CE Test Report

Equipment	:	**LTE Modem**
Model No.	:	**Pinnacle 100**
Brand Name	:	**Laird Connectivity**
Applicant	:	**Laird Connectivity, Inc.**
Address	:	**W66N220 Commerce Court, Cedarburg, Wisconsin 53012, USA**
Standard	:	**EN 300 328 V2.2.2 (2019-07)**
Received Date	:	**May 03, 2019**
Tested Date	:	**May 15 ~ Dec. 10, 2019**

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by: **Approved by:**

James Fan / Assistant Manager **Gary Chang / Manager**

Testing Laboratory 2732

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Release Record

Report No.	Version	Description	Issued Date
ER950303AE	Rev. 01	Initial issue	Jun. 02, 2020

Summary of Test Results

Ref. Std. Clause	Test Items	Measured	Result
4.3.2.2	RF Output Power	9.94 dBm	Pass
4.3.2.3	Power Spectral Density	Meet the requirement of limit.	Pass
4.3.2.4	Duty Cycle, Tx-sequence, Tx-gap	Only for non-adaptive equipment	N/A
4.3.2.5	Medium Utilisation (MU) factor	Only for non-adaptive equipment	N/A
4.3.2.6	Adaptivity	The RF Output power is less than 10 dBm e.i.r.p. This item is not applicable.	N/A
4.3.2.7	Occupied Channel Bandwidth	Meet the requirement of limit.	Pass
4.3.2.8	Transmitter unwanted emissions in the out of band domain	Meet the requirement of limit.	Pass
4.3.2.9	Transmitter unwanted emissions in the spurious domain	Meet the requirement of limit.	Pass
4.3.2.10	Receiver spurious emissions	Meet the requirement of limit.	Pass
4.3.2.11	Receiver Blocking	Meet the requirement of limit.	Pass
4.3.2.12	Geo-location Capability	The device has no this capability.	N/A

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information				
Frequency Range (MHz)	**Bluetooth Mode**	**Ch. Frequency (MHz)**	**Channel Number**	**Data Rate**
2400-2483.5	V5.0 LE	2402-2480	0-39 [40]	125 kbps
				500 kbps
				1 Mbps
				2 Mbps
Note 1: Bluetooth LE (Low energy) uses GFSK modulation.				

1.1.2 Antenna Details

Ant. No.	Brand	Model	Type	Gain (dBi)	Connector
1	LSR	001-0001	2.4GHz Dipole	2	RP-SMA Female with IPEX U.FL antenna cable
2	Laird	NanoBlue-IP04 (MAF94045)	PCB Dipole	2	IPEX U.FL
3	LSR	001-0014	2.4GHz Flex PIFA	2	IPEX U.FL
4	Laird	110-00665	Trace Monopole	2.6	NA

1.1.3 EUT Operational Condition

Power Supply Type	3.7 Vdc		
SW Version	BHL78xx.3.7.2.3		
Operational Climatic	☒ Tnom (20°C)	☒ Tmax (85°C)	☒ Tmin (-40°C)

1.1.4 Accessories

N/A

1.1.5 Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
37	2402	18	2442
0	2404	19	2444
1	2406	20	2446
2	2408	21	2448
3	2410	22	2450
4	2412	23	2452
5	2414	24	2454
6	2416	25	2456
7	2418	26	2458
8	2420	27	2460
9	2422	28	2462
10	2424	29	2464
38	2426	30	2466
11	2428	31	2468
12	2430	32	2470
13	2432	33	2472
14	2434	34	2474
15	2436	35	2476
16	2438	36	2478
17	2440	39	2480

1.1.6 Test Tool and Duty Cycle

Test Tool	command	
Modulation Mode	**Duty Cycle Of Test Signal (%)**	**Duty Factor (dB)**
GFSK-125kbps	83.89%	0.76
GFSK-500kbps	56.14%	2.51
GFSK-1Mbps	61.69%	2.10
GFSK-2Mbps	33.23%	4.79

1.1.7 Power Index of Test Tool

Low Power

Modulation Mode	Test Frequency (MHz)		
	2402	**2440**	**2480**
GFSK-125kbps	-40	-40	-40
GFSK-500kbps	-40	-40	-40
GFSK-1Mbps	-40	-40	-40
GFSK-2Mbps	-40	-40	-40

High Power

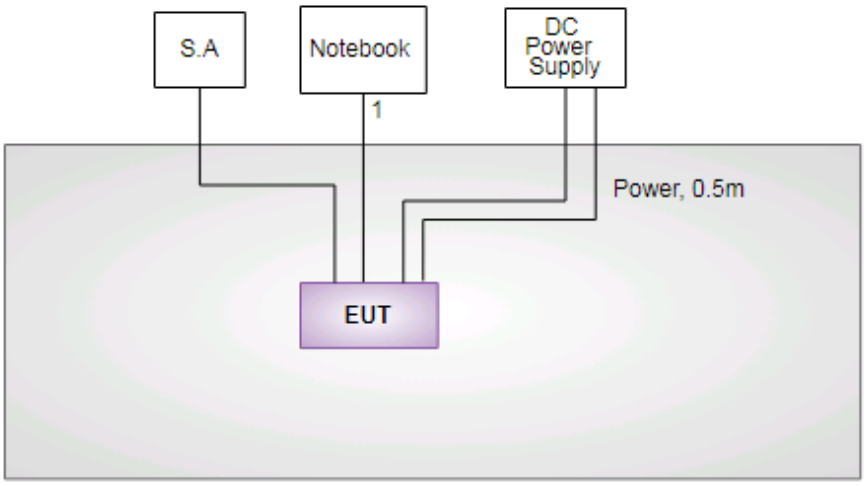
Modulation Mode	Test Frequency (MHz)		
	2402	**2440**	**2480**
GFSK-125kbps	8	8	8
GFSK-500kbps	8	8	8
GFSK-1Mbps	8	8	8
GFSK-2Mbps	8	8	8

1.2 Local Support Equipment List

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**S/N**	**Remarks**
1	Notebook	DELL	Latitude E5420	B6FT9T1	---

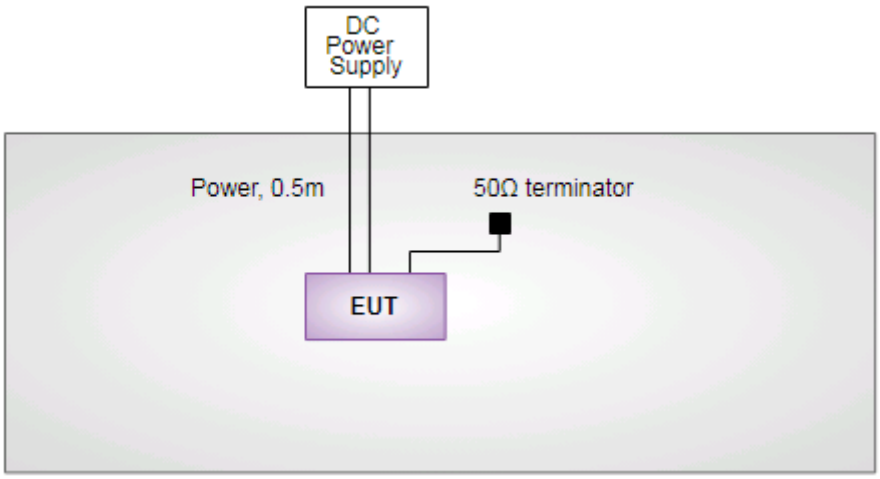
1.3 Test Setup Chart

Test Setup Diagram (Conducted mode)



No.	Signal cable / Length (m)
1	USB, 1m shielded.

Test Setup Diagram (Radiated mode)



1.4 Test Equipment List and Calibration Data

Test Item	Radiated Emissions				
Test Site	Fully-anechoic chamber 2 / (05CH02-WS)				
Test Date	Nov. 21 ~ Nov. 27, 2019				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	Agilent	N9010A	MY52221474	Oct. 17, 2019	Oct. 16, 2020
Bilog Antenna 30-1000MHz	SCHWARZBECK	VULB9168	9168-563	Jan. 04, 2019	Jan. 03, 2020
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	9120D-1205	Jan. 18, 2019	Jan. 17, 2020
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170508	Dec. 22, 2018	Dec. 21, 2019
Preamplifier	Agilent	83017A	MY53270013	Dec. 27, 2018	Dec. 26, 2019
Preamplifier	EMC	EMC02325	980188	Dec. 13, 2018	Dec. 12, 2019
Preamplifier	EMC	EMC184045B	980192	Aug. 01, 2019	Jul. 31, 2020
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22622/4	Oct. 15, 2019	Oct. 14, 2020
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22623/4	Oct. 15, 2019	Oct. 14, 2020
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22621/4	Oct. 15, 2019	Oct. 14, 2020
RF cable-4M	HUBER+SUHNER	SUCOFLEX104	MY32489/4	Oct. 15, 2019	Oct. 14, 2020
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-002	Oct. 15, 2019	Oct. 14, 2020
LF cable-3M	EMC	EMC8D-NM-NM-3000	131102	Oct. 15, 2019	Oct. 14, 2020
LF cable-10M	EMC	EMC8D-NM-NM-10000	131101	Oct. 15, 2019	Oct. 14, 2020
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Test Date	May 15, 2019				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101486	Jan. 08, 2019	Jan. 07, 2020
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Dec. 05, 2018	Dec. 04, 2019
Power Sensor	Agilent	U2021XA	MY53480019	Jan. 30, 2019	Jan. 29, 2020
Power Sensor	Agilent	U2021XA	MY53510003	Jan. 30, 2019	Jan. 29, 2020
DC POWER SOURCE	GW INSTEK	GPC-6030D	EM892433	Oct. 25, 2018	Oct. 24, 2019
Combiner(1X2)	woken	0120A02201801O	DOM2AEW1A23	Oct. 18, 2018	Oct. 17, 2019
Combiner(1X4)	WOKEN	4WAYDIV	0120A042011010	Oct. 17, 2018	Oct. 16, 2019
Measurement Software	Agilent	EN RF test	1.1501125	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Receiver Blocking				
Test Site	(05CH02-WS)				
Test Date	Dec. 10, 2019				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Wireless connectivity tester	ROHDE&SCHWARZ	CMW270	100856	Oct. 24, 2019	Oct. 23, 2020
Signal Generator	ROHDE&SCHWARZ	SMB100A	175727	Dec. 24, 2018	Dec. 23, 2019
RF Cable	HUBER+SUHNER	SUCOFLEX_104	500202/4	Oct. 16, 2019	Oct. 15, 2020
RF Cable	HUBER+SUHNER	SUCOFLEX_104	296088/4	Oct. 16, 2019	Oct. 15, 2020
RF Cable	HUBER+SUHNER	SUCOFLEX_104	329023/4	Oct. 16, 2019	Oct. 15, 2020
Combiner(1X2)	WOKEN	2WAYDIV	12101200003	Oct. 16, 2019	Oct. 15, 2020
Note: Calibration Interval of instruments listed above is one year.					

