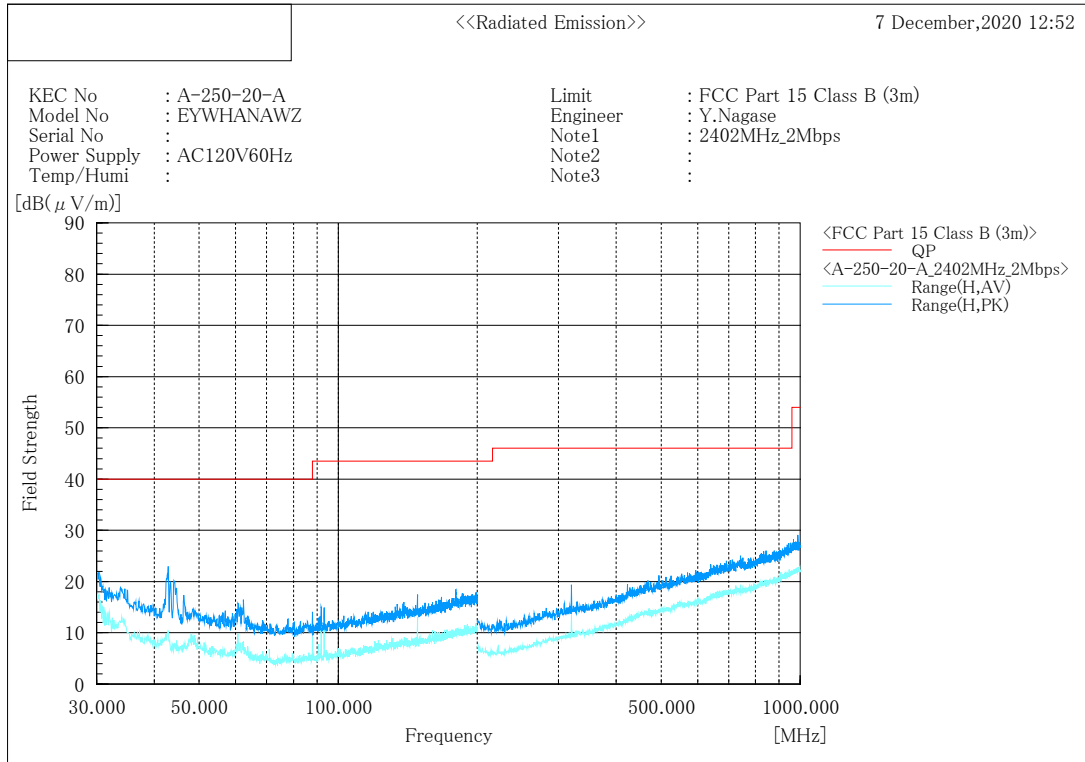
Measured Frequency (MHz)	Correction Factor (dB/m)	Meter Reading		Maximum Field Strength (dBμV/m)	Limit (dBμV/m)	Margin for Limit (dB)
		Horizontal Polarization (dBμV)	Vertical Polarization (dBμV)			
30.00	18.9	0.4	0.3	19.3	40.0	20.7
42.85	16.7	<0.0	<0.0	<16.7	40.0	>23.3
54.00	15.8	<0.0	<0.0	<15.8	40.0	>24.2
83.40	15.8	<0.0	0.9	16.7	40.0	23.3
148.49	19.2	<0.0	<0.0	<19.2	43.5	>24.3
320.00	18.7	<0.0	<0.0	<18.7	46.0	>27.3

Test Results in Graph

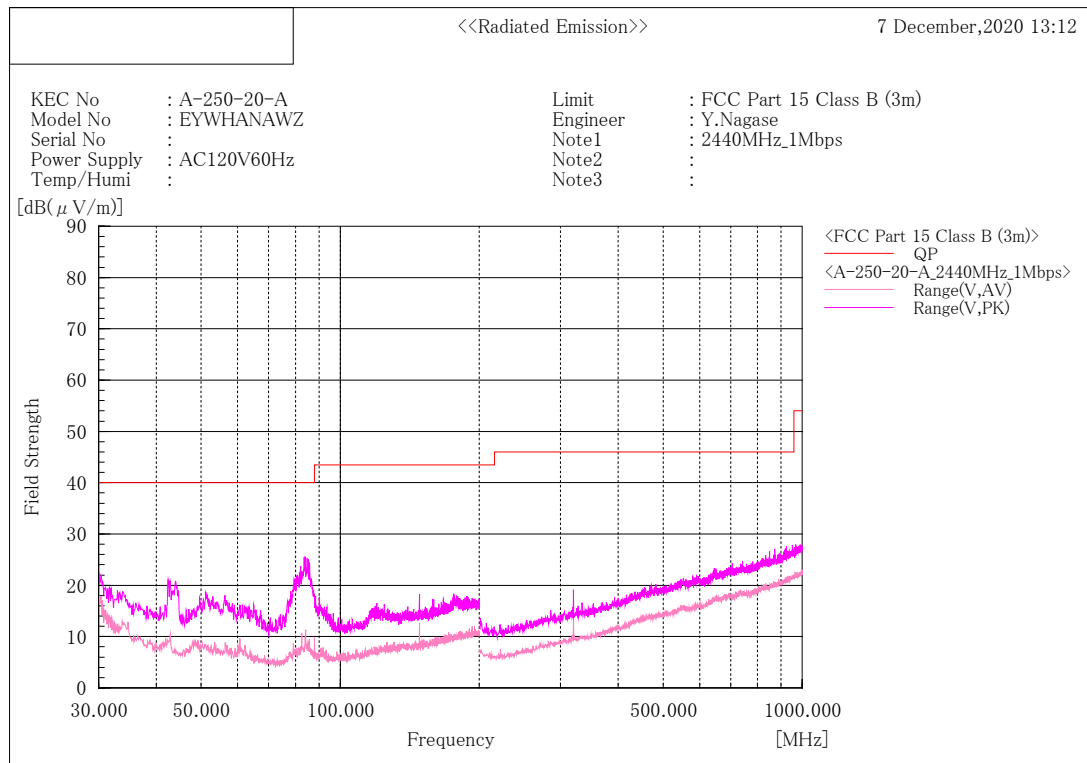
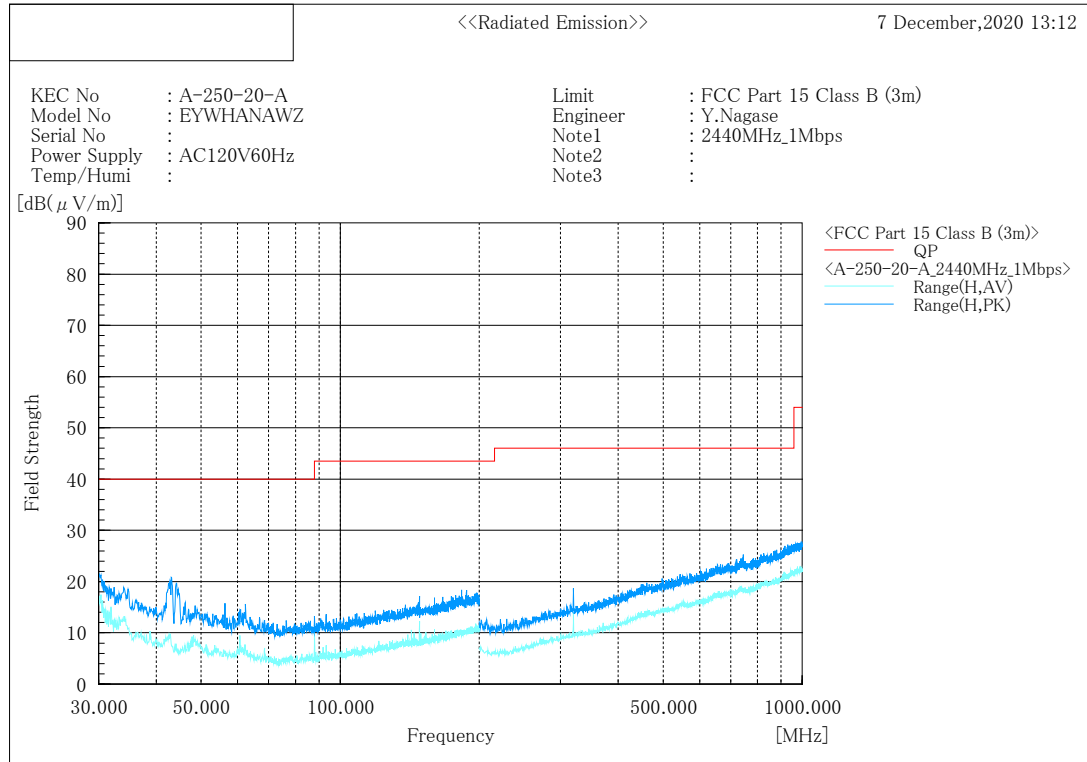
BT LE 2402MHz 1Mbps



