



TESTING LABORATORY
CERTIFICATE#4323.01



FCC PART 15.231

TEST REPORT

For

olibra llc

45 legion dr, CRESSKILL, New Jersey, United States 07626

FCC ID: 2AME8BOND-02

Report Type: Original Report	Product Type: BOND
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Report Number:	RSHA181015006-00A
Report Date:	2019-01-25
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	olibra llc
Tested Model	BD-1000
Product Type	BOND
Dimension	89 mm(L)* 89 mm(W)* 30 mm(H)
Power Supply	DC 5.0V from USB port

**All measurement and test data in this report was gathered from production sample serial number: 20181015006. (Assigned by the BACL. The EUT supplied by the applicant was received on 2018-10-15)*

Objective

This test report is prepared on behalf of *olibra llc*. All the test measurements were performed according to the measurement procedure described in ANSI C63.10 - 2013.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, section 15.203, 15.205, 15.207, 15.209, 15.35(c) and 15.231 rules.

Related Submittal(s)/Grant(s)

No related submittal(s)/grant(s)

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10 - 2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Kunshan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Item		Uncertainty
AC Power Lines Conducted Emissions		3.19 dB
RF conducted test with spectrum		0.9dB
Radiated emission	30MHz~1GHz	6.11dB
	1GHz~6GHz	4.45dB
	6GHz ~18GHz	5.23dB
Occupied Bandwidth		0.5kHz
Temperature		1.0°C
Humidity		6%

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu province, China.

Bay Area Compliance Laboratories Corp. (Kunshan) Lab is accredited to ISO/IEC 17025 by A2LA (Lab code: 4323.01) and the FCC designation No. CN1185 under the FCC KDB 974614 D01. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

SYSTEM TEST CONFIGURATION

Justification

Channel List:

For 300MHz Band:

The frequencies is $F(\text{MHz})=285.5+0.0001*n$ ($0 \leq n \leq 360000$). The lowest, middle, highest channel numbers of the EUT used and tested in this report are below.

Channel	Frequency (MHz)
Low	285.5
Middle	303.5
High	321.5

For 350MHz Band:

The frequencies is $F(\text{MHz})=336+0.0001*n$ ($0 \leq n \leq 289900$). The lowest, middle, highest channel numbers of the EUT used and tested in this report are below.

Channel	Frequency (MHz)
Low	336.00
Middle	350.50
High	364.99

For 375MHz Band:

The frequencies is $F(\text{MHz})=365+0.0001*n$ ($0 \leq n \leq 345000$). The lowest, middle, highest channel numbers of the EUT used and tested in this report are below.

Channel	Frequency (MHz)
Low	365.0
Middle	380.0
High	399.5

For 434MHz Band:

The frequencies is $F(\text{MHz})=410.5+0.0001*n$ ($0 \leq n \leq 950000$). The lowest, middle, highest channel numbers of the EUT used and tested in this report are below.

Channel	Frequency (MHz)
Low	410.5
Middle	458.0
High	505.5

EUT Exercise Software

RF test tool: SecureCRT

(The software was used to control the channel switching.)

Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

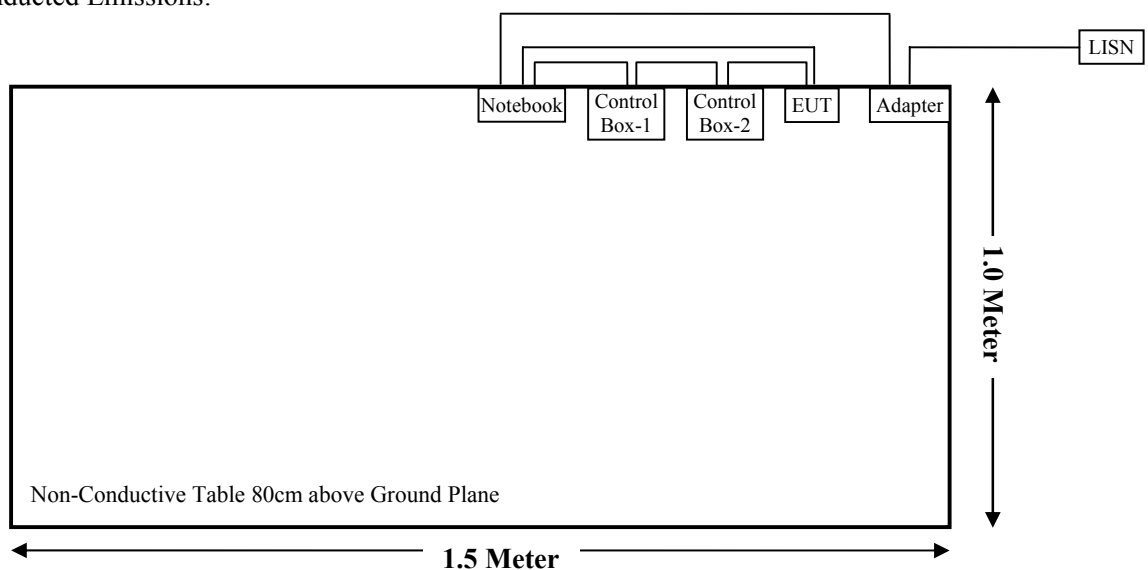
Manufacturer	Description	Model	Serial Number
olibra llc	Control Box-1	OLIBRA-BOND	PC IFACE
olibra llc	Control Box-2	OLIBRA-BOND	EUT IFACE
DELL	Notebook	GX620	D65874152
DELL	Adapter	LA65NS0-00	DF263

External I/O Cable

Cable Description	Length (m)	From Port	To
Power Cable-1	6.0	Control Box-1	Control Box-2
Fixed-frequency Cable	1.5	Control Box-1	Notebook
Serial Port Cable	0.3	Control Box-2	EUT
USB Cable	0.8	EUT	Notebook
Power Cable-2	1.2	Notebook	Adapter
Power Cable-3	1.2	Adapter	LISN/AC Source

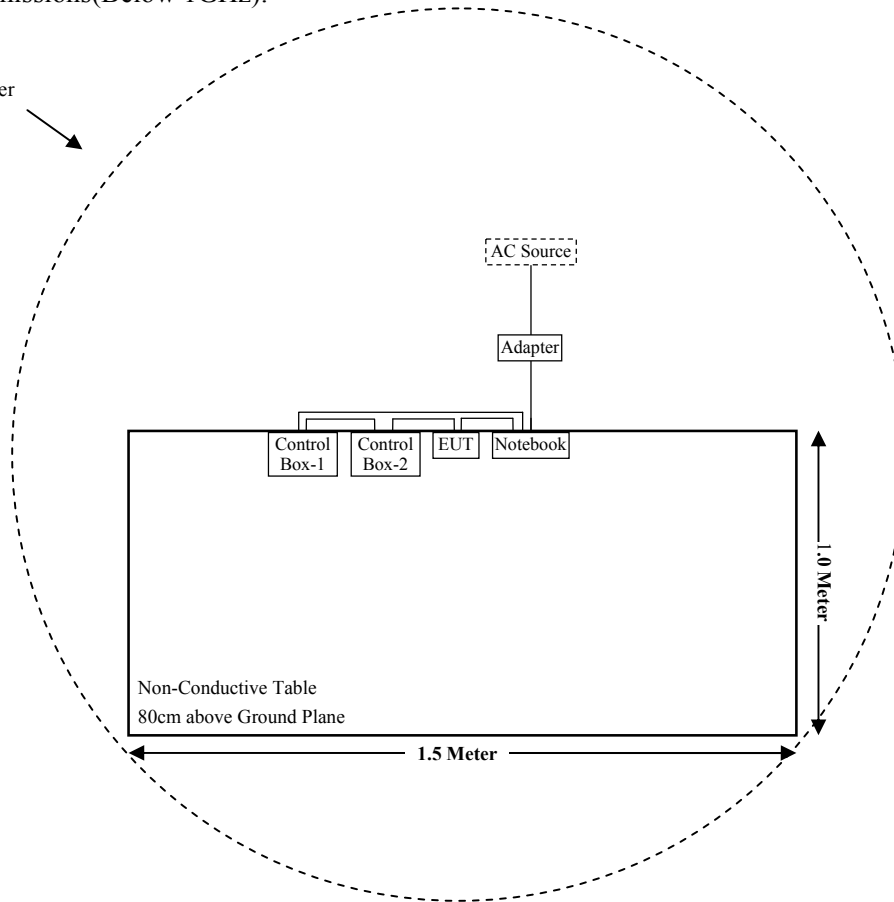
Block Diagram of Test Setup

For Conducted Emissions:



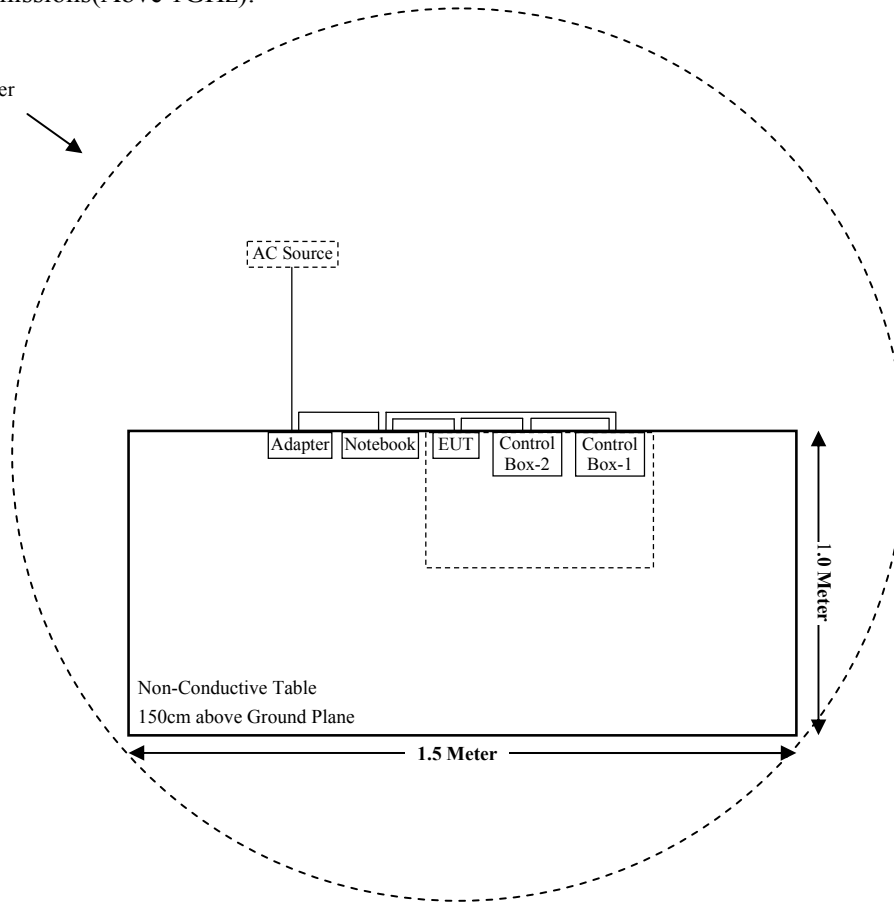
For Radiated Emissions(Below 1GHz):

Turntable
2m Diameter



For Radiated Emissions(Above 1GHz):

Turntable
2m Diameter



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.207(a)	Conducted Emissions	Compliance
§15.205, §15.209, §15.231(b)	Radiated Emissions	Compliance
§15.231 (a) (2)	Deactivation	Compliance
§15.231 (c)	20dB Emission Bandwidth	Compliance

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test (Chamber 1#)					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2017-11-12	2018-11-11
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2018-11-12	2019-11-11
Sunol Sciences	Broadband Antenna	JB3	A090413-1	2016-12-26	2019-12-25
Sonoma Instrunent	Pre-amplifier	310N	171205	2018-08-15	2019-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-8	008	2018-08-15	2019-08-14
MICRO-COAX	Coaxial Cable	Cable-9	009	2018-08-15	2019-08-14
MICRO-COAX	Coaxial Cable	Cable-10	010	2018-08-15	2019-08-14
Radiated Emission Test (Chamber 2#)					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207	2018-08-27	2019-08-26
Rohde & Schwarz	Signal Analyzer	FSIQ26	836131/009	2017-11-12	2018-11-11
Rohde & Schwarz	Signal Analyzer	FSIQ26	836131/009	2018-11-12	2019-11-11
ETS-LINDGREN	Horn Antenna	3115	6229	2016-01-11	2019-01-10
A.H.Systems, inc	Amplifier	2641-1	466	2018-09-11	2019-09-10
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-6	006	2018-08-15	2019-08-14
MICRO-COAX	Coaxial Cable	Cable-11	011	2018-08-15	2019-08-14
MICRO-COAX	Coaxial Cable	Cable-12	012	2018-08-15	2019-08-14
MICRO-COAX	Coaxial Cable	Cable-13	013	2018-08-15	2019-08-14
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCS30	834115/007	2017-11-12	2018-11-11
Rohde & Schwarz	EMI Test Receiver	ESCS30	834115/007	2018-11-12	2019-11-11
Rohde & Schwarz	LISN	ESH3-Z5	862770/011	2017-11-12	2018-11-11
Rohde & Schwarz	LISN	ESH3-Z5	862770/011	2018-11-12	2019-11-11
BACL	Auto test Software	BACL-EMC	CE001	/	/
Narda	Attenuator/6dB	10690812-2	26850-6	2018-01-10	2019-01-09
MICRO-COAX	Coaxial Cable	Cable-15	015	2018-08-15	2019-08-14

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC§15.203 - ANTENNA REQUIREMENT

Applicable Standard

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

Antenna Connected Construction

The EUT has four identical chip antennas which were permanently attached and the antenna gain are 7dBi; fulfill the requirement of this section. Please refer to EUT photos.

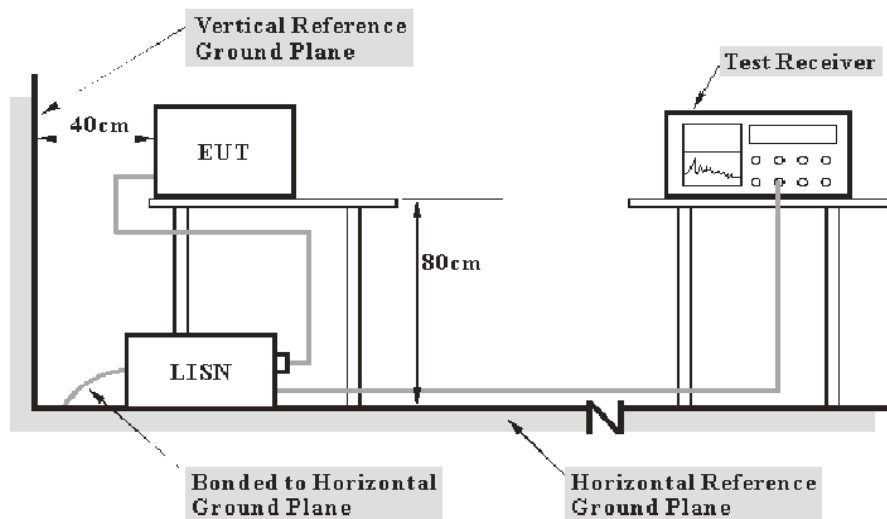
Result: Compliant.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

EUT Setup



Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with ANSI C63.10-2013. The related limit was specified in FCC Part 15.207.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

ANSI C63.10-2013 clause 6.2

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

$$\text{Corrected Factor (dB)} = \text{LISN VDF (dB)} + \text{Cable Loss (dB)} + \text{Transient Limiter Attenuation (dB)}$$

The “**Margin**” column of the following data tables indicates the degree of Compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin (dB)} = \text{Limit (dB}\mu\text{V)} - \text{Corrected Amplitude (dB}\mu\text{V)}$$

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

Test Data

Environmental Conditions

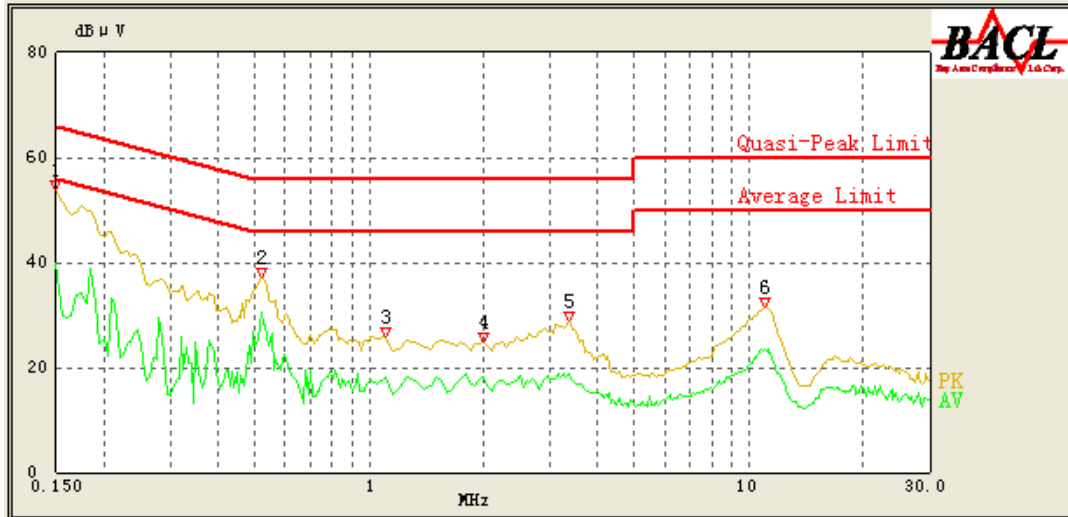
Temperature:	20.0-21.2 °C
Relative Humidity:	48-51 %
ATM Pressure:	101.0-101.3 kPa

The testing was performed by Alisa Gao on 2018-10-23 to 2018-12-25.

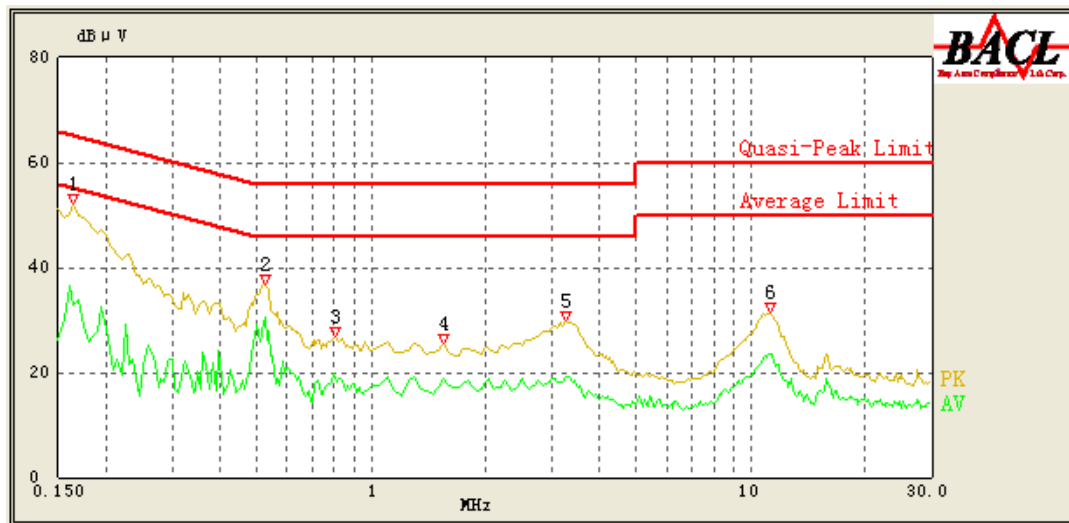
Test Result: Compliant.

For 300MHz Band:

EUT operation mode: Transmitting in middle channel (worst case)

For GFSK Modulation:**AC 120V/60 Hz, Line**

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.150	53.82	QP	9.000	L1	16.06	66.00	12.18	Compliance
0.150	39.72	AV	9.000	L1	16.06	56.00	16.28	Compliance
0.520	37.10	QP	9.000	L1	16.07	56.00	18.90	Compliance
0.520	30.58	AV	9.000	L1	16.07	46.00	15.42	Compliance
1.100	25.89	QP	9.000	L1	15.88	56.00	30.11	Compliance
1.100	18.15	AV	9.000	L1	15.88	46.00	27.85	Compliance
2.000	24.93	QP	9.000	L1	15.85	56.00	31.07	Compliance
2.000	18.33	AV	9.000	L1	15.85	46.00	27.67	Compliance
3.350	28.98	QP	9.000	L1	15.85	56.00	27.02	Compliance
3.350	18.82	AV	9.000	L1	15.85	46.00	27.18	Compliance
11.000	31.57	QP	9.000	L1	16.09	60.00	28.43	Compliance
11.000	23.35	AV	9.000	L1	16.09	50.00	26.65	Compliance

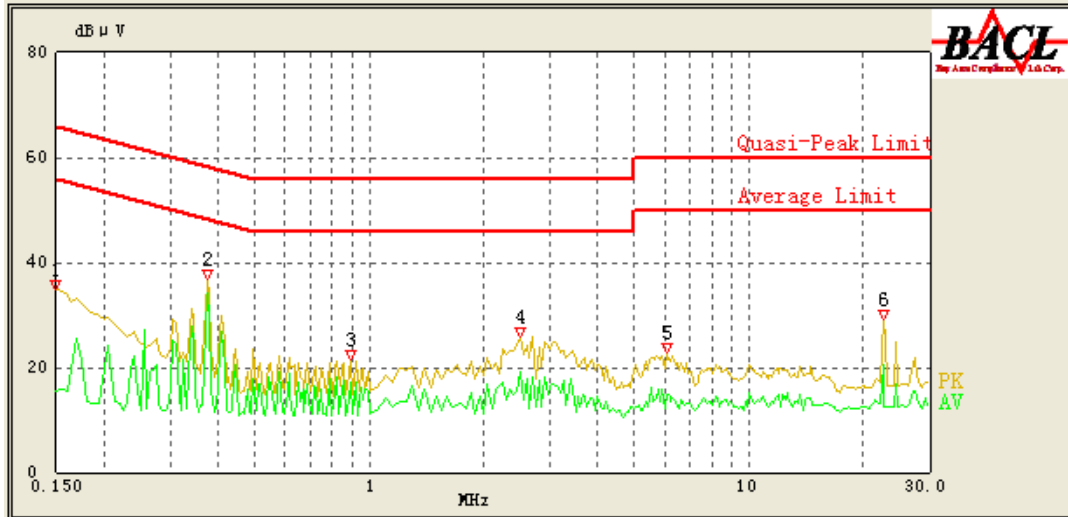
AC 120V/60 Hz, Neutral

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.165	52.07	QP	9.000	N	16.06	65.21	13.14	Compliance
0.165	32.94	AV	9.000	N	16.06	55.21	22.27	Compliance
0.525	36.86	QP	9.000	N	16.10	56.00	19.14	Compliance
0.525	30.42	AV	9.000	N	16.10	46.00	15.58	Compliance
0.805	26.82	QP	9.000	N	15.97	56.00	29.18	Compliance
0.805	19.80	AV	9.000	N	15.97	46.00	26.20	Compliance
1.550	25.62	QP	9.000	N	15.92	56.00	30.38	Compliance
1.550	18.73	AV	9.000	N	15.92	46.00	27.27	Compliance
3.250	29.94	QP	9.000	N	15.89	56.00	26.06	Compliance
3.250	19.31	AV	9.000	N	15.89	46.00	26.69	Compliance
11.200	31.44	QP	9.000	N	15.99	60.00	28.56	Compliance
11.200	23.36	AV	9.000	N	15.99	50.00	26.64	Compliance

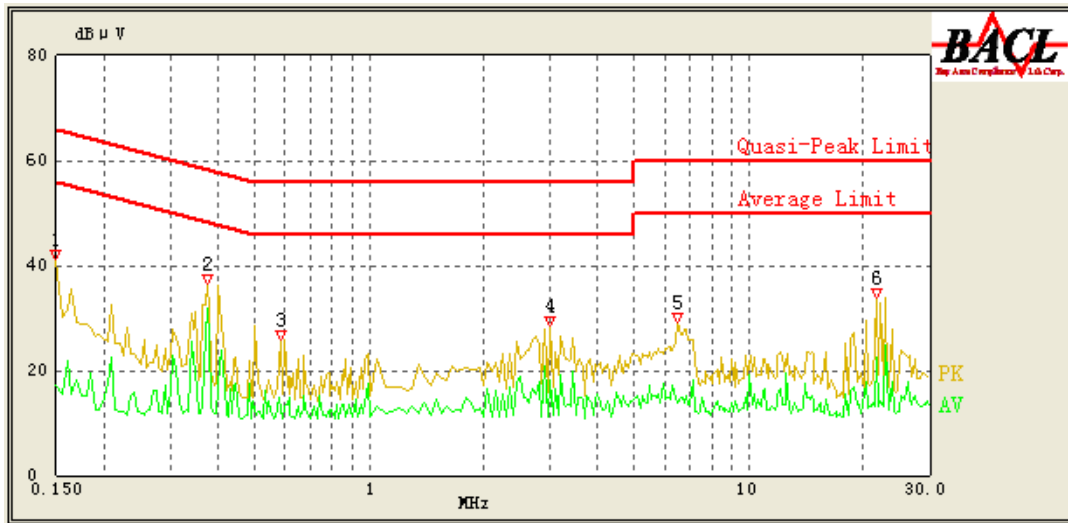
Note:

1) Corrected Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

2) Margin (dB) = Limit (dBμV) – Corrected Amplitude (dBμV)

For OOK Modulation:**AC 120V/60 Hz, Line**

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.150	34.84	QP	9.000	L1	16.06	66.00	31.16	Compliance
0.150	15.47	AV	9.000	L1	16.06	56.00	40.53	Compliance
0.375	36.67	QP	9.000	L1	16.05	58.39	21.72	Compliance
0.375	34.14	AV	9.000	L1	16.05	48.39	14.25	Compliance
0.890	21.36	QP	9.000	L1	15.91	56.00	34.64	Compliance
0.890	17.16	AV	9.000	L1	15.91	46.00	28.84	Compliance
2.500	25.79	QP	9.000	L1	15.85	56.00	30.21	Compliance
2.500	19.26	AV	9.000	L1	15.85	46.00	26.74	Compliance
6.100	22.92	QP	9.000	L1	15.92	60.00	37.08	Compliance
6.100	14.76	AV	9.000	L1	15.92	50.00	35.24	Compliance
22.600	29.08	QP	9.000	L1	16.45	60.00	30.92	Compliance
22.600	20.61	AV	9.000	L1	16.45	50.00	29.39	Compliance

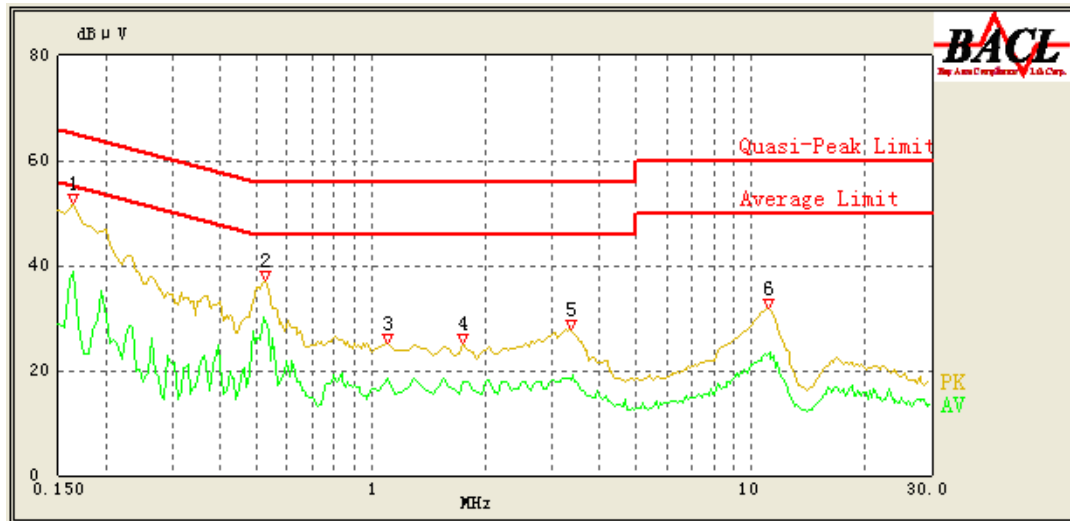
AC 120V/60 Hz, Neutral

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.150	41.21	QP	9.000	N	16.06	66.00	24.79	Compliance
0.150	17.23	AV	9.000	N	16.06	56.00	38.77	Compliance
0.375	36.66	QP	9.000	N	16.08	58.39	21.73	Compliance
0.375	31.90	AV	9.000	N	16.08	48.39	16.49	Compliance
0.585	26.00	QP	9.000	N	16.06	56.00	30.00	Compliance
0.585	14.90	AV	9.000	N	16.06	46.00	31.10	Compliance
3.000	28.56	QP	9.000	N	15.90	56.00	27.44	Compliance
3.000	18.16	AV	9.000	N	15.90	46.00	27.84	Compliance
6.500	29.06	QP	9.000	N	15.91	60.00	30.94	Compliance
6.500	14.00	AV	9.000	N	15.91	50.00	36.00	Compliance
21.650	33.92	QP	9.000	N	16.19	60.00	26.08	Compliance
21.650	22.66	AV	9.000	N	16.19	50.00	27.34	Compliance

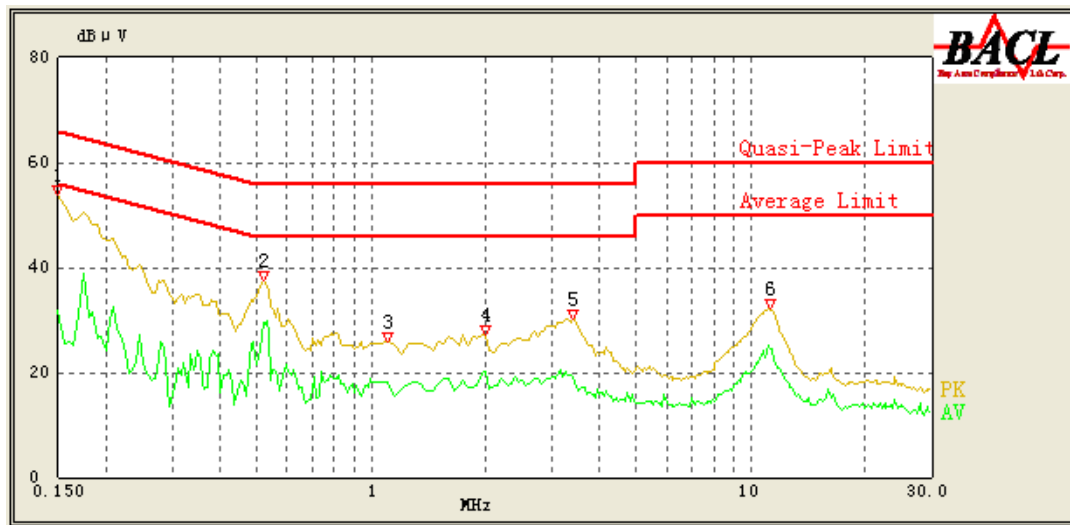
Note:

1) Corrected Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

2) Margin (dB) = Limit (dBμV) – Corrected Amplitude (dBμV)

For 350MHz Band:*EUT operation mode: Transmitting in Middle Channel (worst case)***For GFSK Modulation:****AC 120V/60 Hz, Line**

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.165	51.95	QP	9.000	L1	16.05	65.21	13.26	Compliance
0.165	38.86	AV	9.000	L1	16.05	55.21	16.35	Compliance
0.525	37.17	QP	9.000	L1	16.06	56.00	18.83	Compliance
0.525	29.50	AV	9.000	L1	16.06	46.00	16.50	Compliance
1.100	25.17	QP	9.000	L1	15.88	56.00	30.83	Compliance
1.100	18.42	AV	9.000	L1	15.88	46.00	27.58	Compliance
1.750	25.09	QP	9.000	L1	15.86	56.00	30.91	Compliance
1.750	17.85	AV	9.000	L1	15.86	46.00	28.15	Compliance
3.350	27.68	QP	9.000	L1	15.85	56.00	28.32	Compliance
3.350	18.23	AV	9.000	L1	15.85	46.00	27.77	Compliance
11.100	31.93	QP	9.000	L1	16.09	60.00	28.07	Compliance
11.100	22.80	AV	9.000	L1	16.09	50.00	27.20	Compliance