1.5 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

EN 300 328 V2.2.2 (2019-07)

1.6 Deviation from Test Standard and Measurement Procedure

None

1.7 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Uncertainty		
Parameters	**Uncertainty**	**Limit**
Occupied Channel Bandwidth	±0.0034 %	±5 %
RF output power, conducted	±0.592 dB	±1.5 dB
Power Spectral Density, conducted	±0.583 dB	±3 dB
Unwanted Emissions, conducted	±2.715 dB	±3 dB
All emissions, radiated	±3.14 dB	±6 dB
Temperature	±0.4 ^{o}C	±3 °C
Supply voltages	±0.15 %	±3 %
Time	±0.1 %	±5 %

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
RF Conducted	TH01-WS	24°C / 65%	Jack Li
Radiated Emission	05CH02-WS	20-24°C / 65%	Nai Xu
Receiver Blocking	05CH02-WS	25°C / 65%	Ryan Lee

2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
RF Output Power	GFSK	2402 / 2440 / 2480	125 kbps 500 kbps 1 Mbps 2 Mbpos	1 , 2 , 3 , 4
Power Spectral Density				
Occupied Channel Bandwidth	GFSK	2402 / 2480	125 kbps 500 kbps 1 Mbps 2 Mbpos	3 , 4
Transmitter unwanted emissions in the out of band domain	GFSK	2402 / 2480	125 kbps 500 kbps 1 Mbps 2 Mbpos	1 , 2 , 3 , 4
Transmitter Spurious Emissions	GFSK	2402 / 2480	125 kbps 500 kbps 1 Mbps 2 Mbpos	4
Receiver Spurious Emissions				
Receiver Blocking	GFSK	2402 / 2480	125 kbps	4

NOTE:

1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Y-plane** result was found as the worst case and was shown in this report. .
2. Test configurations are as below
   1) Antenna with 2.6 dB gain / Low power
   2) Antenna with 2.6 dB gain / High power
   3) Antenna with 2 dB gain / Low power
   4) Antenna with 2 dB gain / High power
3. Spurious Emissions test item is only measured for maximum conducted power.
4. 50Ω terminators is connected to antenna port of EUT for radiated emission measurement.

3 Transmitter Test Results

3.1 RF Output Power

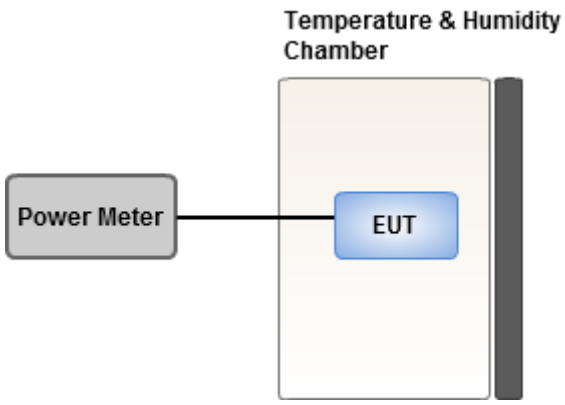
3.1.1 Limit of RF Output Power

The maximum RF output power shall be equal to or less than 20 dBm

3.1.2 Test Procedures

Reference to clause 5.4.2.2 of ETSI EN 300 328 V2.2.2 (2019-07) .

3.1.3 Test Setup



3.1.4 Test Result of RF Output Power

For Antenna Gain: 2.6 dBi, Low Power

RF Output Power (dBm)					
Condition	**Modulation Mode**	**Freq. (MHz)**	**EIRP Power (dBm)**	**Limit (dBm)**	**Results**
$T_{nom}V_{nom}$	GFSK/125kbps	2402	-38.67	20	Pass
$T_{min}V_{nom}$	GFSK/125kbps	2402	-37.69	20	Pass
$T_{max}V_{nom}$	GFSK/125kbps	2402	-39.04	20	Pass
$T_{nom}V_{nom}$	GFSK/125kbps	2440	-39.19	20	Pass
$T_{min}V_{nom}$	GFSK/125kbps	2440	-38.16	20	Pass
$T_{max}V_{nom}$	GFSK/125kbps	2440	-39.59	20	Pass
$T_{nom}V_{nom}$	GFSK/125kbps	2480	-39.38	20	Pass
$T_{min}V_{nom}$	GFSK/125kbps	2480	-38.43	20	Pass
$T_{max}V_{nom}$	GFSK/125kbps	2480	-39.83	20	Pass
$T_{nom}V_{nom}$	GFSK/500kbps	2402	-38.71	20	Pass
$T_{min}V_{nom}$	GFSK/500kbps	2402	-37.72	20	Pass
$T_{max}V_{nom}$	GFSK/500kbps	2402	-39.09	20	Pass
$T_{nom}V_{nom}$	GFSK/500kbps	2440	-39.23	20	Pass
$T_{min}V_{nom}$	GFSK/500kbps	2440	-38.17	20	Pass
$T_{max}V_{nom}$	GFSK/500kbps	2440	-39.64	20	Pass
$T_{nom}V_{nom}$	GFSK/500kbps	2480	-39.42	20	Pass
$T_{min}V_{nom}$	GFSK/500kbps	2480	-38.48	20	Pass
$T_{max}V_{nom}$	GFSK/500kbps	2480	-39.86	20	Pass

RF Output Power (dBm)					
Condition	**Modulation Mode**	**Freq. (MHz)**	**EIRP Power (dBm)**	**Limit (dBm)**	**Results**
$T_{nom}V_{nom}$	GFSK/1Mbps	2402	-38.61	20	Pass
$T_{min}V_{nom}$	GFSK/1Mbps	2402	-37.63	20	Pass
$T_{max}V_{nom}$	GFSK/1Mbps	2402	-38.98	20	Pass
$T_{nom}V_{nom}$	GFSK/1Mbps	2440	-39.13	20	Pass
$T_{min}V_{nom}$	GFSK/1Mbps	2440	-38.09	20	Pass
$T_{max}V_{nom}$	GFSK/1Mbps	2440	-39.53	20	Pass
$T_{nom}V_{nom}$	GFSK/1Mbps	2480	-39.33	20	Pass
$T_{min}V_{nom}$	GFSK/1Mbps	2480	-38.38	20	Pass
$T_{max}V_{nom}$	GFSK/1Mbps	2480	-39.75	20	Pass
$T_{nom}V_{nom}$	GFSK/2Mbps	2402	-38.75	20	Pass
$T_{min}V_{nom}$	GFSK/2Mbps	2402	-37.75	20	Pass
$T_{max}V_{nom}$	GFSK/2Mbps	2402	-39.11	20	Pass
$T_{nom}V_{nom}$	GFSK/2Mbps	2440	-39.33	20	Pass
$T_{min}V_{nom}$	GFSK/2Mbps	2440	-38.30	20	Pass
$T_{max}V_{nom}$	GFSK/2Mbps	2440	-39.73	20	Pass
$T_{nom}V_{nom}$	GFSK/2Mbps	2480	-39.53	20	Pass
$T_{min}V_{nom}$	GFSK/2Mbps	2480	-38.59	20	Pass
$T_{max}V_{nom}$	GFSK/2Mbps	2480	-39.95	20	Pass

For Antenna Gain: 2.6 dBi, High Power

RF Output Power (dBm)					
Condition	**Modulation Mode**	**Freq. (MHz)**	**EIRP Power (dBm)**	**Limit (dBm)**	**Results**
$T_{nom}V_{nom}$	GFSK/125kbps	2402	8.63	20	Pass
$T_{min}V_{nom}$	GFSK/125kbps	2402	9.61	20	Pass
$T_{max}V_{nom}$	GFSK/125kbps	2402	8.26	20	Pass
$T_{nom}V_{nom}$	GFSK/125kbps	2440	8.88	20	Pass
$T_{min}V_{nom}$	GFSK/125kbps	2440	9.91	20	Pass
$T_{max}V_{nom}$	GFSK/125kbps	2440	8.48	20	Pass
$T_{nom}V_{nom}$	GFSK/125kbps	2480	8.97	20	Pass
$T_{min}V_{nom}$	GFSK/125kbps	2480	9.92	20	Pass
$T_{max}V_{nom}$	GFSK/125kbps	2480	8.52	20	Pass
$T_{nom}V_{nom}$	GFSK/500kbps	2402	8.62	20	Pass
$T_{min}V_{nom}$	GFSK/500kbps	2402	9.61	20	Pass
$T_{max}V_{nom}$	GFSK/500kbps	2402	8.24	20	Pass
$T_{nom}V_{nom}$	GFSK/500kbps	2440	8.88	20	Pass
$T_{min}V_{nom}$	GFSK/500kbps	2440	9.94	20	Pass
$T_{max}V_{nom}$	GFSK/500kbps	2440	8.47	20	Pass
$T_{nom}V_{nom}$	GFSK/500kbps	2480	8.93	20	Pass
$T_{min}V_{nom}$	GFSK/500kbps	2480	9.87	20	Pass
$T_{max}V_{nom}$	GFSK/500kbps	2480	8.49	20	Pass

RF Output Power (dBm)					
Condition	**Modulation Mode**	**Freq. (MHz)**	**EIRP Power (dBm)**	**Limit (dBm)**	**Results**
$T_{nom}V_{nom}$	GFSK/1Mbps	2402	8.52	20	Pass
$T_{min}V_{nom}$	GFSK/1Mbps	2402	9.50	20	Pass
$T_{max}V_{nom}$	GFSK/1Mbps	2402	8.15	20	Pass
$T_{nom}V_{nom}$	GFSK/1Mbps	2440	8.78	20	Pass
$T_{min}V_{nom}$	GFSK/1Mbps	2440	9.82	20	Pass
$T_{max}V_{nom}$	GFSK/1Mbps	2440	8.38	20	Pass
$T_{nom}V_{nom}$	GFSK/1Mbps	2480	8.85	20	Pass
$T_{min}V_{nom}$	GFSK/1Mbps	2480	9.80	20	Pass
$T_{max}V_{nom}$	GFSK/1Mbps	2480	8.43	20	Pass
$T_{nom}V_{nom}$	GFSK/2Mbps	2402	8.53	20	Pass
$T_{min}V_{nom}$	GFSK/2Mbps	2402	9.53	20	Pass
$T_{max}V_{nom}$	GFSK/2Mbps	2402	8.17	20	Pass
$T_{nom}V_{nom}$	GFSK/2Mbps	2440	8.79	20	Pass
$T_{min}V_{nom}$	GFSK/2Mbps	2440	9.82	20	Pass
$T_{max}V_{nom}$	GFSK/2Mbps	2440	8.39	20	Pass
$T_{nom}V_{nom}$	GFSK/2Mbps	2480	8.85	20	Pass
$T_{min}V_{nom}$	GFSK/2Mbps	2480	9.79	20	Pass
$T_{max}V_{nom}$	GFSK/2Mbps	2480	8.43	20	Pass