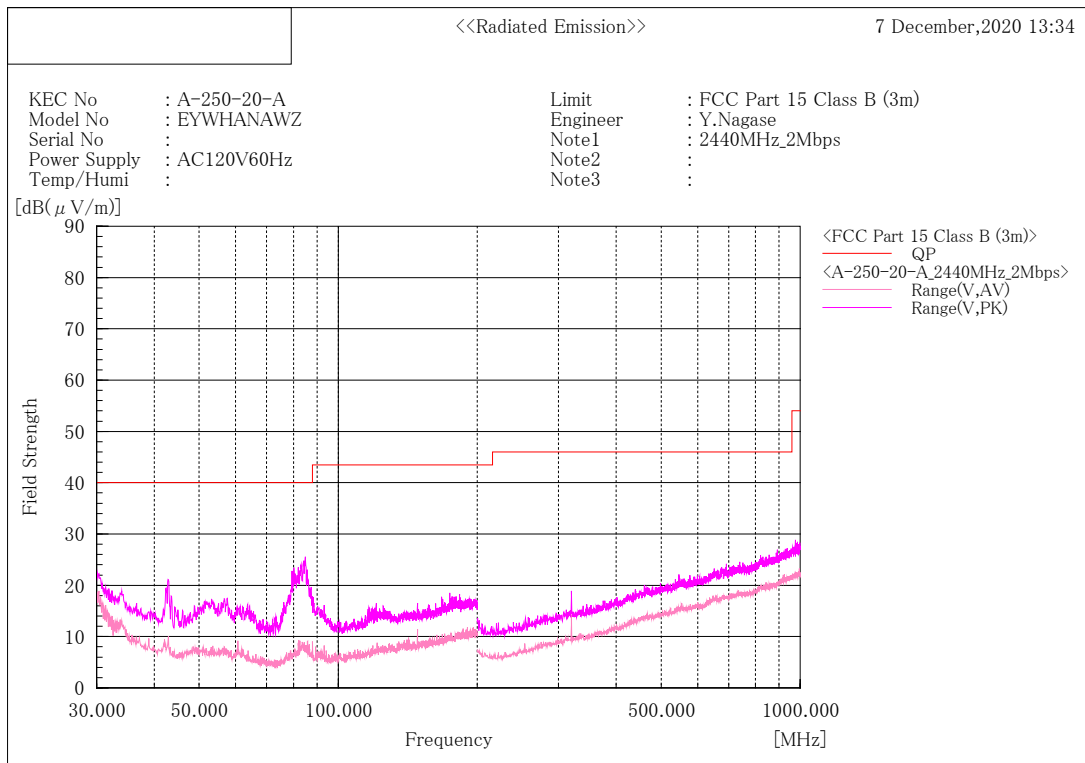
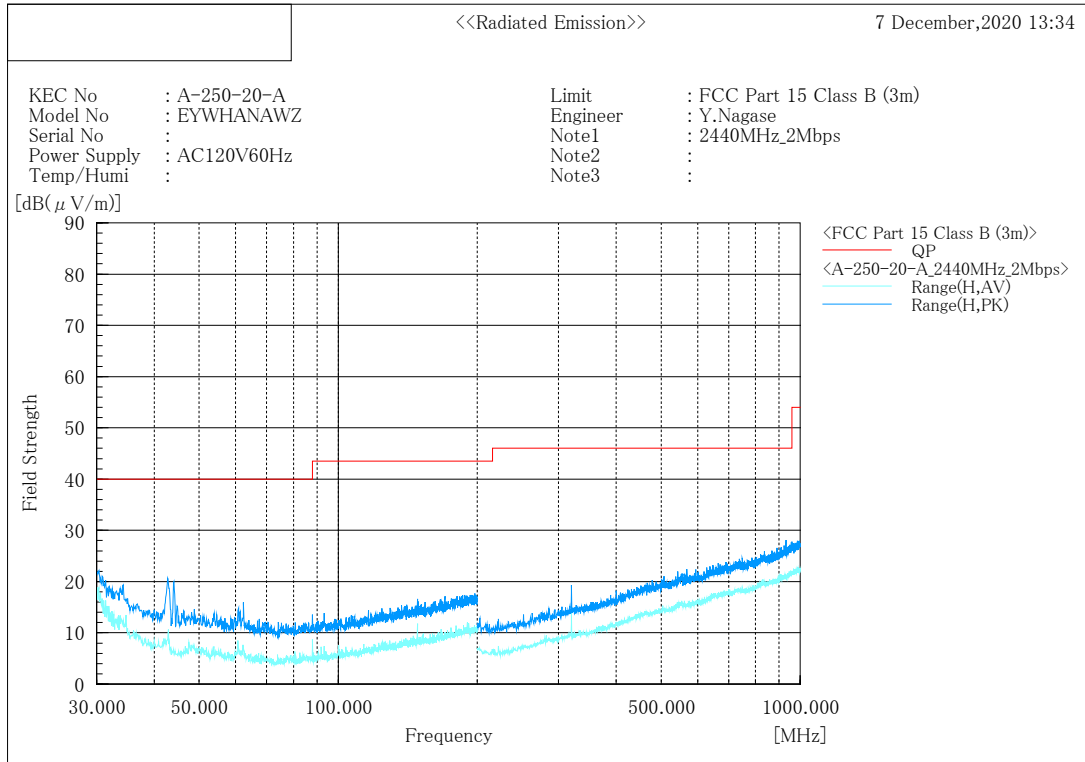
BT LE 2402MHz 2Mbps