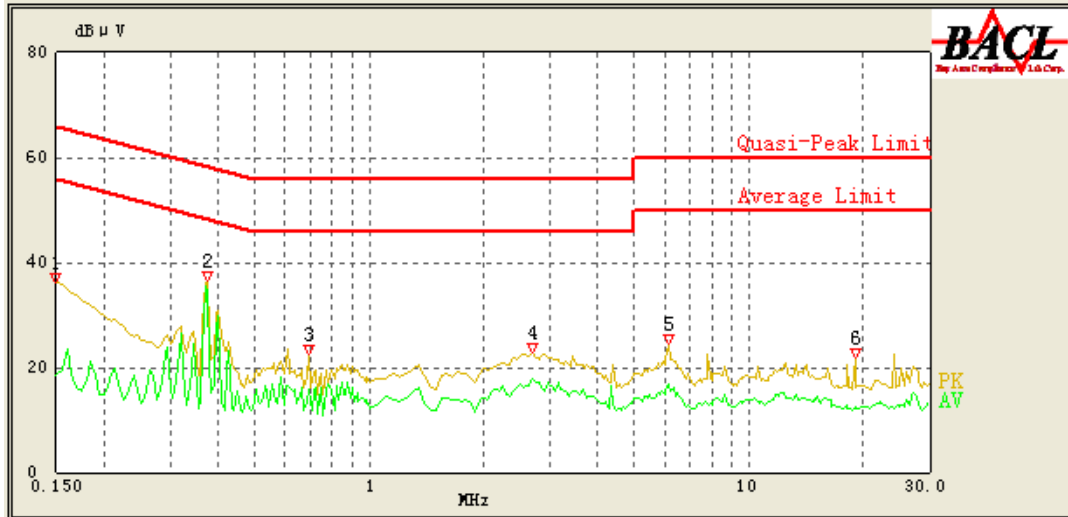
AC 120V/60 Hz, Neutral

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.150	53.85	QP	9.000	N	16.06	66.00	12.15	Compliance
0.150	31.83	AV	9.000	N	16.06	56.00	24.17	Compliance
0.520	37.44	QP	9.000	N	16.10	56.00	18.56	Compliance
0.520	29.48	AV	9.000	N	16.10	46.00	16.52	Compliance
1.100	25.75	QP	9.000	N	15.94	56.00	30.25	Compliance
1.100	18.21	AV	9.000	N	15.94	46.00	27.79	Compliance
2.000	27.25	QP	9.000	N	15.91	56.00	28.75	Compliance
2.000	20.30	AV	9.000	N	15.91	46.00	25.70	Compliance
3.400	30.33	QP	9.000	N	15.89	56.00	25.67	Compliance
3.400	19.30	AV	9.000	N	15.89	46.00	26.70	Compliance
11.250	32.16	QP	9.000	N	15.99	60.00	27.84	Compliance
11.250	24.63	AV	9.000	N	15.99	50.00	25.37	Compliance

Note:

1) Corrected Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

2) Margin (dB) = Limit (dBμV) – Corrected Amplitude (dBμV)

For OOK Modulation:**AC 120V/60 Hz, Line**

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.150	36.06	QP	9.000	L1	16.06	66.00	29.94	Compliance
0.150	18.38	AV	9.000	L1	16.06	56.00	37.62	Compliance
0.375	36.57	QP	9.000	L1	16.05	58.39	21.82	Compliance
0.375	34.65	AV	9.000	L1	16.05	48.39	13.74	Compliance
0.690	22.53	QP	9.000	L1	15.96	56.00	33.47	Compliance
0.690	15.93	AV	9.000	L1	15.96	46.00	30.07	Compliance
2.700	22.99	QP	9.000	L1	15.85	56.00	33.01	Compliance
2.700	17.83	AV	9.000	L1	15.85	46.00	28.17	Compliance
6.150	24.34	QP	9.000	L1	15.92	60.00	35.66	Compliance
6.150	16.79	AV	9.000	L1	15.92	50.00	33.21	Compliance
19.100	21.96	QP	9.000	L1	16.40	60.00	38.04	Compliance
19.100	12.52	AV	9.000	L1	16.40	50.00	37.48	Compliance

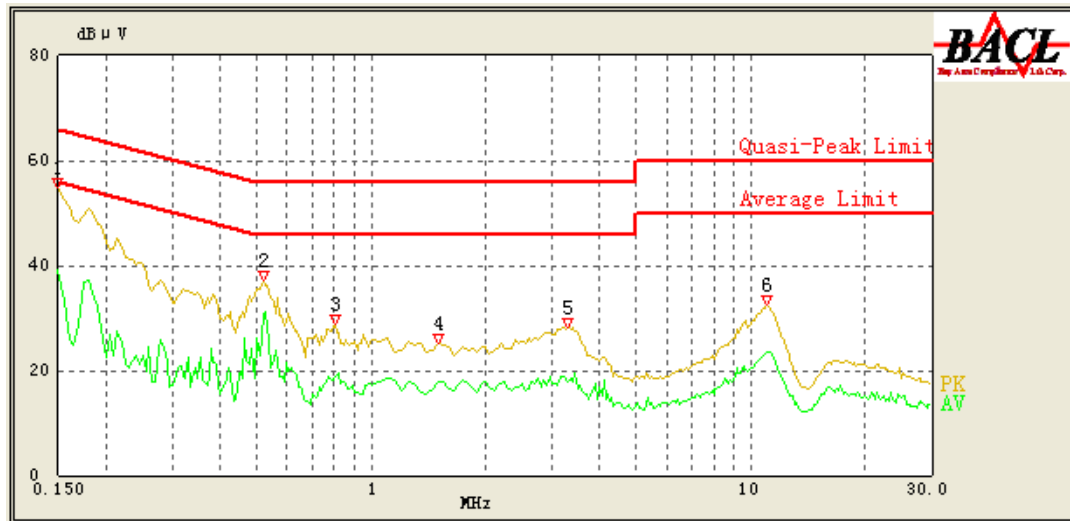
AC 120V/60 Hz, Neutral

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.165	38.63	QP	9.000	N	16.06	65.57	26.94	Compliance
0.165	14.89	AV	9.000	N	16.06	55.57	40.68	Compliance
0.375	36.76	QP	9.000	N	16.08	58.39	21.63	Compliance
0.375	32.24	AV	9.000	N	16.08	48.39	16.15	Compliance
0.620	25.39	QP	9.000	N	16.04	56.00	30.61	Compliance
0.620	11.04	AV	9.000	N	16.03	46.00	34.96	Compliance
2.650	26.07	QP	9.000	N	15.90	56.00	29.93	Compliance
2.650	13.30	AV	9.000	N	15.90	46.00	32.70	Compliance
6.800	26.69	QP	9.000	N	15.91	60.00	33.31	Compliance
6.800	14.54	AV	9.000	N	15.91	50.00	35.46	Compliance
17.600	25.36	QP	9.000	N	16.09	60.00	34.64	Compliance
17.600	17.72	AV	9.000	N	16.09	50.00	32.28	Compliance

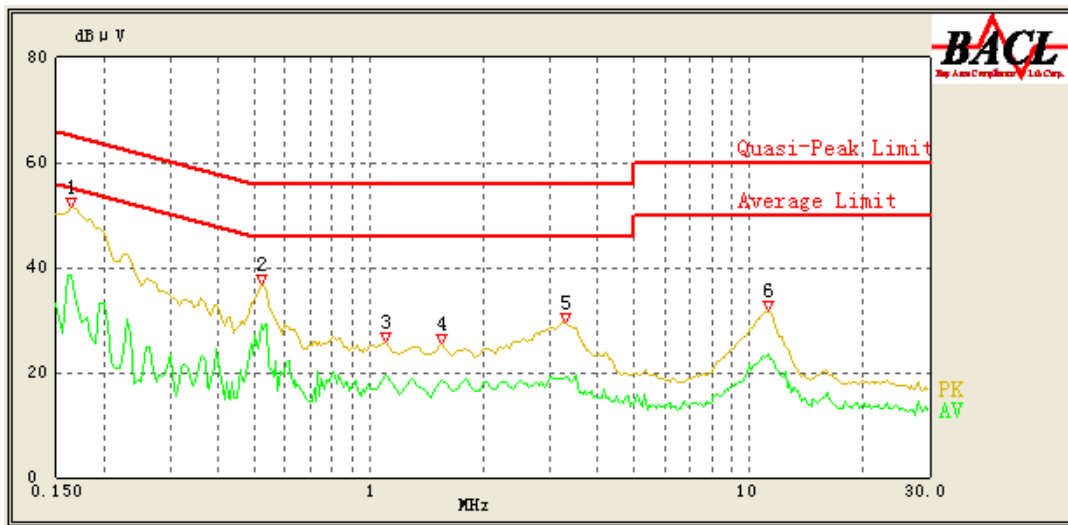
Note:

1) Corrected Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

2) Margin (dB) = Limit (dBμV) – Corrected Amplitude (dBμV)

For 375MHz Band:*EUT operation mode: Transmitting in Low Channel (worst case)***For GFSK Modulation:****AC 120V/60 Hz, Line**

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.150	54.82	QP	9.000	L1	16.06	66.00	11.18	Compliance
0.150	39.26	AV	9.000	L1	16.06	56.00	16.74	Compliance
0.520	37.04	QP	9.000	L1	16.07	56.00	18.96	Compliance
0.520	30.58	AV	9.000	L1	16.07	46.00	15.42	Compliance
0.805	28.89	QP	9.000	L1	15.93	56.00	27.11	Compliance
0.805	18.46	AV	9.000	L1	15.93	46.00	27.54	Compliance
1.500	25.24	QP	9.000	L1	15.86	56.00	30.76	Compliance
1.500	17.86	AV	9.000	L1	15.86	46.00	28.14	Compliance
3.300	28.20	QP	9.000	L1	15.85	56.00	27.80	Compliance
3.300	17.89	AV	9.000	L1	15.85	46.00	28.11	Compliance
11.050	32.45	QP	9.000	L1	16.09	60.00	27.55	Compliance
11.050	23.35	AV	9.000	L1	16.09	50.00	26.65	Compliance

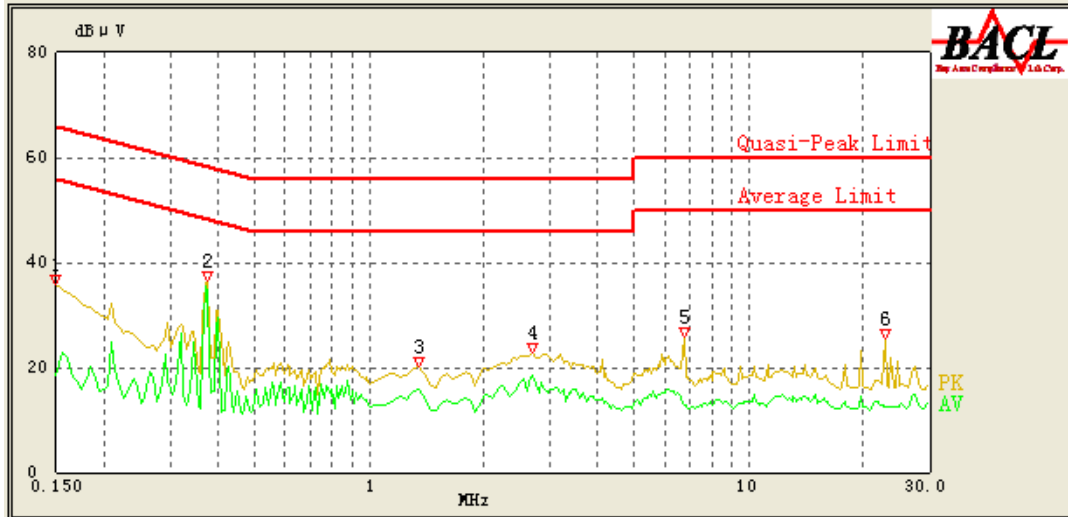
AC 120V/60 Hz, Neutral

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.165	51.49	QP	9.000	N	16.06	65.21	13.72	Compliance
0.165	38.63	AV	9.000	N	16.06	55.21	16.58	Compliance
0.520	36.96	QP	9.000	N	16.10	56.00	19.04	Compliance
0.520	29.32	AV	9.000	N	16.10	46.00	16.68	Compliance
1.100	25.97	QP	9.000	N	15.94	56.00	30.03	Compliance
1.100	19.48	AV	9.000	N	15.94	46.00	26.52	Compliance
1.550	25.52	QP	9.000	N	15.92	56.00	30.48	Compliance
1.550	18.66	AV	9.000	N	15.92	46.00	27.34	Compliance
3.300	29.60	QP	9.000	N	15.89	56.00	26.40	Compliance
3.300	19.19	AV	9.000	N	15.89	46.00	26.81	Compliance
11.250	31.78	QP	9.000	N	15.99	60.00	28.22	Compliance
11.250	23.66	AV	9.000	N	15.99	50.00	26.34	Compliance

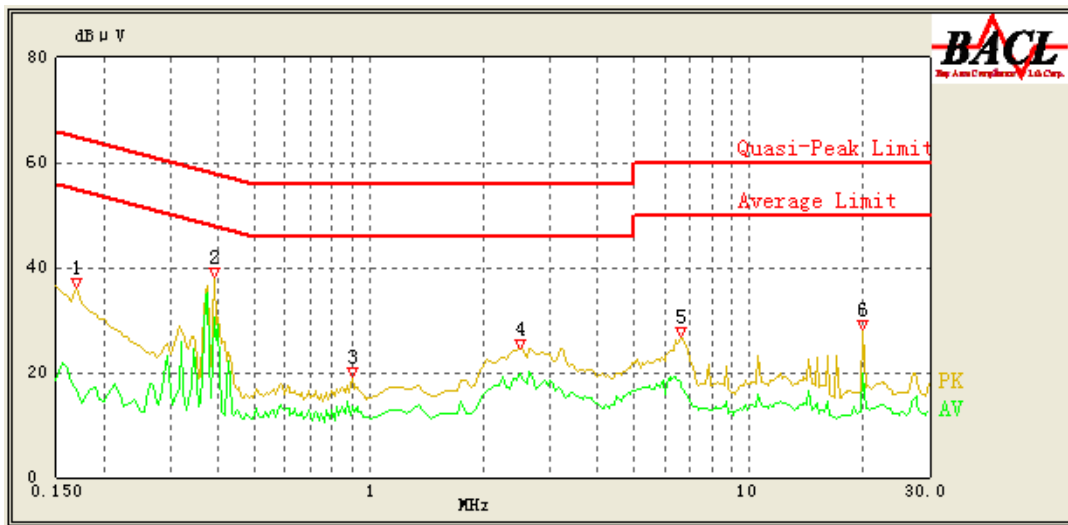
Note:

1) Corrected Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

2) Margin (dB) = Limit (dBμV) – Corrected Amplitude (dBμV)

For OOK Modulation:**AC 120V/60 Hz, Line**

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.150	35.68	QP	9.000	L1	16.06	66.00	30.32	Compliance
0.150	18.52	AV	9.000	L1	16.06	56.00	37.48	Compliance
0.375	36.59	QP	9.000	L1	16.05	58.39	21.80	Compliance
0.375	34.57	AV	9.000	L1	16.05	48.39	13.82	Compliance
1.350	20.24	QP	9.000	L1	15.87	56.00	35.76	Compliance
1.350	15.97	AV	9.000	L1	15.87	46.00	30.03	Compliance
2.700	22.95	QP	9.000	L1	15.85	56.00	33.05	Compliance
2.700	18.51	AV	9.000	L1	15.85	46.00	27.49	Compliance
6.800	25.78	QP	9.000	L1	15.97	60.00	34.22	Compliance
6.800	12.94	AV	9.000	L1	15.96	50.00	37.06	Compliance
22.800	25.42	QP	9.000	L1	16.45	60.00	34.58	Compliance
22.800	12.63	AV	9.000	L1	16.45	50.00	37.37	Compliance

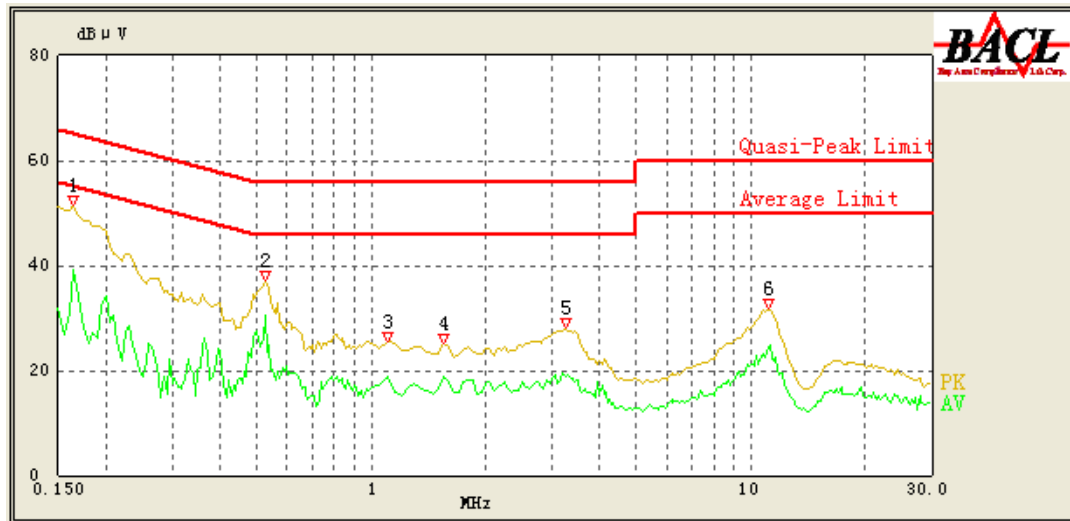
AC 120V/60 Hz, Neutral

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.170	36.25	QP	9.000	N	16.06	64.96	28.71	Compliance
0.170	16.76	AV	9.000	N	16.06	54.96	38.20	Compliance
0.390	38.07	QP	9.000	N	16.09	58.06	19.99	Compliance
0.390	30.47	AV	9.000	N	16.09	48.06	17.59	Compliance
0.900	19.01	QP	9.000	N	15.96	56.00	36.99	Compliance
0.900	13.36	AV	9.000	N	15.96	46.00	32.64	Compliance
2.500	24.55	QP	9.000	N	15.90	56.00	31.45	Compliance
2.500	19.90	AV	9.000	N	15.90	46.00	26.10	Compliance
6.650	26.69	QP	9.000	N	15.91	60.00	33.31	Compliance
6.650	17.32	AV	9.000	N	15.91	50.00	32.68	Compliance
20.000	28.10	QP	9.000	N	16.16	60.00	31.90	Compliance
20.000	19.88	AV	9.000	N	16.16	50.00	30.12	Compliance

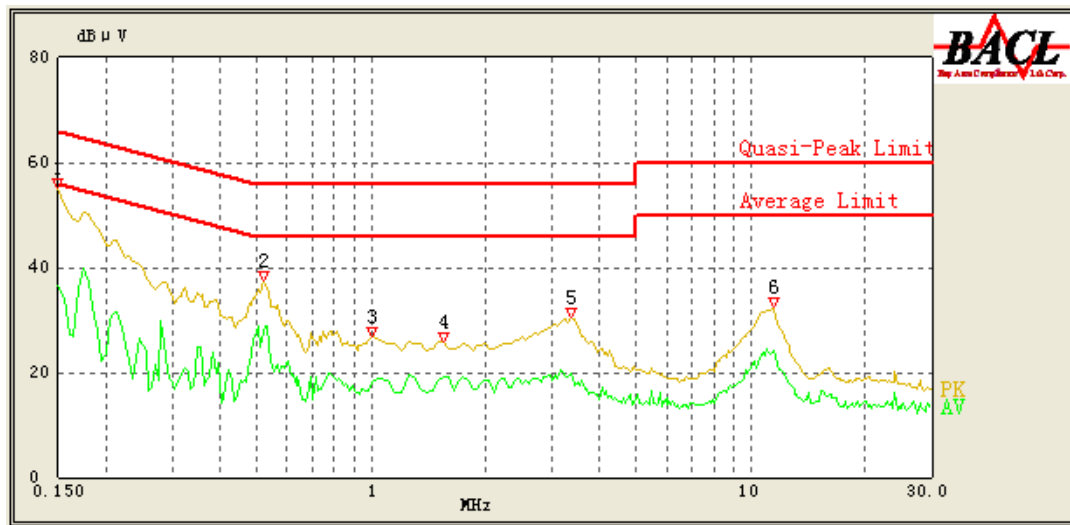
Note:

1) Corrected Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

2) Margin (dB) = Limit (dBμV) – Corrected Amplitude (dBμV)

For 434MHz Band:*EUT operation mode: Transmitting in High Channel (worst case)***For GFSK Modulation:****AC 120V/60 Hz, Line**

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.165	51.63	QP	9.000	L1	16.05	65.21	13.58	Compliance
0.165	39.33	AV	9.000	L1	16.05	55.21	15.88	Compliance
0.525	37.09	QP	9.000	L1	16.06	56.00	18.91	Compliance
0.525	30.64	AV	9.000	L1	16.06	46.00	15.36	Compliance
1.100	25.51	QP	9.000	L1	15.88	56.00	30.49	Compliance
1.100	18.68	AV	9.000	L1	15.88	46.00	27.32	Compliance
1.550	25.16	QP	9.000	L1	15.86	56.00	30.84	Compliance
1.550	18.86	AV	9.000	L1	15.86	46.00	27.14	Compliance
3.250	28.16	QP	9.000	L1	15.85	56.00	27.84	Compliance
3.250	18.88	AV	9.000	L1	15.85	46.00	27.12	Compliance
11.150	31.74	QP	9.000	L1	16.09	60.00	28.26	Compliance
11.150	24.84	AV	9.000	L1	16.10	50.00	25.16	Compliance

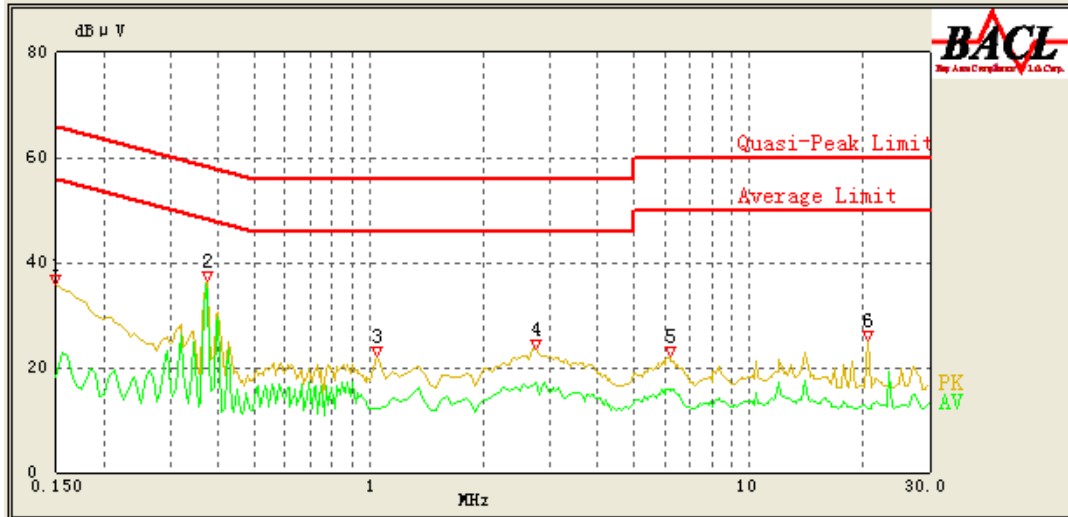
AC 120V/60 Hz, Neutral

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.150	55.33	QP	9.000	N	16.06	66.00	10.67	Compliance
0.150	36.41	AV	9.000	N	16.06	56.00	19.59	Compliance
0.520	37.40	QP	9.000	N	16.10	56.00	18.60	Compliance
0.520	27.99	AV	9.000	N	16.10	46.00	18.01	Compliance
1.000	26.87	QP	9.000	N	15.94	56.00	29.13	Compliance
1.000	18.07	AV	9.000	N	15.94	46.00	27.93	Compliance
1.550	25.82	QP	9.000	N	15.92	56.00	30.18	Compliance
1.550	19.17	AV	9.000	N	15.92	46.00	26.83	Compliance
3.350	30.52	QP	9.000	N	15.89	56.00	25.48	Compliance
3.350	19.77	AV	9.000	N	15.89	46.00	26.23	Compliance
11.500	32.52	QP	9.000	N	16.00	60.00	27.48	Compliance
11.500	24.30	AV	9.000	N	16.00	50.00	25.70	Compliance

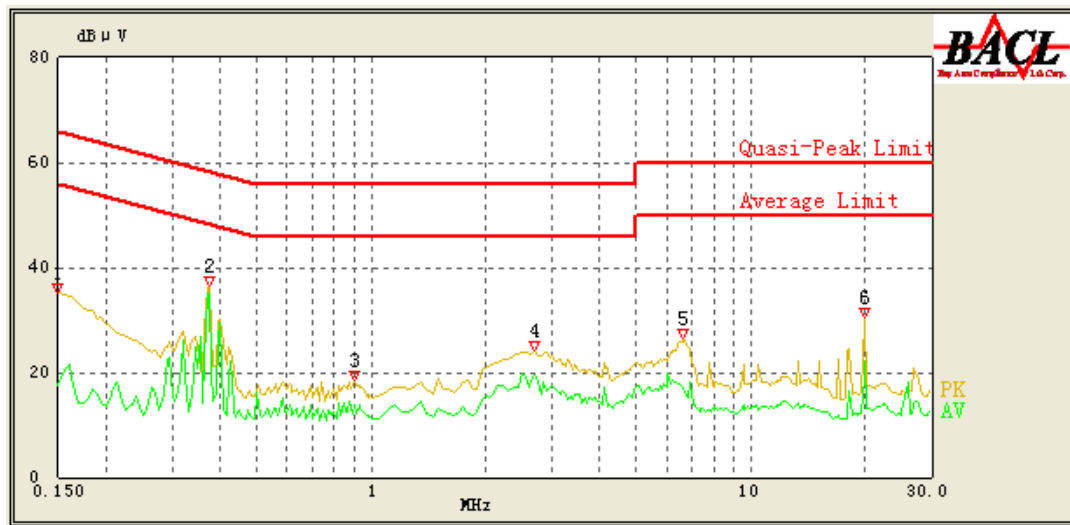
Note:

1) Corrected Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

2) Margin (dB) = Limit (dBμV) – Corrected Amplitude (dBμV)

For OOK Modulation:**AC 120V/60 Hz, Line**

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.150	35.82	QP	9.000	L1	16.06	66.00	30.18	Compliance
0.150	18.32	AV	9.000	L1	16.06	56.00	37.68	Compliance
0.375	36.53	QP	9.000	L1	16.05	58.39	21.86	Compliance
0.375	34.22	AV	9.000	L1	16.05	48.39	14.17	Compliance
1.050	22.01	QP	9.000	L1	15.88	56.00	33.99	Compliance
1.050	12.19	AV	9.000	L1	15.88	46.00	33.81	Compliance
2.750	23.55	QP	9.000	L1	15.85	56.00	32.45	Compliance
2.750	17.24	AV	9.000	L1	15.85	46.00	28.76	Compliance
6.200	22.20	QP	9.000	L1	15.93	60.00	37.80	Compliance
6.200	15.72	AV	9.000	L1	15.93	50.00	34.28	Compliance
20.650	25.10	QP	9.000	L1	16.44	60.00	34.90	Compliance
20.650	12.28	AV	9.000	L1	16.44	50.00	37.72	Compliance

AC 120V/60 Hz, Neutral

Frequency (MHz)	Corrected Amplitude (dBμV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Comment
0.150	35.21	QP	9.000	N	16.06	66.00	30.79	Compliance
0.150	17.46	AV	9.000	N	16.06	56.00	38.54	Compliance
0.375	36.56	QP	9.000	N	16.08	58.39	21.83	Compliance
0.375	34.68	AV	9.000	N	16.08	48.39	13.71	Compliance
0.900	18.35	QP	9.000	N	15.96	56.00	37.65	Compliance
0.900	13.88	AV	9.000	N	15.96	46.00	32.12	Compliance
2.700	24.09	QP	9.000	N	15.90	56.00	31.91	Compliance
2.700	19.38	AV	9.000	N	15.90	46.00	26.62	Compliance
6.650	26.53	QP	9.000	N	15.91	60.00	33.47	Compliance
6.650	17.32	AV	9.000	N	15.91	50.00	32.68	Compliance
19.950	30.56	QP	9.000	N	16.16	60.00	29.44	Compliance
19.950	22.16	AV	9.000	N	16.16	50.00	27.84	Compliance

Note:

1) Corrected Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

2) Margin (dB) = Limit (dBμV) – Corrected Amplitude (dBμV)

FCC §15.205, §15.209, §15.231 (b) - RADIATED EMISSIONS**Applicable Standard**

FCC §15.205, §15.209, §15.231 (b)

According to FCC §15.231(b), the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emission (microvolts/meter)
40.66-40.70	2250	225
70-130	1250	125
130-174	1250 to 3750 **	125 to 375 **
174-260	3750	375
260-470	3750 to 12500 **	375 to 1250**
Above 470	12500	1250

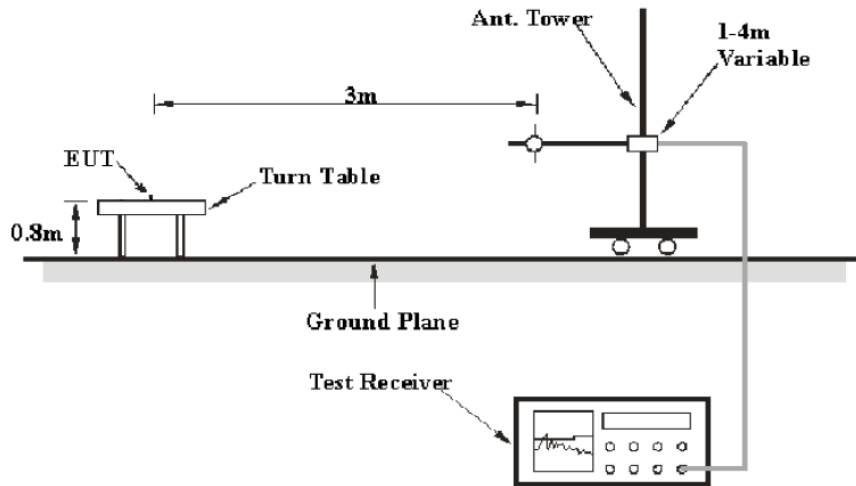
(1) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges.

(2) Intentional radiators operating under the provisions of this section shall demonstrate compliance with the limits on the field strength of emissions, as shown in the above table, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provisions in §15.35 for averaging pulsed emissions and for limiting peak emissions apply. Further, compliance with the provisions of §15.205 shall be demonstrated using the measurement instrumentation specified in that section.

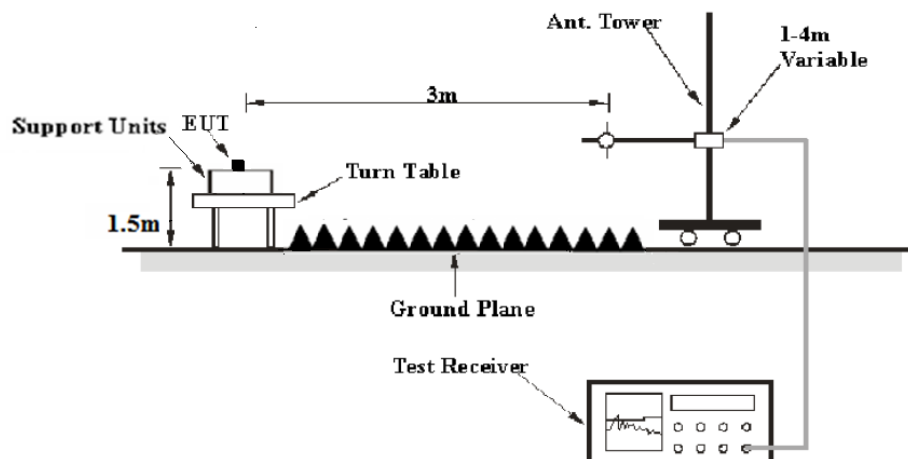
(3) The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in §15.209, whichever limit permits a higher field strength.

EUT Setup

Below 1GHz:



Above 1 GHz:



The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.10 - 2013. The specification used was the FCC 15 § 15.209, 15.205 and 15.231.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 6 GHz.

During the radiated emission test, the EMI test Receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	100 kHz	300 kHz	/	PK
1000MHz – 6000MHz	1MHz	3MHz	/	PK

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude (dBμV /m) = Meter Reading (dBμV) + Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin (dB)} = \text{Limit (dBμV/m)} - \text{Corrected Amplitude (dBμV /m)}$$

Test Results Summary

According to the data in the following table, the EUT complied with the FCC §15.205, §15.209, §15.231 (b).

Test Data

Environmental Conditions

Temperature:	22.0-23.1 °C
Relative Humidity:	48-50 %
ATM Pressure:	101.0-101.1 kPa

The testing was performed by Alisa Gao on 2018-10-23 to 2018-12-25.