For Antenna Gain: 2 dBi, Low Power

RF Output Power (dBm)					
Condition	**Modulation Mode**	**Freq. (MHz)**	**EIRP Power (dBm)**	**Limit (dBm)**	**Results**
$T_{nom}V_{nom}$	GFSK/125kbps	2402	-39.27	20	Pass
$T_{min}V_{nom}$	GFSK/125kbps	2402	-38.29	20	Pass
$T_{max}V_{nom}$	GFSK/125kbps	2402	-39.64	20	Pass
$T_{nom}V_{nom}$	GFSK/125kbps	2440	-39.79	20	Pass
$T_{min}V_{nom}$	GFSK/125kbps	2440	-38.76	20	Pass
$T_{max}V_{nom}$	GFSK/125kbps	2440	-40.19	20	Pass
$T_{nom}V_{nom}$	GFSK/125kbps	2480	-39.98	20	Pass
$T_{min}V_{nom}$	GFSK/125kbps	2480	-39.03	20	Pass
$T_{max}V_{nom}$	GFSK/125kbps	2480	-40.43	20	Pass
$T_{nom}V_{nom}$	GFSK/500kbps	2402	-39.31	20	Pass
$T_{min}V_{nom}$	GFSK/500kbps	2402	-38.32	20	Pass
$T_{max}V_{nom}$	GFSK/500kbps	2402	-39.69	20	Pass
$T_{nom}V_{nom}$	GFSK/500kbps	2440	-39.83	20	Pass
$T_{min}V_{nom}$	GFSK/500kbps	2440	-38.77	20	Pass
$T_{max}V_{nom}$	GFSK/500kbps	2440	-40.24	20	Pass
$T_{nom}V_{nom}$	GFSK/500kbps	2480	-40.02	20	Pass
$T_{min}V_{nom}$	GFSK/500kbps	2480	-39.08	20	Pass
$T_{max}V_{nom}$	GFSK/500kbps	2480	-40.46	20	Pass

RF Output Power (dBm)					
Condition	**Modulation Mode**	**Freq. (MHz)**	**EIRP Power (dBm)**	**Limit (dBm)**	**Results**
$T_{nom}V_{nom}$	GFSK/1Mbps	2402	-39.21	20	Pass
$T_{min}V_{nom}$	GFSK/1Mbps	2402	-38.23	20	Pass
$T_{max}V_{nom}$	GFSK/1Mbps	2402	-39.58	20	Pass
$T_{nom}V_{nom}$	GFSK/1Mbps	2440	-39.73	20	Pass
$T_{min}V_{nom}$	GFSK/1Mbps	2440	-38.69	20	Pass
$T_{max}V_{nom}$	GFSK/1Mbps	2440	-40.13	20	Pass
$T_{nom}V_{nom}$	GFSK/1Mbps	2480	-39.93	20	Pass
$T_{min}V_{nom}$	GFSK/1Mbps	2480	-38.98	20	Pass
$T_{max}V_{nom}$	GFSK/1Mbps	2480	-40.35	20	Pass
$T_{nom}V_{nom}$	GFSK/2Mbps	2402	-39.35	20	Pass
$T_{min}V_{nom}$	GFSK/2Mbps	2402	-38.35	20	Pass
$T_{max}V_{nom}$	GFSK/2Mbps	2402	-39.71	20	Pass
$T_{nom}V_{nom}$	GFSK/2Mbps	2440	-39.93	20	Pass
$T_{min}V_{nom}$	GFSK/2Mbps	2440	-38.90	20	Pass
$T_{max}V_{nom}$	GFSK/2Mbps	2440	-40.33	20	Pass
$T_{nom}V_{nom}$	GFSK/2Mbps	2480	-40.13	20	Pass
$T_{min}V_{nom}$	GFSK/2Mbps	2480	-39.19	20	Pass
$T_{max}V_{nom}$	GFSK/2Mbps	2480	-40.55	20	Pass

For Antenna Gain: 2 dBi, High Power

RF Output Power (dBm)					
Condition	**Modulation Mode**	**Freq. (MHz)**	**EIRP Power (dBm)**	**Limit (dBm)**	**Results**
$T_{nom}V_{nom}$	GFSK/125kbps	2402	8.03	20	Pass
$T_{min}V_{nom}$	GFSK/125kbps	2402	9.01	20	Pass
$T_{max}V_{nom}$	GFSK/125kbps	2402	7.66	20	Pass
$T_{nom}V_{nom}$	GFSK/125kbps	2440	8.28	20	Pass
$T_{min}V_{nom}$	GFSK/125kbps	2440	9.31	20	Pass
$T_{max}V_{nom}$	GFSK/125kbps	2440	7.88	20	Pass
$T_{nom}V_{nom}$	GFSK/125kbps	2480	8.37	20	Pass
$T_{min}V_{nom}$	GFSK/125kbps	2480	9.32	20	Pass
$T_{max}V_{nom}$	GFSK/125kbps	2480	7.92	20	Pass
$T_{nom}V_{nom}$	GFSK/500kbps	2402	8.02	20	Pass
$T_{min}V_{nom}$	GFSK/500kbps	2402	9.01	20	Pass
$T_{max}V_{nom}$	GFSK/500kbps	2402	7.64	20	Pass
$T_{nom}V_{nom}$	GFSK/500kbps	2440	8.28	20	Pass
$T_{min}V_{nom}$	GFSK/500kbps	2440	9.34	20	Pass
$T_{max}V_{nom}$	GFSK/500kbps	2440	7.87	20	Pass
$T_{nom}V_{nom}$	GFSK/500kbps	2480	8.33	20	Pass
$T_{min}V_{nom}$	GFSK/500kbps	2480	9.27	20	Pass
$T_{max}V_{nom}$	GFSK/500kbps	2480	7.89	20	Pass

RF Output Power (dBm)					
Condition	**Modulation Mode**	**Freq. (MHz)**	**EIRP Power (dBm)**	**Limit (dBm)**	**Results**
$T_{nom}V_{nom}$	GFSK/1Mbps	2402	7.92	20	Pass
$T_{min}V_{nom}$	GFSK/1Mbps	2402	8.90	20	Pass
$T_{max}V_{nom}$	GFSK/1Mbps	2402	7.55	20	Pass
$T_{nom}V_{nom}$	GFSK/1Mbps	2440	8.18	20	Pass
$T_{min}V_{nom}$	GFSK/1Mbps	2440	9.22	20	Pass
$T_{max}V_{nom}$	GFSK/1Mbps	2440	7.78	20	Pass
$T_{nom}V_{nom}$	GFSK/1Mbps	2480	8.25	20	Pass
$T_{min}V_{nom}$	GFSK/1Mbps	2480	9.20	20	Pass
$T_{max}V_{nom}$	GFSK/1Mbps	2480	7.83	20	Pass
$T_{nom}V_{nom}$	GFSK/2Mbps	2402	7.93	20	Pass
$T_{min}V_{nom}$	GFSK/2Mbps	2402	8.93	20	Pass
$T_{max}V_{nom}$	GFSK/2Mbps	2402	7.57	20	Pass
$T_{nom}V_{nom}$	GFSK/2Mbps	2440	8.19	20	Pass
$T_{min}V_{nom}$	GFSK/2Mbps	2440	9.22	20	Pass
$T_{max}V_{nom}$	GFSK/2Mbps	2440	7.79	20	Pass
$T_{nom}V_{nom}$	GFSK/2Mbps	2480	8.25	20	Pass
$T_{min}V_{nom}$	GFSK/2Mbps	2480	9.19	20	Pass
$T_{max}V_{nom}$	GFSK/2Mbps	2480	7.83	20	Pass

3.2 Power Spectral Density

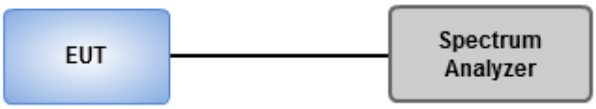
3.2.1 Limit of Power Spectral Density

The maximum Power Spectral Density is limited to 10 dBm per MHz.

3.2.2 Test Procedures

Reference to clause 5.4.3.2 of ETSI EN 300 328 V2.2.2 (2019-07) .

3.2.3 Test Setup



3.2.4 Test Result of Power Spectral Density

For Antenna Gain: 2.6 dBi, Low Power

Modulation Mode	Freq. (MHz)	Power Density (dBm/1MHz)	Limit (dBm/1MHz)	Results
GFSK/125kbps	2402	-42.14	10	Pass
GFSK/125kbps	2440	-42.94	10	Pass
GFSK/125kbps	2480	-43.43	10	Pass
GFSK500kbps	2402	-42.62	10	Pass
GFSK500kbps	2440	-43.37	10	Pass
GFSK500kbps	2480	-44.02	10	Pass
GFSK/1Mbps	2402	-43.22	10	Pass
GFSK/1Mbps	2440	-44.00	10	Pass
GFSK/1Mbps	2480	-44.59	10	Pass
GFSK/2Mbps	2402	-46.15	10	Pass
GFSK/2Mbps	2440	-46.95	10	Pass
GFSK/2Mbps	2480	-47.70	10	Pass

For Antenna Gain: 2.6 dBi, High Power

Modulation Mode	Freq. (MHz)	Power Density (dBm/1MHz)	Limit (dBm/1MHz)	Results
GFSK/125kbps	2402	8.56	10	Pass
GFSK/125kbps	2440	8.81	10	Pass
GFSK/125kbps	2480	8.90	10	Pass
GFSK500kbps	2402	8.56	10	Pass
GFSK500kbps	2440	8.81	10	Pass
GFSK500kbps	2480	8.86	10	Pass
GFSK/1Mbps	2402	8.45	10	Pass
GFSK/1Mbps	2440	8.73	10	Pass
GFSK/1Mbps	2480	8.78	10	Pass
GFSK/2Mbps	2402	7.50	10	Pass
GFSK/2Mbps	2440	7.73	10	Pass
GFSK/2Mbps	2480	7.79	10	Pass

For Antenna Gain: 2 dBi, Low Power

Modulation Mode	Freq. (MHz)	Power Density (dBm/1MHz)	Limit (dBm/1MHz)	Results
GFSK/125kbps	2402	-42.74	10	Pass
GFSK/125kbps	2440	-43.54	10	Pass
GFSK/125kbps	2480	-44.03	10	Pass
GFSK500kbps	2402	-43.22	10	Pass
GFSK500kbps	2440	-43.97	10	Pass
GFSK500kbps	2480	-44.62	10	Pass
GFSK/1Mbps	2402	-43.82	10	Pass
GFSK/1Mbps	2440	-44.60	10	Pass
GFSK/1Mbps	2480	-45.19	10	Pass
GFSK/2Mbps	2402	-46.75	10	Pass
GFSK/2Mbps	2440	-47.55	10	Pass
GFSK/2Mbps	2480	-48.30	10	Pass

For Antenna Gain: 2 dBi, High Power

Modulation Mode	Freq. (MHz)	Power Density (dBm/1MHz)	Limit (dBm/1MHz)	Results
GFSK/125kbps	2402	7.96	10	Pass
GFSK/125kbps	2440	8.21	10	Pass
GFSK/125kbps	2480	8.30	10	Pass
GFSK500kbps	2402	7.96	10	Pass
GFSK500kbps	2440	8.21	10	Pass
GFSK500kbps	2480	8.26	10	Pass
GFSK/1Mbps	2402	7.85	10	Pass
GFSK/1Mbps	2440	8.13	10	Pass
GFSK/1Mbps	2480	8.18	10	Pass
GFSK/2Mbps	2402	6.90	10	Pass
GFSK/2Mbps	2440	7.13	10	Pass
GFSK/2Mbps	2480	7.19	10	Pass

3.3 Occupied Channel Bandwidth

3.3.1 Limit of Occupied Channel Bandwidth

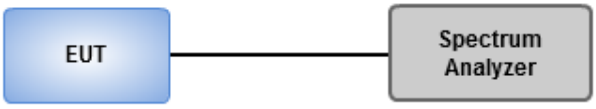
The Occupied Channel Bandwidth shall fall completely within 2.4~2.4835 GHz.