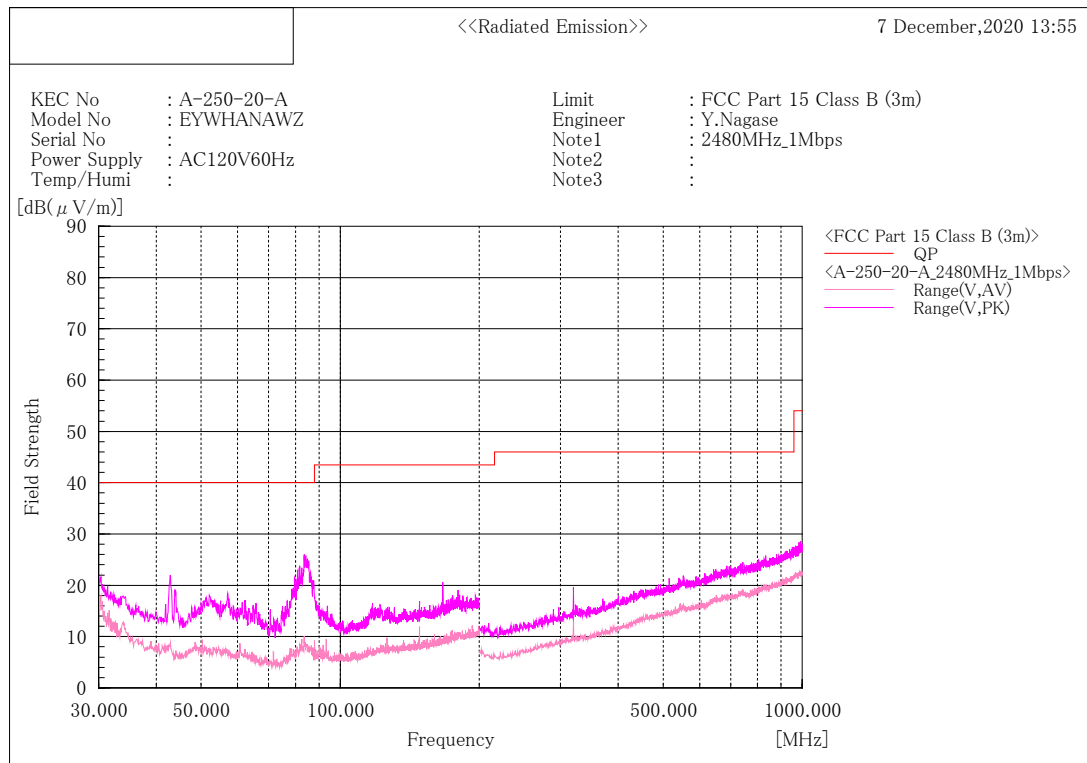
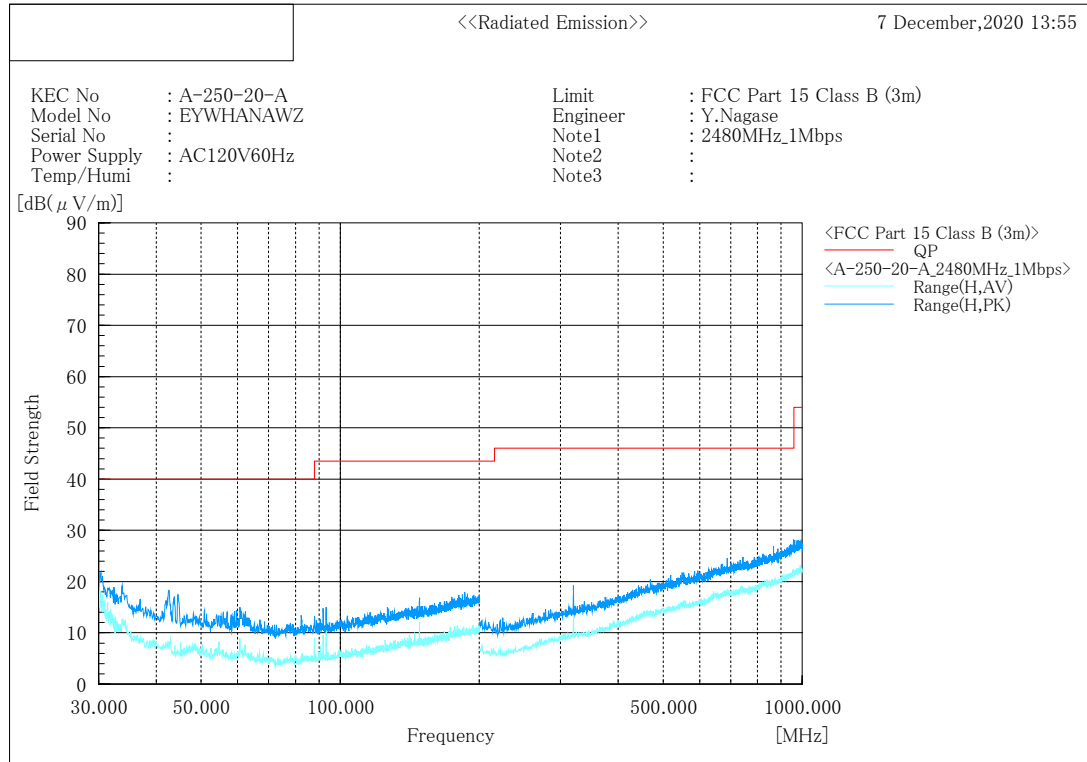
BT LE 2440MHz 1Mbps



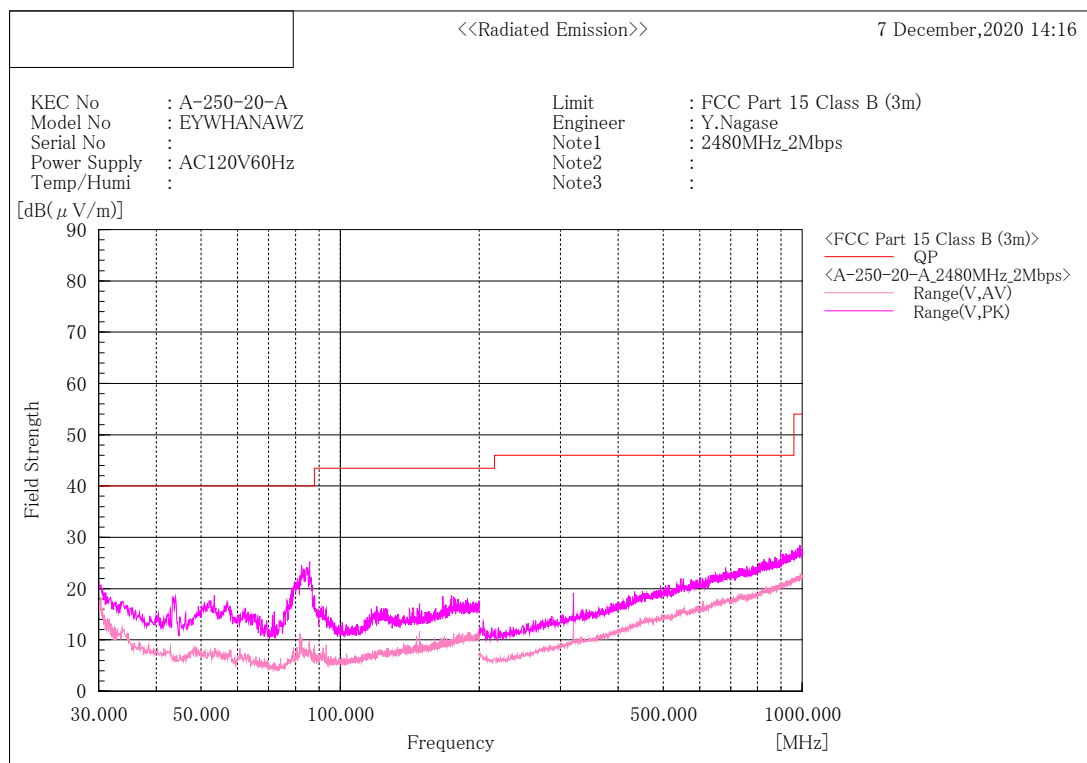
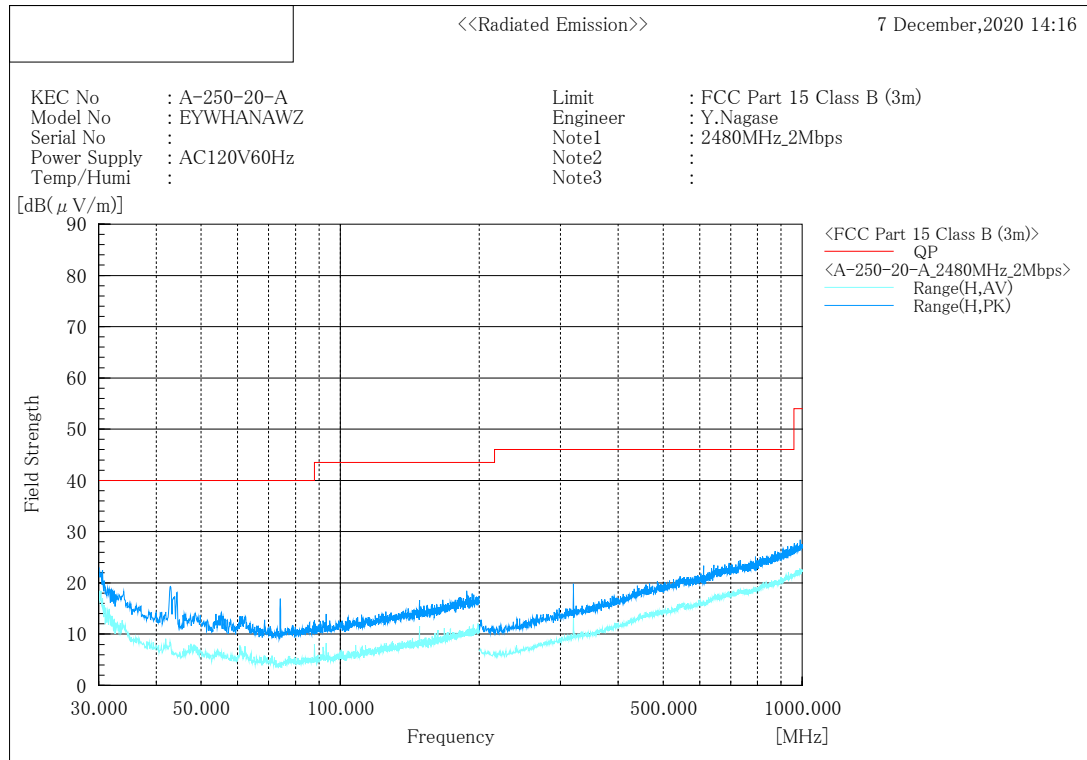
BT LE 2440MHz 2Mbps