Test mode: Transmitting

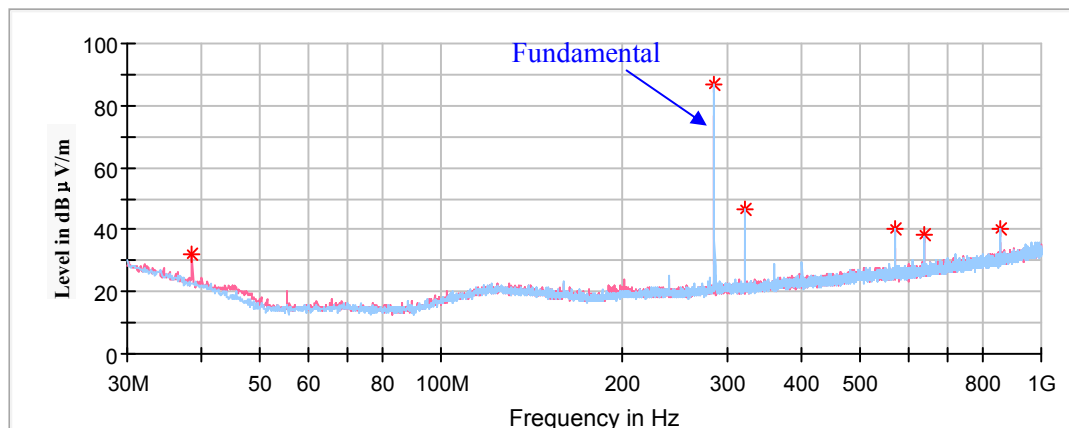
For 300MHz Band:

For GFSK Modulation:

Low Channel: 285.5MHz

30MHz-1GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



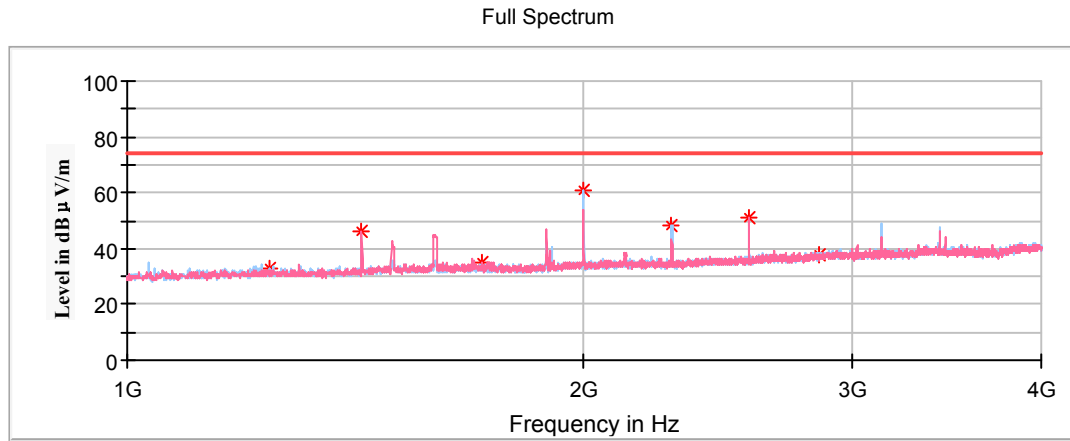
Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV/m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
38.49	31.94	200.0	V	282.0	-9.7	53.65	21.71
285.50	85.56	100.0	H	299.0	-10.9	93.65	8.09
320.03	46.64	100.0	H	205.0	-10.1	53.65	7.01
571.00	40.06	100.0	H	299.0	-5.5	73.65	33.59
640.01	38.54	100.0	V	84.0	-4.4	53.65	15.11
856.50	40.01	100.0	H	205.0	-0.9	73.65	33.64

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
285.50	85.56	100.0	H	-13.98	71.58	73.65	2.07
571.00	40.06	100.0	H	-13.98	26.08	53.65	27.57
856.50	40.01	100.0	H	-13.98	26.03	53.65	27.62

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1427.50	46.37	100.0	V	255.0	-8.0	74.00	27.63
1713.00	34.76	150.0	V	202.0	-6.8	74.00	39.24
1998.50	60.80	100.0	H	119.0	-5.8	74.00	13.20
2284.00	48.55	150.0	H	121.0	-5.0	74.00	25.45
2569.50	50.80	150.0	V	228.0	-4.0	74.00	23.20
2855.00	38.11	200.0	V	237.0	-2.4	74.00	35.89

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1427.50	46.37	100.0	V	-13.98	32.39	54.00	21.61
1713.00	34.76	150.0	V	-13.98	20.78	54.00	33.22
1998.50	60.80	100.0	H	-13.98	46.82	54.00	7.18
2284.00	48.55	150.0	H	-13.98	34.57	54.00	19.43
2569.50	50.80	150.0	V	-13.98	36.82	54.00	17.18
2855.00	38.11	200.0	V	-13.98	24.13	54.00	29.87

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

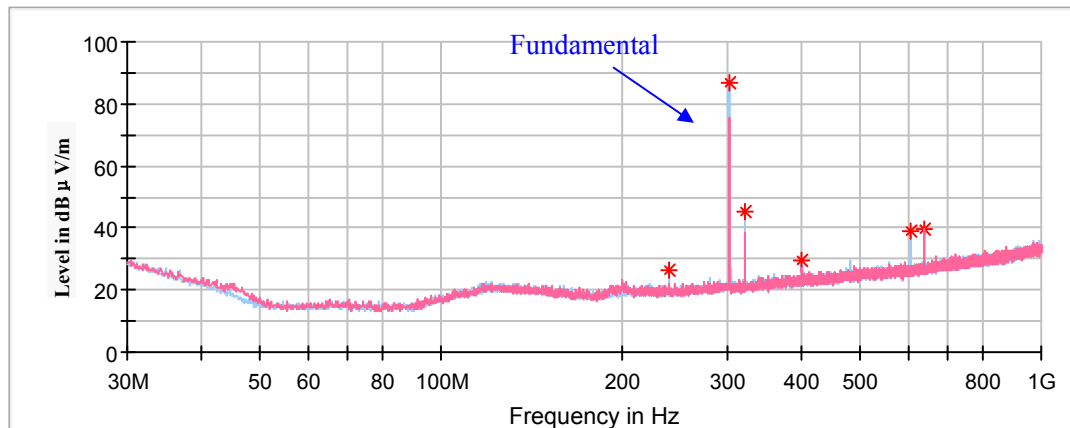
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

Middle Channel : 303.5MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



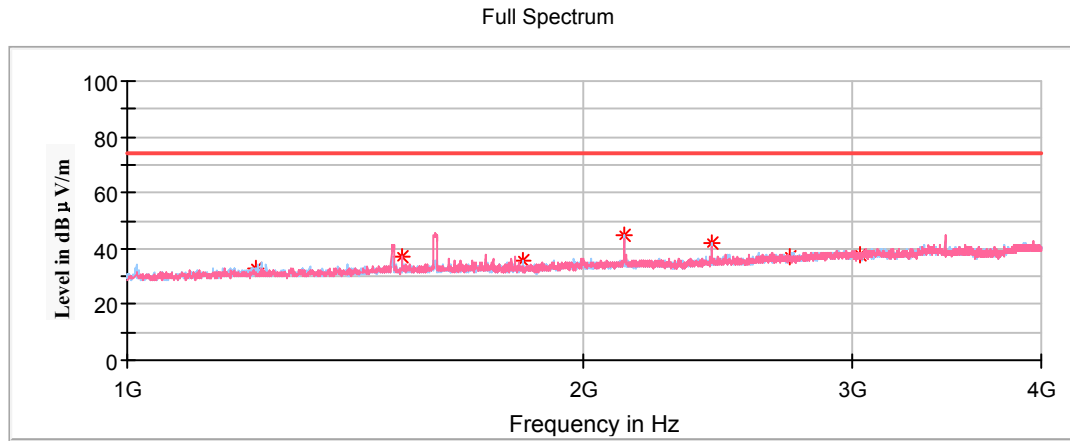
Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
240.01	26.24	100.0	H	314.0	-12.1	46.00	19.76
303.50	86.59	100.0	H	2.0	-10.4	94.91	8.32
320.03	45.16	100.0	H	95.0	-10.1	54.91	9.75
399.93	29.55	100.0	H	121.0	-8.2	46.00	16.45
607.00	39.25	100.0	H	0.0	-5.1	74.91	35.66
640.01	39.33	100.0	H	282.0	-4.4	54.91	15.58

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
303.50	86.59	100.0	H	-13.98	72.61	74.91	2.30
607.00	39.25	100.0	H	-13.98	25.27	54.91	29.64

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1214.00	32.84	150.0	H	358.0	-9.2	74.00	41.16
1517.50	37.18	200.0	V	255.0	-7.5	74.00	36.82
1821.00	35.71	150.0	H	149.0	-6.4	74.91	39.20
2124.50	44.89	150.0	H	113.0	-5.4	74.91	30.02
2428.00	42.16	150.0	H	113.0	-4.5	74.91	32.75
2731.50	37.13	200.0	H	160.0	-3.1	74.00	36.87
3035.00	38.10	100.0	H	164.0	-1.6	74.91	36.81

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1214.00	32.84	150.0	H	-13.98	18.86	54.00	35.14
1517.50	37.18	200.0	V	-13.98	23.20	54.00	30.80
1821.00	35.71	150.0	H	-13.98	21.73	54.91	33.18
2124.50	44.89	150.0	H	-13.98	30.91	54.91	24.00
2428.00	42.16	150.0	H	-13.98	28.18	54.91	26.73
2731.50	37.13	200.0	H	-13.98	23.15	54.00	30.85
3035.00	38.10	100.0	H	-13.98	24.12	54.91	30.79

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

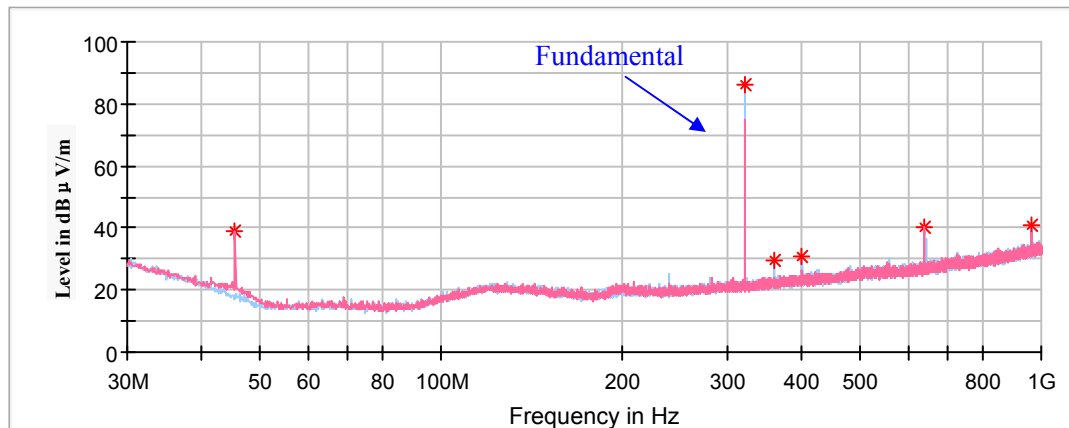
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

High Channel : 321.5MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
45.40	38.91	100.0	V	269.0	-14.4	56.00	17.09
321.50	86.46	100.0	H	358.0	-10	96.00	9.54
360.04	29.84	100.0	H	318.0	-9.1	56.00	26.16
400.06	31.00	100.0	H	0.0	-8.2	46.00	15.00
643.00	40.30	100.0	V	299.0	-4.4	76.00	35.70
964.50	40.82	100.0	H	114.0	1.6	54.00	13.18

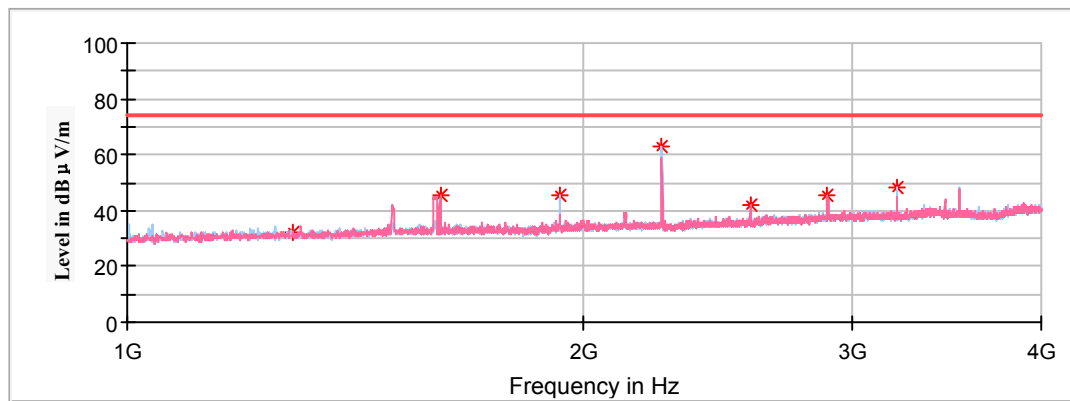
Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
321.50	86.46	100.0	H	-13.98	72.48	76.00	3.52
643.00	40.30	100.0	V	-13.98	26.32	56.00	29.68

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)

Full Spectrum



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1286.00	32.17	100.0	V	227.0	-8.8	76.00	43.83
1607.50	45.34	200.0	V	213.0	-7.2	74.00	28.66
1929.00	45.31	100.0	H	123.0	-6.0	76.00	30.69
2250.50	63.00	200.0	H	96.0	-5.1	74.00	11.00
2572.00	41.70	200.0	V	232.0	-3.9	76.00	34.30
2893.50	45.77	200.0	V	213.0	-2.2	74.00	28.23
3215.00	48.49	150.0	H	209.0	-1.3	76.00	27.51

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dB μ V/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dB μ V/m)	FCC Part 15.231(b)/205/209	
						Limit (dB μ V/m)	Margin (dB)
1286.00	32.17	100.0	V	-13.98	18.19	56.00	37.81
1607.50	45.34	200.0	V	-13.98	31.36	54.00	22.64
1929.00	45.31	100.0	H	-13.98	31.33	56.00	24.67
2250.50	63.00	200.0	H	-13.98	49.02	54.00	4.98
2572.00	41.70	200.0	V	-13.98	27.72	56.00	28.28
2893.50	45.77	200.0	V	-13.98	31.79	54.00	22.21
3215.00	48.49	150.0	H	-13.98	34.51	56.00	21.49

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

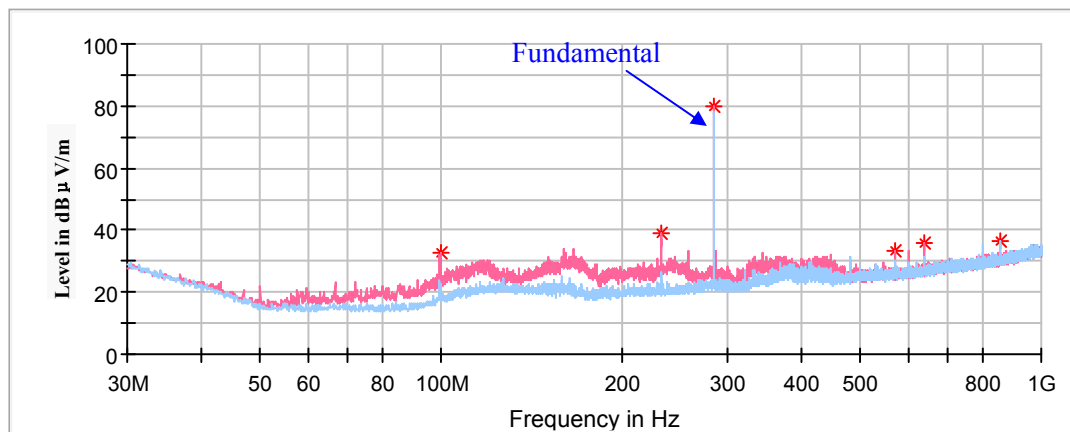
Note 2:

Calculate Average value based on Duty Cycle correction factor:

The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

For OOK Modulation:**Low Channel : 285.5MHz****30MHz-1GHz***(Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded.)*

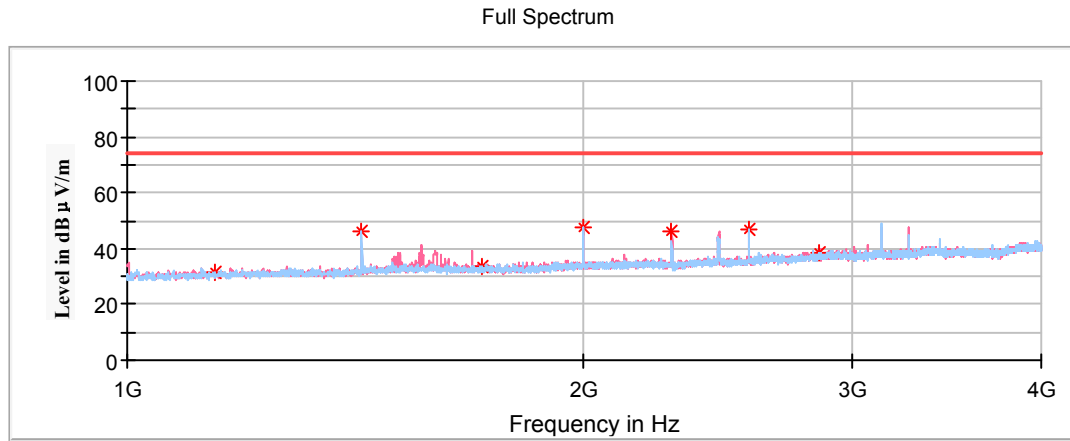
Frequency (MHz)	Corrected Amplitude MaxPeak (dBµV/m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
99.84	32.47	100	V	298	-14.9	53.65	21.18
232.37	39.03	100	V	181	-12.2	53.65	14.62
285.50	80.23	200	V	2	-10.9	93.65	13.42
571.00	33.36	100	V	13	-5.5	73.65	40.29
640.01	35.99	100	V	161	-4.4	53.65	17.66
856.50	36.71	100	H	271	-0.9	73.65	36.94

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBµV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBµV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBµV/m)	Margin (dB)
285.50	80.23	200	V	-13.98	66.25	73.65	7.40
571.00	33.36	100	V	-13.98	19.38	53.65	34.27
856.50	36.71	100	H	-13.98	22.73	53.65	30.92

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1142.00	31.66	100	H	170	-9.6	74.00	42.34
1427.50	46.43	200	H	50	-8.0	74.00	27.57
1713.00	33.40	150	H	240	-6.8	74.00	40.60
1998.50	47.33	200	H	19	-5.8	74.00	26.67
2284.00	46.05	200	V	118	-5.0	74.00	27.95
2569.50	46.94	150	H	158	-4.0	74.00	27.06
2855.00	38.50	150	V	33	-2.4	74.00	35.50

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1142.00	31.66	100	H	-13.98	17.68	54.00	36.32
1427.50	46.43	200	H	-13.98	32.45	54.00	21.55
1713.00	33.40	150	H	-13.98	19.42	54.00	34.58
1998.50	47.33	200	H	-13.98	33.35	54.00	20.65
2284.00	46.05	200	V	-13.98	32.07	54.00	21.93
2569.50	46.94	150	H	-13.98	32.96	54.00	21.04
2855.00	38.50	150	V	-13.98	24.52	54.00	29.48

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

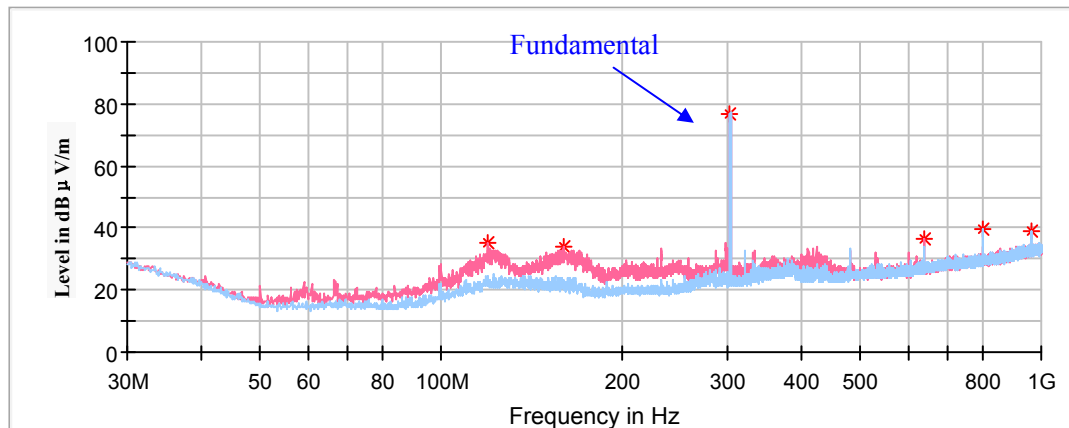
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

Middle Channel: 303.5MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



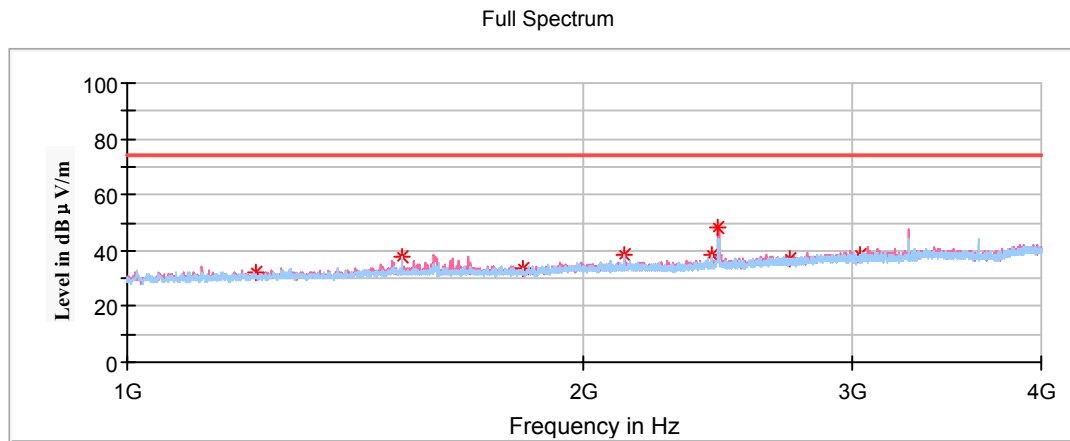
Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
119.97	34.92	100	V	253	-11.2	43.50	8.58
159.98	34.00	100	V	187	-12.7	54.91	20.91
303.50	77.75	200	V	117	-10.4	94.91	17.16
607.00	36.44	100	V	63	-4.4	74.91	38.47
800.06	39.70	100	H	13	-1.7	54.91	15.21
910.50	38.84	100	H	51	1.5	74.91	36.07

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
303.50	77.75	200	V	-13.98	63.77	74.91	11.14
607.00	36.44	100	V	-13.98	22.46	54.91	32.45
910.00	38.84	100	H	-13.98	24.86	54.91	30.05

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1214.00	32.36	100	V	309	-9.2	74.00	41.64
1517.50	37.44	150	H	52	-7.5	74.00	36.56
1821.00	33.74	100	H	359	-6.4	74.91	41.17
2124.50	38.50	100	V	34	-5.4	74.91	36.41
2428.00	38.34	150	H	145	-4.5	74.91	36.57
2731.50	48.23	100	V	34	-4.5	74.00	25.77
3035.00	36.96	150	V	220	-3.1	74.91	37.95

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1214.00	32.36	100	V	-13.98	18.38	54.00	35.62
1517.50	37.44	150	H	-13.98	23.46	54.00	30.54
1821.00	33.74	100	H	-13.98	19.76	54.91	35.15
2124.50	38.50	100	V	-13.98	24.52	54.91	30.39
2428.00	38.34	150	H	-13.98	24.36	54.91	30.55
2731.50	48.23	100	V	-13.98	34.25	54.00	19.75
3035.00	36.96	150	V	-13.98	22.98	54.91	31.93

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

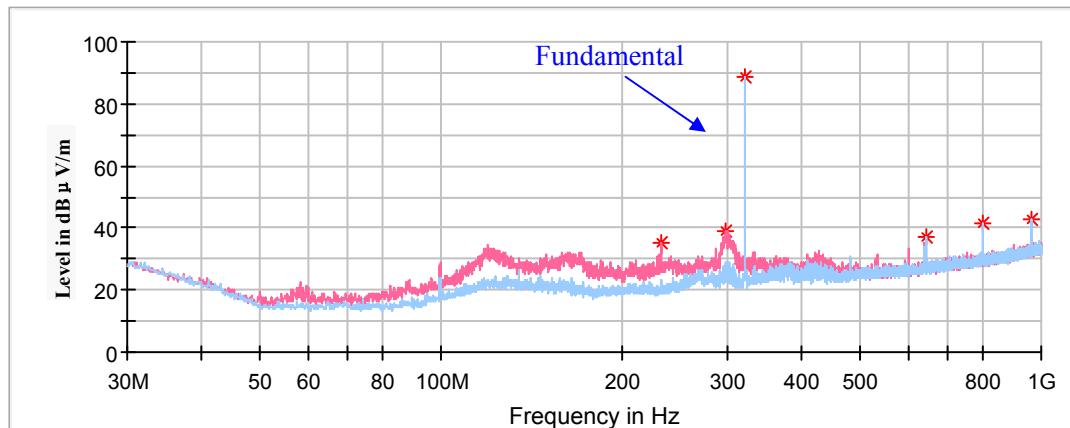
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

High Channel: 321.5MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
232.85	34.92	100	V	199	-12.2	56.00	21.08
298.57	39.05	100	V	347	-10.6	56.00	16.95
321.50	88.11	100	H	224	-10	96.00	7.89
643.04	37.29	100	H	219	-4.3	56.00	18.71
800.06	41.42	100	H	336	-1.7	56.00	14.58
964.50	42.58	100	H	219	1.6	54.00	11.42

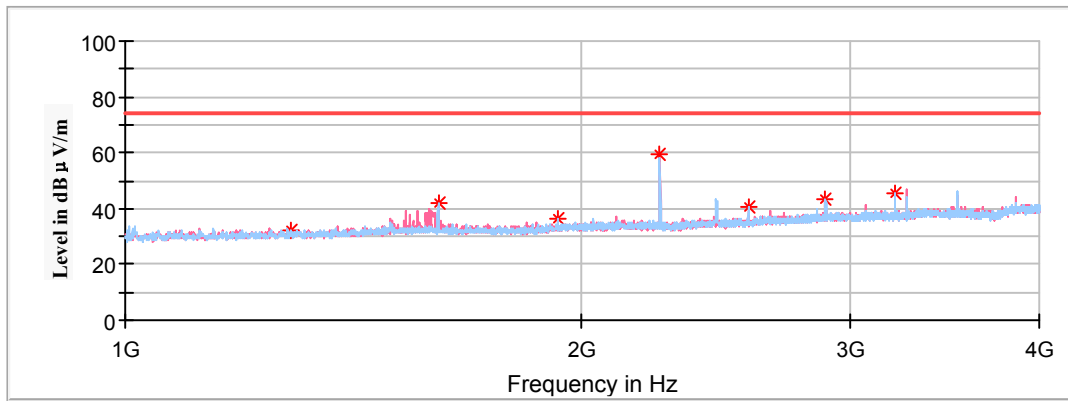
Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
321.50	88.11	100	H	-13.98	74.13	76.00	1.87
643.04	37.29	100	H	-13.98	23.31	56.00	32.69

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)

Full Spectrum



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1286.00	31.94	200	H	251	-8.8	76.00	44.06
1607.50	41.69	200	H	19	-7.2	74.00	32.31
1929.00	36.40	100	H	183	-6	76.00	39.60
2250.50	59.34	150	V	257	-5.1	74.00	14.66
2572.00	40.67	150	H	159	-3.9	76.00	35.33
2893.50	43.66	200	H	358	-2.2	74.00	30.34
3215.00	45.35	200	H	233	-1.3	76.00	30.65

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1286.00	31.94	200	H	-13.98	17.96	56.00	38.04
1607.50	41.69	200	H	-13.98	27.71	54.00	26.29
1929.00	36.40	100	H	-13.98	22.42	56.00	33.58
2250.50	59.34	150	V	-13.98	45.36	54.00	8.64
2572.00	40.67	150	H	-13.98	26.69	56.00	29.31
2893.50	43.66	200	H	-13.98	29.68	54.00	24.32
3215.00	45.35	200	H	-13.98	31.37	56.00	24.63

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

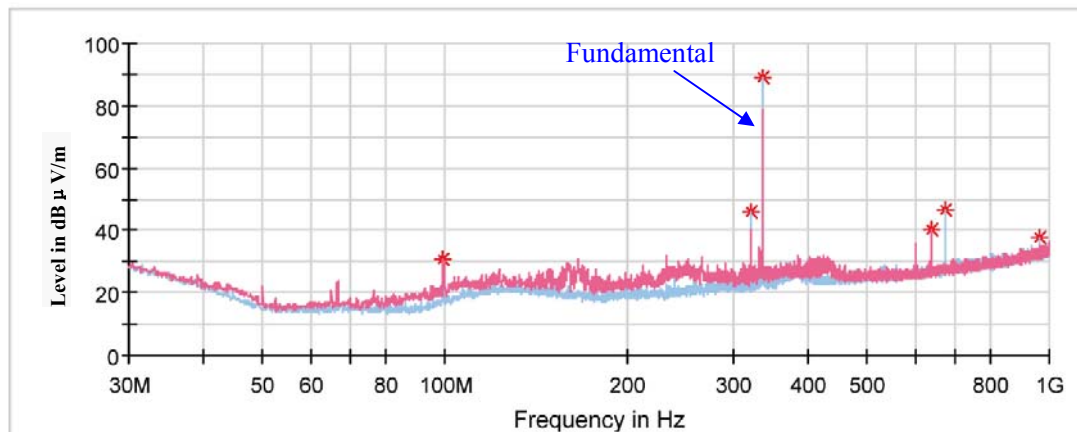
For 350MHz Band:

For GFSK Modulation:

Low Channel: 336.00MHz

30MHz-1GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV/m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
99.60	30.52	100.0	V	188.0	-15.0	56.80	26.28
320.03	45.85	100.0	H	111.0	-10.1	56.80	10.95
336.00	88.38	100.0	H	347.0	-9.7	96.80	8.42
640.01	39.95	100.0	V	305.0	-4.4	56.80	16.85
672.00	46.62	100.0	H	353.0	-3.7	76.80	30.18
960.11	37.79	100.0	H	347.0	1.5	54.00	16.21

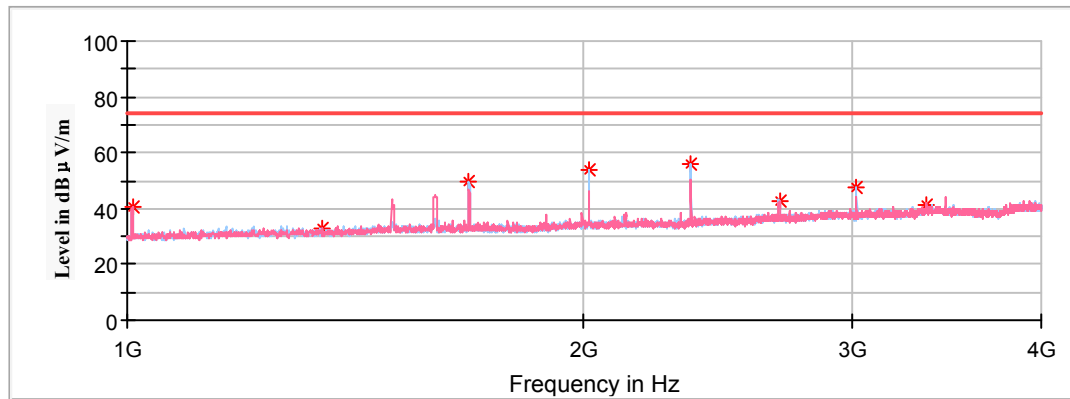
Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
336.00	88.38	100.0	H	-13.98	74.40	76.80	2.40
672.00	46.62	100.0	H	-13.98	32.64	56.80	24.16

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)

Full Spectrum



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1008.00	40.58	200.0	V	245.0	-10.4	74.00	33.42
1344.00	32.64	150.0	V	275.0	-8.5	74.00	41.36
1680.00	49.49	100.0	H	163.0	-6.9	74.00	24.51
2016.00	53.58	100.0	H	119.0	-5.7	76.80	23.22
2352.00	56.00	150.0	H	123.0	-4.8	74.00	18.00
2688.00	43.01	100.0	H	110.0	-3.3	76.80	33.79
3024.00	47.66	200.0	H	105.0	-1.6	76.80	29.14
3360.00	40.92	150.0	H	246.0	-1.0	76.80	35.88

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1008.00	40.58	200.0	V	-13.98	26.60	54.00	27.40
1344.00	32.64	150.0	V	-13.98	18.66	54.00	35.34
1680.00	49.49	100.0	H	-13.98	35.51	54.00	18.49
2016.00	53.58	100.0	H	-13.98	39.60	56.80	17.20
2352.00	56.00	150.0	H	-13.98	42.02	54.00	11.98
2688.00	43.01	100.0	H	-13.98	29.03	56.80	27.77
3024.00	47.66	200.0	H	-13.98	33.68	56.80	23.12
3360.00	40.92	150.0	H	-13.98	26.94	56.80	29.86

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

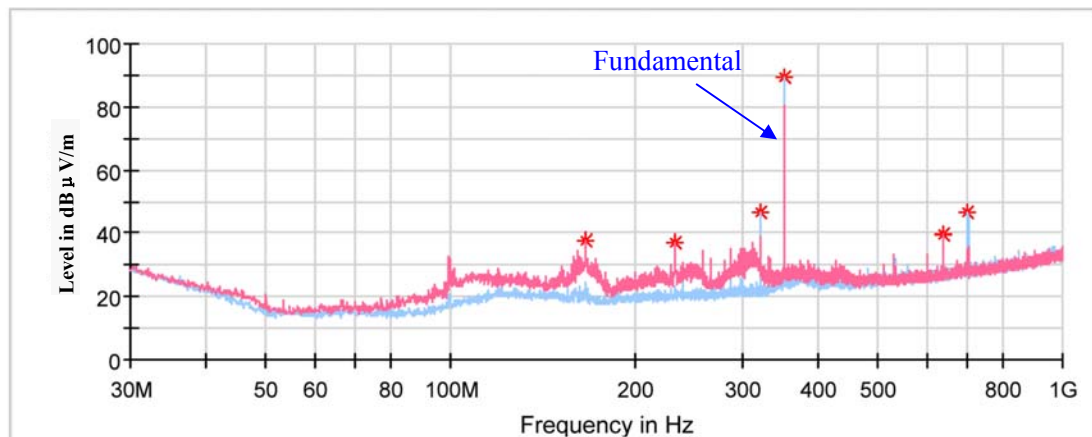
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