In addition, for non-adaptive equipment using wide band modulations other than FHSS and with e.i.r.p greater than 10 dBm, the occupied channel bandwidth shall be less than 20 MHz.

3.3.2 Test Procedures

Reference to clause 5.4.7.2 of ETSI EN 300 328 V2.2.2 (2019-07) .

3.3.3 Test Setup



3.3.4 Test Result of Occupied Channel Bandwidth

Low Power

GFSK/125kbps

Summary

Mode	OBW (Hz)	ITU-Code
2.4-2.4835GHz	-	-
BT-LE0.125_Nss1_1TX	1.049M	1M04F1D

OBW = 99% occupied bandwidth;

Result

Mode	Result	Limit (Hz)	fl-OBW (Hz)	fh-OBW (Hz)	OBW (Hz)	N dB (Hz)
BT-LE0.125_Nss1_1TX	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.4-2.4835G	2.401451G	2.402498G	1.047M	572k
2480MHz_TnomVnom	Pass	2.4-2.4835G	2.479449G	2.480498G	1.049M	572k

fl-OBW = fl lower edge 99% occupied bandwidth; **fh-OBW** = fh higher edge 99% occupied bandwidth; **OBW** = 99% occupied bandwidth;
N dB = 6dB down bandwidth;

GFSK/500kbps

Summary

Mode	OBW (Hz)	ITU-Code
2.4-2.4835GHz	-	-
BT-LE0.5_Nss1_1TX	1.038M	1M03F1D

OBW = 99% occupied bandwidth;

Result

Mode	Result	Limit (Hz)	fl-OBW (Hz)	fh-OBW (Hz)	OBW (Hz)	N dB (Hz)
BT-LE0.5_Nss1_1TX	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.4-2.4835G	2.401457G	2.402494G	1.037M	578k
2480MHz_TnomVnom	Pass	2.4-2.4835G	2.479455G	2.480493G	1.038M	580k

fl-OBW = fl lower edge 99% occupied bandwidth; **fh-OBW** = fh higher edge 99% occupied bandwidth; **OBW** = 99% occupied bandwidth;
N dB = 6dB down bandwidth;

GFSK/1Mbps

Summary

Mode	OBW (Hz)	ITU-Code
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	1.049M	1M04F1D

OBW = 99% occupied bandwidth;

Result

Mode	Result	Limit (Hz)	fl-OBW (Hz)	fh-OBW (Hz)	OBW (Hz)	N dB (Hz)
BT-LE(1Mbps)	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.4-2.4835G	2.401463G	2.402509G	1.046M	660k
2480MHz_TnomVnom	Pass	2.4-2.4835G	2.47946G	2.480509G	1.049M	662k

fl-OBW = fl lower edge 99% occupied bandwidth; **fh-OBW** = fh higher edge 99% occupied bandwidth; **OBW** = 99% occupied bandwidth;
N dB = 6dB down bandwidth;

GFSK/2Mbps

Summary

Mode	OBW (Hz)	ITU-Code
2.4-2.4835GHz	-	-
BT-LE(2Mbps)	2.062M	2M06F1D

OBW = 99% occupied bandwidth;

Result

Mode	Result	Limit (Hz)	fl-OBW (Hz)	fh-OBW (Hz)	OBW (Hz)	N dB (Hz)
BT-LE(2Mbps)	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.4-2.4835G	2.400966G	2.403022G	2.056M	902k
2480MHz_TnomVnom	Pass	2.4-2.4835G	2.478963G	2.481025G	2.062M	906k

fl-OBW = fl lower edge 99% occupied bandwidth; **fh-OBW** = fh higher edge 99% occupied bandwidth; **OBW** = 99% occupied bandwidth;
N dB = 6dB down bandwidth;

High Power

GFSK/125kbps

Summary

Mode	OBW (Hz)	ITU-Code
2.4-2.4835GHz	-	-
BT-LE0.125_Nss1_1TX	1.048M	1M04F1D

OBW = 99% occupied bandwidth;

Result

Mode	Result	Limit (Hz)	fl-OBW (Hz)	fh-OBW (Hz)	OBW (Hz)	N dB (Hz)
BT-LE0.125_Nss1_1TX	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.4-2.4835G	2.40145G	2.402496G	1.046M	572k
2480MHz_TnomVnom	Pass	2.4-2.4835G	2.479449G	2.480497G	1.048M	572k

fl-OBW = fl lower edge 99% occupied bandwidth; **fh-OBW** = fh higher edge 99% occupied bandwidth; **OBW** = 99% occupied bandwidth; **N dB** = 6dB down bandwidth;

GFSK/500kbps

Summary

Mode	OBW (Hz)	ITU-Code
2.4-2.4835GHz	-	-
BT-LE0.5_Nss1_1TX	1.039M	1M03F1D

OBW = 99% occupied bandwidth;

Result

Mode	Result	Limit (Hz)	fl-OBW (Hz)	fh-OBW (Hz)	OBW (Hz)	N dB (Hz)
BT-LE0.5_Nss1_1TX	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.4-2.4835G	2.401458G	2.402492G	1.034M	580k
2480MHz_TnomVnom	Pass	2.4-2.4835G	2.479455G	2.480494G	1.039M	578k

fl-OBW = fl lower edge 99% occupied bandwidth; **fh-OBW** = fh higher edge 99% occupied bandwidth; **OBW** = 99% occupied bandwidth; **N dB** = 6dB down bandwidth;

GFSK/1Mbps

Summary

Mode	OBW (Hz)	ITU-Code
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	1.047M	1M04F1D

OBW = 99% occupied bandwidth;

Result

Mode	Result	Limit (Hz)	fl-OBW (Hz)	fh-OBW (Hz)	OBW (Hz)	N dB (Hz)
BT-LE(1Mbps)	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.4-2.4835G	2.401464G	2.402508G	1.044M	606k
2480MHz_TnomVnom	Pass	2.4-2.4835G	2.479461G	2.480508G	1.047M	665k

fl-OBW = fl lower edge 99% occupied bandwidth; **fh-OBW** = fh higher edge 99% occupied bandwidth; **OBW** = 99% occupied bandwidth; **N dB** = 6dB down bandwidth;

GFSK/2Mbps

Summary

Mode	OBW (Hz)	ITU-Code
2.4-2.4835GHz	-	-
BT-LE(2Mbps)	2.061M	2M06F1D

OBW = 99% occupied bandwidth;

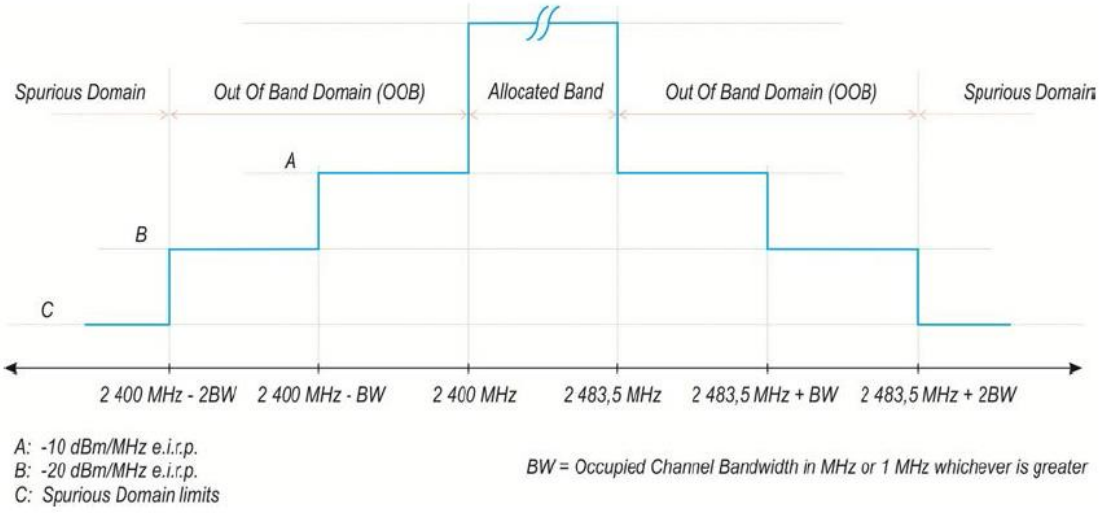
Result

Mode	Result	Limit (Hz)	fl-OBW (Hz)	fh-OBW (Hz)	OBW (Hz)	N dB (Hz)
BT-LE(2Mbps)	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.4-2.4835G	2.400969G	2.40302G	2.051M	910k
2480MHz_TnomVnom	Pass	2.4-2.4835G	2.478964G	2.481025G	2.061M	1.022M

fl-OBW = fl lower edge 99% occupied bandwidth; **fh-OBW** = fh higher edge 99% occupied bandwidth; **OBW** = 99% occupied bandwidth; **N dB** = 6dB down bandwidth;

3.4 Transmitter Unwanted Emissions in the Out-Of-Band Domain

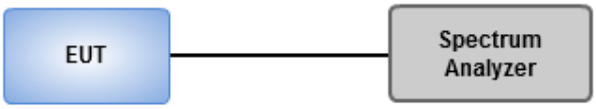
3.4.1 Limit of Transmitter Unwanted Emissions in the Out-Of-Band Domain



3.4.2 Test Procedures

Reference to clause 5.4.8.2 of ETSI EN 300 328 V2.2.2 (2019-07) .