BT LE 2480MHz 1Mbps



BT LE 2480MHz 2Mbps





BT LE 2402MHz 1Mbps

Measured Frequency (MHz)	Correction Factor (dB/m)	Meter Reading		Duty Cycle Factor (dB)	Maximum Field Strength (dBμV/m)	Limit (dBμV/m)	Margin for Limit (dB)
		Horizontal Polarization (dBμV)	Vertical Polarization (dBμV)				
Measurement with the Peak Detector							
2390.00	11.4	44.6	43.3	-	56.0	74.0	18.0
4804.00	6.9	41.4	40.6	-	48.3	74.0	25.7
7206.00	0.4	48.0	41.3	-	48.4	74.0	25.6
Measurement with the Average Detector							
2390.00	11.4	31.0	32.7	0.7	44.8	54.0	9.2
4804.00	6.9	29.4	29.8	0.7	37.4	54.0	16.6
7206.00	0.4	40.6	29.4	0.7	41.7	54.0	12.3

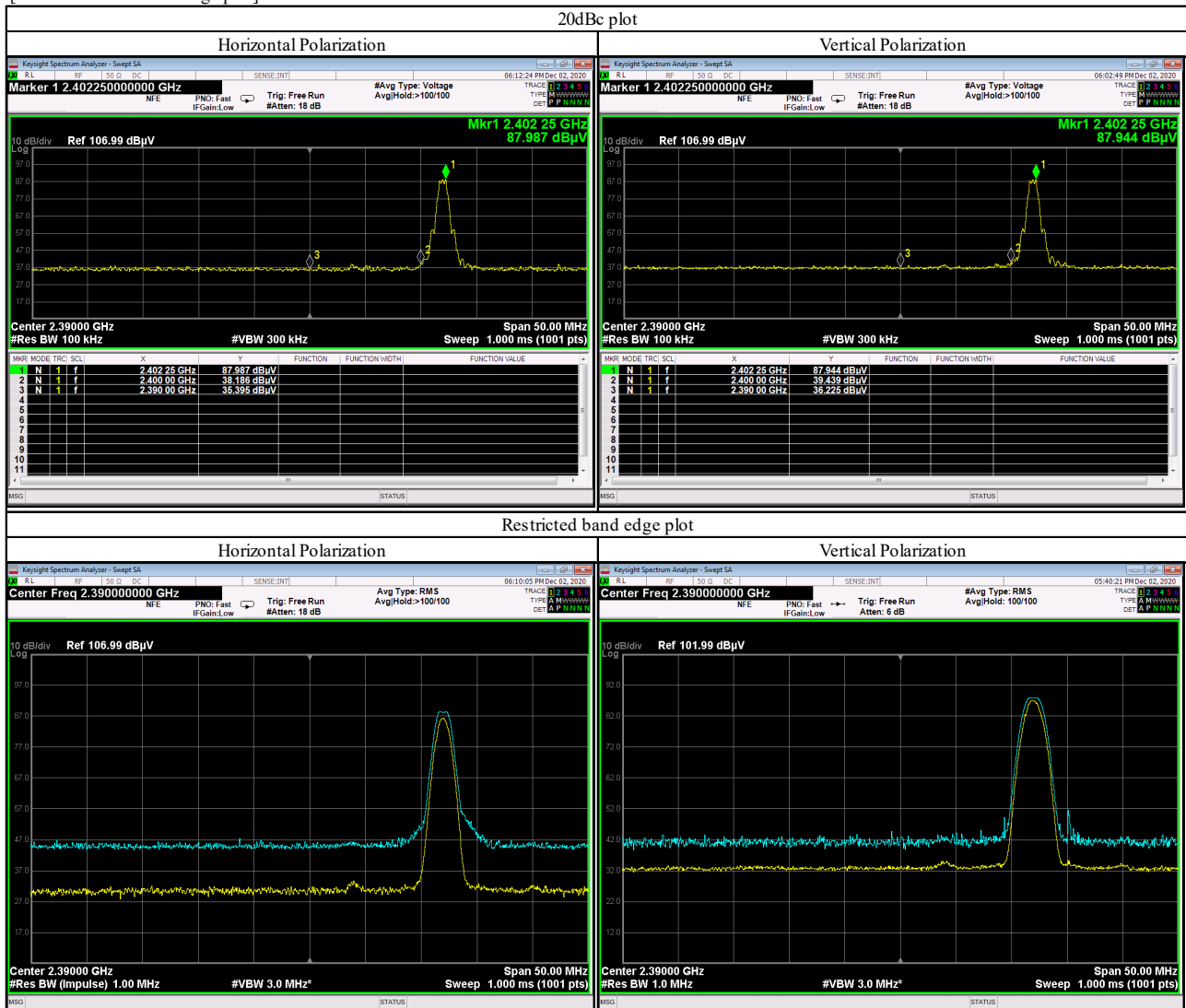
[20dBc Data Sheet]