Middle Channel: 350.50MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBµV/m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
165.80	37.87	100.0	V	129.0	-13.0	43.50	5.63
233.22	37.08	100.0	V	113.0	-12.2	57.53	20.45
320.03	46.30	100.0	H	274.0	-10.1	57.53	11.23
350.50	89.13	100.0	H	331.0	-9.3	97.53	8.40
640.01	39.90	100.0	H	325.0	-4.4	57.53	17.63
701.00	46.66	100.0	H	320.0	-3.1	77.53	30.87

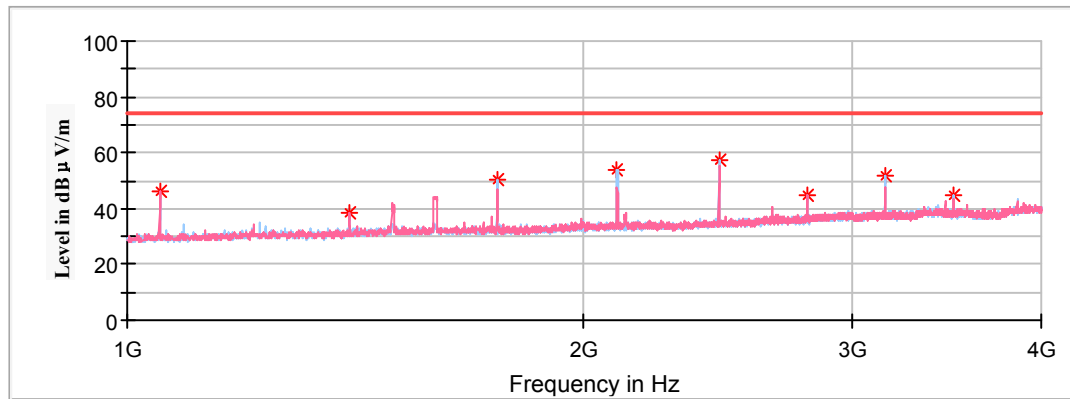
Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBµV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBµV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBµV/m)	Margin (dB)
350.50	89.13	100.0	H	-13.98	75.15	77.53	2.38
701.00	46.66	100.0	H	-13.98	32.68	57.53	24.85

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)

Full Spectrum



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1051.50	46.04	100.0	V	61.0	-10.2	74.00	27.96
1402.00	38.58	100.0	V	246.0	-8.1	74.00	35.42
1752.50	50.33	200.0	H	123.0	-6.7	77.53	27.20
2103.00	54.08	150.0	H	131.0	-5.5	77.53	23.45
2453.50	57.36	100.0	H	119.0	-4.5	77.53	20.17
2804.00	45.07	100.0	V	264.0	-2.7	74.00	28.93
3154.50	51.93	200.0	H	167.0	-1.4	77.53	25.60
3505.00	44.57	200.0	H	202.0	-0.8	77.53	32.96

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1051.50	46.04	100.0	V	-13.98	32.06	54.00	21.94
1402.00	38.58	100.0	V	-13.98	24.60	54.00	29.40
1752.50	50.33	200.0	H	-13.98	36.35	57.53	21.18
2103.00	54.08	150.0	H	-13.98	40.10	57.53	17.43
2453.50	57.36	100.0	H	-13.98	43.38	57.53	14.15
2804.00	45.07	100.0	V	-13.98	31.09	54.00	22.91
3154.50	51.93	200.0	H	-13.98	37.95	57.53	19.58
3505.00	44.57	200.0	H	-13.98	30.59	57.53	26.94

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

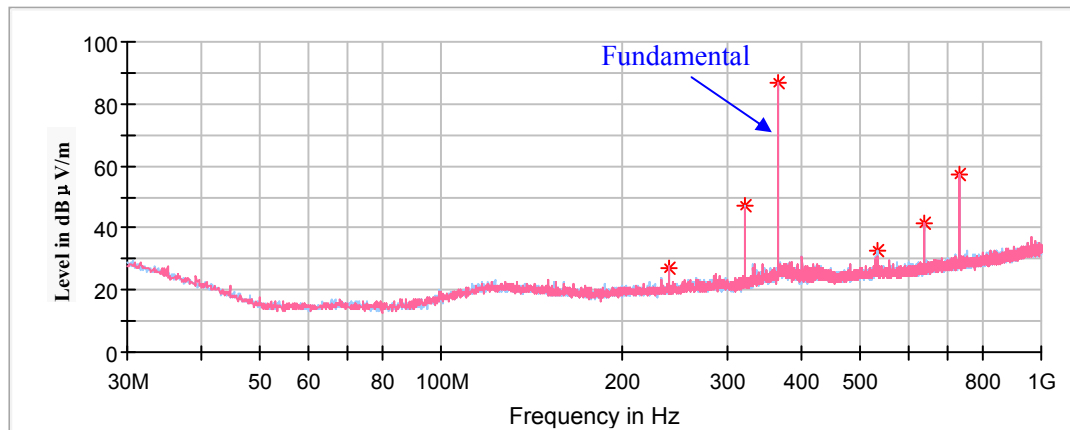
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

High Channel: 364.99MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
240.01	27.30	100.0	H	310.0	-12.1	46.00	18.70
320.03	47.39	100.0	H	125.0	-10.1	58.20	10.81
364.99	86.90	100.0	H	330.0	-8.9	98.20	11.30
532.95	32.61	200.0	H	188.0	-5.8	58.20	25.59
640.01	41.65	100.0	V	0.0	-4.4	58.20	16.55
729.98	57.33	100.0	H	268.0	-2.8	78.20	20.87

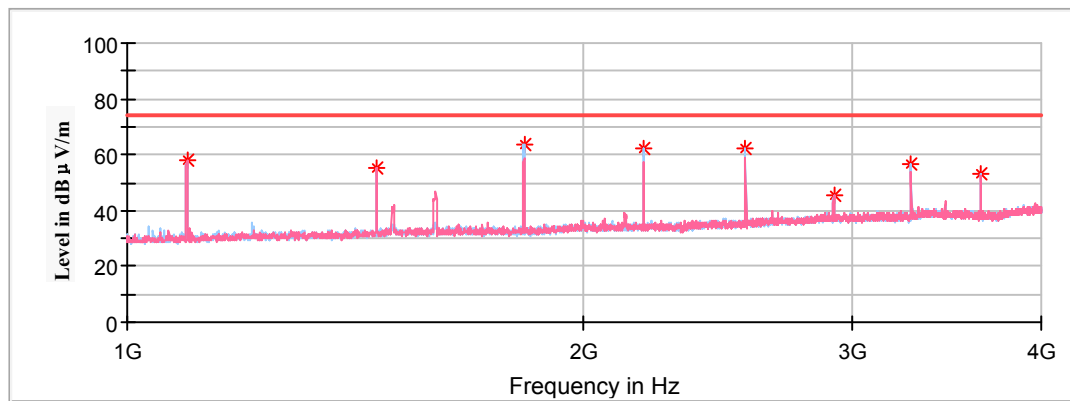
Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
364.99	86.90	100.0	H	-13.98	72.92	78.20	5.28
729.98	57.33	100.0	H	-13.98	43.35	58.20	14.85

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)

Full Spectrum



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1094.97	58.06	100.0	V	58.0	-9.9	74.00	15.94
1459.96	55.41	150.0	H	134.0	-7.8	74.00	18.59
1824.95	63.90	150.0	H	152.0	-6.4	78.20	14.30
2189.94	62.01	100.0	H	150.0	-5.2	78.20	16.19
2554.93	62.06	100.0	H	115.0	-4	78.20	16.14
2919.92	45.35	150.0	H	117.0	-2.1	78.20	32.85
3284.91	56.36	200.0	H	215.0	-1.2	78.20	21.84
3649.90	52.89	100.0	H	50.0	-0.3	74.00	21.11

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dB μ V/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dB μ V/m)	FCC Part 15.231(b)/205/209	
						Limit (dB μ V/m)	Margin (dB)
1094.97	58.06	100.0	V	-13.98	44.08	54.00	9.92
1459.96	55.41	150.0	H	-13.98	41.43	54.00	12.57
1824.95	63.90	150.0	H	-13.98	49.92	58.20	8.28
2189.94	62.01	100.0	H	-13.98	48.03	58.20	10.17
2554.93	62.06	100.0	H	-13.98	48.08	58.20	10.12
2919.92	45.35	150.0	H	-13.98	31.37	58.20	26.83
3284.91	56.36	200.0	H	-13.98	42.38	58.20	15.82
3649.90	52.89	100.0	H	-13.98	38.91	54.00	15.09

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

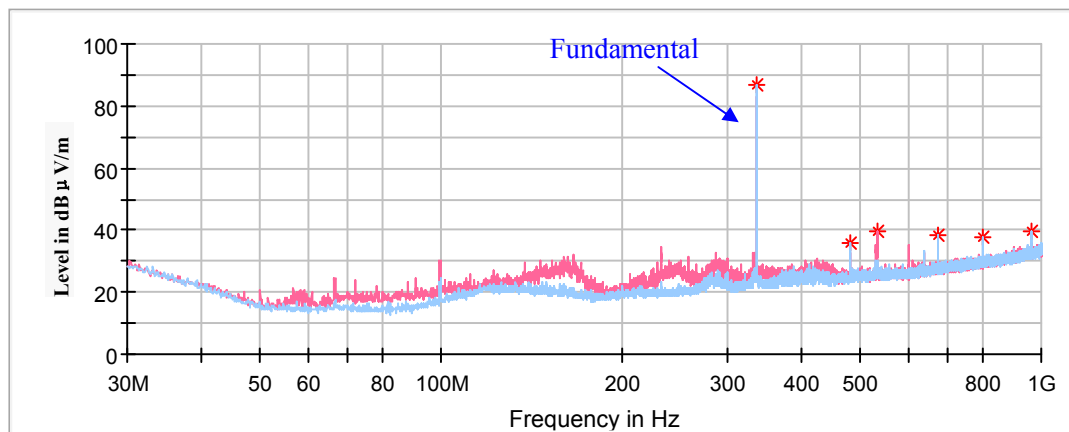
Note 2:

Calculate Average value based on Duty Cycle correction factor:

The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

For OOK Modulation:**Low Channel: 336.00MHz****30MHz-1GHz***(Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded.)*

Frequency (MHz)	Corrected Amplitude MaxPeak (dBµV/m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
99.60	30.52	100.0	V	188.0	-15.0	56.80	26.28
320.03	45.85	100.0	H	111.0	-10.1	56.80	10.95
336.00	88.38	100.0	H	347.0	-9.7	96.80	8.42
640.01	39.95	100.0	V	305.0	-4.4	56.80	16.85
672.00	46.62	100.0	H	353.0	-3.7	76.80	30.18
960.11	37.79	100.0	H	347.0	1.5	54.00	16.21

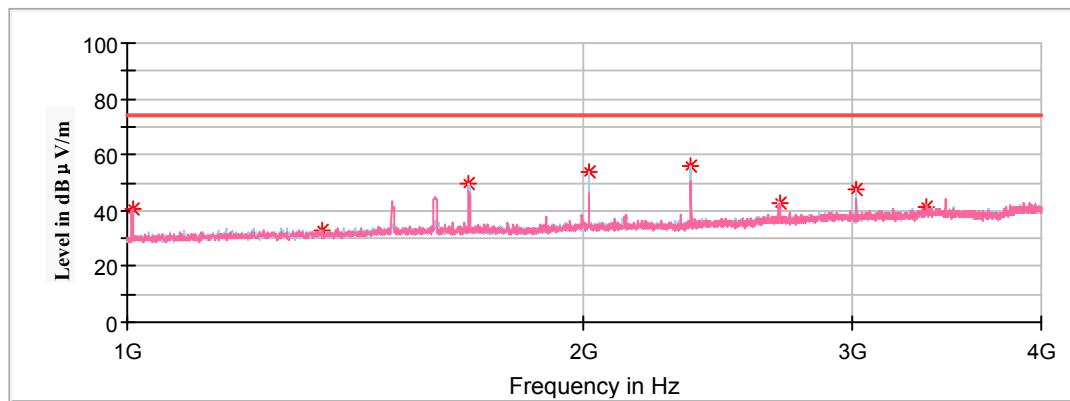
Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBµV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBµV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBµV/m)	Margin (dB)
336.00	87.05	100	H	-13.98	73.07	76.80	3.73
672.00	38.45	100	H	-13.98	24.47	56.80	32.33

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)

Full Spectrum



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1008.00	33.57	150	H	38	-10.4	74.00	40.43
1344.00	31.53	150	V	170	-8.5	74.00	42.47
1680.00	38.16	200	V	42	-6.9	74.00	35.84
2016.00	37.40	200	H	358	-5.7	76.80	39.40
2352.00	44.97	100	H	9	-4.8	74.00	29.03
2688.00	40.05	100	H	2	-3.3	76.80	36.75
3024.00	39.06	100	H	151	-1.6	76.80	37.74
3360.00	39.82	200	V	358	-1.0	76.80	36.98

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1008.00	33.57	150	H	-13.98	19.59	54.00	34.41
1344.00	31.53	150	V	-13.98	17.55	54.00	36.45
1680.00	38.16	200	V	-13.98	24.18	54.00	29.82
2016.00	37.40	200	H	-13.98	23.42	56.80	33.38
2352.00	44.97	100	H	-13.98	30.99	54.00	23.01
2688.00	40.05	100	H	-13.98	26.07	56.80	30.73
3024.00	39.06	100	H	-13.98	25.08	56.80	31.72
3360.00	39.82	200	V	-13.98	25.84	56.80	30.96

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

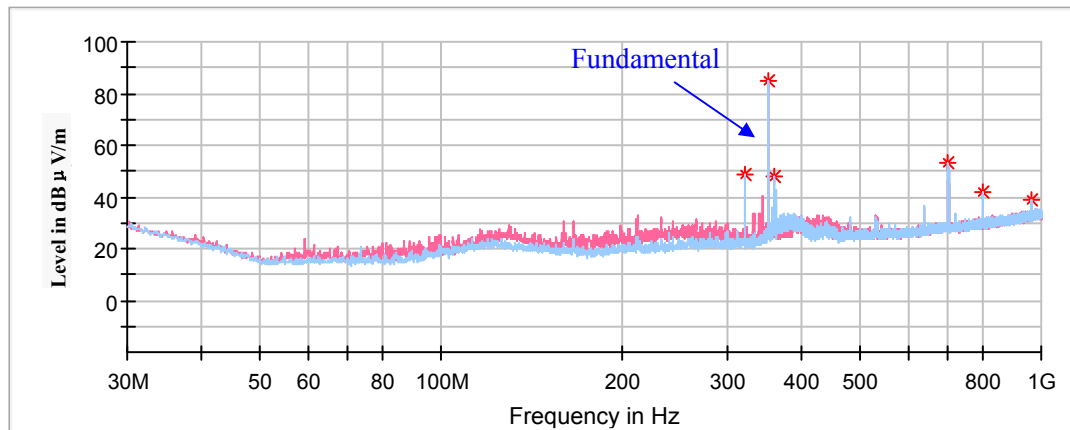
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

Middle Channel: 350.50MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



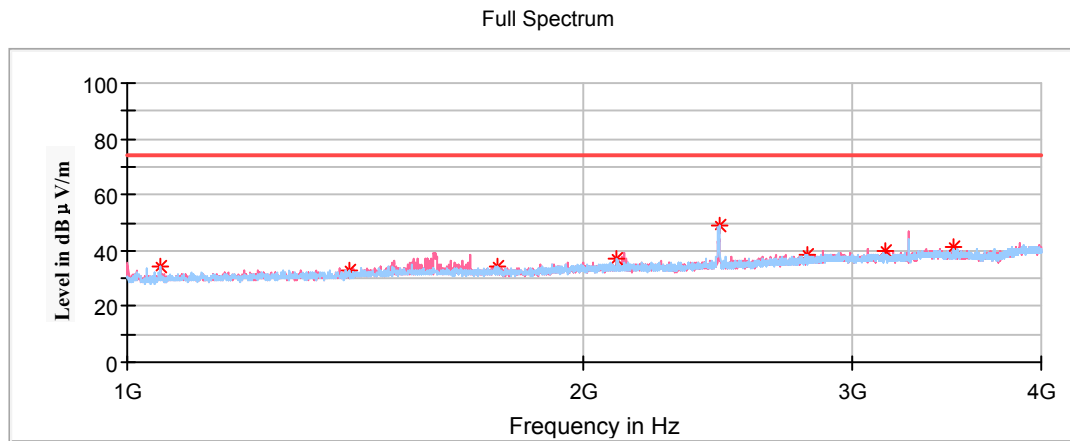
Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
320.03	49.04	100	H	325	-10.1	57.53	8.49
350.50	85.21	100	H	13	-9.3	97.53	12.32
358.47	48.03	100	H	99	-9.1	57.53	9.5
701.00	52.98	100	H	2	-3.1	77.53	24.55
800.06	42.22	100	H	161	-1.7	57.53	15.31
960.12	39.15	100	H	166	1.5	54.00	14.85

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
350.50	85.21	100	H	-13.98	71.23	77.53	6.30
701.00	52.98	100	H	-13.98	39.00	57.53	18.53

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1051.50	34.44	150	H	37	-10.2	74.00	39.56
1402.00	32.91	150	H	8	-8.1	74.00	41.09
1752.50	34.19	150	H	91	-6.7	77.53	43.34
2103.00	37.39	200	H	13	-5.5	77.53	40.14
2453.50	48.81	150	H	154	-4.5	77.53	28.72
2804.00	38.30	100	H	19	-2.7	74.00	35.7
3154.50	39.58	150	V	351	-1.4	77.53	37.95
3505.00	41.17	100	V	65	-0.8	77.53	36.36

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1051.50	34.44	150	H	-13.98	20.46	54.00	33.54
1402.00	32.91	150	H	-13.98	18.93	54.00	35.07
1752.50	34.19	150	H	-13.98	20.21	57.53	37.32
2103.00	37.39	200	H	-13.98	23.41	57.53	34.12
2453.50	48.81	150	H	-13.98	34.83	57.53	22.70
2804.00	38.30	100	H	-13.98	24.32	54.00	29.68
3154.50	39.58	150	V	-13.98	25.60	57.53	31.93
3505.00	41.17	100	V	-13.98	27.19	57.53	30.34

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

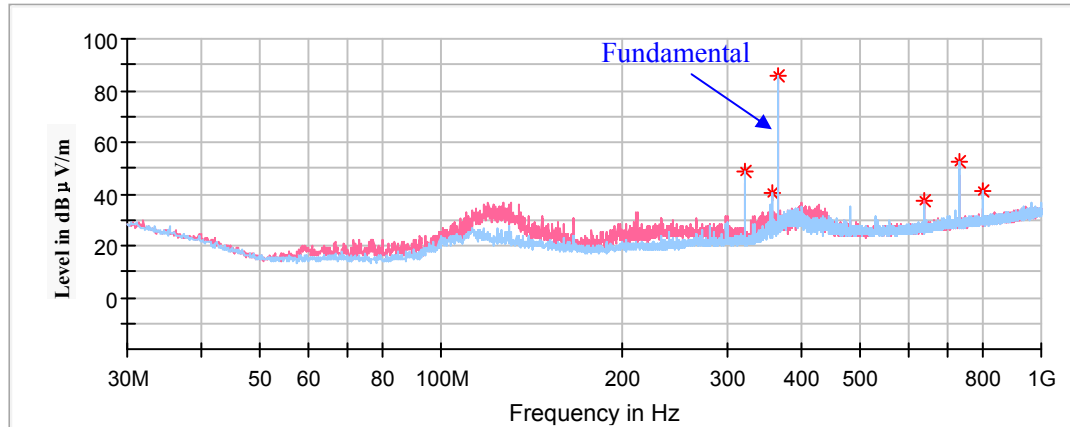
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

High Channel: 364.99MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBµV/m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
320.03	48.84	100	H	160	-10.1	58.20	9.36
357.01	40.61	100	H	230	-9.1	58.20	17.59
364.99	85.74	100	H	17	-8.9	98.20	12.46
640.01	37.09	100	V	233	-4.4	58.20	21.11
729.98	52.60	100	H	7	-2.8	78.20	25.60
800.06	40.85	100	H	165	-1.7	58.20	17.35

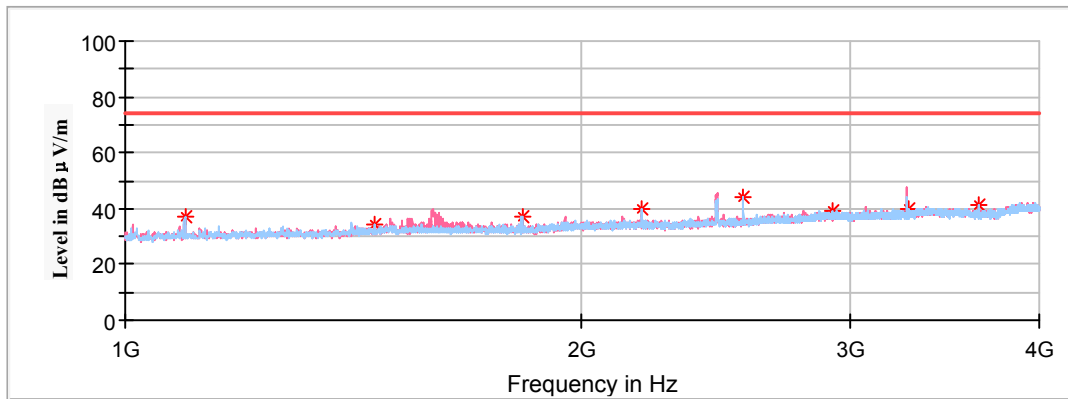
Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBµV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBµV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBµV/m)	Margin (dB)
364.99	85.74	100	H	-13.98	71.76	78.20	6.44
729.98	52.60	100	H	-13.98	38.62	58.20	19.58

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)

Full Spectrum



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1094.97	37.24	150	H	21	-9.9	74.00	36.76
1459.96	34.20	150	H	39	-7.8	74.00	39.80
1824.95	37.31	100	H	19	-6.4	78.20	40.89
2189.94	40.00	150	H	1	-5.2	78.20	38.20
2554.93	44.31	100	H	32	-4	78.20	33.89
2919.92	39.21	200	H	165	-2.1	78.20	38.99
3284.91	39.98	150	H	21	-1.2	78.20	38.22
3649.90	41.17	100	H	86	-0.3	74.00	32.83

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dB μ V/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dB μ V/m)	FCC Part 15.231(b)/205/209	
						Limit (dB μ V/m)	Margin (dB)
1094.97	37.24	150	H	-13.98	23.26	54.00	30.74
1459.96	34.20	150	H	-13.98	20.22	54.00	33.78
1824.95	37.31	100	H	-13.98	23.33	58.20	34.87
2189.94	40.00	150	H	-13.98	26.02	58.20	32.18
2554.93	44.31	100	H	-13.98	30.33	58.20	27.87
2919.92	39.21	200	H	-13.98	25.23	58.20	32.97
3284.91	39.98	150	H	-13.98	26.00	58.20	32.20
3649.90	41.17	100	H	-13.98	27.19	54.00	26.81

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

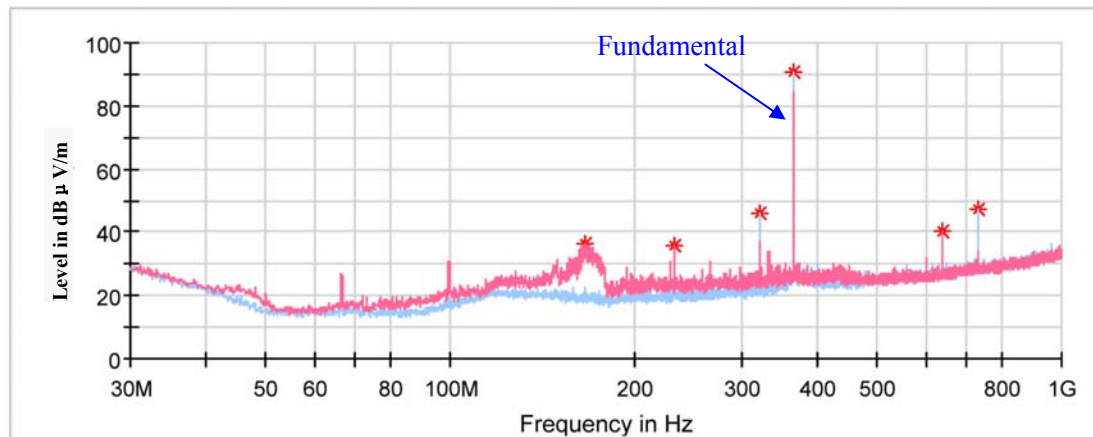
For 375MHz Band:

For GFSK Modulation:

Low Channel: 365.0MHz

30MHz-1GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV/m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
166.65	36.36	100.0	V	162.0	-13.0	43.50	7.14
232.37	35.87	100.0	V	325.0	-12.2	58.20	22.33
320.03	45.78	100.0	H	358.0	-10.1	58.20	12.42
365.00	90.23	100.0	H	0.0	-8.9	98.20	7.97
640.01	40.08	100.0	H	298.0	-4.4	58.20	18.12
730.00	47.42	100.0	H	358.0	-2.8	78.20	30.78

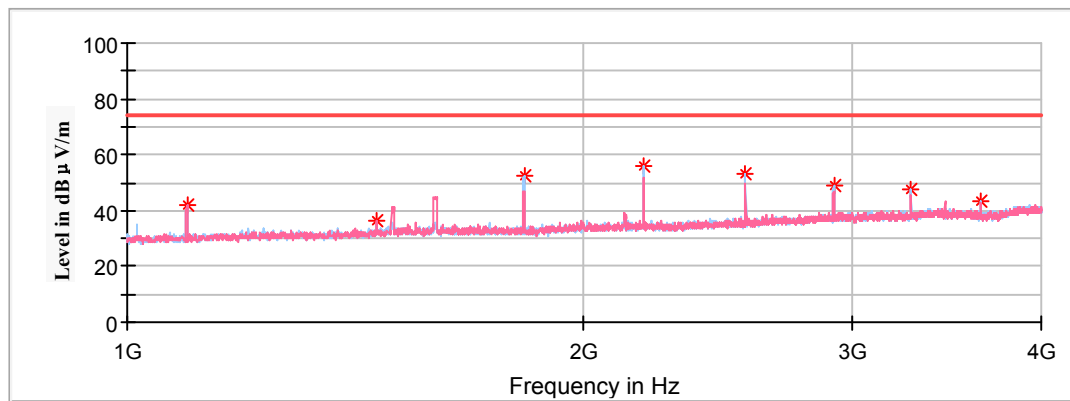
Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
365.00	90.23	100.0	H	-13.98	76.25	78.20	1.95
730.00	47.42	100.0	H	-13.98	33.44	58.20	24.76

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)

Full Spectrum



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1095.00	41.99	100.0	V	61.0	-9.9	74.00	32.01
1460.00	36.66	100.0	V	245.0	-7.8	74.00	37.34
1825.00	52.71	150.0	H	158.0	-6.4	78.20	25.49
2190.00	56.28	100.0	H	176.0	-5.2	78.20	21.92
2555.00	53.15	150.0	H	141.0	-4.0	78.20	25.05
2920.00	49.14	100.0	H	106.0	-2.1	78.20	29.06
3285.00	47.64	200.0	H	193.0	-1.2	78.20	30.56
3650.00	43.03	100.0	H	5.0	-0.3	74.00	30.97

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1095.00	41.99	100.0	V	-13.98	28.01	54.00	25.99
1460.00	36.66	100.0	V	-13.98	22.68	54.00	31.32
1825.00	52.71	150.0	H	-13.98	38.73	58.20	19.47
2190.00	56.28	100.0	H	-13.98	42.30	58.20	15.90
2555.00	53.15	150.0	H	-13.98	39.17	58.20	19.03
2920.00	49.14	100.0	H	-13.98	35.16	58.20	23.04
3285.00	47.64	200.0	H	-13.98	33.66	58.20	24.54
3650.00	43.03	100.0	H	-13.98	29.05	54.00	24.95

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

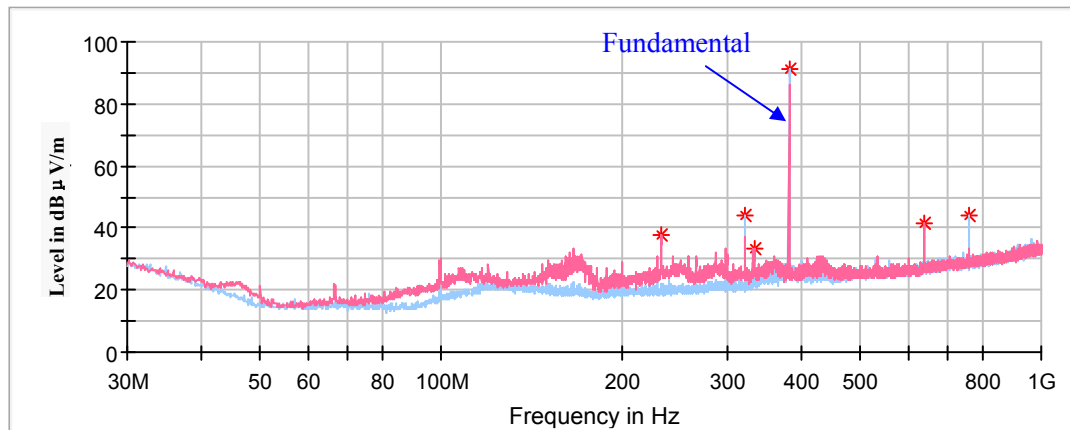
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

Middle Channel: 380.0MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBµV/m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
232.37	37.60	100.0	V	13.0	-12.2	58.84	21.24
320.03	44.04	100.0	H	4.0	-10.1	58.84	14.80
333.25	33.25	100.0	V	150.0	-9.8	46.00	12.75
380.00	91.22	100.0	H	19.0	-8.6	98.84	7.62
640.01	41.41	100.0	V	299.0	-4.4	58.84	17.43
760.00	44.27	100.0	H	9.0	-2.3	78.84	34.57

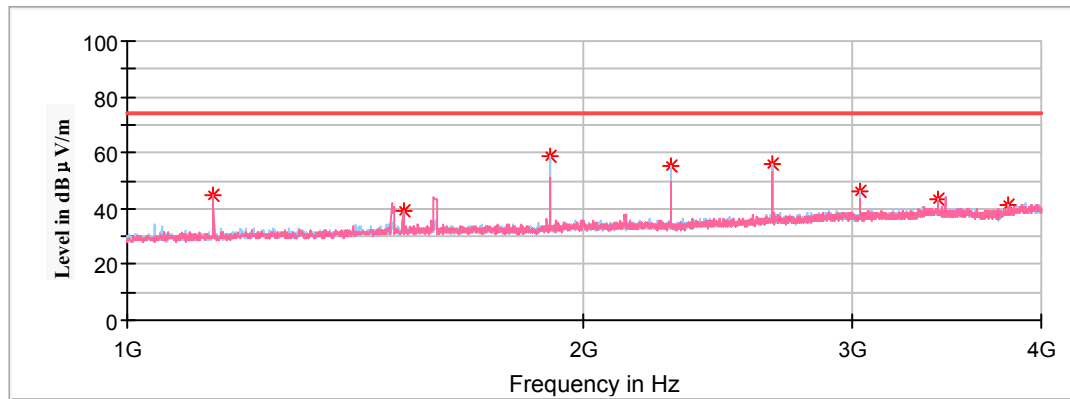
Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBµV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBµV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBµV/m)	Margin (dB)
380.00	91.22	100.0	H	-13.98	77.24	78.84	1.60
760.00	44.27	100.0	H	-13.98	30.29	58.84	28.55

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)

Full Spectrum



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1140.00	44.55	100.0	V	98.0	-9.7	74.00	29.45
1520.00	39.51	200.0	H	129.0	-7.5	74.00	34.49
1900.00	58.61	100.0	H	124.0	-6.1	78.84	20.23
2280.00	55.18	100.0	H	105.0	-5.0	74.00	18.82
2660.00	55.60	100.0	H	115.0	-3.5	78.84	23.24
3040.00	46.33	200.0	H	101.0	-1.6	78.84	32.51
3420.00	43.56	150.0	H	187.0	-0.9	78.84	35.28
3800.00	41.07	200.0	H	147.0	0.2	74.00	32.93

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dB μ V/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dB μ V/m)	FCC Part 15.231(b)/205/209	
						Limit (dB μ V/m)	Margin (dB)
1140.00	44.55	100.0	V	-13.98	30.57	54.00	23.43
1520.00	39.51	200.0	H	-13.98	25.53	54.00	28.47
1900.00	58.61	100.0	H	-13.98	44.63	58.84	14.21
2280.00	55.18	100.0	H	-13.98	41.20	54.00	12.80
2660.00	55.60	100.0	H	-13.98	41.62	58.84	17.22
3040.00	46.33	200.0	H	-13.98	32.35	58.84	26.49
3420.00	43.56	150.0	H	-13.98	29.58	58.84	29.26
3800.00	41.07	200.0	H	-13.98	27.09	54.00	26.91