3.4.3 Test Setup



3.4.4 Test Result of Transmitter Unwanted Emissions in the Out-Of-Band Domain

For Antenna Gain: 2.6 dBi, Low Power

GFSK/125kbps

Summary

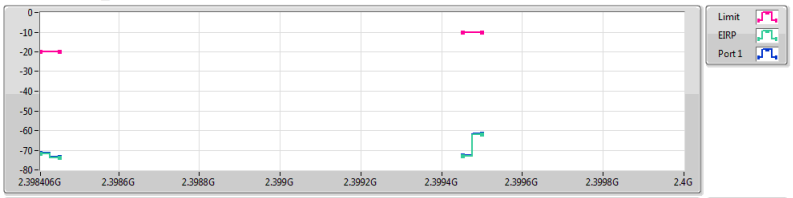
Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE0.125_Nss1_1TX	-62.05	-10	-70.75	-20

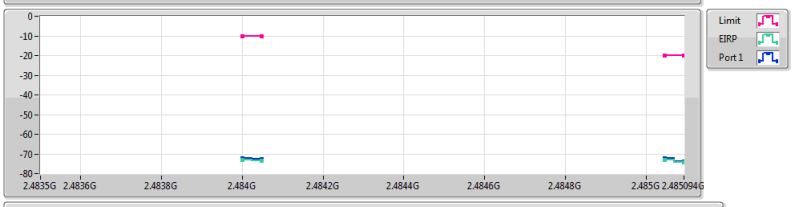
Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE0.125_Nss1_1TX	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.398406G	-72.00	-20	2.3995G	-62.05	-10
2402MHz_TnomVnom	Pass	2.485047G	-72.91	-20	2.484G	-72.89	-10
2480MHz_TnomVnom	Pass	2.398402G	-72.46	-20	2.399451G	-72.96	-10
2480MHz_TnomVnom	Pass	2.485049G	-70.75	-20	2.484G	-71.71	-10

BT-LE0.125_Nss1_1TX **Mask**

2402MHz_TnomVnom

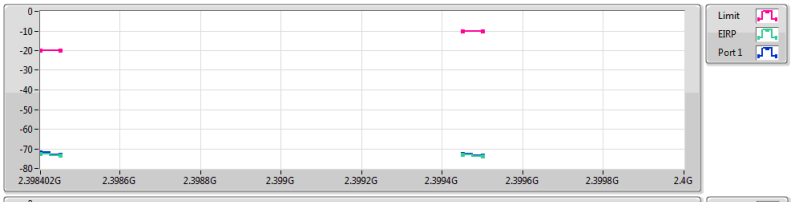


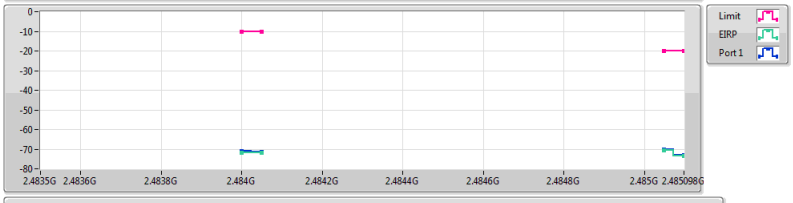


Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398406G	-72.00	-20	2.3995G	-62.05	-10	2.484G	-72.89	-10	2.485047G	-72.91	-20

BT-LE0.125_Nss1_1TX **Mask**

2480MHz_TnomVnom





Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398402G	-72.46	-20	2.399451G	-72.96	-10	2.484G	-71.71	-10	2.485049G	-70.75	-20

GFSK/500kbps

Summary

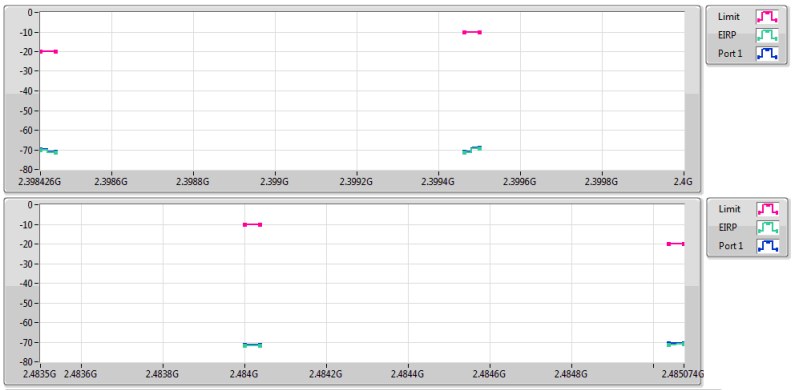
Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE0.5_Nss1_1TX	-64.06	-10	-70.22	-20

Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE0.5_Nss1_1TX	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.398426G	-70.22	-20	2.3995G	-69.39	-10
2402MHz_TnomVnom	Pass	2.485074G	-71.04	-20	2.484037G	-71.78	-10
2480MHz_TnomVnom	Pass	2.398424G	-71.21	-20	2.3995G	-70.18	-10
2480MHz_TnomVnom	Pass	2.485076G	-70.29	-20	2.484G	-64.06	-10

BT-LE0.5_Nss1_1TX **Mask**

2402MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398426G	-70.22	-20	2.3995G	-69.39	-10	2.484037G	-71.78	-10	2.485074G	-71.04	-20

BT-LE0.5_Nss1_1TX **Mask**

2480MHz_TnomVnom

Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398424G	-71.21	-20	2.3995G	-70.18	-10	2.484G	-64.06	-10	2.485076G	-70.29	-20

GFSK/1Mbps

Summary

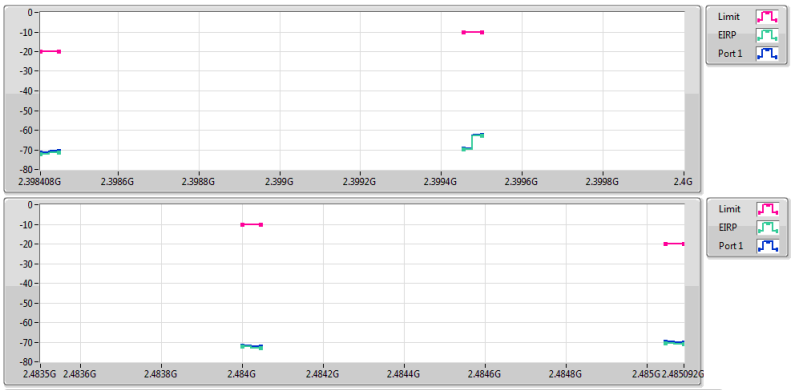
Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE(1Mbps)	-62.97	-10	-70.49	-20

Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE(1Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.398454G	-71.26	-20	2.3995G	-62.97	-10
2402MHz_TnomVnom	Pass	2.485046G	-70.49	-20	2.484G	-72.14	-10
2480MHz_TnomVnom	Pass	2.398402G	-72.05	-20	2.399451G	-71.41	-10
2480MHz_TnomVnom	Pass	2.485049G	-71.37	-20	2.484G	-71.85	-10

BT-LE(1Mbps) **Mask**

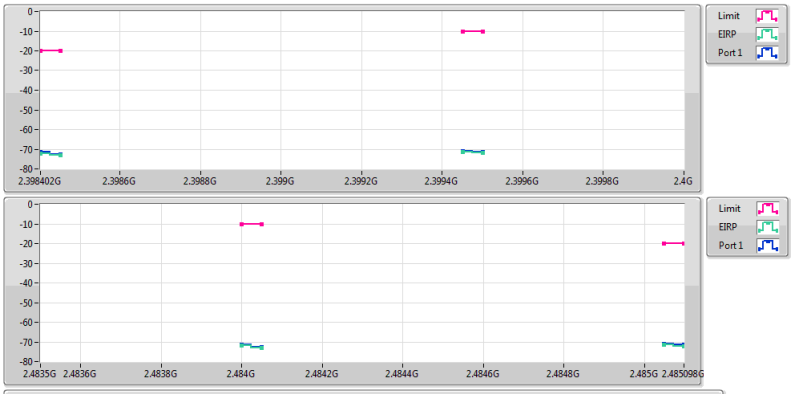
2402MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398454G	-71.26	-20	2.3995G	-62.97	-10	2.484G	-72.14	-10	2.485046G	-70.49	-20

BT-LE(1Mbps) **Mask**

2480MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398402G	-72.05	-20	2.399451G	-71.41	-10	2.484G	-71.85	-10	2.485049G	-71.37	-20

GFSK/2Mbps

Summary

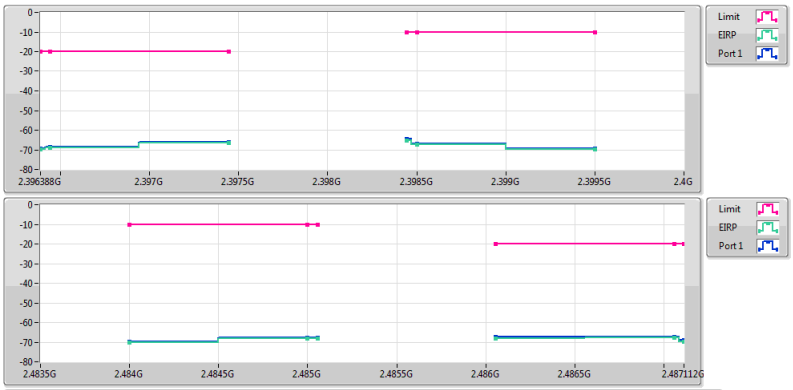
Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE(2Mbps)	-65.12	-10	-66.66	-20

Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE(2Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.397444G	-66.66	-20	2.398444G	-65.12	-10
2402MHz_TnomVnom	Pass	2.487056G	-67.95	-20	2.485056G	-68.11	-10
2480MHz_TnomVnom	Pass	2.396438G	-69.44	-20	2.398438G	-69.41	-10
2480MHz_TnomVnom	Pass	2.487124G	-68.50	-20	2.485G	-68.44	-10

BT-LE(2Mbps) **Mask**

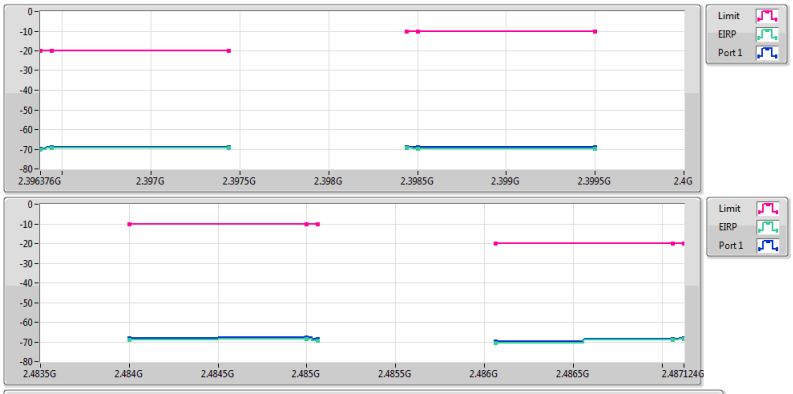
2402MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.397444G	-66.66	-20	2.398444G	-65.12	-10	2.485056G	-68.11	-10	2.487056G	-67.95	-20

BT-LE(2Mbps) **Mask**

2480MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.396438G	-69.44	-20	2.398438G	-69.41	-10	2.485G	-68.44	-10	2.487124G	-68.50	-20

For Antenna Gain: 2.6 dBi, High Power

GFSK/125kbps

Summary

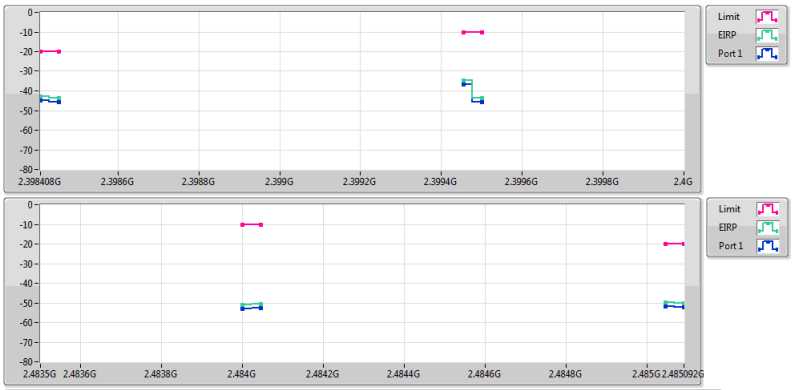
Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE0.125_Nss1_1TX	-34.84	-10	-42.72	-20

Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE0.125_Nss1_1TX	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.398408G	-42.72	-20	2.399454G	-34.84	-10
2402MHz_TnomVnom	Pass	2.485046G	-49.73	-20	2.484046G	-50.61	-10
2480MHz_TnomVnom	Pass	2.398452G	-50.64	-20	2.399452G	-49.66	-10
2480MHz_TnomVnom	Pass	2.485096G	-47.22	-20	2.484G	-46.20	-10

BT-LE0.125_Nss1_1TX **Mask**

2402MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398408G	-42.72	-20	2.399454G	-34.84	-10	2.484046G	-50.61	-10	2.485046G	-49.73	-20

BT-LE0.125_Nss1_1TX **Mask**

2480MHz_TnomVnom

Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398452G	-50.64	-20	2.399452G	-49.66	-10	2.484G	-46.20	-10	2.485096G	-47.22	-20

GFSK/500kbps

Summary

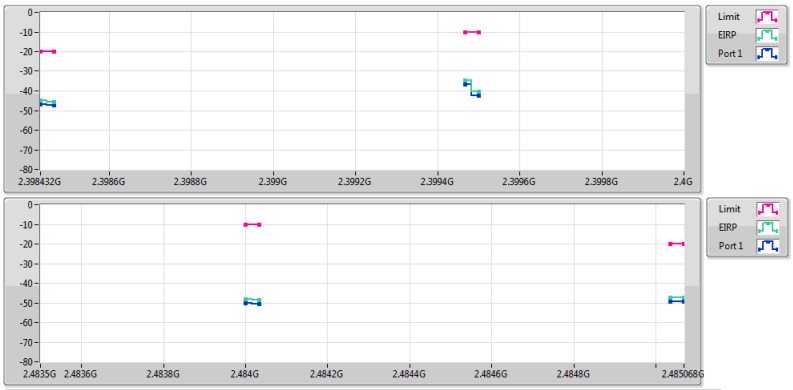
Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE0.5_Nss1_1TX	-34.79	-10	-45.04	-20

Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE0.5_Nss1_1TX	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.398432G	-45.04	-20	2.399466G	-34.79	-10
2402MHz_TnomVnom	Pass	2.485068G	-47.32	-20	2.484G	-48.08	-10
2480MHz_TnomVnom	Pass	2.398422G	-47.73	-20	2.399461G	-47.23	-10
2480MHz_TnomVnom	Pass	2.485078G	-46.87	-20	2.484G	-43.36	-10

BT-LE0.5_Nss1_1TX **Mask**

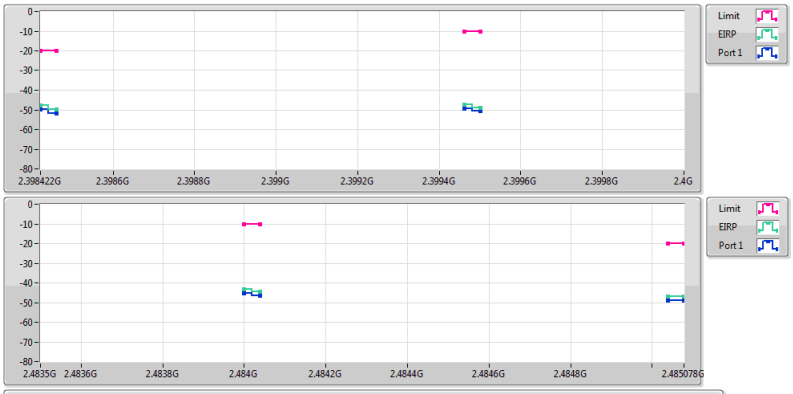
2402MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398432G	-45.04	-20	2.399466G	-34.79	-10	2.484G	-48.08	-10	2.485068G	-47.32	-20

BT-LE0.5_Nss1_1TX **Mask**

2480MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398422G	-47.73	-20	2.399461G	-47.23	-10	2.484G	-43.36	-10	2.485078G	-46.87	-20

GFSK/1Mbps

Summary

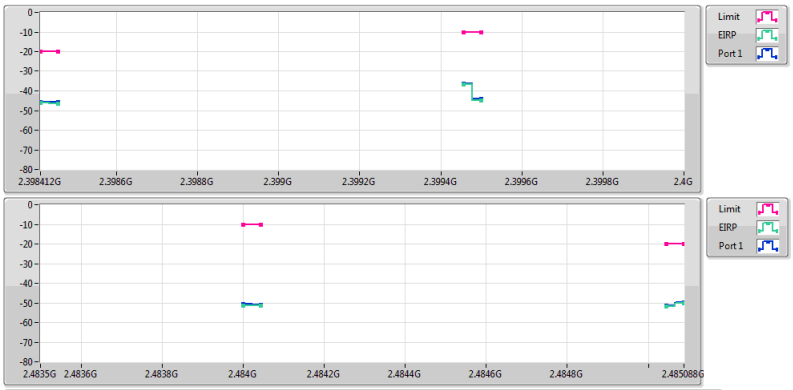
Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE(1Mbps)	-36.69	-10	-46.23	-20

Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE(1Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.398412G	-46.23	-20	2.399456G	-36.69	-10
2402MHz_TnomVnom	Pass	2.485088G	-50.34	-20	2.484G	-51.26	-10
2480MHz_TnomVnom	Pass	2.398453G	-51.77	-20	2.3995G	-50.63	-10
2480MHz_TnomVnom	Pass	2.485094G	-49.10	-20	2.484G	-46.30	-10

BT-LE(1Mbps) **Mask**

2402MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398412G	-46.23	-20	2.399456G	-36.69	-10	2.484G	-51.26	-10	2.485088G	-50.34	-20

BT-LE(1Mbps) **Mask**

2480MHz_TnomVnom

Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398453G	-51.77	-20	2.3995G	-50.63	-10	2.484G	-46.30	-10	2.485094G	-49.10	-20

GFSK/2Mbps

Summary

Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE(2Mbps)	-28.68	-10	-42.52	-20

Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE(2Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.397449G	-42.52	-20	2.3995G	-28.68	-10
2402MHz_TnomVnom	Pass	2.487102G	-47.19	-20	2.484G	-47.04	-10
2480MHz_TnomVnom	Pass	2.396378G	-47.62	-20	2.398439G	-48.24	-10
2480MHz_TnomVnom	Pass	2.486061G	-44.46	-20	2.484G	-39.82	-10

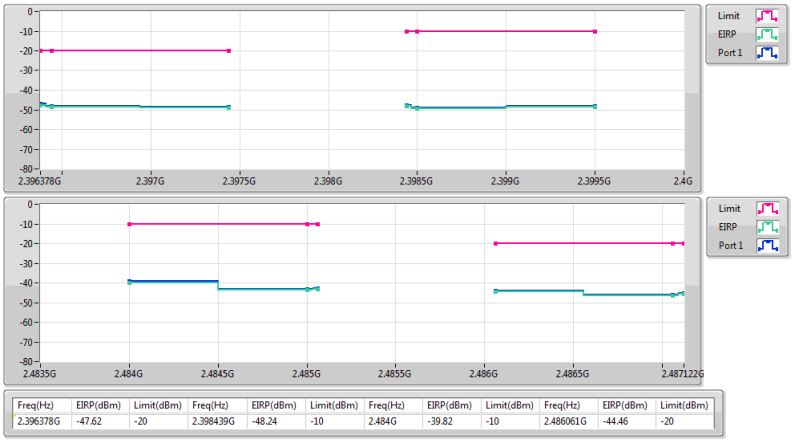
BT-LE(2Mbps) **Mask**

2402MHz_TnomVnom

Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.397449G	-42.52	-20	2.3995G	-28.68	-10	2.484G	-47.04	-10	2.487102G	-47.19	-20

BT-LE(2Mbps) **Mask**

2480MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.396378G	-47.62	-20	2.398439G	-48.24	-10	2.484G	-39.82	-10	2.486061G	-44.46	-20

For Antenna Gain: 2 dBi, Low Power

GFSK/125kbps

Summary

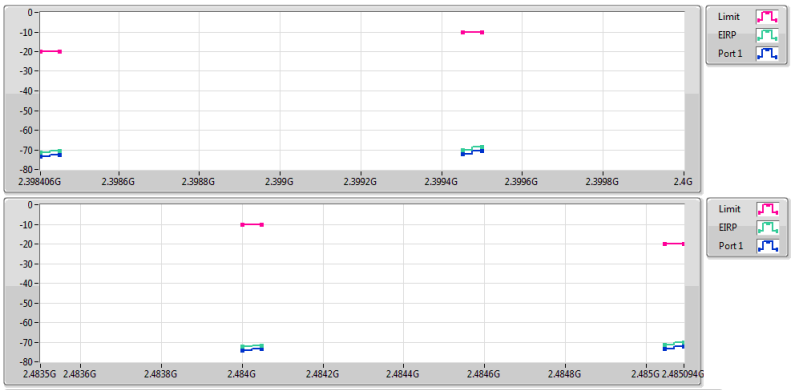
Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE0.125_Nss1_1TX	-68.44	-10	-70.18	-20

Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE0.125_Nss1_1TX	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.398453G	-70.53	-20	2.3995G	-68.44	-10
2402MHz_TnomVnom	Pass	2.485094G	-70.18	-20	2.484047G	-71.67	-10
2480MHz_TnomVnom	Pass	2.398402G	-71.28	-20	2.399451G	-70.90	-10
2480MHz_TnomVnom	Pass	2.485098G	-70.81	-20	2.484G	-71.03	-10

BT-LE0.125_Nss1_1TX **Mask**

2402MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398453G	-70.53	-20	2.3995G	-68.44	-10	2.484047G	-71.67	-10	2.485094G	-70.18	-20

BT-LE0.125_Nss1_1TX **Mask**

2480MHz_TnomVnom

Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398402G	-71.28	-20	2.399451G	-70.90	-10	2.484G	-71.03	-10	2.485098G	-70.81	-20

GFSK/500kbps

Summary

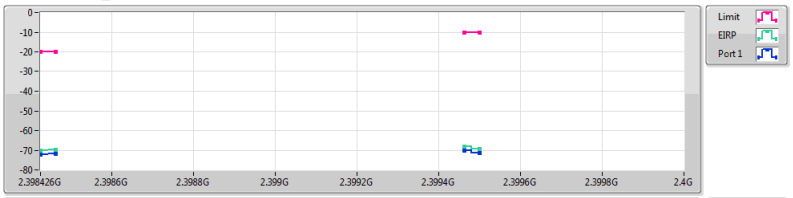
Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE0.5_Nss1_1TX	-68.16	-10	-68.9	-20