Measured Frequency (MHz)	Antenna Factor (dB/m)	Meter Reading		Maximum Field Strength (dBμV/m)	Limit (dBμV/m)	Margin for Limit (dB)
		Horizontal Polarization (dBμV)	Vertical Polarization (dBμV)			
Peak measurement						
*1)2402	11.5	88.0	-	99.5	-	-
2400.00	11.5	38.2	-	49.7	79.5	29.8
*1)2402	11.5	-	87.9	99.4	-	-
2400.00	11.5	-	39.4	50.9	79.4	28.5

[Note]

*1) : Carrier

[Restricted-band band-edge plot]





BT LE 2402MHz 2Mbps

Measured Frequency (MHz)	Correction Factor (dB/m)	Meter Reading		Duty Cycle Factor (dB)	Maximum Field Strength (dBμV/m)	Limit (dBμV/m)	Margin for Limit (dB)
		Horizontal Polarization (dBμV)	Vertical Polarization (dBμV)				
Measurement with the Peak Detector							
2390.00	11.4	41.7	44.5	-	55.9	74.0	18.1
4804.00	6.9	41.0	41.0	-	47.9	74.0	26.1
7206.00	0.4	47.5	40.9	-	47.9	74.0	26.1
Measurement with the Average Detector							
2390.00	11.4	32.0	33.0	2.4	46.8	54.0	7.2
4804.00	6.9	29.4	29.8	2.4	39.1	54.0	14.9
7206.00	0.4	38.0	29.2	2.4	40.8	54.0	13.2

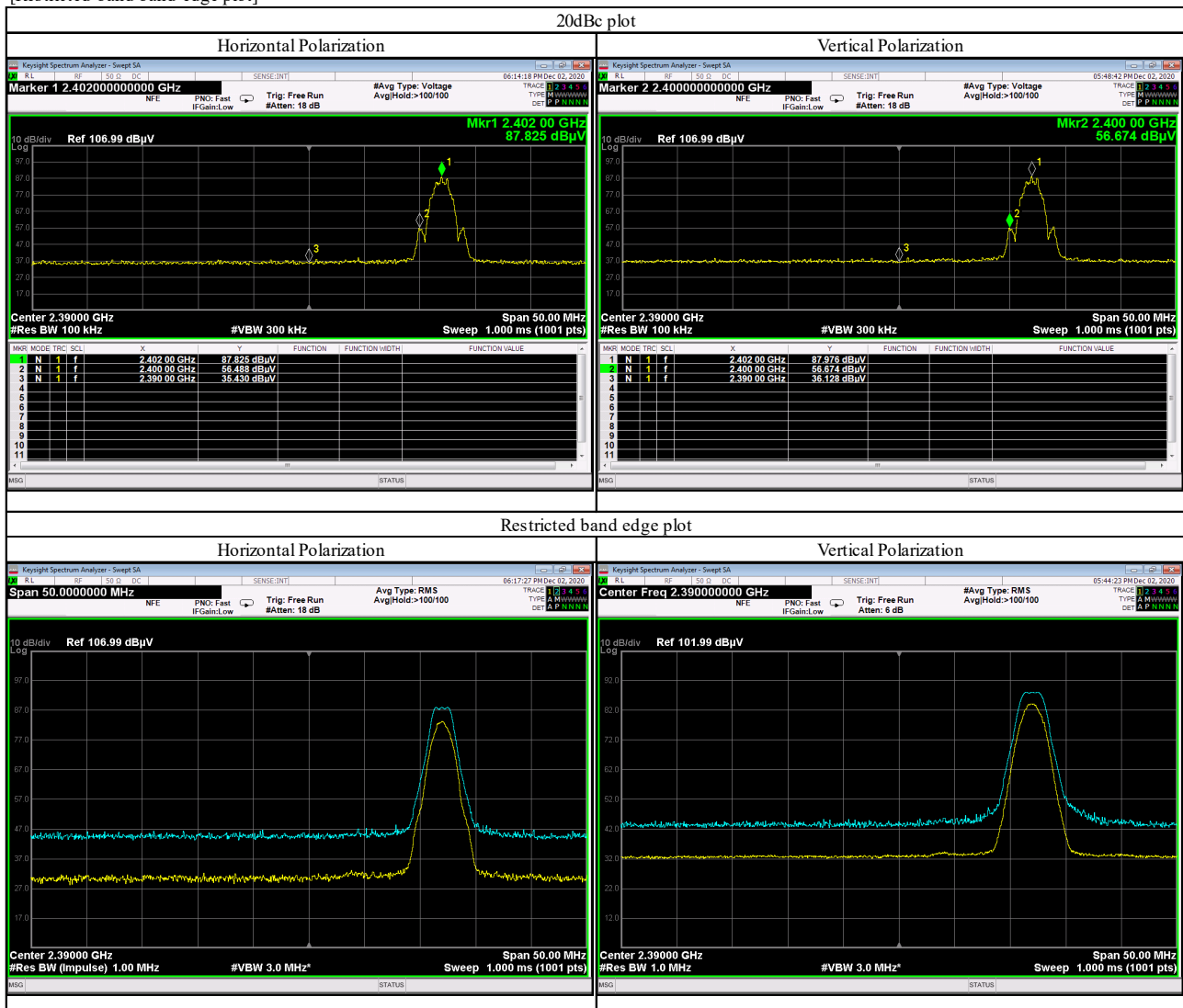
[20dBc Data Sheet]

Measured Frequency (MHz)	Antenna Factor (dB/m)	Meter Reading		Maximum Field Strength (dBμV/m)	Limit (dBμV/m)	Margin for Limit (dB)
		Horizontal Polarization (dBμV)	Vertical Polarization (dBμV)			
Peak measurement						
*1)2402	11.5	87.8	-	99.3	-	-
2400.00	11.5	56.5	-	68.0	79.3	11.3
*1)2402	11.5	-	88.0	99.5	-	-
2400.00	11.5	-	56.7	68.2	79.5	11.3

[Note]

*1) : Carrier

[Restricted-band band-edge plot]





BT LE 2440MHz 1Mbps

Measured Frequency (MHz)	Correction Factor (dB/m)	Meter Reading		Duty Cycle Factor (dB)	Maximum Field Strength (dBμV/m)	Limit (dBμV/m)	Margin for Limit (dB)
		Horizontal Polarization (dBμV)	Vertical Polarization (dBμV)				
Measurement with the Peak Detector							
4880.00	7.0	39.8	40.4	-	47.4	74.0	26.6
7320.00	0.7	48.5	46.1	-	49.2	74.0	24.8
Measurement with the Average Detector							
4880.00	7.0	30.5	30.0	0.7	38.2	54.0	15.8
7320.00	0.7	41.7	36.2	0.7	43.1	54.0	10.9