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

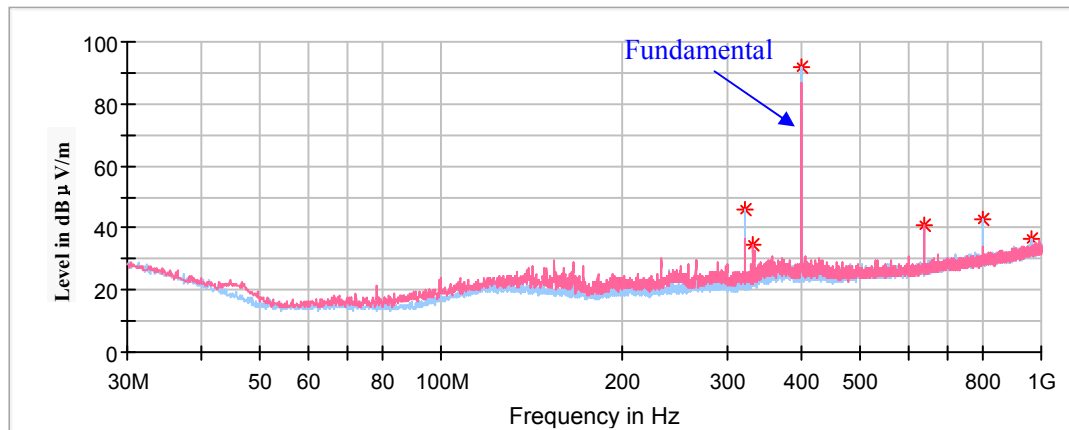
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

High Channel: 399.5MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



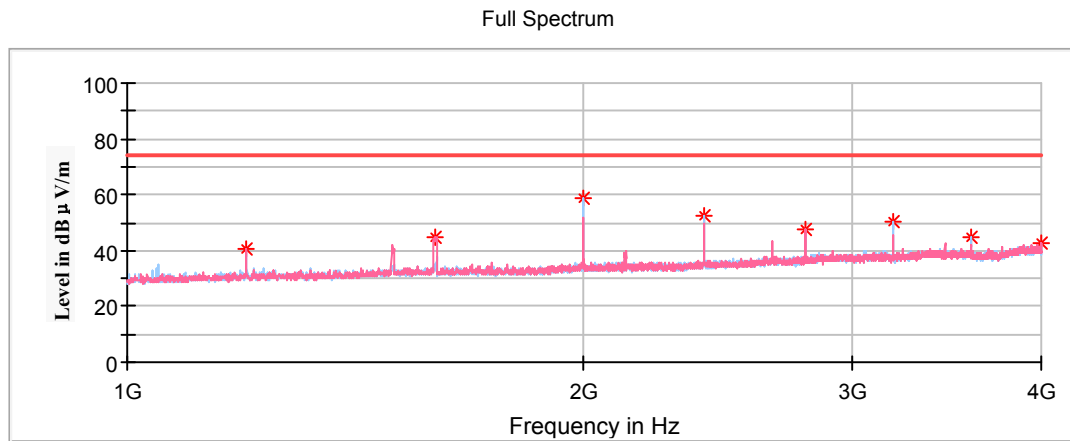
Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
320.03	45.77	100.0	H	344.0	-10.1	59.61	13.84
331.79	34.39	100.0	V	178.0	-9.8	46.00	11.61
399.50	91.34	100.0	H	236.0	-8.2	99.61	8.27
640.01	40.57	100.0	V	119.0	-4.4	59.61	19.04
799.00	42.86	100.0	H	231.0	-1.7	79.61	36.75
960.11	36.29	100.0	H	1.0	1.5	54.00	17.71

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
399.50	91.34	100.0	H	-13.98	77.36	79.61	2.25
799.00	42.86	100.0	H	-13.98	28.88	59.61	30.73

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1198.50	40.26	200.0	V	232.0	-9.3	74.00	33.74
1598.00	44.88	200.0	V	178.0	-7.2	74.00	29.12
1997.50	58.91	200.0	H	132.0	-5.8	79.61	20.70
2397.00	52.33	200.0	H	140.0	-4.6	79.61	27.28
2796.50	47.67	150.0	H	116.0	-2.7	74.00	26.33
3196.00	50.21	150.0	H	194.0	-1.3	79.61	29.40
3595.50	44.50	200.0	H	218.0	-0.5	79.61	35.11
3995.00	42.90	200.0	V	327.0	0.8	74.00	31.10

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1198.50	40.26	200.0	V	-13.98	26.28	54.00	27.72
1598.00	44.88	200.0	V	-13.98	30.90	54.00	23.10
1997.50	58.91	200.0	H	-13.98	44.93	59.61	14.68
2397.00	52.33	200.0	H	-13.98	38.35	59.61	21.26
2796.50	47.67	150.0	H	-13.98	33.69	54.00	20.31
3196.00	50.21	150.0	H	-13.98	36.23	59.61	23.38
3595.50	44.50	200.0	H	-13.98	30.52	59.61	29.09
3995.00	42.90	200.0	V	-13.98	28.92	54.00	25.08

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

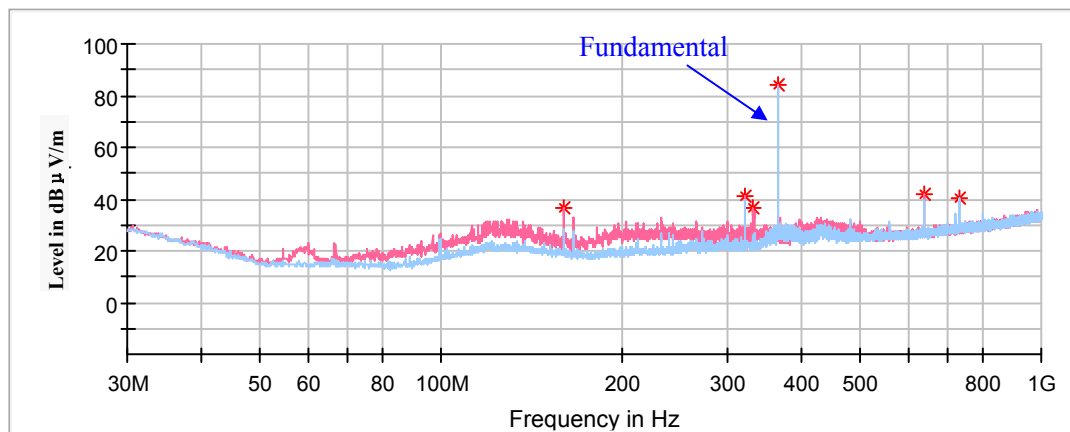
Note 2:

Calculate Average value based on Duty Cycle correction factor:

The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

For OOK Modulation:**Low Channel: 365.0MHz****30MHz-1GHz***(Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded.)*

Frequency (MHz)	Corrected Amplitude MaxPeak (dBµV/m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
159.98	36.46	100	V	81	-12.7	58.20	21.74
320.03	40.98	100	V	35	-10.1	58.20	17.22
331.91	36.25	100	V	122	-9.8	46.00	9.75
365.00	84.04	200	V	37	-8.9	98.20	14.16
640.01	41.66	100	V	277	-4.4	58.20	16.54
730.00	40.52	100	H	339	-2.8	58.20	17.68

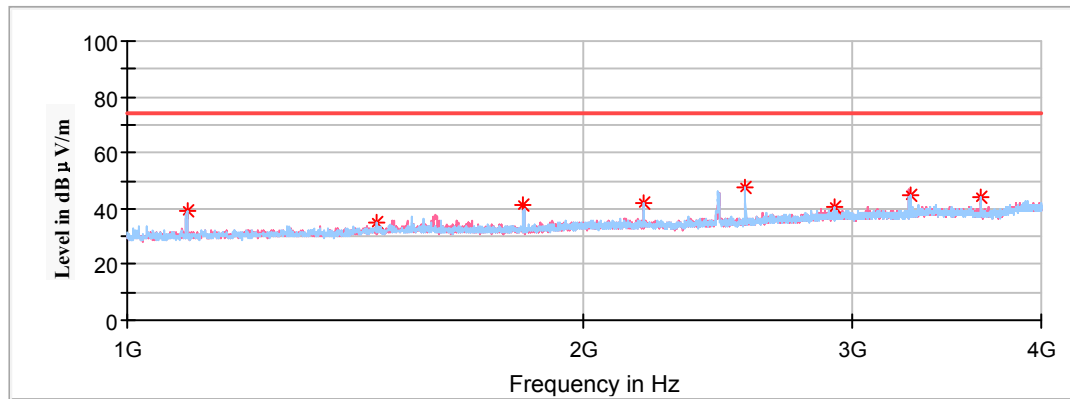
Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBµV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBµV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBµV/m)	Margin (dB)
365.00	84.04	200	V	-13.98	70.06	78.20	8.14
730.00	40.52	100	H	-13.98	26.54	58.20	31.66

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)

Full Spectrum



Frequency (MHz)	Corrected Amplitude MaxPeak (dBµV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1095.00	39.45	150	H	21	-9.9	74.00	34.55
1460.00	35.06	200	H	16	-7.8	74.00	38.94
1825.00	41.52	150	V	0	-6.4	78.20	36.68
2190.00	42.21	150	H	21	-5.2	78.20	35.99
2555.00	47.43	150	H	56	-4	78.20	30.77
2920.00	40.43	150	H	47	-2.1	78.20	37.77
3285.00	44.60	200	H	229	-1.2	78.20	33.60
3650.00	43.90	150	H	358	-0.3	74.00	30.10

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dB μ V/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dB μ V/m)	FCC Part 15.231(b)/205/209	
						Limit (dB μ V/m)	Margin (dB)
1095.00	39.45	150	H	-13.98	25.47	54.00	28.53
1460.00	35.06	200	H	-13.98	21.08	54.00	32.92
1825.00	41.52	150	V	-13.98	27.54	58.20	30.66
2190.00	42.21	150	H	-13.98	28.23	58.20	29.97
2555.00	47.43	150	H	-13.98	33.45	58.20	24.75
2920.00	40.43	150	H	-13.98	26.45	58.20	31.75
3285.00	44.60	200	H	-13.98	30.62	58.20	27.58
3650.00	43.90	150	H	-13.98	29.92	54.00	24.08

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

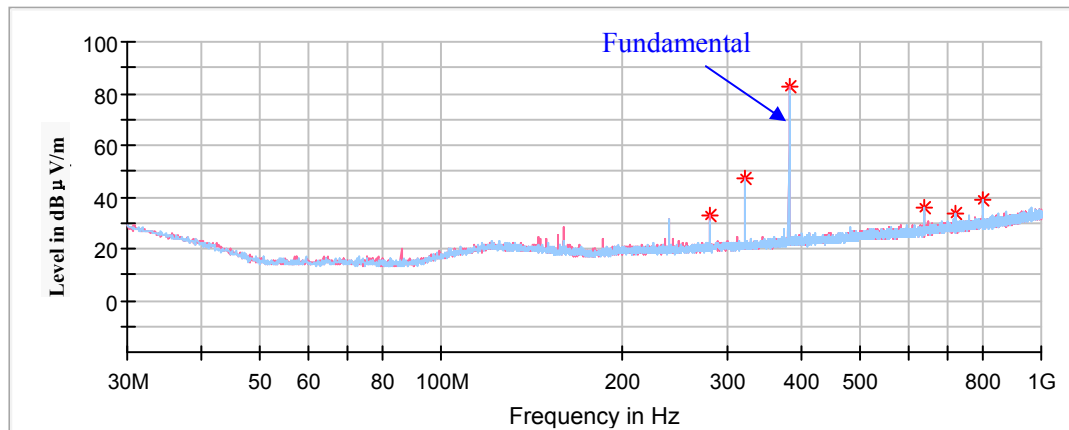
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

Middle Channel: 380.0MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



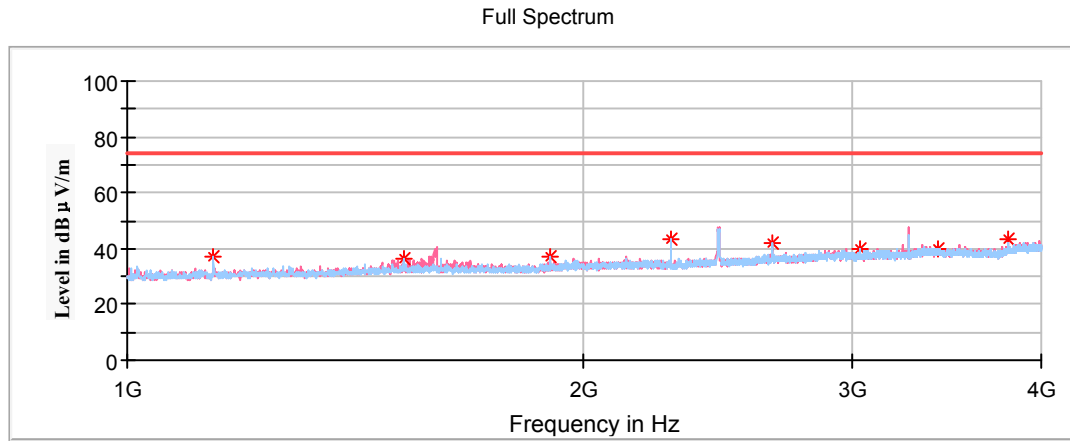
Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV/m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
280.02	32.54	100	V	77	-11.1	46.00	13.46
320.03	46.87	200	V	80	-10.1	58.84	11.97
380.00	82.70	100	V	118	-8.6	98.84	16.14
640.01	35.70	100	H	0	-4.4	58.84	23.14
760.00	33.41	100	H	184	-2.9	78.84	45.43
800.06	39.07	100	H	143	-1.7	58.84	19.77

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
380.00	82.70	100	V	-13.98	68.72	78.84	10.12
760.00	33.41	100	H	-13.98	19.43	58.84	39.41

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1140.00	36.92	200	H	359	-9.7	74.00	37.08
1520.00	36.47	100	H	33	-7.5	74.00	37.53
1900.00	36.73	200	H	123	-6.1	78.84	42.11
2280.00	43.67	200	H	5	-5	74.00	30.33
2660.00	42.00	200	H	346	-3.5	78.84	36.84
3040.00	39.59	150	H	135	-1.6	78.84	39.25
3420.00	39.91	150	H	335	-0.9	78.84	38.93
3800.00	43.67	100	V	0	0.2	74.00	30.33

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dB μ V/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dB μ V/m)	FCC Part 15.231(b)/205/209	
						Limit (dB μ V/m)	Margin (dB)
1140.00	36.92	200	H	-13.98	22.94	54.00	31.06
1520.00	36.47	100	H	-13.98	22.49	54.00	31.51
1900.00	36.73	200	H	-13.98	22.75	58.84	36.09
2280.00	43.67	200	H	-13.98	29.69	54.00	24.31
2660.00	42.00	200	H	-13.98	28.02	58.84	30.82
3040.00	39.59	150	H	-13.98	25.61	58.84	33.23
3420.00	39.91	150	H	-13.98	25.93	58.84	32.91
3800.00	43.67	100	V	-13.98	29.69	54.00	24.31

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

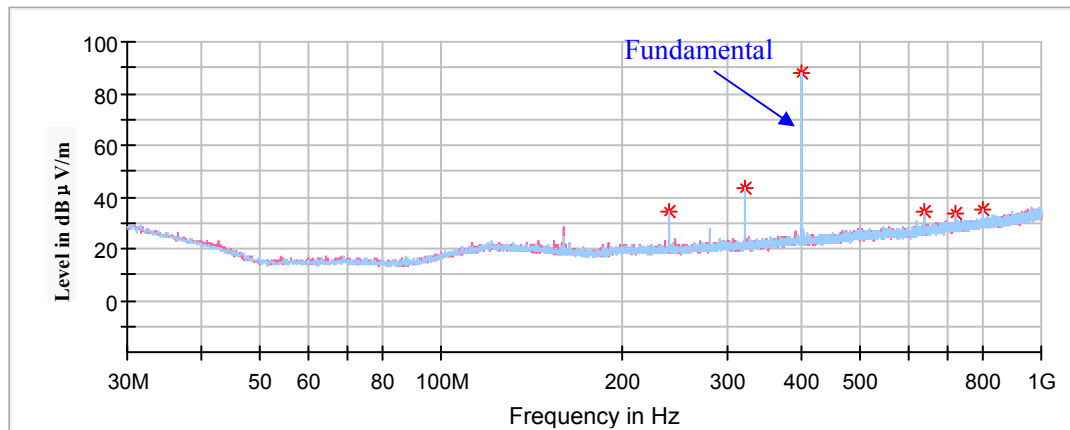
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

High Channel: 399.5MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



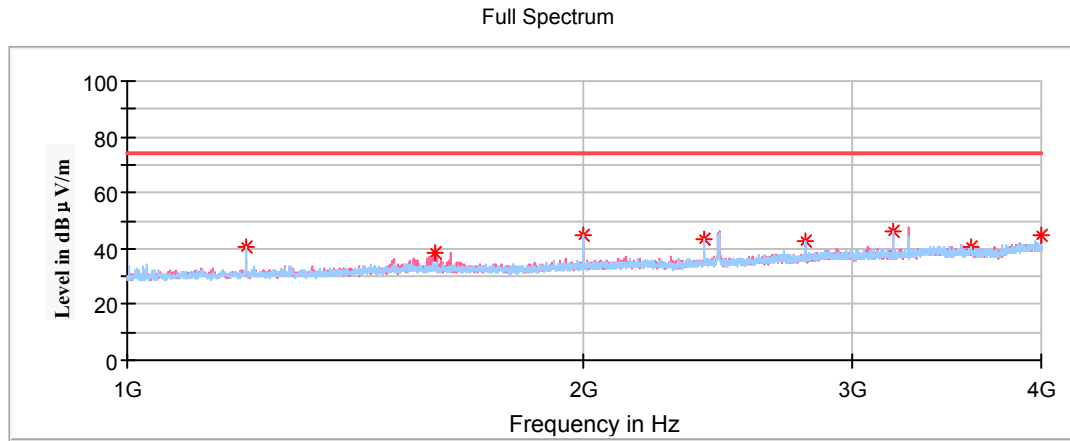
Frequency (MHz)	Corrected Amplitude MaxPeak (dBµV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
240.01	34.05	100	V	42	-12.1	46.00	11.95
320.03	43.35	100	H	107	-10.1	59.61	16.26
399.50	87.98	100	H	331	-8.2	99.61	11.63
640.01	34.00	100	H	10	-4.4	59.61	25.61
720.03	33.72	100	H	123	-2.9	59.61	25.89
799.00	34.91	200	H	2	-1.7	79.61	44.7

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBµV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBµV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBµV/m)	Margin (dB)
399.50	87.98	100	H	-13.98	74.00	79.61	5.61
799.00	34.91	200	H	-13.98	20.93	59.61	38.68

1GHz-4GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dB μ V /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1198.50	40.45	100	H	9	-9.3	74.00	33.55
1598.00	38.73	200	V	191	-7.2	74.00	35.27
1997.50	44.60	200	H	19	-5.8	79.61	35.01
2397.00	43.32	150	H	355	-4.6	79.61	36.29
2796.50	42.48	200	H	41	-2.7	74.00	31.52
3196.00	46.26	200	H	354	-1.3	79.61	33.35
3595.50	40.55	100	H	338	-0.5	79.61	39.06
3995.00	44.43	200	V	21	0.8	74.00	29.57

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1198.50	40.45	100	H	-13.98	26.47	54.00	27.53
1598.00	38.73	200	V	-13.98	24.75	54.00	29.25
1997.50	44.60	200	H	-13.98	30.62	59.61	28.99
2397.00	43.32	150	H	-13.98	29.34	59.61	30.27
2796.50	42.48	200	H	-13.98	28.50	54.00	25.50
3196.00	46.26	200	H	-13.98	32.28	59.61	27.33
3595.50	40.55	100	H	-13.98	26.57	59.61	33.04
3995.00	44.43	200	V	-13.98	30.45	54.00	23.55

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

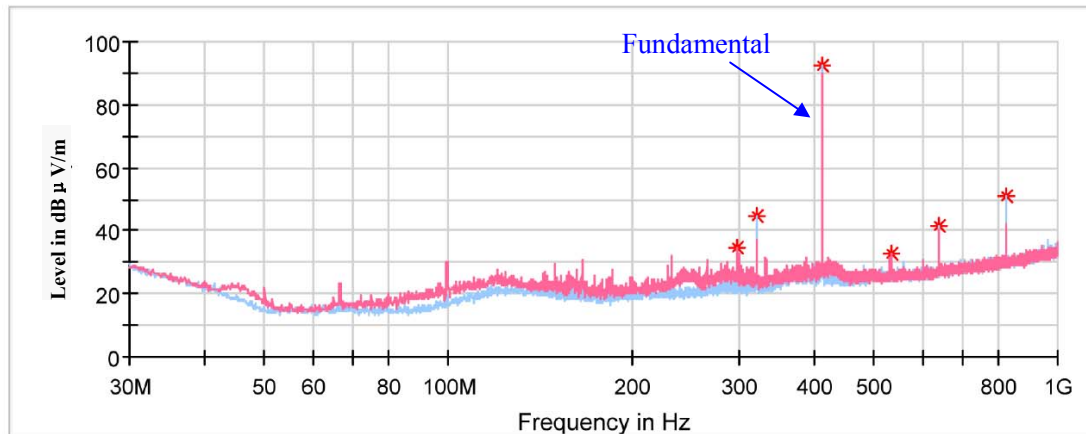
For 434MHz Band:

For GFSK Modulation:

Low Channel: 410.5MHz

30MHz-1GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV/m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
298.69	34.89	100.0	V	145.0	-10.5	60.02	25.13
320.03	44.60	100.0	H	121.0	-10.1	60.02	15.42
410.50	92.21	100.0	H	242.0	-8.0	100.02	7.81
532.58	33.02	100.0	V	103.0	-5.8	60.02	27.00
640.01	41.24	100.0	H	293.0	-4.4	60.02	18.78
821.00	50.75	100.0	H	258.0	-1.4	80.02	29.27

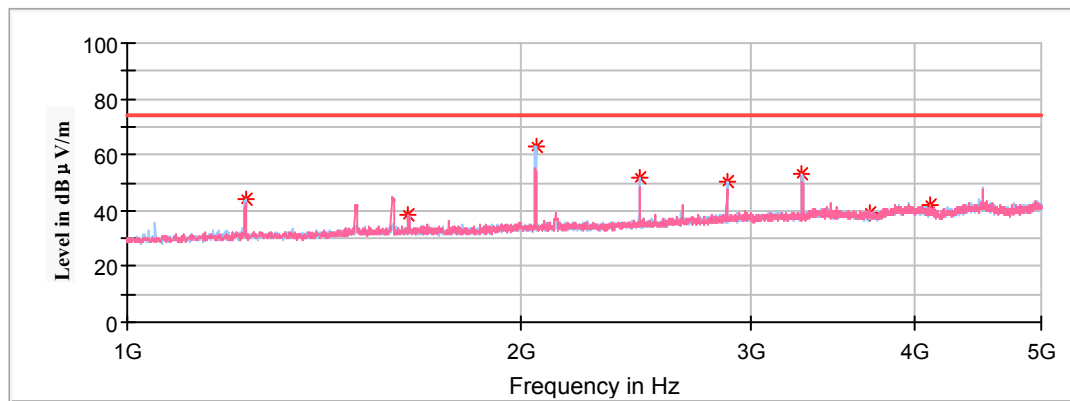
Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
410.50	92.21	100.0	H	-13.98	78.23	80.02	1.79
821.00	50.75	100.0	H	-13.98	36.77	60.02	23.25

1GHz-5GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)

Full Spectrum



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1231.50	44.38	100.0	H	358.0	-9.1	74.00	29.62
1642.00	38.79	100.0	H	187.0	-7.1	80.02	41.23
2052.50	62.96	100.0	H	123.0	-5.6	80.02	17.06
2463.00	51.40	100.0	H	142.0	-4.4	80.02	28.62
2873.50	50.04	100.0	H	114.0	-2.3	74.00	23.96
3284.00	53.48	100.0	H	205.0	-1.2	80.02	26.54
3694.50	39.50	200.0	V	251.0	-0.2	74.00	34.50
4105.00	41.72	200.0	V	3.0	0.9	74.00	32.28

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1231.50	44.38	100.0	H	-13.98	30.40	54.00	23.60
1642.00	38.79	100.0	H	-13.98	24.81	60.02	35.21
2052.50	62.96	100.0	H	-13.98	48.98	60.02	11.04
2463.00	51.40	100.0	H	-13.98	37.42	60.02	22.60
2873.50	50.04	100.0	H	-13.98	36.06	54.00	17.94
3284.00	53.48	100.0	H	-13.98	39.50	60.02	20.52
3694.50	39.50	200.0	V	-13.98	25.52	54.00	28.48
4105.00	41.72	200.0	V	-13.98	27.74	54.00	26.26

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

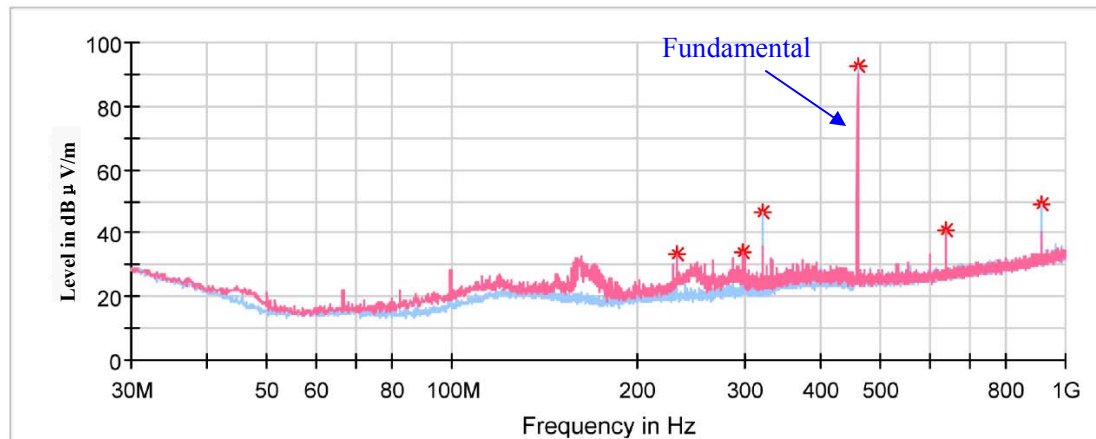
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

Middle Channel: 458.0MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV/m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
232.37	33.51	100.0	V	318.0	-12.2	61.58	28.07
298.69	33.91	100.0	V	189.0	-10.5	61.58	27.67
320.03	46.37	100.0	H	0.0	-10.1	61.58	15.21
458.00	93.40	200.0	H	295.0	-7.2	101.58	8.18
640.01	41.15	100.0	V	323.0	-4.4	61.58	20.43
916.00	49.25	200.0	H	295.0	0.4	81.58	32.33

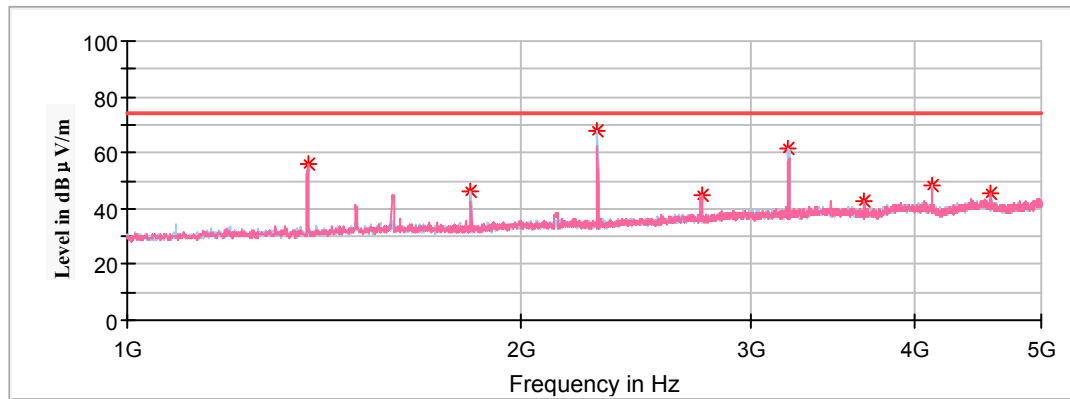
Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
458.00	93.40	200.0	H	-13.98	79.42	81.58	2.16
916.00	49.25	200.0	H	-13.98	35.27	61.58	26.31

1GHz-5GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)

Full Spectrum



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1374.00	56.08	150.0	V	243.0	-8.3	74.00	17.92
1832.00	46.34	150.0	H	133.0	-6.4	81.58	35.24
2290.00	67.56	100.0	H	105.0	-4.9	74.00	6.44
2748.00	44.94	150.0	H	142.0	-3.0	74.00	29.06
3206.00	61.65	150.0	H	178.0	-1.3	81.58	19.93
3664.00	42.89	200.0	H	180.0	-0.3	74.00	31.11
4122.00	48.13	100.0	H	160.0	1.0	74.00	25.87
4580.00	45.35	150.0	V	350.0	1.5	74.00	28.65

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1374.00	56.08	150.0	V	-13.98	42.10	54.00	11.90
1832.00	46.34	150.0	H	-13.98	32.36	58.84	26.48
2290.00	67.56	100.0	H	-13.98	53.58	54.00	0.42
2748.00	44.94	150.0	H	-13.98	30.96	54.00	23.04
3206.00	61.65	150.0	H	-13.98	47.67	58.84	11.17
3664.00	42.89	200.0	H	-13.98	28.91	54.00	25.09
4122.00	48.13	100.0	H	-13.98	34.15	54.00	19.85
4580.00	45.35	150.0	V	-13.98	31.37	54.00	22.63

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

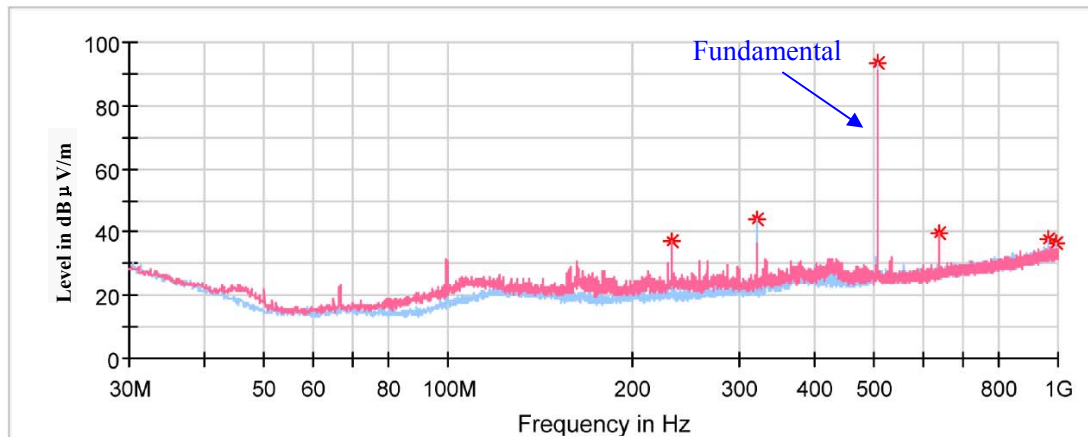
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

High Channel: 505.5MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
232.37	37.13	100.0	V	184.0	-12.2	61.94	24.81
320.03	44.22	100.0	H	0.0	-10.1	61.94	17.72
505.50	93.63	200.0	H	307.0	-6.1	101.94	8.31
640.01	39.33	100.0	V	111.0	-4.4	61.94	22.61
960.11	38.02	100.0	H	359.0	1.5	54.00	15.98
990.42	36.38	100.0	H	180.0	2.1	54.00	17.62

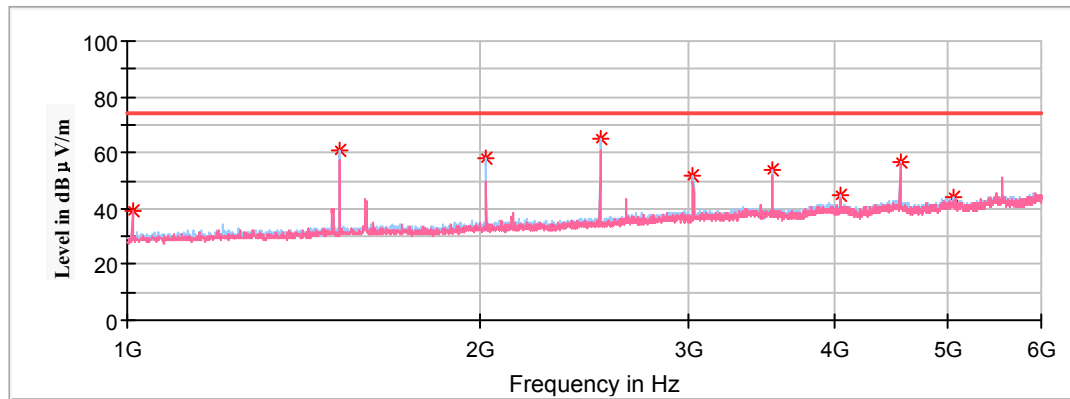
Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
505.50	93.63	200.0	H	-13.98	79.65	81.94	2.29

1GHz-6GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)