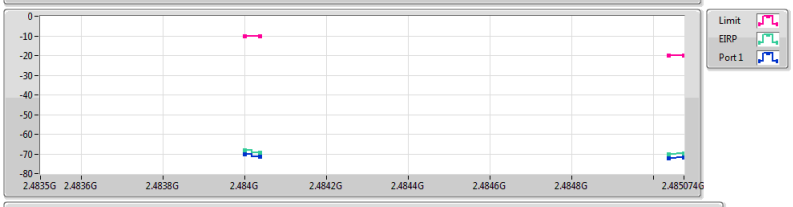
Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE0.5_Nss1_1TX	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.398463G	-69.69	-20	2.399463G	-68.36	-10
2402MHz_TnomVnom	Pass	2.485074G	-69.81	-20	2.484G	-68.16	-10
2480MHz_TnomVnom	Pass	2.398424G	-70.37	-20	2.3995G	-69.68	-10
2480MHz_TnomVnom	Pass	2.485038G	-68.90	-20	2.484G	-68.51	-10

BT-LE0.5_Nss1_1TX **Mask**

2402MHz_TnomVnom

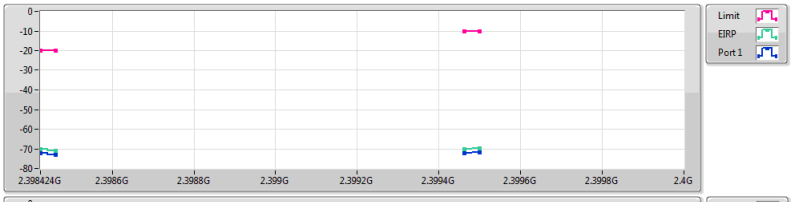


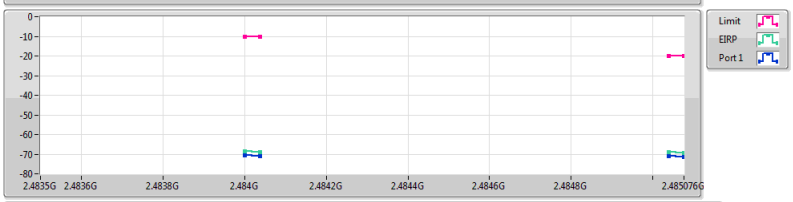


Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398463G	-69.69	-20	2.399463G	-68.36	-10	2.484G	-68.16	-10	2.485074G	-69.81	-20

BT-LE0.5_Nss1_1TX **Mask**

2480MHz_TnomVnom





Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398424G	-70.37	-20	2.3995G	-69.68	-10	2.484G	-68.51	-10	2.485038G	-68.90	-20

GFSK/1Mbps

Summary

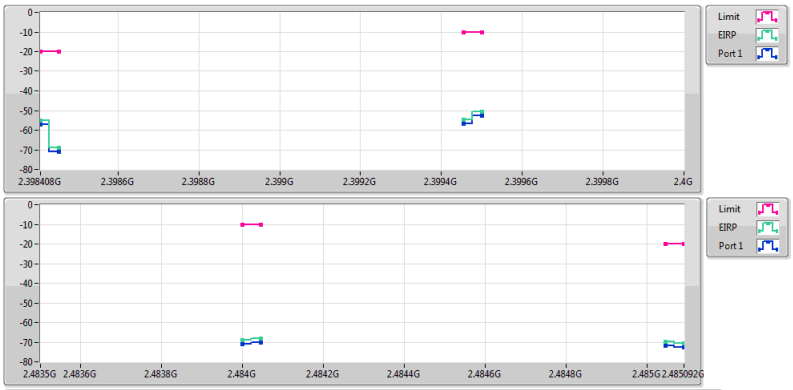
Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE(1Mbps)	-50.54	-10	-54.97	-20

Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE(1Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.398408G	-54.97	-20	2.3995G	-50.54	-10
2402MHz_TnomVnom	Pass	2.485046G	-69.86	-20	2.484046G	-68.08	-10
2480MHz_TnomVnom	Pass	2.398402G	-69.35	-20	2.399451G	-71.29	-10
2480MHz_TnomVnom	Pass	2.485049G	-69.74	-20	2.484G	-55.41	-10

BT-LE(1Mbps) **Mask**

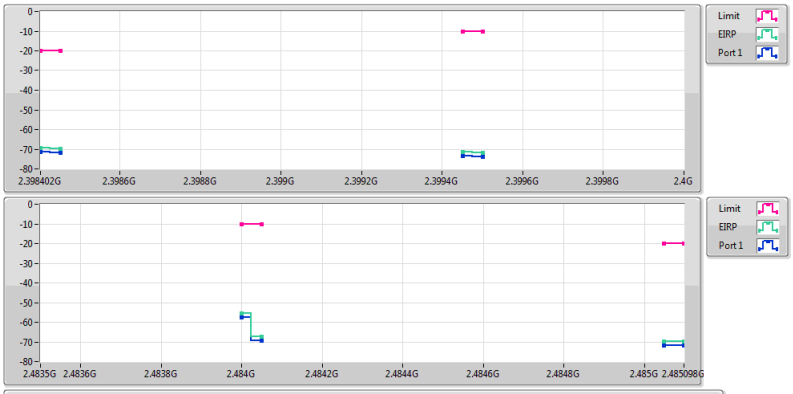
2402MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398408G	-54.97	-20	2.3995G	-50.54	-10	2.484046G	-68.08	-10	2.485046G	-69.86	-20

BT-LE(1Mbps) **Mask**

2480MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398402G	-69.35	-20	2.399451G	-71.29	-10	2.484G	-55.41	-10	2.485049G	-69.74	-20

GFSK/2Mbps

Summary

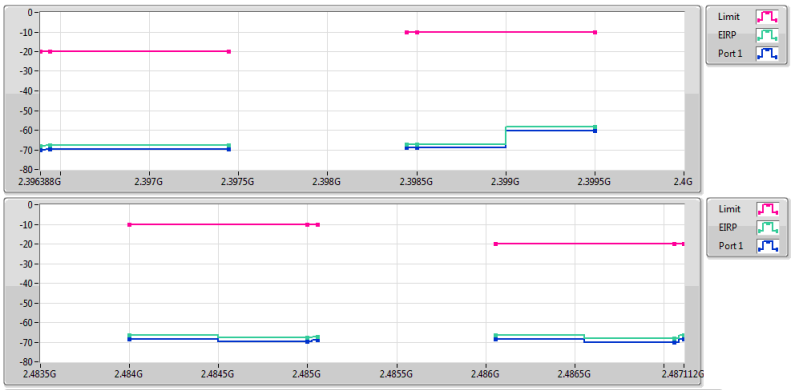
Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE(2Mbps)	-56.33	-10	-65.23	-20

Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE(2Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.396444G	-67.62	-20	2.3995G	-58.23	-10
2402MHz_TnomVnom	Pass	2.486056G	-66.51	-20	2.484G	-66.57	-10
2480MHz_TnomVnom	Pass	2.396376G	-65.23	-20	2.3995G	-66.19	-10
2480MHz_TnomVnom	Pass	2.486062G	-66.42	-20	2.485G	-56.33	-10

BT-LE(2Mbps) **Mask**

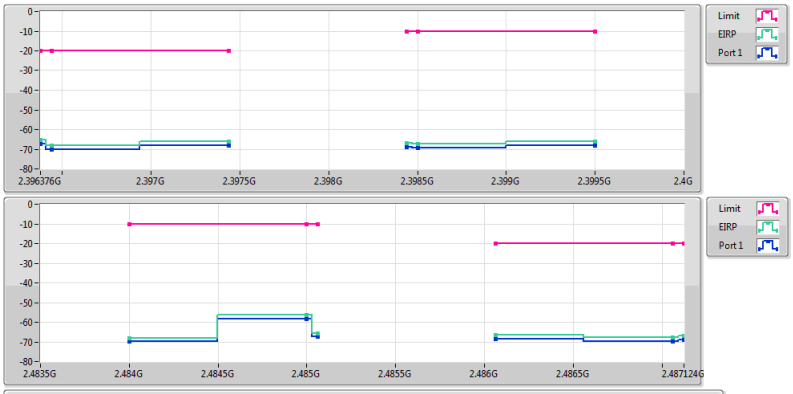
2402MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.396444G	-67.62	-20	2.3995G	-58.23	-10	2.484G	-66.57	-10	2.486056G	-66.51	-20

BT-LE(2Mbps) **Mask**

2480MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.396376G	-65.23	-20	2.3995G	-66.19	-10	2.485G	-56.33	-10	2.486062G	-66.42	-20

For Antenna Gain: 2 dBi, High Power

GFSK/125kbps

Summary

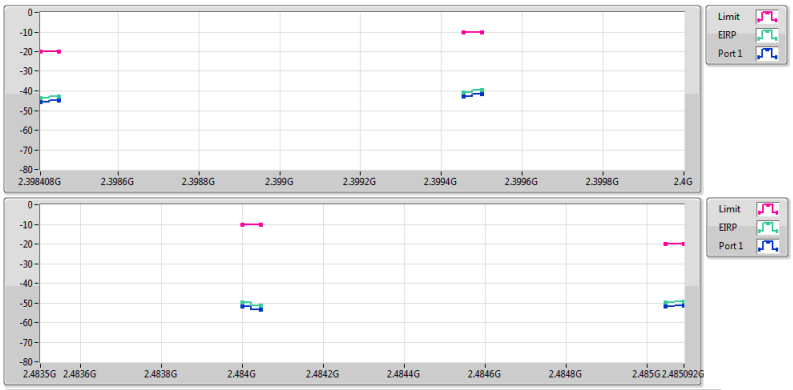
Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE0.125_Nss1_1TX	-39.43	-10	-42.72	-20

Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE0.125_Nss1_1TX	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.398454G	-42.72	-20	2.3995G	-39.43	-10
2402MHz_TnomVnom	Pass	2.485092G	-49.47	-20	2.484G	-49.66	-10
2480MHz_TnomVnom	Pass	2.398404G	-49.69	-20	2.3995G	-47.19	-10
2480MHz_TnomVnom	Pass	2.485048G	-47.02	-20	2.484G	-42.68	-10

BT-LE0.125_Nss1_1TX **Mask**

2402MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398454G	-42.72	-20	2.3995G	-39.43	-10	2.484G	-49.66	-10	2.485092G	-49.47	-20

BT-LE0.125_Nss1_1TX **Mask**

2480MHz_TnomVnom

Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398404G	-49.69	-20	2.3995G	-47.19	-10	2.484G	-42.68	-10	2.485048G	-47.02	-20

GFSK/500kbps

Summary

Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE0.5_Nss1_1TX	-38.81	-10	-41.38	-20

Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE0.5_Nss1_1TX	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.398418G	-41.38	-20	2.3995G	-38.83	-10
2402MHz_TnomVnom	Pass	2.485041G	-47.83	-20	2.484041G	-48.17	-10
2480MHz_TnomVnom	Pass	2.398422G	-47.73	-20	2.399461G	-48.38	-10
2480MHz_TnomVnom	Pass	2.485078G	-41.76	-20	2.484G	-38.81	-10

BT-LE0.5_Nss1_1TX **Mask**

2402MHz_TnomVnom

Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398418G	-41.38	-20	2.3995G	-38.83	-10	2.484041G	-48.17	-10	2.485041G	-47.83	-20

BT-LE0.5_Nss1_1TX **Mask**

2480MHz_TnomVnom

Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398422G	-47.73	-20	2.399461G	-48.38	-10	2.484G	-38.81	-10	2.485078G	-41.76	-20