BT LE 2440MHz 2Mbps

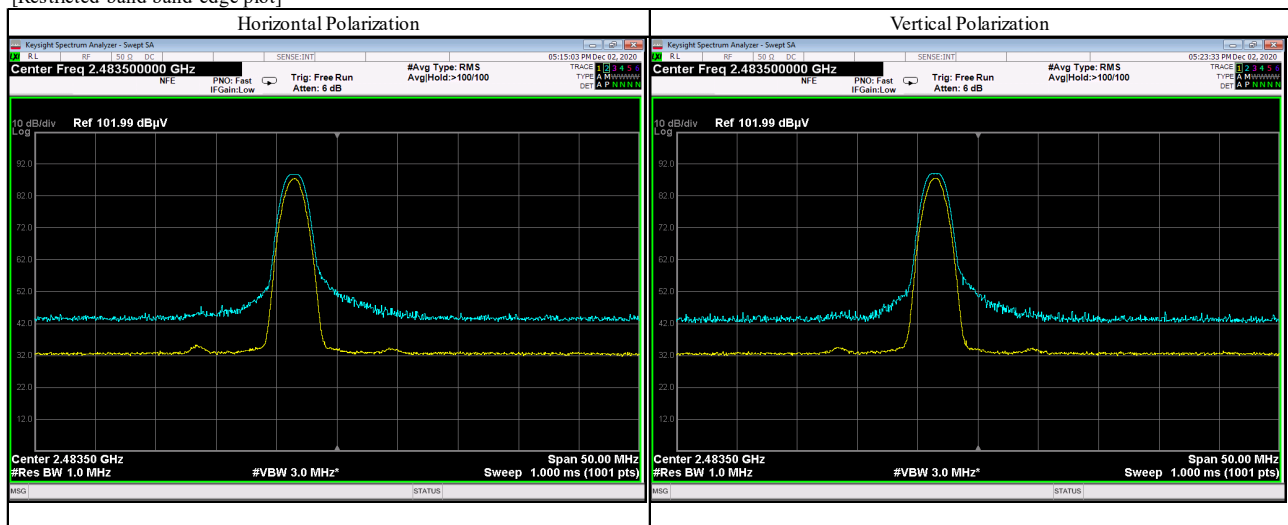
Measured Frequency (MHz)	Correction Factor (dB/m)	Meter Reading		Duty Cycle Factor (dB)	Maximum Field Strength (dBμV/m)	Limit (dBμV/m)	Margin for Limit (dB)
		Horizontal Polarization (dBμV)	Vertical Polarization (dBμV)				
Measurement with the Peak Detector							
4880.00	7.0	40.9	39.8	-	47.9	74.0	26.1
7320.00	0.7	48.4	45.0	-	49.1	74.0	24.9
Measurement with the Average Detector							
4880.00	7.0	30.5	30.0	2.4	39.9	54.0	14.1
7320.00	0.7	39.0	33.4	2.4	42.1	54.0	11.9



BT LE 2480MHz 1Mbps

Measured Frequency (MHz)	Correction Factor (dB/m)	Meter Reading		Duty Cycle Factor (dB)	Maximum Field Strength (dBμV/m)	Limit (dBμV/m)	Margin for Limit (dB)
		Horizontal Polarization (dBμV)	Vertical Polarization (dBμV)				
Measurement with the Peak Detector							
2483.50	11.7	51.6	51.4	-	63.3	74.0	10.7
4960.00	7.1	40.9	40.1	-	48.0	74.0	26.0
7440.00	0.6	46.8	44.8	-	47.4	74.0	26.6
Measurement with the Average Detector							
2483.50	11.7	34.1	34.0	0.7	46.5	54.0	7.5
4960.00	7.1	30.5	30.3	0.7	38.3	54.0	15.7
7440.00	0.6	38.8	35.7	0.7	40.1	54.0	13.9

[Restricted-band band-edge plot]

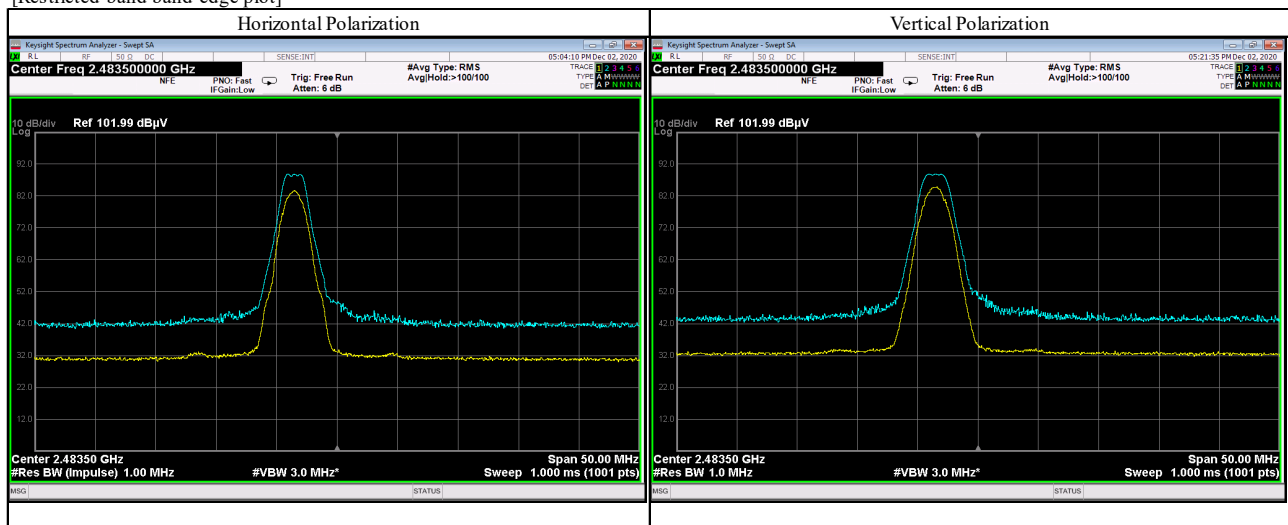




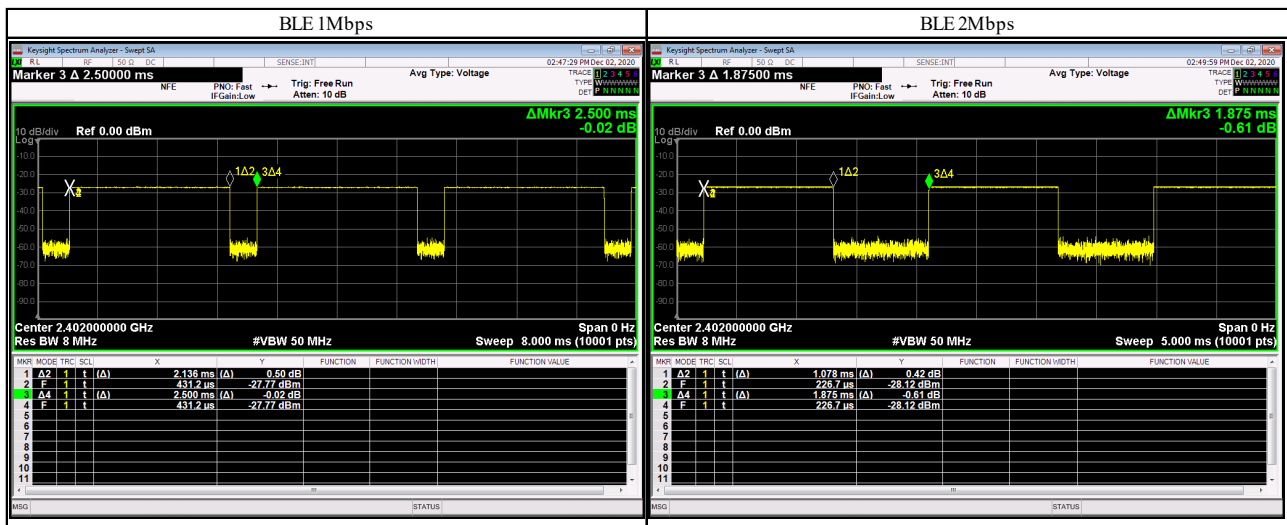
BT LE 2480MHz 2Mbps

Measured Frequency (MHz)	Correction Factor (dB/m)	Meter Reading		Duty Cycle Factor (dB)	Maximum Field Strength (dBμV/m)	Limit (dBμV/m)	Margin for Limit (dB)
		Horizontal Polarization (dBμV)	Vertical Polarization (dBμV)				
Measurement with the Peak Detector							
2483.50	11.7	50.7	48.8	-	62.4	74.0	11.6
4960.00	7.1	41.2	41.5	-	48.6	74.0	25.4
7440.00	0.6	46.6	44.0	-	47.2	74.0	26.8
Measurement with the Average Detector							
2483.50	11.7	35.8	35.0	2.4	49.9	54.0	4.1
4960.00	7.1	30.5	30.3	2.4	40.0	54.0	14.0
7440.00	0.6	35.8	32.8	2.4	38.8	54.0	15.2