Full Spectrum



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1011.00	39.12	100.0	V	52.0	-10.4	74.00	34.88
1516.50	61.06	150.0	H	172.0	-7.5	74.00	12.94
2022.00	58.20	100.0	H	130.0	-5.7	81.94	23.74
2527.50	65.05	100.0	H	111.0	-4.2	81.94	16.89
3033.00	52.06	100.0	H	111.0	-1.6	81.94	29.88
3538.50	53.80	100.0	H	212.0	-0.7	81.94	28.14
4044.00	44.86	100.0	H	166.0	0.9	74.00	29.14
4549.50	56.54	100.0	H	166.0	1.5	74.00	17.46
5055.00	43.87	100.0	H	111.0	2.3	74.00	30.13

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1011.00	39.12	100.0	V	-13.98	25.14	54.00	28.86
1516.50	61.06	150.0	H	-13.98	47.08	54.00	6.92
2022.00	58.20	100.0	H	-13.98	44.22	61.94	17.72
2527.50	65.05	100.0	H	-13.98	51.07	61.94	10.87
3033.00	52.06	100.0	H	-13.98	38.08	61.94	23.86
3538.50	53.80	100.0	H	-13.98	39.82	61.94	22.12
4044.00	44.86	100.0	H	-13.98	30.88	54.00	23.12
4549.50	56.54	100.0	H	-13.98	42.56	54.00	11.44
5055.00	43.87	100.0	H	-13.98	25.14	54.00	28.86

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

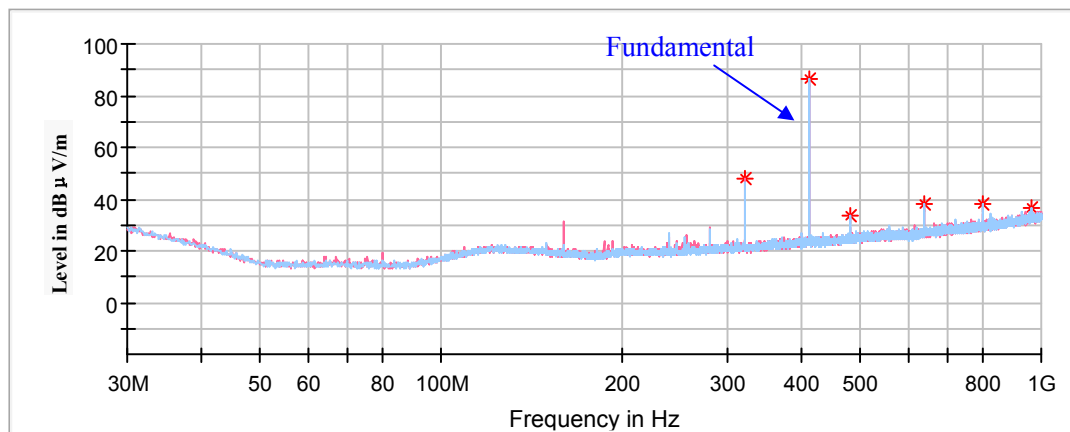
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

For OOK Modulation:**Low Channel: 410.5MHz****30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



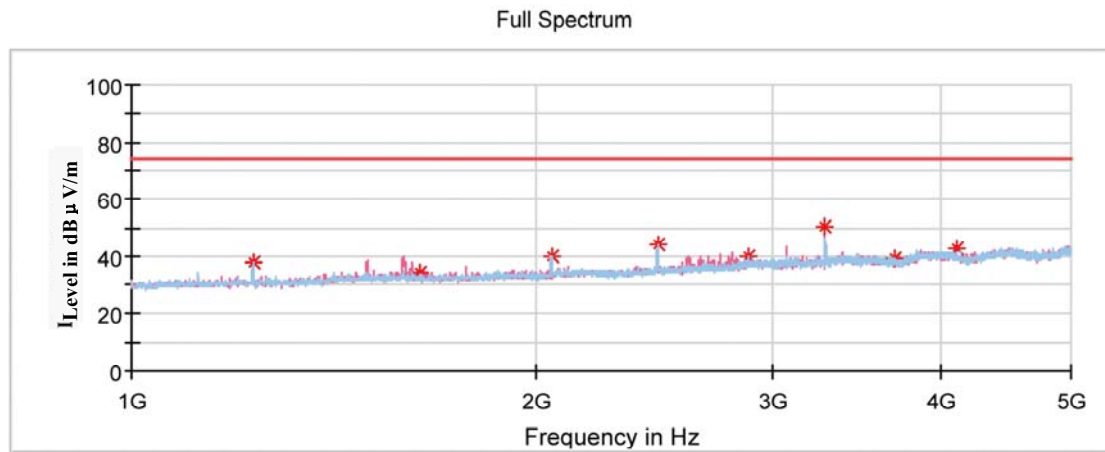
Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV/m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
320.03	47.60	200	V	304	-10.1	60.02	12.42
410.50	86.45	100	H	180	-8.0	100.02	13.57
479.96	33.35	200	H	4	-6.7	60.02	26.67
640.01	38.06	100	H	88	-4.4	60.02	21.96
821.00	38.44	100	H	318	-1.7	80.02	41.58
960.11	36.69	100	H	328	1.5	54.00	17.31

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
410.50	86.45	100	H	-13.98	72.47	80.02	7.55
821.00	38.44	100	H	-13.98	24.46	60.02	35.56

1GHz-5GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1231.50	37.96	100	H	9	-9.1	74.00	36.04
1642.00	34.51	100	V	349	-7.1	80.02	45.51
2052.50	39.95	200	H	307	-5.6	80.02	40.07
2463.00	43.91	100	H	0	-4.4	80.02	36.11
2873.50	40.14	100	H	352	-2.3	74.00	33.86
3284.00	50.27	150	V	96	-1.2	80.02	29.75
3694.50	39.04	100	H	338	-0.2	74.00	34.96
4105.00	42.44	200	V	358	0.9	74.00	31.56

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1231.50	37.96	100	H	-13.98	23.98	54.00	30.02
1642.00	34.51	100	V	-13.98	20.53	60.02	39.49
2052.50	39.95	200	H	-13.98	25.97	60.02	34.05
2463.00	43.91	100	H	-13.98	29.93	60.02	30.09
2873.50	40.14	100	H	-13.98	26.16	54.00	27.84
3284.00	50.27	150	V	-13.98	36.29	60.02	23.73
3694.50	39.04	100	H	-13.98	25.06	54.00	28.94
4105.00	42.44	200	V	-13.98	28.46	54.00	25.54

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

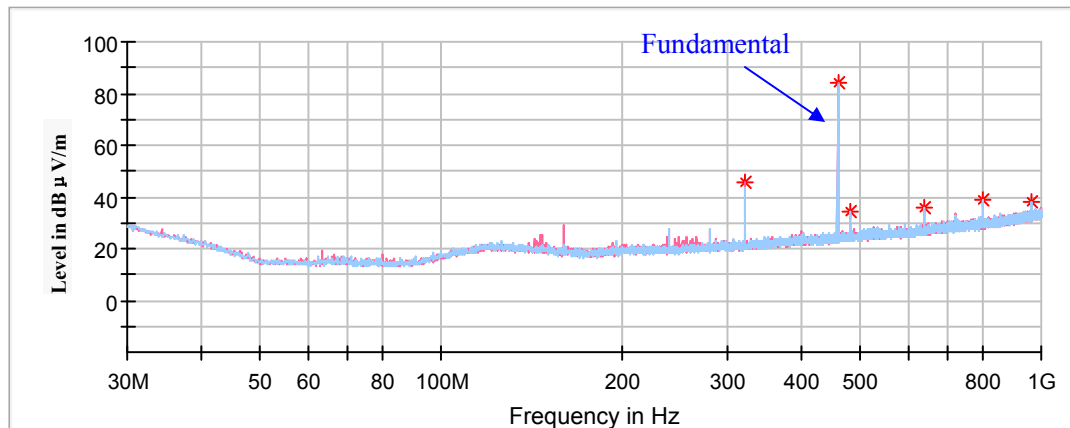
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

Middle Channel: 458.0MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



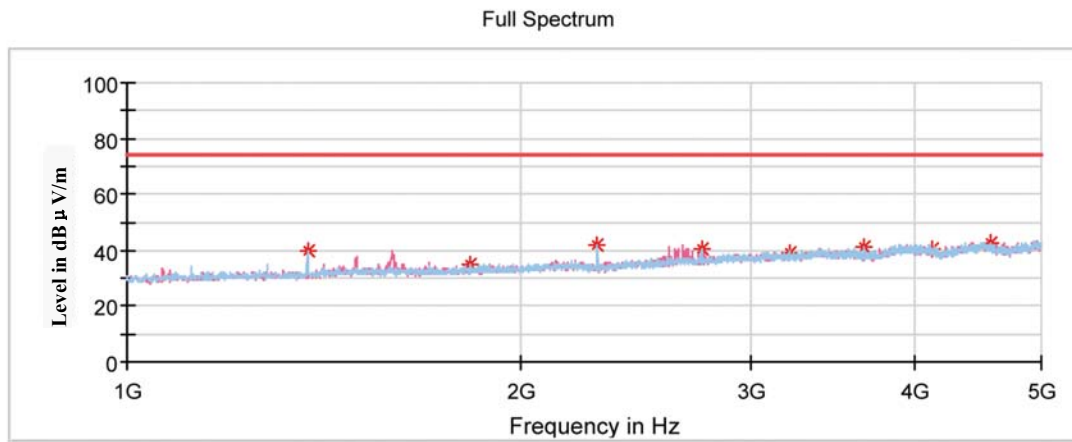
Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
320.03	45.76	200	V	24	-10.1	61.58	15.82
458.00	84.01	100	V	46	-7.2	101.58	17.57
479.96	34.29	200	H	191	-6.7	61.58	27.29
640.01	35.62	100	H	0	-4.4	61.58	25.96
800.06	39.23	100	H	331	-1.7	61.58	22.35
916.00	37.98	100	H	341	1.5	81.58	43.60

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
458.00	84.01	100	V	-13.98	70.03	81.58	11.55
916.00	37.98	100	H	-13.98	24.00	61.58	37.58

1GHz-5GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dB μ V /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1374.00	39.58	150	H	319	-8.3	74.00	34.42
1832.00	34.76	200	H	16	-6.4	81.58	46.82
2290.00	41.78	200	H	293	-4.9	74.00	32.22
2748.00	40.52	200	H	345	-3	74.00	33.48
3206.00	39.49	100	V	265	-1.3	81.58	42.09
3664.00	41.03	200	H	356	-0.3	74.00	32.97
4122.00	40.34	200	V	0	1	74.00	33.66
4580.00	42.73	150	H	301	1.5	74.00	31.27

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1374.00	39.58	150	H	-13.98	25.60	54.00	28.40
1832.00	34.76	200	H	-13.98	20.78	61.58	40.80
2290.00	41.78	200	H	-13.98	27.80	54.00	26.20
2748.00	40.52	200	H	-13.98	26.54	54.00	27.46
3206.00	39.49	100	V	-13.98	25.51	61.58	36.07
3664.00	41.03	200	H	-13.98	27.05	54.00	26.95
4122.00	40.34	200	V	-13.98	26.36	54.00	27.64
4580.00	42.73	150	H	-13.98	28.75	54.00	25.25

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

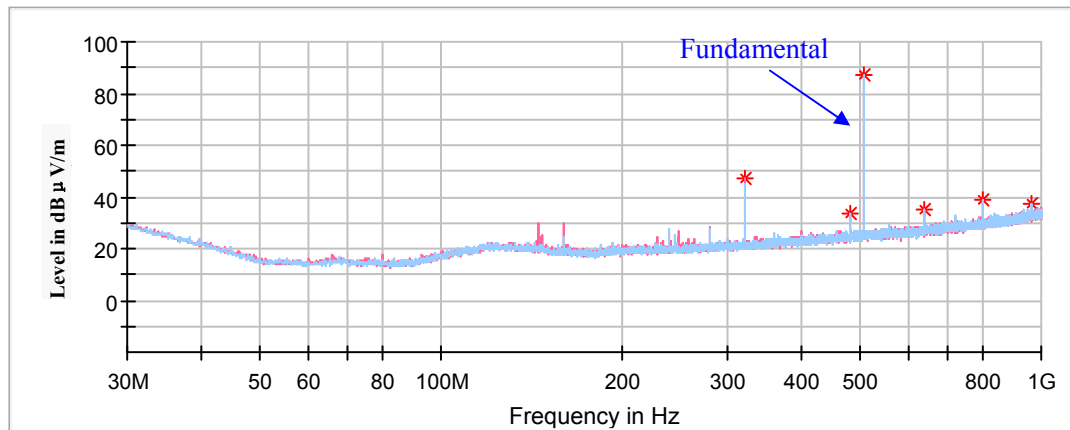
The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

High Channel: 505.5MHz**30MHz-1GHz**

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



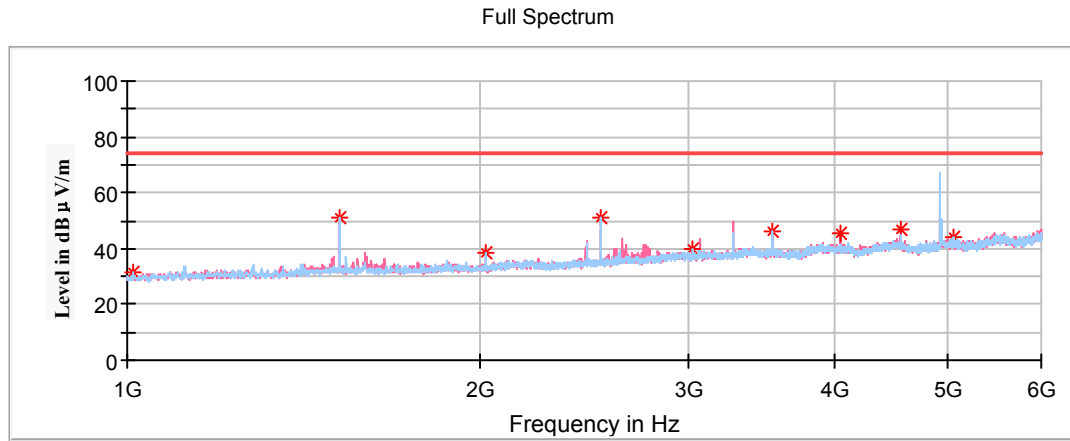
Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
320.03	46.90	200	V	335	-10.1	61.94	15.04
479.96	33.55	200	H	0	-6.7	61.94	28.39
505.50	87.09	200	H	239	-6.1	101.94	14.85
640.01	35.03	100	V	257	-4.4	61.94	26.91
800.06	39.07	200	H	311	-1.7	61.94	22.87
960.11	37.02	100	H	335	1.5	54.00	16.98

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
505.50	87.09	200	H	-13.98	73.11	81.94	8.83

1GHz-6GHz

(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)



Frequency (MHz)	Corrected Amplitude MaxPeak (dBμV /m)	Rx Antenna		Turntable Degree	Corrected Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
		Height (cm)	Polar (H/V)				
1011.00	31.79	100	H	51	-10.4	74.00	42.21
1516.50	51.16	200	H	5	-7.5	74.00	22.84
2022.00	38.48	200	H	304	-5.7	81.94	43.46
2527.50	51.09	200	H	304	-4.2	81.94	30.85
3033.00	39.64	100	H	180	-1.6	81.94	42.30
3538.50	46.1	200	V	180	-0.7	81.94	35.84
4044.00	45.23	200	V	317	0.9	74.00	28.77
4549.50	47.12	150	V	308	1.5	74.00	26.88
5055.00	44.26	150	H	341	2.3	74.00	29.74

Field Strength of Average Emission

Frequency (MHz)	Peak Measurement@3m (dBμV/m)	Height (cm)	Polar (H/V)	Duty Cycle Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.231(b)/205/209	
						Limit (dBμV/m)	Margin (dB)
1011.00	31.79	100	H	-13.98	17.81	54.00	36.19
1516.50	51.16	200	H	-13.98	37.18	54.00	16.82
2022.00	38.48	200	H	-13.98	24.50	61.94	37.44
2527.50	51.09	200	H	-13.98	37.11	61.94	24.83
3033.00	39.64	100	H	-13.98	25.66	61.94	36.28
3538.50	46.10	200	V	-13.98	32.12	61.94	29.82
4044.00	45.23	200	V	-13.98	31.25	54.00	22.75
4549.50	47.12	150	V	-13.98	33.14	54.00	20.86
5055.00	44.26	150	H	-13.98	30.28	54.00	23.72

Note 1:

Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV /m)

Note 2:

Calculate Average value based on Duty Cycle correction factor:

The manufacturer declared that the maximum duty cycle is 20%.

Duty Cycle Corrected Factor = $20 \times \log(20\%) = -13.98\text{dB}$

Average value = Peak value + Duty Cycle Corrected Factor

FCC §15.231(a) (2) - DEACTIVATION TESTING

Applicable Standard

Per FCC §15.231(a), (2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

Test Procedure

1. With the EUT's antenna attached, the waveform was received by the test antenna which was connected to the spectrum analyzer.
2. Set center frequency of spectrum analyzer=operating frequency.
3. Set the spectrum analyzer as RBW=100k VBW=300k Span=0Hz.
4. Repeat above procedures until all frequency measured was complete.

Test Data

Environmental Conditions

Temperature:	22.0-23.1 °C
Relative Humidity:	48-50 %
ATM Pressure:	101.0-101.1 kPa

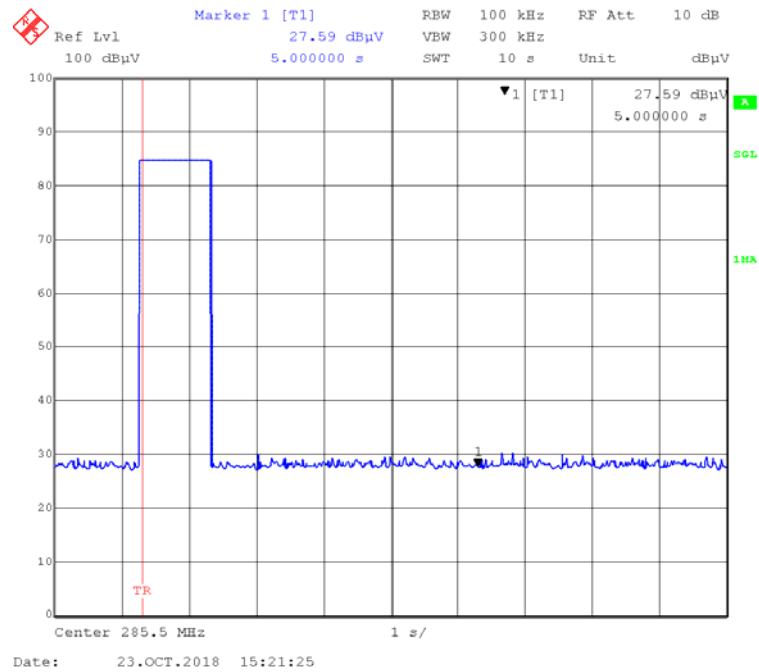
The testing was performed by Alisa Gao on 2018-10-23 to 2018-12-25.

Test mode: Transmitting

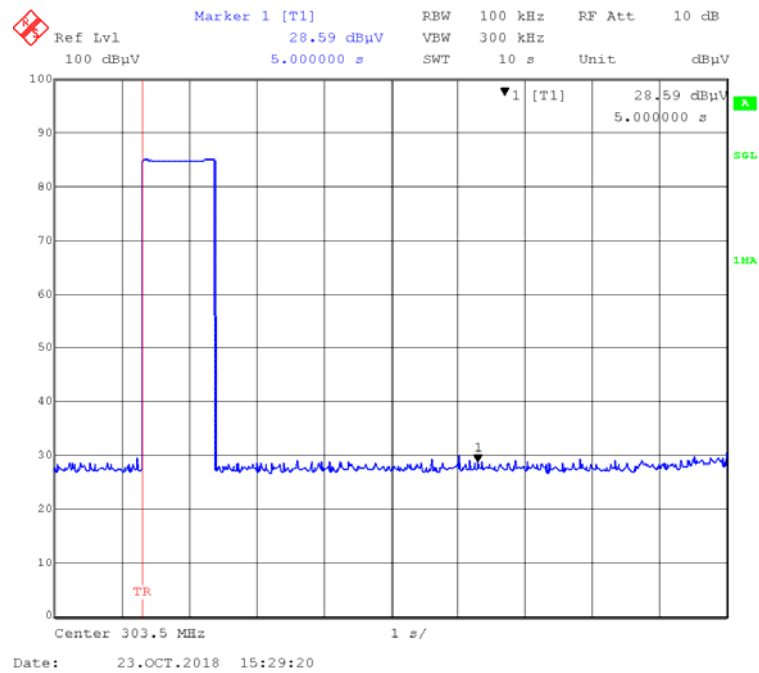
For 300MHz Band:

For GFSK Modulation

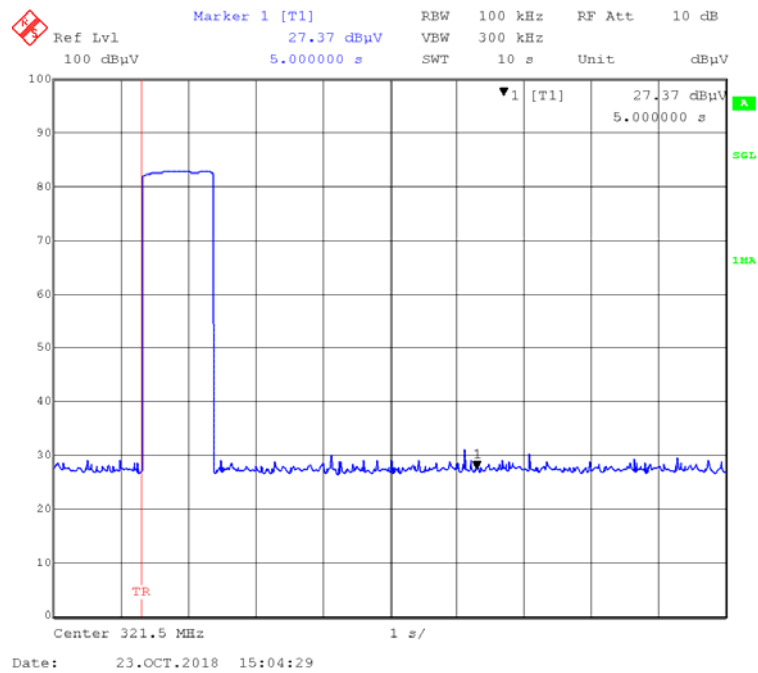
Low Channel, $T_{\text{Stop}} < 5\text{s}$



Middle Channel, $T_{\text{Stop}} < 5\text{s}$

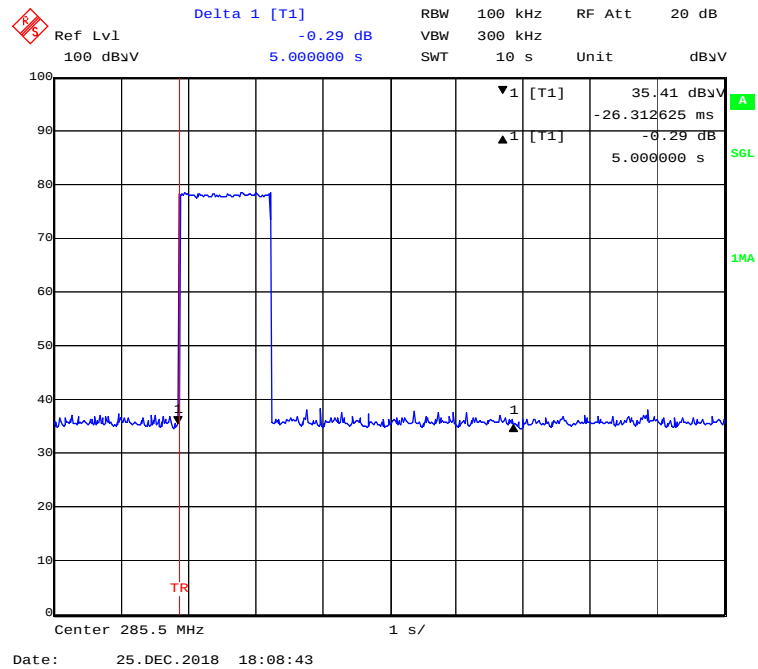


High Channel, $T_{\text{Stop}} < 5\text{s}$

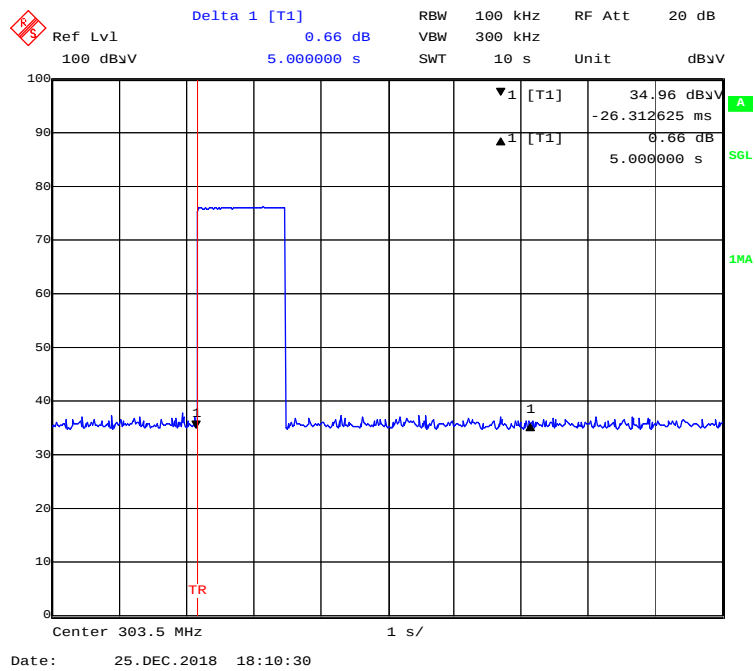


For OOK Modulation

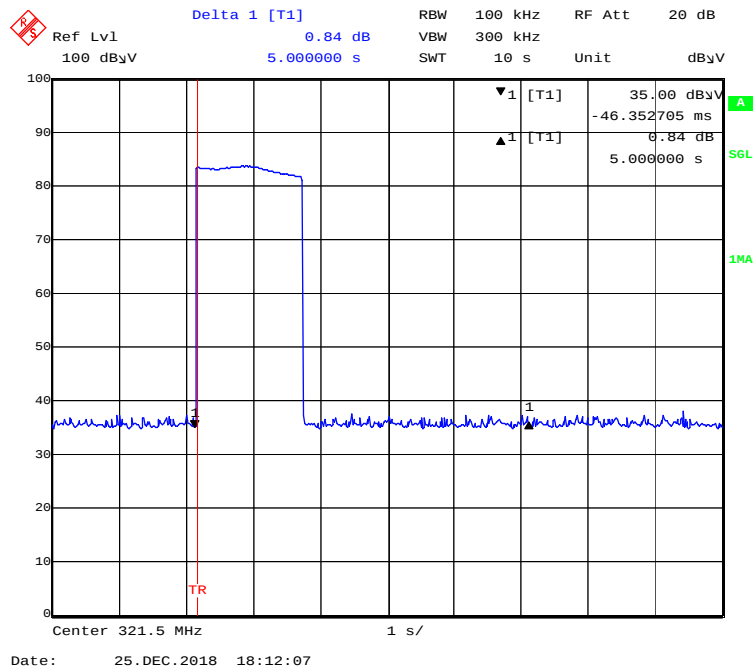
Low Channel, $T_{\text{Stop}} < 5\text{s}$



Middle Channel, $T_{\text{Stop}} < 5\text{s}$



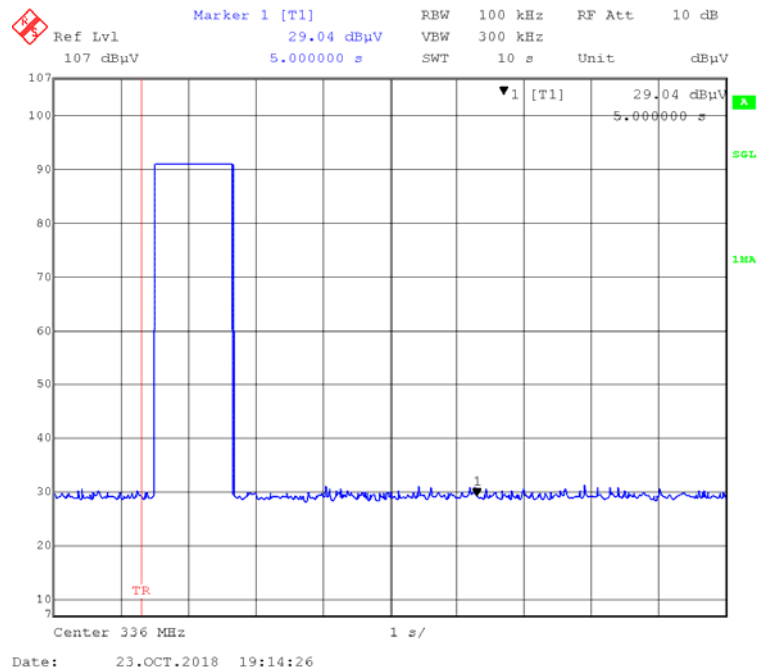
High Channel, $T_{\text{Stop}} < 5\text{s}$



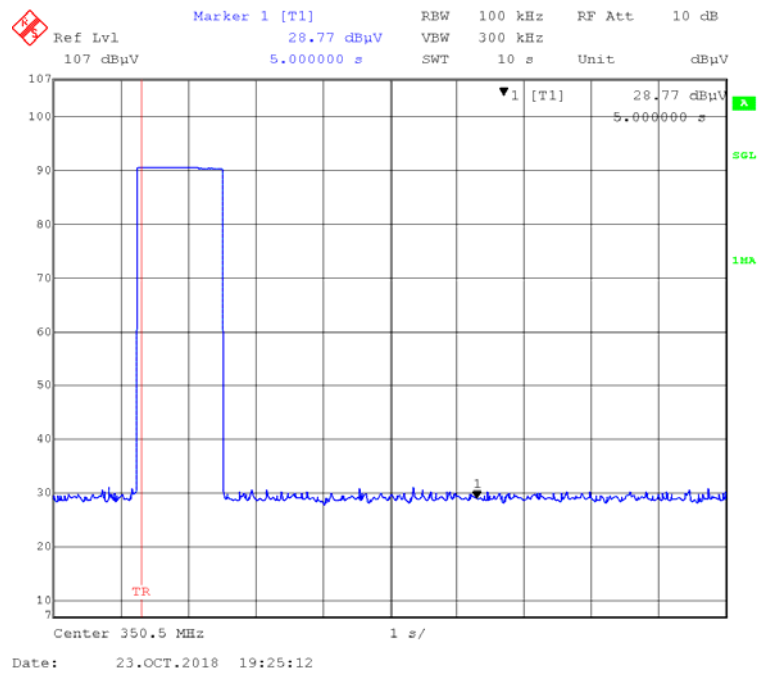
For 350MHz Band:

For GFSK Modulation

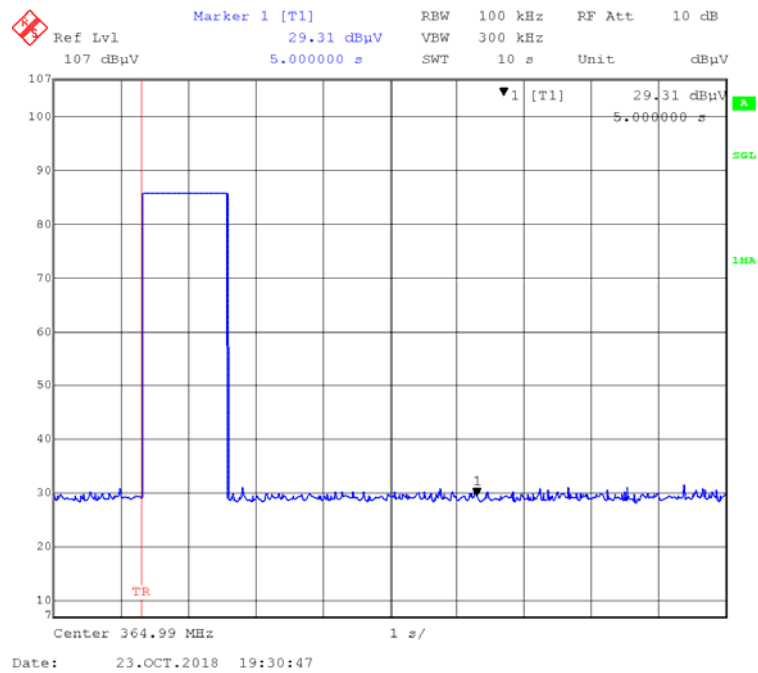
Low Channel, $T_{\text{Stop}} < 5\text{s}$