[Restricted-band band-edge plot]



Duty Cycle



	BLE 1Mbps	BLE 2Mbps
Tx on	2.14	1.08
Tx on + Tx off	2.50	1.88
Duty Cycle	0.86	0.57
Duty Cycle Factor (dB)	0.68	2.40

[Calculation method]

Duty Cycle = (Tx on) / (Tx on + Tx off)

Duty Cycle Factor (dB) = 10Log (1/Duty Cycle)

[Calculation Method]

(Below 1GHz)

Maximum Field Strength (dBμV/m)

= Meter Reading (at maximum level of Horizontal or Vertical) (dBμV) + Correction Factor (dB/m)

(Above 1GHz)

Maximum Field Strength (dBμV/m)

= Meter Reading (at maximum level of Horizontal or Vertical) (dBμV) + Correction Factor (dB/m) + Distance factor (*2) + Duty Cycle Factor (dB) (Average measurement of above 1GHz)

(*2) Applied for Radiated Emission Measurement (above 18GHz) only.

Distance factor : $20 \times \log_{10} (1m / 3m) = -9.5dB$

Tested Date	Environment (before the test / after the test)			Power Supply Voltage (before the test / after the test)
	Temperature	Humidity	Atmospheric Pressure	
7 December 2020 (Below 1GHz)	18 °C / 23 °C	37 % / 33 %	1008 hPa	☐ DC V / V ☒ AC 120V / 120V Freq. 60Hz / 60Hz
2 December 2020 (Above 1GHz)	21 °C / 21 °C	35 % / 35 %	1008 hPa	☐ DC V / V ☒ AC 120V / 120V Freq. 60Hz / 60Hz



Below 30MHz (Conducted measurement)

BT LE 2402MHz 1Mbps

Measured Frequency	Correction Factor	Meter Reading	Ant Gain	EIRP	Distance	Ground Bounce	Field Strength	Limit	Margin for Limit
(MHz)	(dB)	(dBm)	(dBi)	(dBm)	(m)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
8.001	10.30	-85.05	2.0	-72.75	30	6.00	8.51	29.54	21.03

BT LE 2402MHz 2Mbps

Measured Frequency	Correction Factor	Meter Reading	Ant Gain	EIRP	Distance	Ground Bounce	Field Strength	Limit	Margin for Limit
(MHz)	(dB)	(dBm)	(dBi)	(dBm)	(m)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
8.001	10.30	-84.73	2.0	-72.43	30	6.00	8.83	29.54	20.71

BT LE 2440MHz 1Mbps

Measured Frequency	Correction Factor	Meter Reading	Ant Gain	EIRP	Distance	Ground Bounce	Field Strength	Limit	Margin for Limit
(MHz)	(dB)	(dBm)	(dBi)	(dBm)	(m)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
8.001	10.30	-84.79	2.0	-72.49	30	6.00	8.77	29.54	20.77

BT LE 2440MHz 2Mbps

Measured Frequency	Correction Factor	Meter Reading	Ant Gain	EIRP	Distance	Ground Bounce	Field Strength	Limit	Margin for Limit
(MHz)	(dB)	(dBm)	(dBi)	(dBm)	(m)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
8.001	10.30	-84.71	2.0	-72.41	30	6.00	8.85	29.54	20.69

BT LE 2480MHz 1Mbps

Measured Frequency	Correction Factor	Meter Reading	Ant Gain	EIRP	Distance	Ground Bounce	Field Strength	Limit	Margin for Limit
(MHz)	(dB)	(dBm)	(dBi)	(dBm)	(m)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
8.001	10.30	-84.73	2.0	-72.43	30	6.00	8.83	29.54	20.71

BT LE 2480MHz 2Mbps

Measured Frequency	Correction Factor	Meter Reading	Ant Gain	EIRP	Distance	Ground Bounce	Field Strength	Limit	Margin for Limit
(MHz)	(dB)	(dBm)	(dBi)	(dBm)	(m)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
8.001	10.30	-84.52	2.0	-72.22	30	6.00	9.04	29.54	20.50



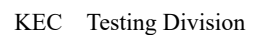
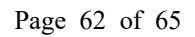
[Note]

- (1) Correction Factor includes the cable loss and attenuator loss.
- (2) See next page figure.
- (3) Antenna gain was determined the maximum antenna gain or 2 dBi, whichever is greater, with reference to KDB558074.

[Calculation method]

$$\text{EIRP (dBm)} = \text{Meter Reading (dBm)} + \text{Correction Factor (dB)} + \text{Antenna Gain (dBi)}$$
$$\text{Field Strength (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20*\log(D) + \text{Ground Bounce (dB)} + 104.8 \text{ (dB}\mu\text{V/m)}$$

Tested Date	Environment (before the test / after the test)			Power Supply Voltage (before the test / after the test)
	Temperature	Humidity	Atmospheric Pressure	
10 December 2020	24 °C / 24 °C	31 % / 31 %	1003 hPa	☐ DC V / V
				☒ AC 120V / 120V Freq. 60Hz / 60Hz

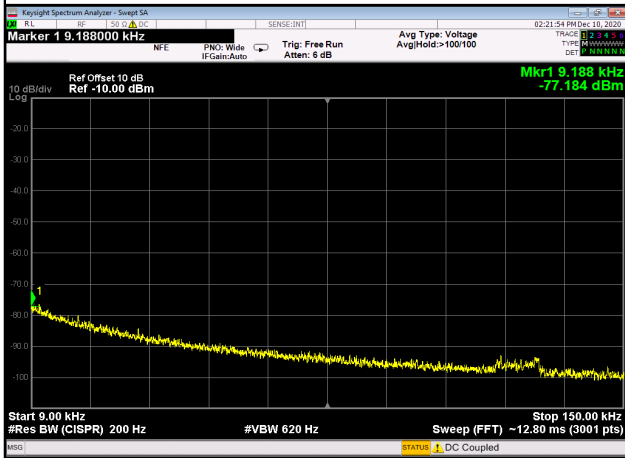




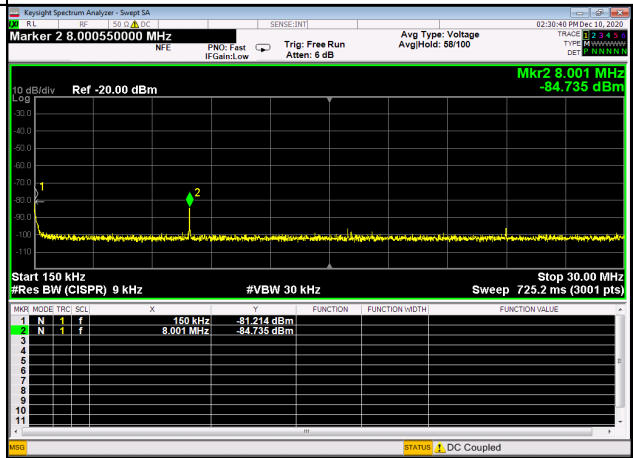
BT LE 2Mbps

2402MHz

9kHz-150kHz



150kHz-30MHz

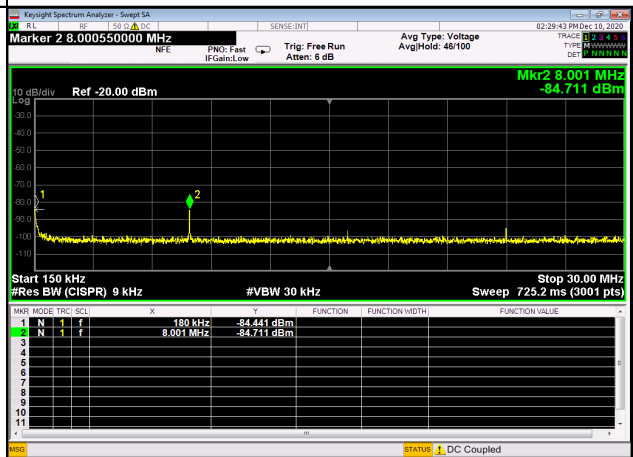


2440MHz

9kHz-150kHz

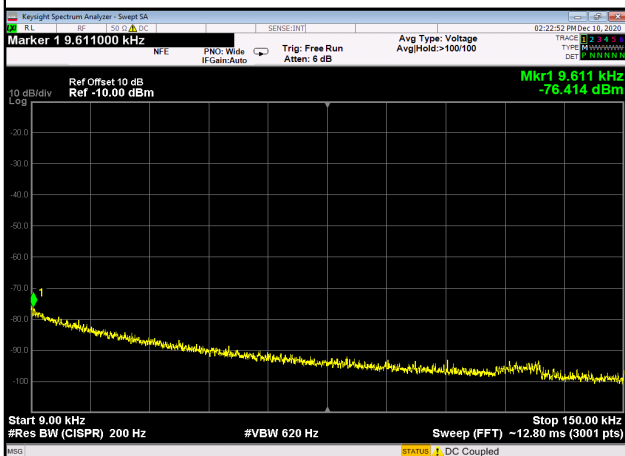


150kHz-30MHz

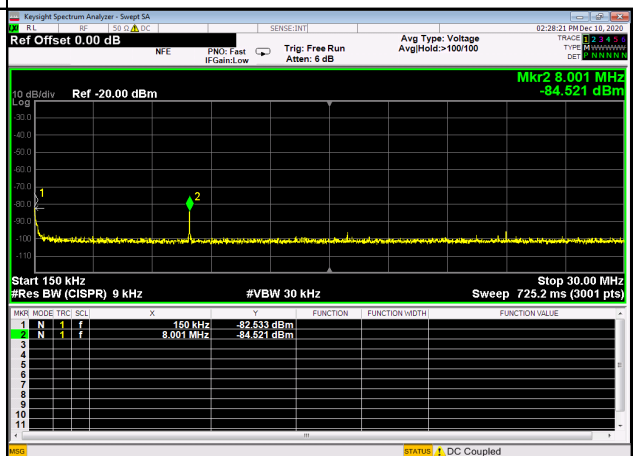


2480MHz

9kHz-150kHz



150kHz-30MHz





10. TEST EQUIPMENT

• Conducted Emission

KEC No.	Equipment	Manufacturer	Model No.	Last Cal.	Next Cal.
AT-143	Low Power Attenuator	HUBER+SUHNER	6810.01.A	2020/06	2021/06
FL-210	LISN	KYORITSU	KNW-242C	2020/06	2021/06
FL-210-2	Extension cord for LISN	Kyoritsu Corporation	KCB-100000-00	2020/06	2021/06
MM-252	RF Relay Matrix	TSJ	RFM-E121	2020/06	2021/06
SA-067	Test Receiver	KEYSIGHT TECHNOLOGIES	N9038A	2020/10	2021/10

• 6dB Bandwidth (DTS only)

• Power Spectral Density(DTS only)

KEC No.	Equipment	Manufacturer	Model No.	Last Cal.	Next Cal.
AT-148	Fixed Attenuator	Anritsu	41KC-10	2020/05	2021/04
SA-065	Signal Analyzer	Agilent	N9030A	2020/03	2021/02

• Peak Conducted Output Power

KEC No.	Equipment	Manufacturer	Model No.	Last Cal.	Next Cal.
AT-148	Fixed Attenuator	Anritsu	41KC-10	2020/05	2021/04
SA-065	Signal Analyzer	Agilent	N9030A	2020/03	2021/02
VV-061	Power Meter	Agilent	N1912A	2020/11	2021/11
VV-061-1	Wideband Power Sensor	Agilent	N1921A	2020/11	2021/11

• Spurious Emission (Radiated) Below 1GHz

KEC No.	Equipment	Manufacturer	Model No.	Last Cal.	Next Cal.
AM-130	Pre-Amplifier	SONOMA	310N	2020/04	2021/04
AN-355	Biconical Antenna	Schwarzbeck	VHBB9124/BBA9106	2020/05	2022/04
AN-356	Log Periodic Dipole Array Antenna	Schwarzbeck	VULP9118A	2020/05	2022/04
AT-183	Fixed Attenuator	JFW	50HF-003N	2020/04	2021/04
AT-184	Fixed Attenuator	JFW	50HF-006N	2020/04	2021/04
FS-111	Test Receiver	ROHDE & SCHWARZ	ESW26	2020/09	2021/08
MM-345	RF Selector	TOYO	N4903	2020/04	2021/04

• Spurious Emission (Radiated) Above 1GHz

KEC No.	Equipment	Manufacturer	Model No.	Last Cal.	Next Cal.
AM-053	Pre-Amplifier	HP	8449B	2020/04	2021/04
AN-104	Std. Gain Horn Antenna	Scientific-Atlanta	12-5.8	2020/05	2022/04
AN-210	Std. Gain Horn Antenna	Scientific-Atlanta	12-8.2	2020/05	2022/04
AN-337	DRG Horn Antenna	ETS LINDGREN	3117	2020/05	2022/04
AT-149	Fixed Attenuator	Anritsu	43KC-10	2020/05	2021/04
FL-222	Band-stop Filter	TOYO	8BRM2442/T300	2020/04	2021/04
SA-065	Signal Analyzer	Agilent	N9030A	2020/03	2021/02

• Spurious Emission (Conducted) Below 30MHz

KEC No.	Equipment	Manufacturer	Model No.	Last Cal.	Next Cal.
AT-148	Fixed Attenuator	Anritsu	41KC-10	2020/05	2021/04
SA-067	Test Receiver	KEYSIGHT TECHNOLOGIES	N9038A	2020/10	2021/10

Note: (*1) KEC checked the performance, before using this device.

The overall program of calibration and verification of equipment is designed and operated so as to ensure that measurements made by KEC are traceable to the national standards of measurement or equivalent abroad.

APPENDIX A (DECLARATION OF COMPLIANCE TO MAXIMUM PERMISSIBLE EXPOSURE LIMITS FOR HUMANS)

The Model EYWHANAWZ with 2400-2483.5MHz transmitter complies with Maximum permissible exposure limits for humans as called out in §1.1310. It is exempt from Maximum Permissible Exposure based on its operating frequency, and power density 0.00067mW/cm².

Calculation formula :

$$S = PG / 4\pi D^2$$

S : power density (W/m²)

P : peak output power (W)

G : antenna gain (isotropic)

D : measurement distance (m)

Where :

• BT LE (2440MHz 1Mbps) (see 41 page)

P = 4.38dBm

G = 0.9dBi

D = 0.2m

Therefore :

$$S(\text{W}/\text{m}^2) = \frac{\left(10^{\frac{4.38}{10}} \times 10^{-3} \times 10^{\frac{0.9}{10}}\right)}{4 \times \pi \times 0.2 \times 0.2} = 0.0067$$

$$S \doteq 0.00067 (\text{mW}/\text{cm}^2)$$

This would be less than 1mW/cm² when the separation distance between the user and the device's radiating element is no less than 20cm.