Middle Channel, $T_{\text{Stop}} < 5\text{s}$

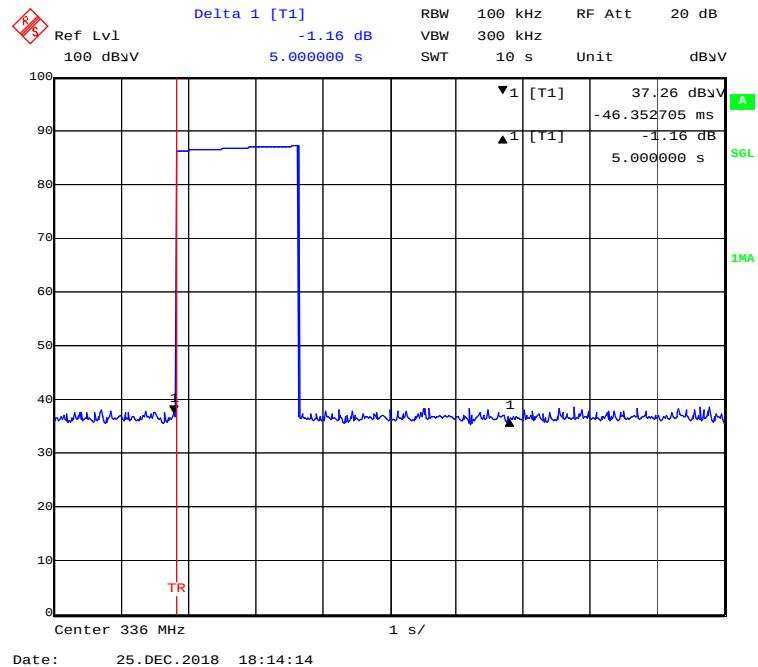


High Channel, $T_{\text{Stop}} < 5\text{s}$

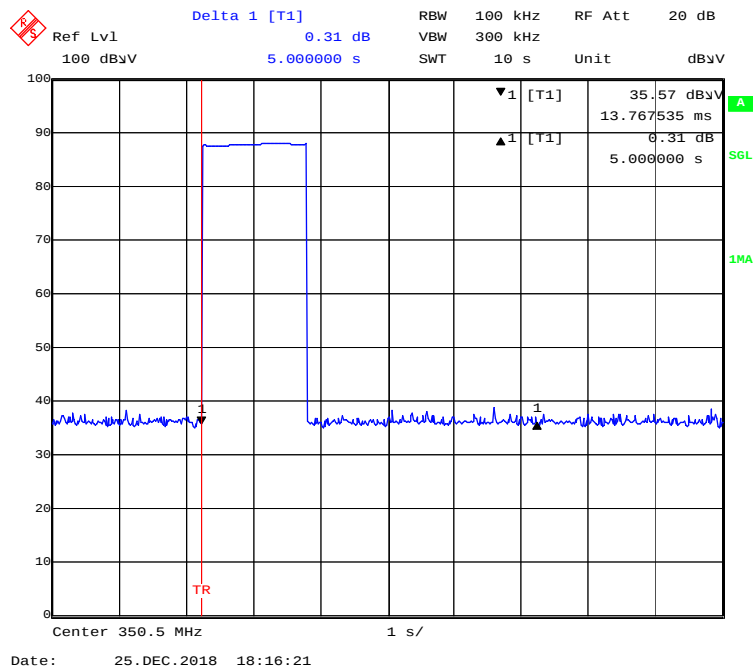


For OOK Modulation

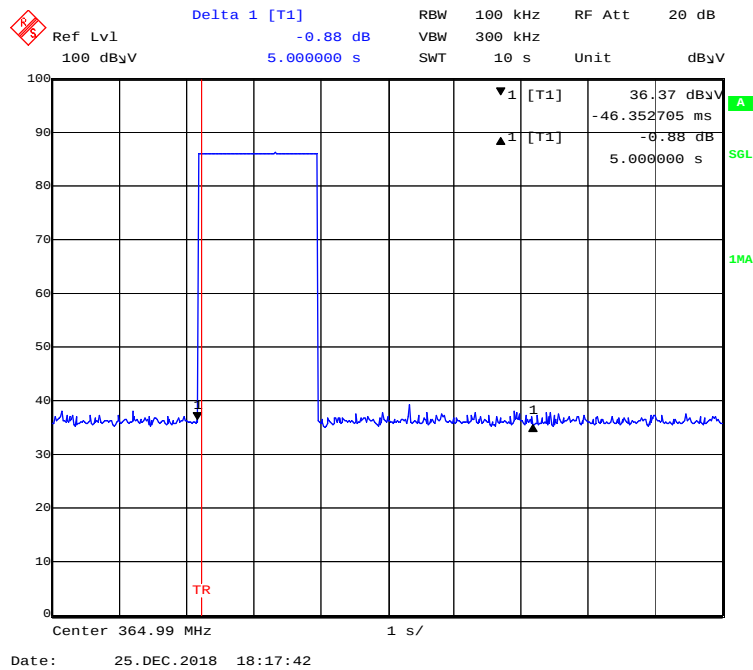
Low Channel, $T_{\text{Stop}} < 5\text{s}$



Middle Channel, $T_{\text{Stop}} < 5\text{s}$



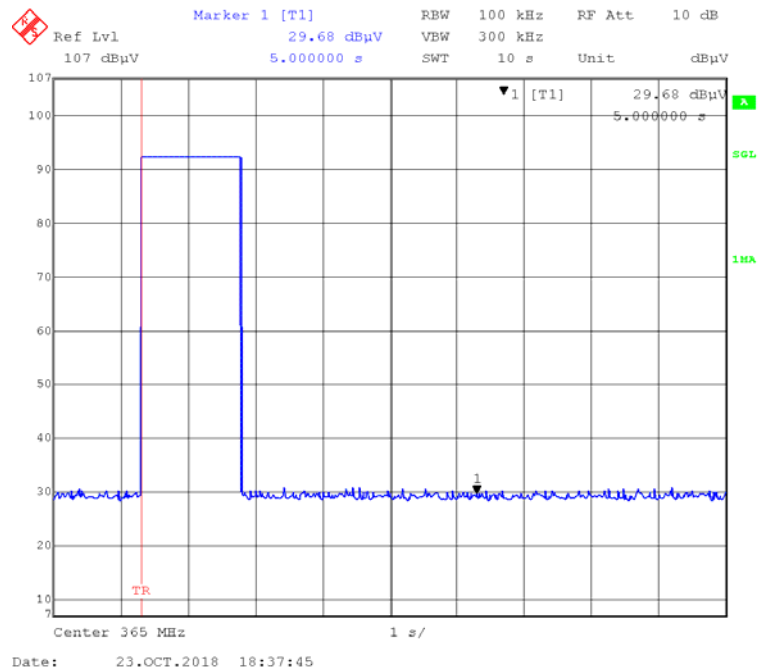
High Channel, $T_{\text{Stop}} < 5\text{s}$



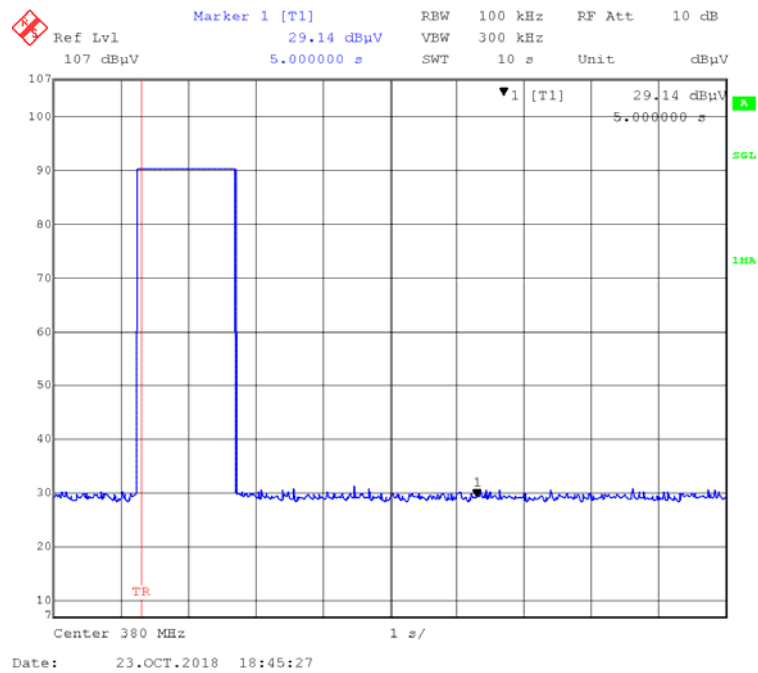
For 375MHz Band:

For GFSK Modulation

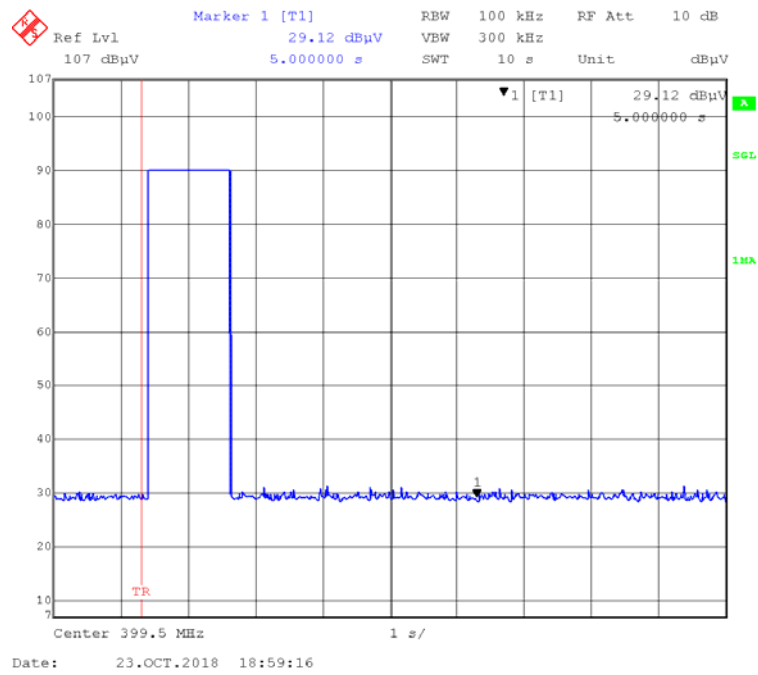
Low Channel, $T_{\text{Stop}} < 5\text{s}$



Middle Channel, $T_{\text{Stop}} < 5\text{s}$

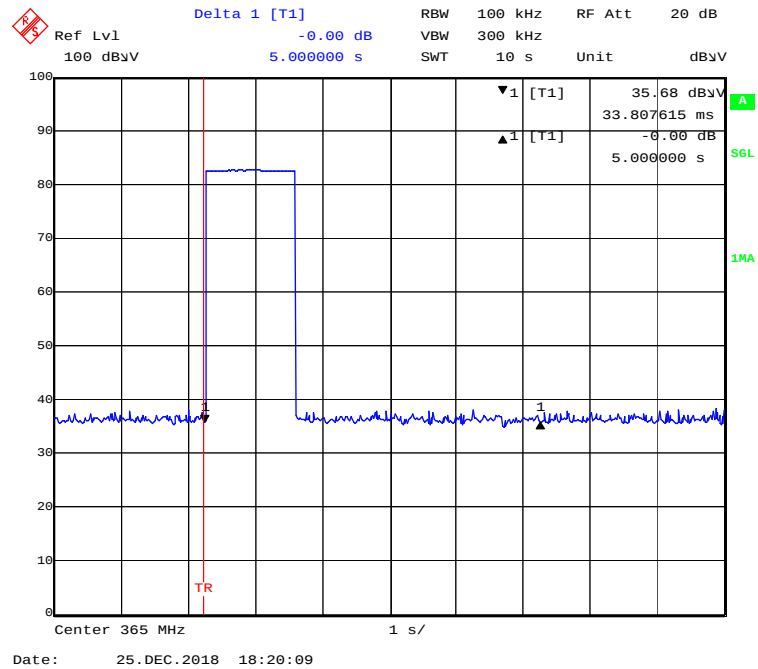


High Channel, $T_{\text{Stop}} < 5\text{s}$

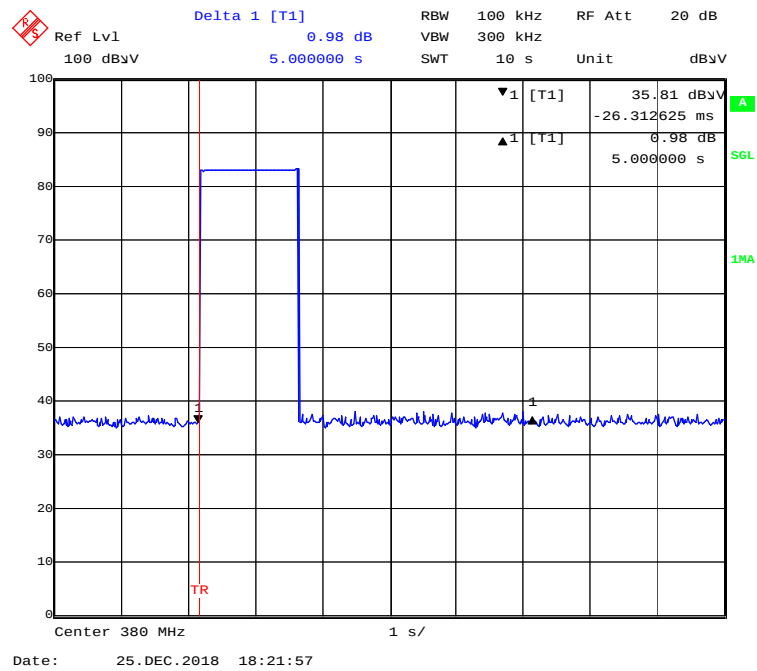


For OOK Modulation

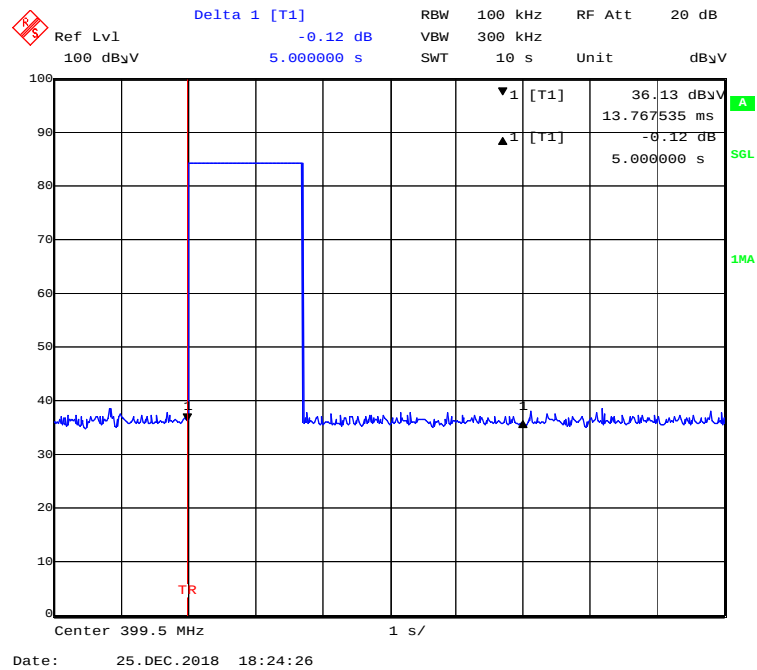
Low Channel, $T_{\text{Stop}} < 5\text{s}$



Middle Channel, $T_{\text{Stop}} < 5\text{s}$



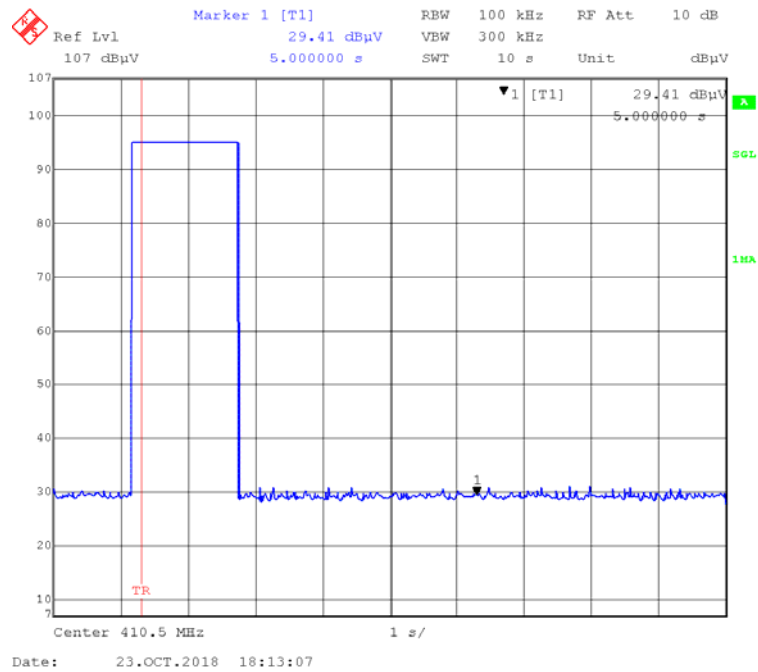
High Channel, $T_{\text{Stop}} < 5\text{s}$



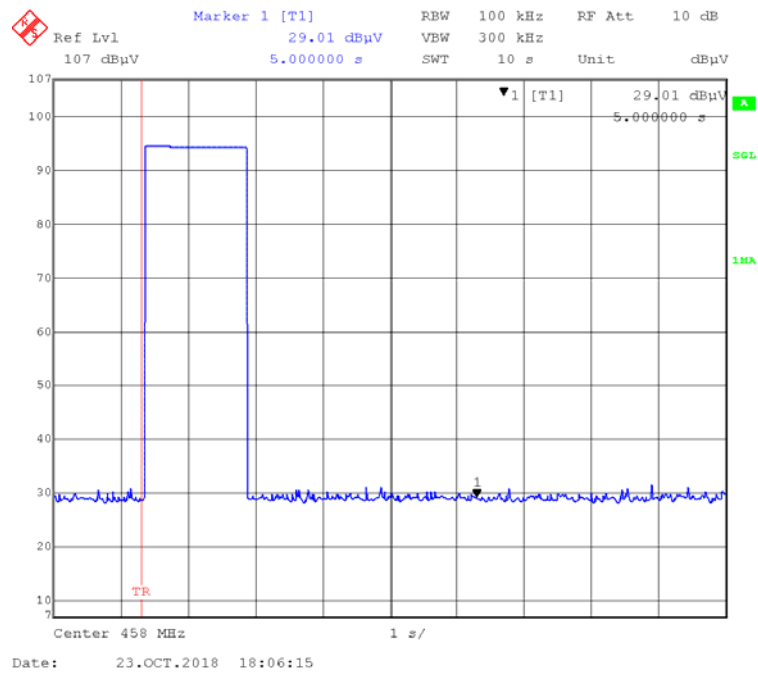
For 434MHz Band:

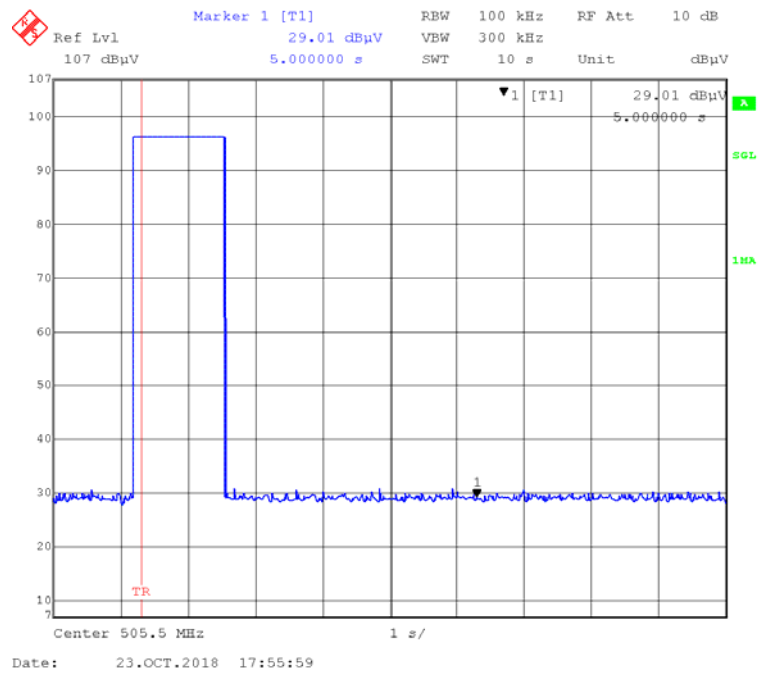
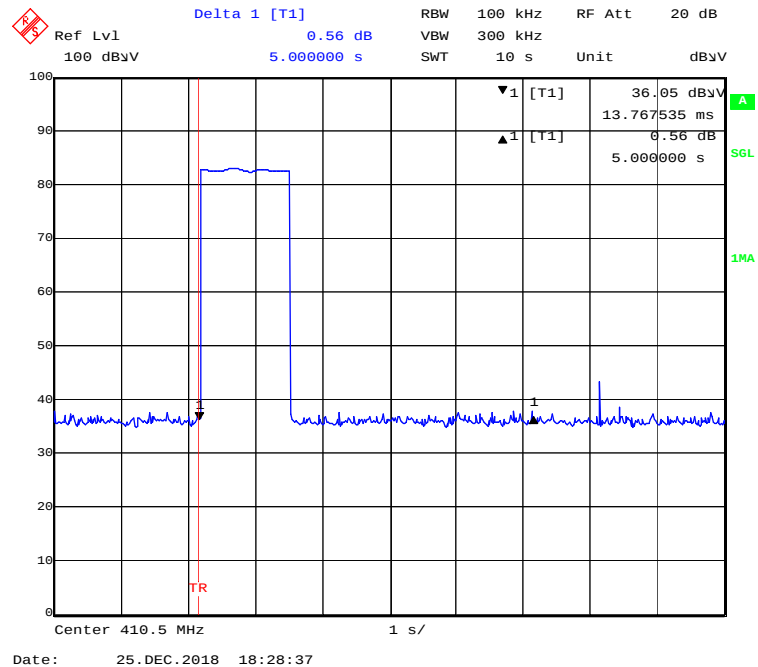
For GFSK Modulation

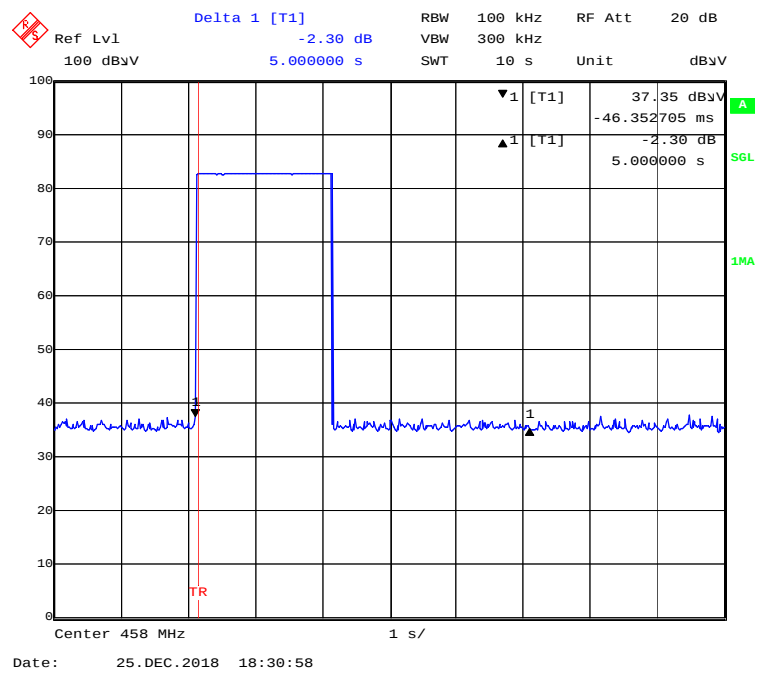
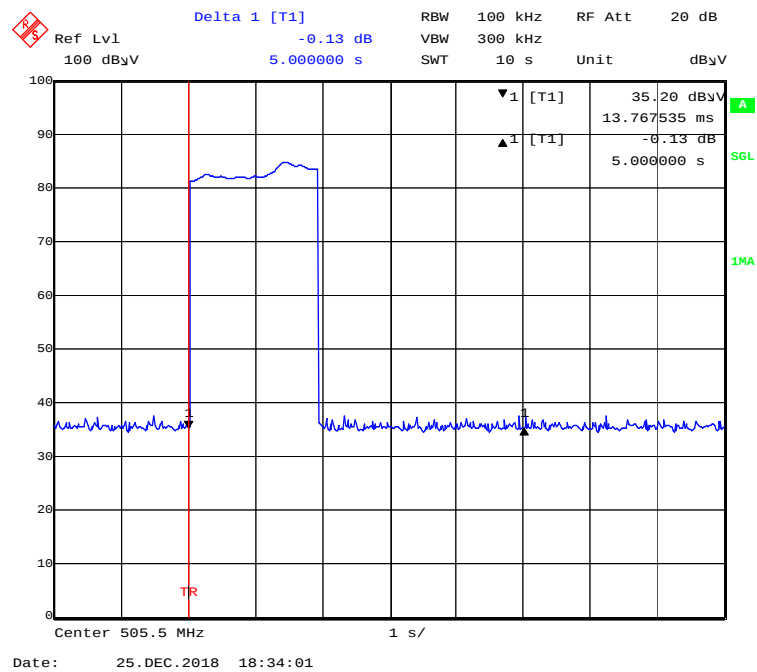
Low Channel, $T_{\text{Stop}} < 5\text{s}$



Middle Channel, $T_{\text{Stop}} < 5\text{s}$



High Channel, $T_{\text{Stop}} < 5\text{s}$ **For OOK Modulation****Low Channel, $T_{\text{Stop}} < 5\text{s}$** 

Middle Channel, $T_{\text{Stop}} < 5\text{s}$ High Channel, $T_{\text{Stop}} < 5\text{s}$ 

FCC §15.231(c) - 20dB EMISSION BANDWIDTH TESTING

Applicable Standard

Per 15.231(c), The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. Bandwidth is determined at the points 20 dB down from the modulated carrier.

Test Procedure

With the EUT's antenna attached, the waveform was received by the test antenna which was connected to the spectrum analyzer, plot the 20 dB bandwidth.

Test Data

Environmental Conditions

Temperature:	22.0-23.1 °C
Relative Humidity:	48-50 %
ATM Pressure:	101.0-101.1 kPa

The testing was performed by Alisa Gao on 2018-10-23 to 2018-12-25.

Test Mode: Transmitting

For 300MHz Band:

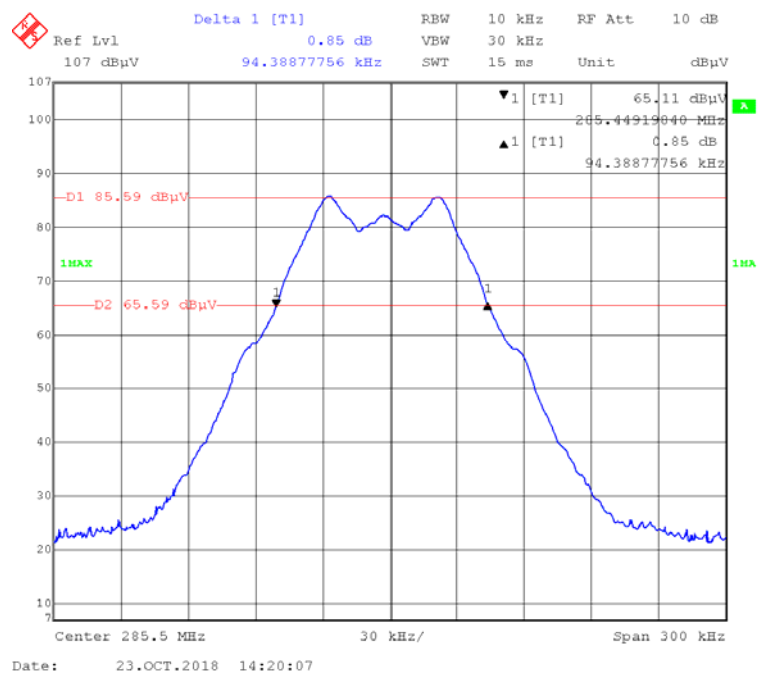
Modulation	Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)	Limit (kHz)	Result
GFSK	Low	285.5	94.39	713.75	Pass
	Middle	303.5	94.39	758.75	Pass
	High	321.5	93.79	803.75	Pass
OOK	Low	285.5	54.71	713.75	Pass
	Middle	303.5	57.72	758.75	Pass
	High	321.5	55.31	803.75	Pass

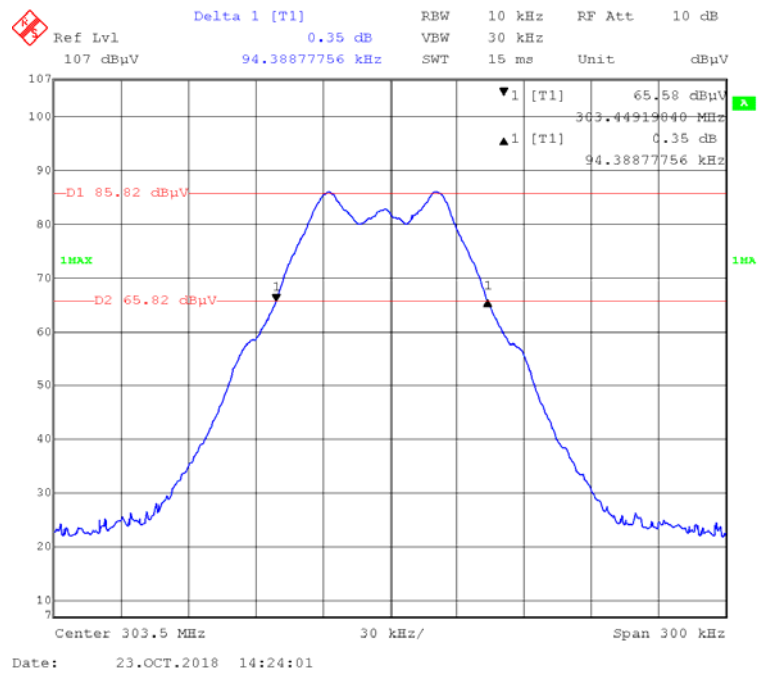
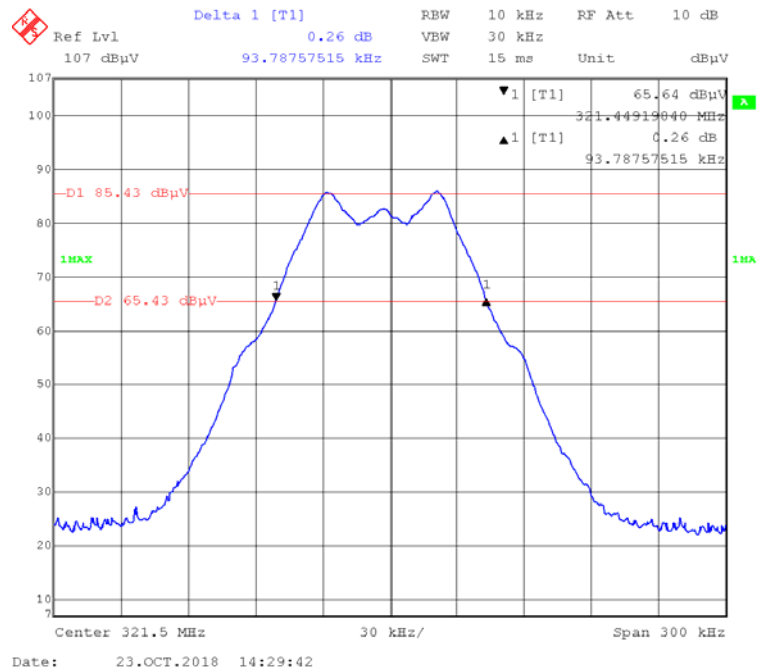
Note:

For Low Channel, Limit = 0.25% * Center Frequency = 0.25% * 285.5 MHz = 713.75 kHz;

For Middle Channel, Limit = 0.25% * Center Frequency = 0.25% * 303.5 MHz = 758.75 kHz;

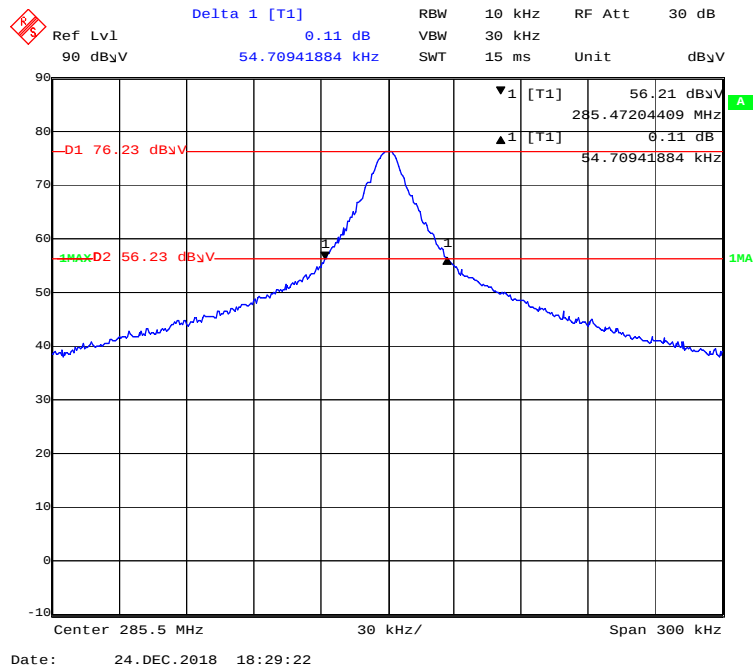
For High Channel, Limit = 0.25% * Center Frequency = 0.25% * 321.5 MHz = 803.75 kHz;

For GFSK Modulation:**Low Channel, 20 dB Emission Bandwidth**

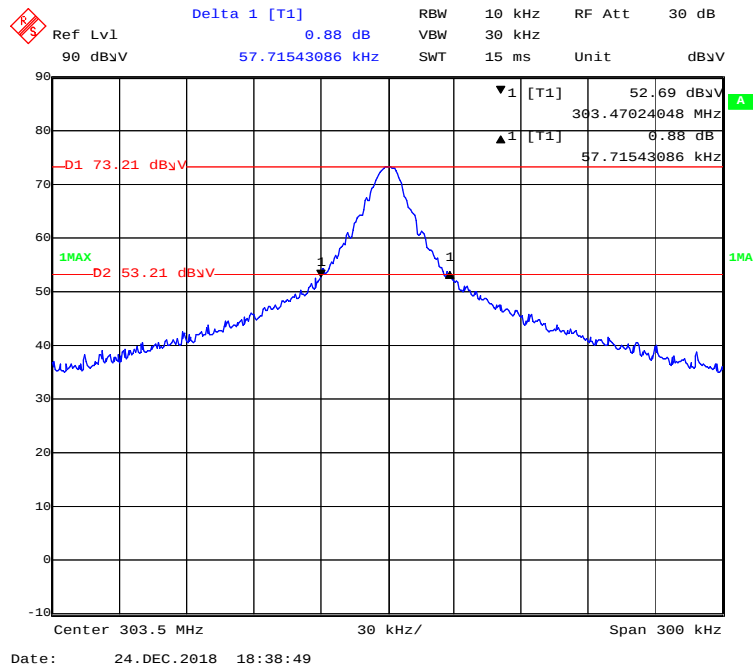
Middle Channel, 20 dB Emission Bandwidth**High Channel, 20 dB Emission Bandwidth**

For OOK Modulation:

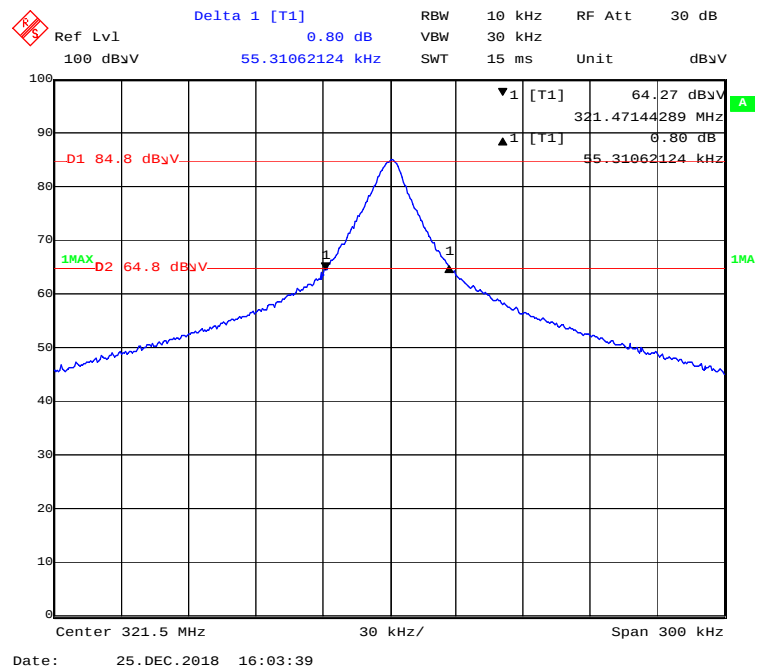
Low Channel, 20 dB Emission Bandwidth



Middle Channel, 20 dB Emission Bandwidth



High Channel, 20 dB Emission Bandwidth



For 350MHz Band:

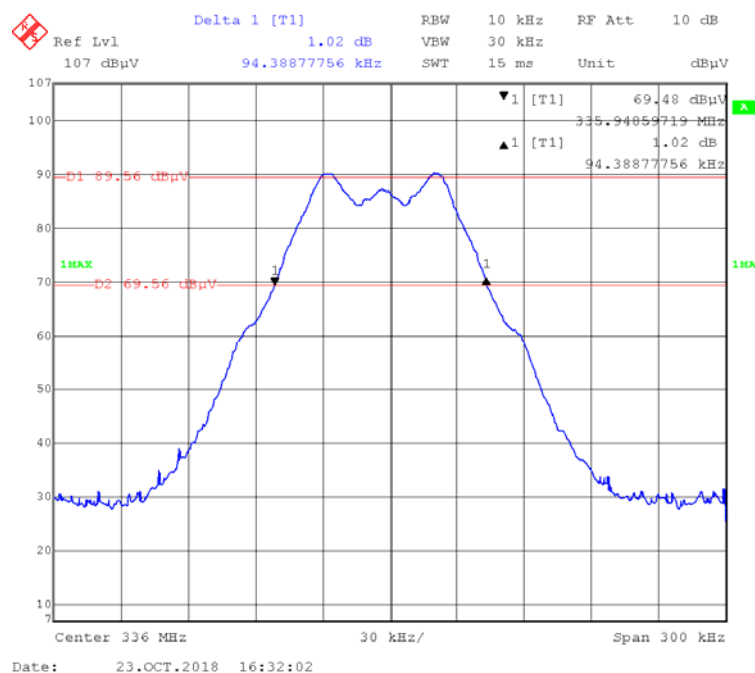
Modulation	Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)	Limit (kHz)	Result
GFSK	Low	336.00	94.39	840.00	Pass
	Middle	350.50	102.81	876.25	Pass
	High	364.99	102.81	912.48	Pass
OOK	Low	336.00	55.91	840.00	Pass
	Middle	350.50	57.11	876.25	Pass
	High	364.99	55.91	912.48	Pass

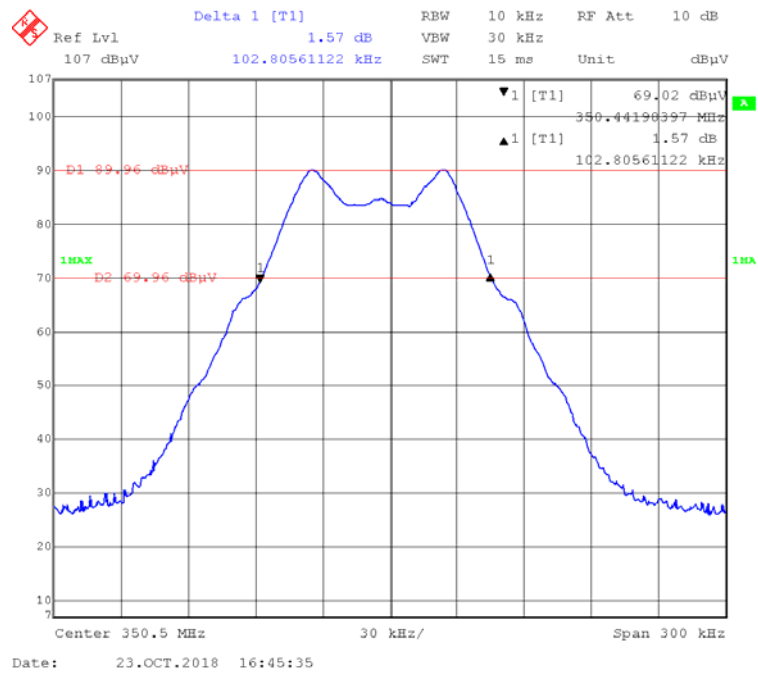
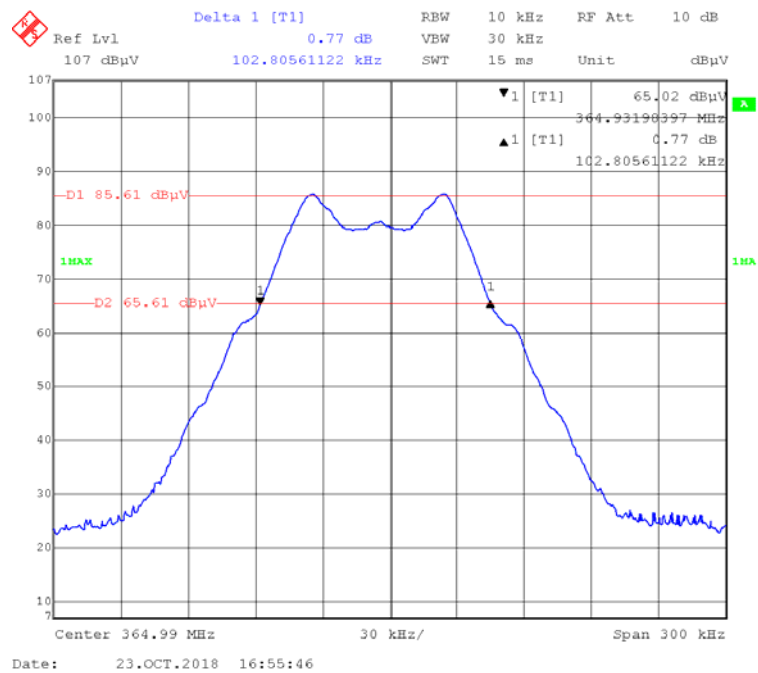
Note:

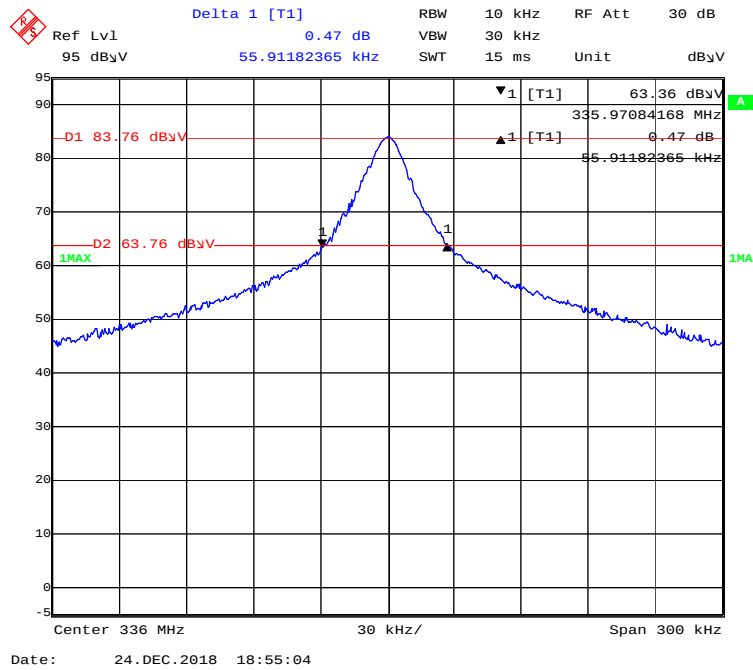
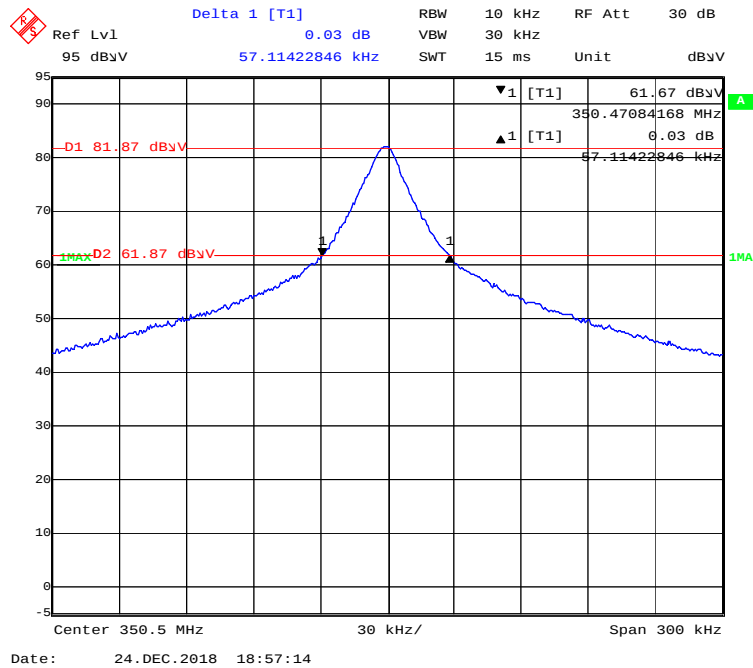
For Low Channel, Limit = 0.25% * Center Frequency = 0.25% * 336.00 MHz = 840.00 kHz;

For Middle Channel, Limit = 0.25% * Center Frequency = 0.25% * 350.50 MHz = 876.25 kHz;

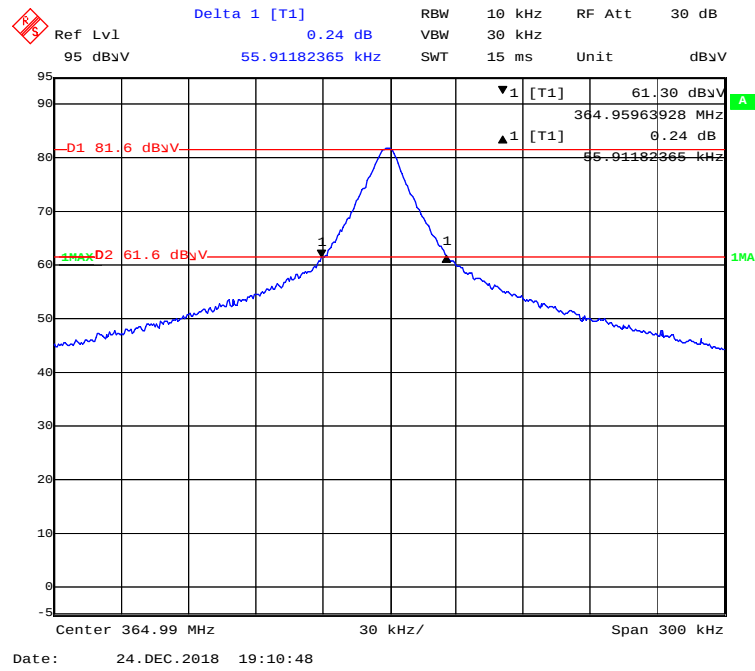
For High Channel, Limit = 0.25% * Center Frequency = 0.25% * 364.99 MHz = 912.48 kHz;

For GFSK Modulation:**Low Channel, 20 dB Emission Bandwidth**

Middle Channel, 20 dB Emission Bandwidth**High Channel, 20 dB Emission Bandwidth**

For OOK Modulation:**Low Channel, 20 dB Emission Bandwidth****Middle Channel, 20 dB Emission Bandwidth**

High Channel, 20 dB Emission Bandwidth



For 375MHz Band:

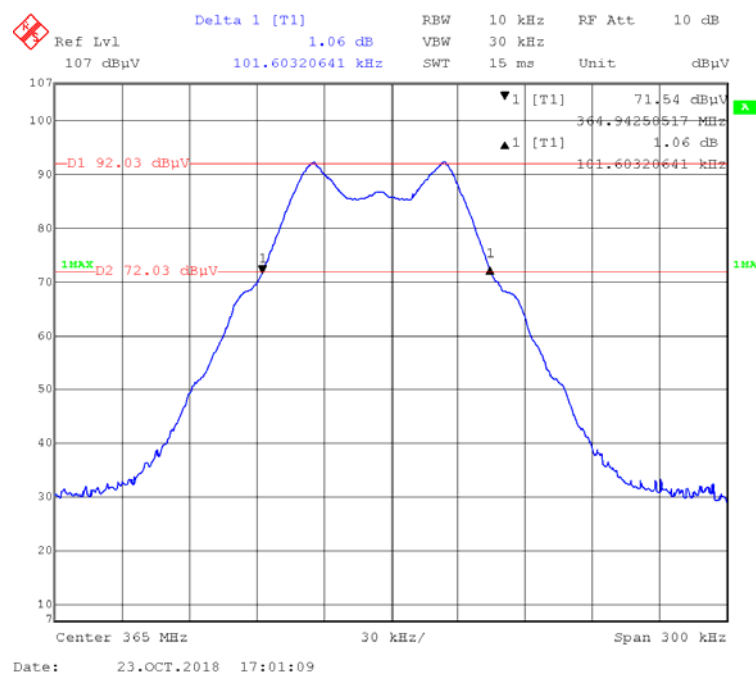
Modulation	Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)	Limit (kHz)	Result
GFSK	Low	365.0	101.60	912.50	Pass
	Middle	380.0	103.41	950.00	Pass
	High	399.5	102.81	998.75	Pass
OOK	Low	365.0	56.51	912.50	Pass
	Middle	380.0	55.91	950.00	Pass
	High	399.5	55.91	998.75	Pass

Note:

For Low Channel, Limit = 0.25% * Center Frequency = 0.25% * 365.0 MHz = 912.50 kHz;

For Middle Channel, Limit = 0.25% * Center Frequency = 0.25% * 380.0 MHz = 950.00 kHz;

For High Channel, Limit = 0.25% * Center Frequency = 0.25% * 399.5 MHz = 998.75 kHz;

For GFSK Modulation:**Low Channel, 20 dB Emission Bandwidth**

Delta 1 [T1] 1.04 dB RBW 10 kHz RF Att 10 dB

Ref Lvl 107 dBμV 103.40681363 kHz SWT 15 ms Unit dBμV

▼ 1 [T1] 69.14 dBμV 379.94136277 MHz

▲ 1 [T1] 1.04 dB 103.40681363 kHz

D1 90.33 dBμV

1MAX

D2 70.33 dBμV

1

1

1MAX

Center 380 MHz 30 kHz/ Span 300 kHz

Date: 23.OCT.2018 17:07:42

Ref Lvl 107 dBμV Delta 1 [T1] 0.88 dB RBW 10 kHz RF Att 10 dB
 102.80561122 kHz SWT 15 ms Unit dBμV

▼1 [T1] 68.24 dBμV
 399.44136277 MHz
 ▲1 [T1] 0.88 dB
 102.80561122 kHz

D1 69.1 dBμV
 D2 69.1 dBμV

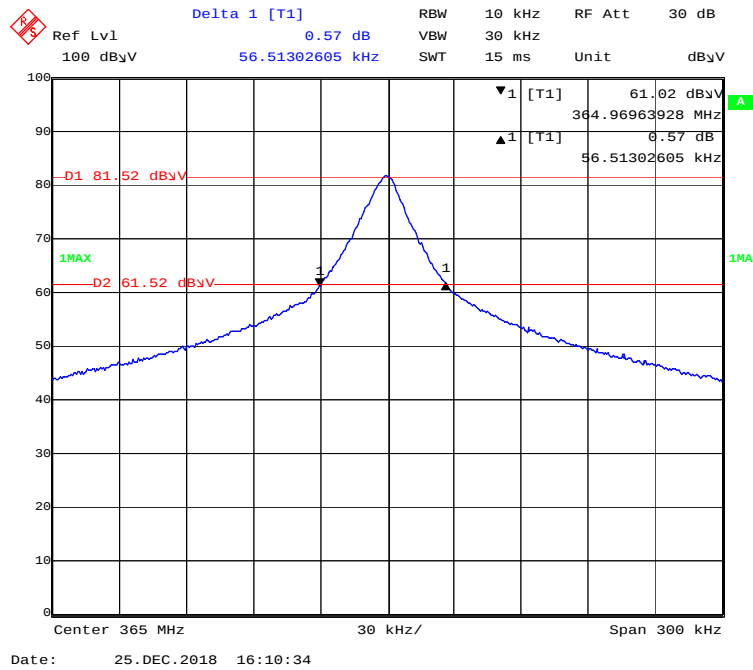
1MAX 1MAX

Center 399.5 MHz 30 kHz/ Span 300 kHz

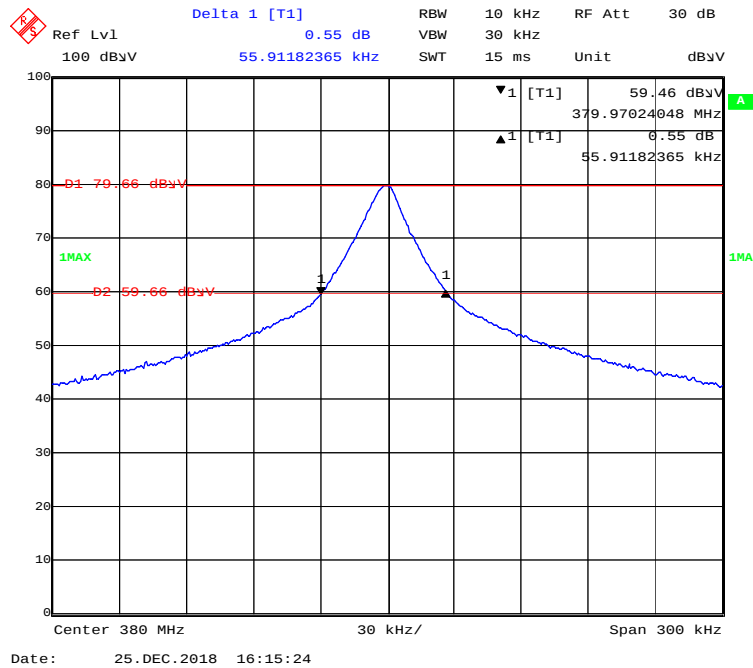
Date: 23.OCT.2018 17:13:41

For OOK Modulation:

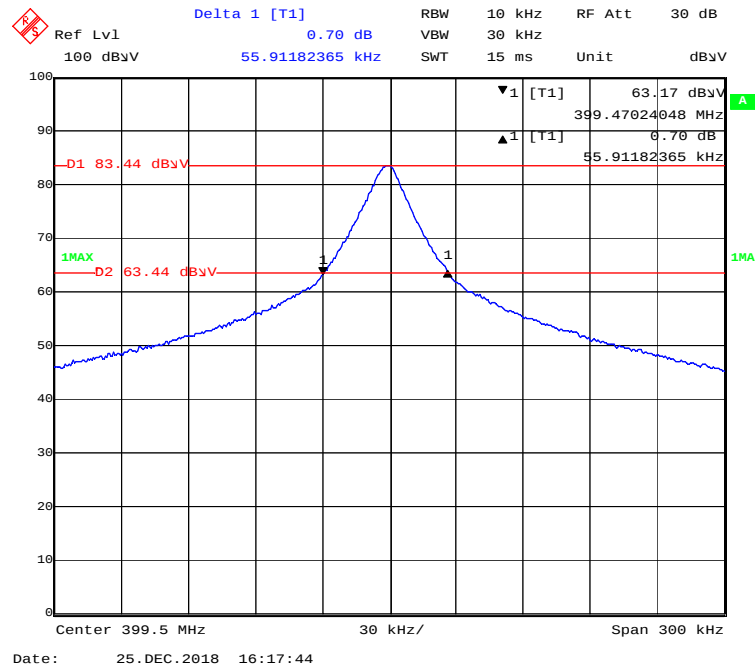
Low Channel, 20 dB Emission Bandwidth



Middle Channel, 20 dB Emission Bandwidth



High Channel, 20 dB Emission Bandwidth

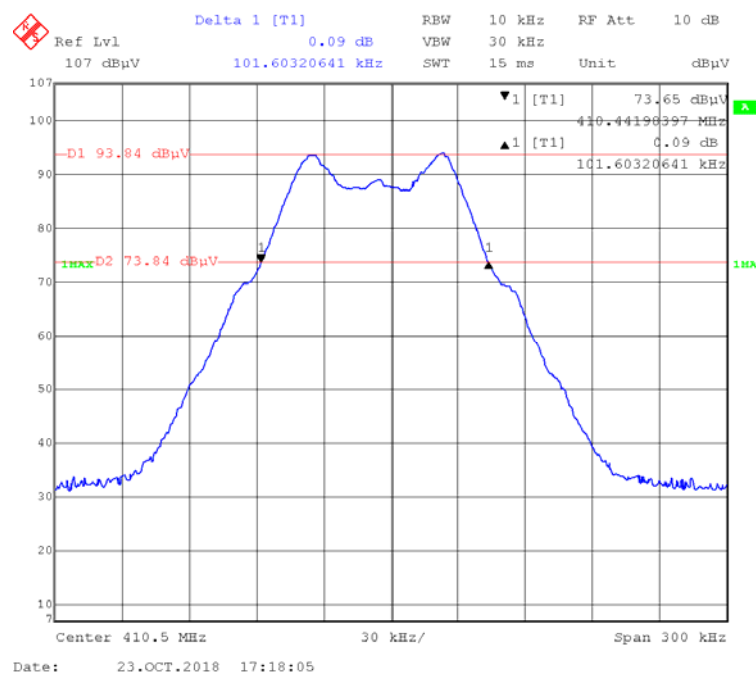


For 434MHz Band:

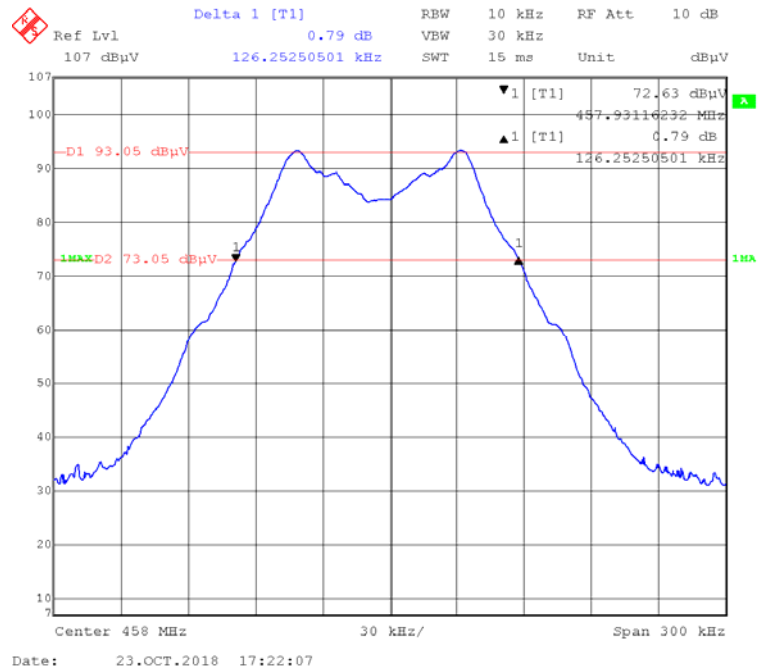
Modulation	Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)	Limit (kHz)	Result
GFSK	Low	410.5	101.60	1026.25	Pass
	Middle	458.0	126.25	1145.00	Pass
	High	505.5	125.05	1263.75	Pass
OOK	Low	410.5	55.31	1026.25	Pass
	Middle	458.0	56.51	1145.00	Pass
	High	505.5	55.31	1263.75	Pass

Note:

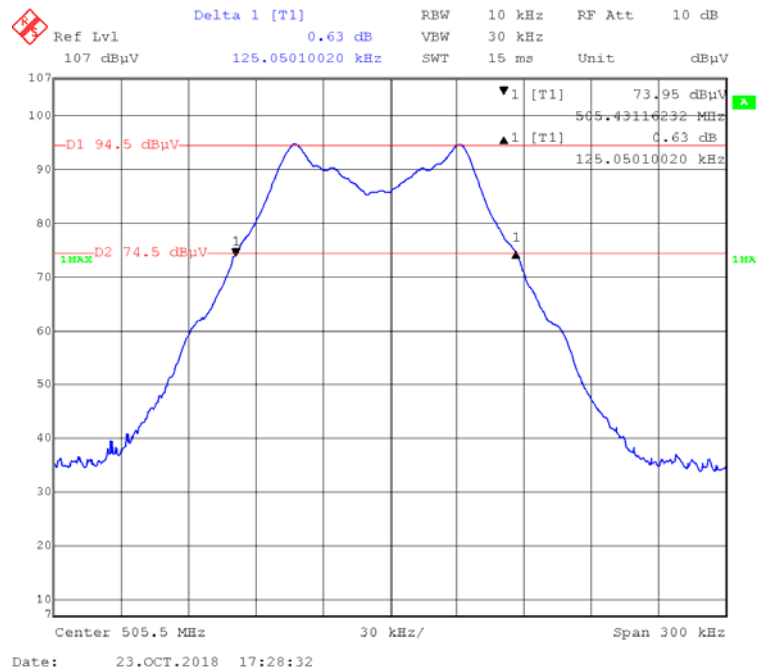
For Low Channel, Limit = 0.25% * Center Frequency = 0.25% * 410.5 MHz = 1026.25 kHz;
 For Middle Channel, Limit = 0.25% * Center Frequency = 0.25% * 458.0 MHz = 1145.00 kHz;
 For High Channel, Limit = 0.25% * Center Frequency = 0.25% * 505.5 MHz = 1263.75 kHz;

For GFSK Modulation:**Low Channel, 20 dB Emission Bandwidth**

Middle Channel, 20 dB Emission Bandwidth

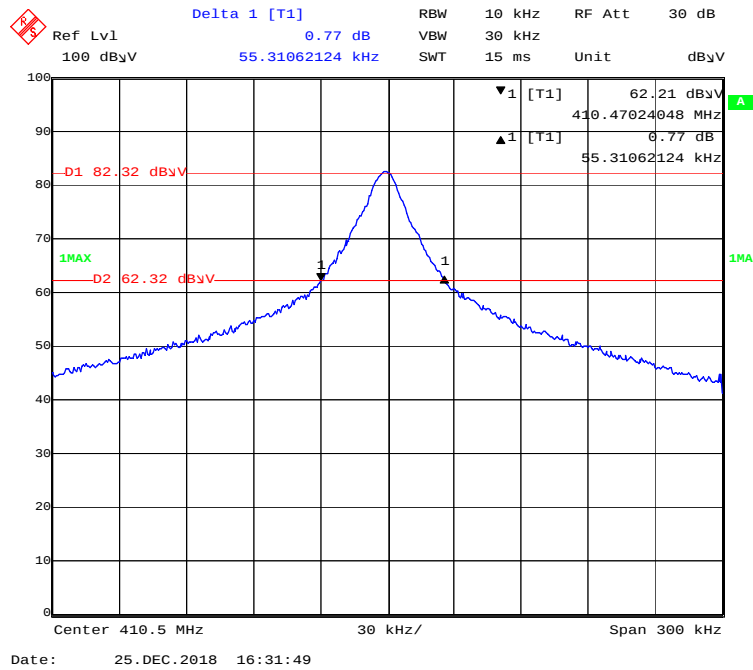


High Channel, 20 dB Emission Bandwidth

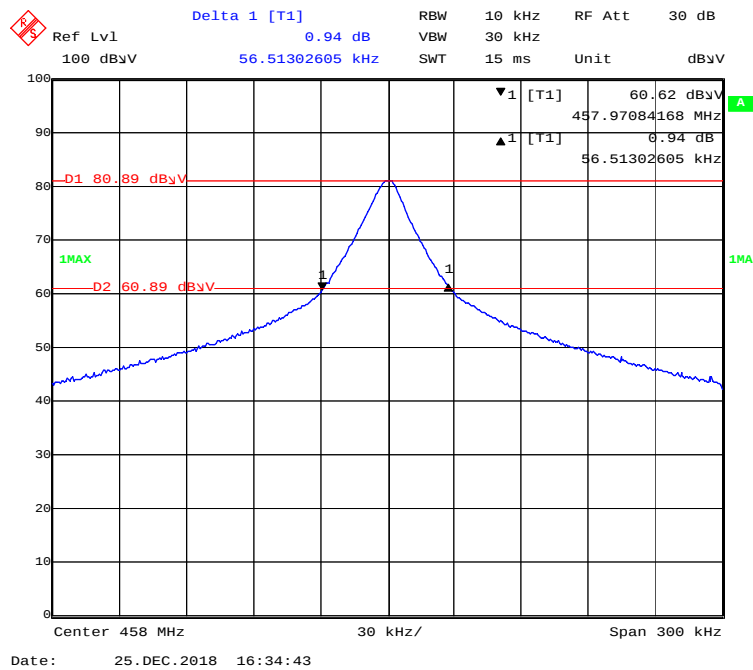


For OOK Modulation:

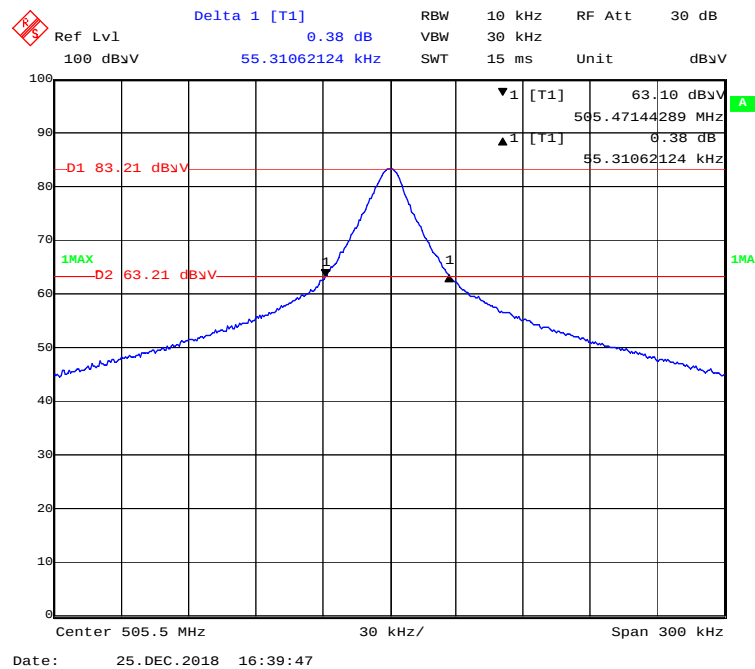
Low Channel, 20 dB Emission Bandwidth



Middle Channel, 20 dB Emission Bandwidth



High Channel, 20 dB Emission Bandwidth



***** END OF REPORT *****