GFSK/1Mbps

Summary

Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE(1Mbps)	-30.3	-10	-41.92	-20

Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE(1Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.398412G	-41.92	-20	2.399456G	-30.30	-10
2402MHz_TnomVnom	Pass	2.485044G	-48.86	-20	2.484044G	-48.80	-10
2480MHz_TnomVnom	Pass	2.398453G	-47.78	-20	2.399453G	-46.96	-10
2480MHz_TnomVnom	Pass	2.485094G	-43.78	-20	2.484047G	-43.04	-10

BT-LE(1Mbps) **Mask**

2402MHz_TnomVnom

Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398412G	-41.92	-20	2.399456G	-30.30	-10	2.484044G	-48.80	-10	2.485044G	-48.86	-20

BT-LE(1Mbps) **Mask**

2480MHz_TnomVnom

Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.398453G	-47.78	-20	2.399453G	-46.96	-10	2.484047G	-43.04	-10	2.485094G	-43.78	-20

GFSK/2Mbps

Summary

Mode	EIRP-A (dBm)	Limit-A (dBm)	EIRP-B (dBm)	Limit-B (dBm)
2.4-2.4835GHz	-	-	-	-
BT-LE(2Mbps)	-22.55	-10	-38.64	-20

Result

Mode	Result	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Freq (Hz)	EIRP (dBm)	Limit (dBm)
BT-LE(2Mbps)	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.397449G	-38.64	-20	2.3995G	-22.55	-10
2402MHz_TnomVnom	Pass	2.486051G	-47.19	-20	2.484G	-44.46	-10
2480MHz_TnomVnom	Pass	2.396439G	-45.63	-20	2.3995G	-46.23	-10
2480MHz_TnomVnom	Pass	2.487061G	-39.83	-20	2.484G	-36.84	-10

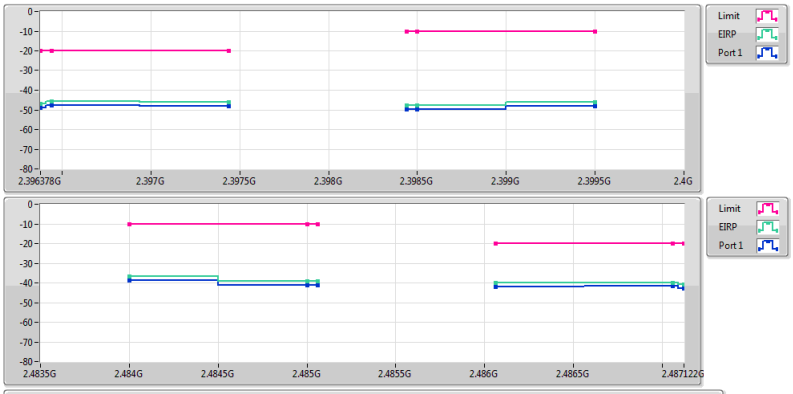
BT-LE(2Mbps) **Mask**

2402MHz_TnomVnom

Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.397449G	-38.64	-20	2.3995G	-22.55	-10	2.484G	-44.46	-10	2.486051G	-47.19	-20

BT-LE(2Mbps) **Mask**

2480MHz_TnomVnom



Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)	Freq(Hz)	EIRP(dBm)	Limit(dBm)
2.396439G	-45.63	-20	2.3995G	-46.23	-10	2.484G	-36.84	-10	2.487061G	-39.83	-20

3.5 Transmitter Unwanted Emissions in the Spurious Domain

3.5.1 Limit of Transmitter Unwanted Emissions in the Spurious Domain

Frequency Range (MHz)	Maximum power (dBm)	Bandwidth (kHz)
30 to 47	-36	100
47 to 74	-54	100
74 to 87,5	-36	100
87,5 to 118	-54	100
118 to 174	-36	100
174 to 230	-54	100
230 to 470	-36	100
470 to 694	-54	100
694 to 1000	-36	100
1000 to 12750	-30	1000

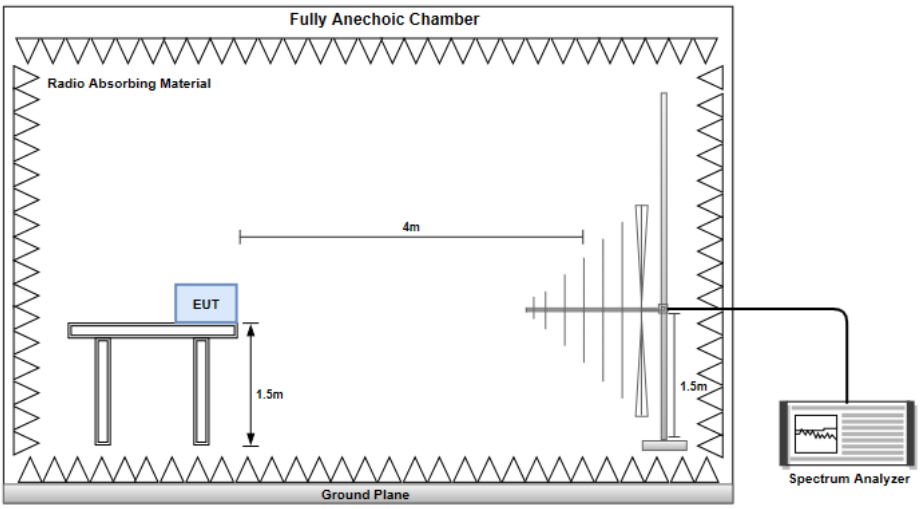
3.5.2 Test Procedures

Reference to clause 5.4.9.2 of ETSI EN 300 328 V2.2.2 (2019-07) .

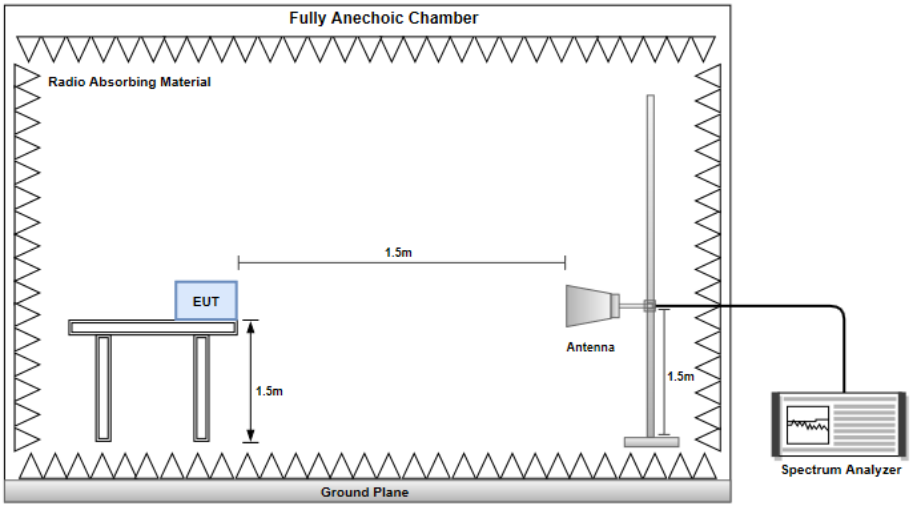
3.5.3 Test Setup

Radiated Emission

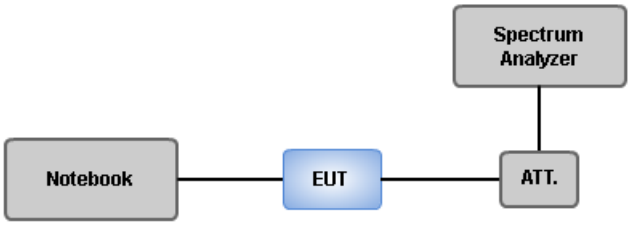
Below 1GHz



Above 1 GHz

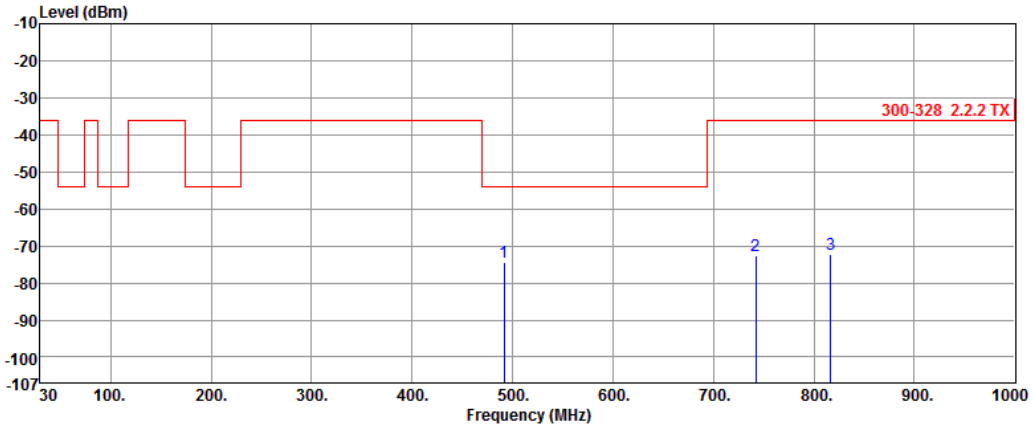


Conducted Emission



3.5.4 Transmitter Conducted Unwanted Emissions (Below 1GHz)

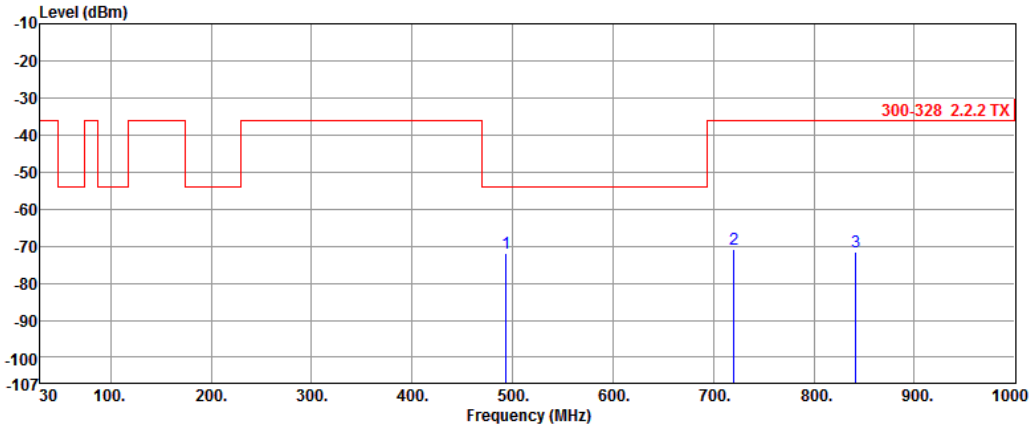
Modulation	GFSK/125kbps	Test Freq. (MHz)	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	491.72	-74.47	-54.00	-20.47	0.00	-74.47
2	741.98	-72.75	-36.00	-36.75	0.00	-72.75
3	816.67	-72.38	-36.00	-36.38	0.00	-72.38

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

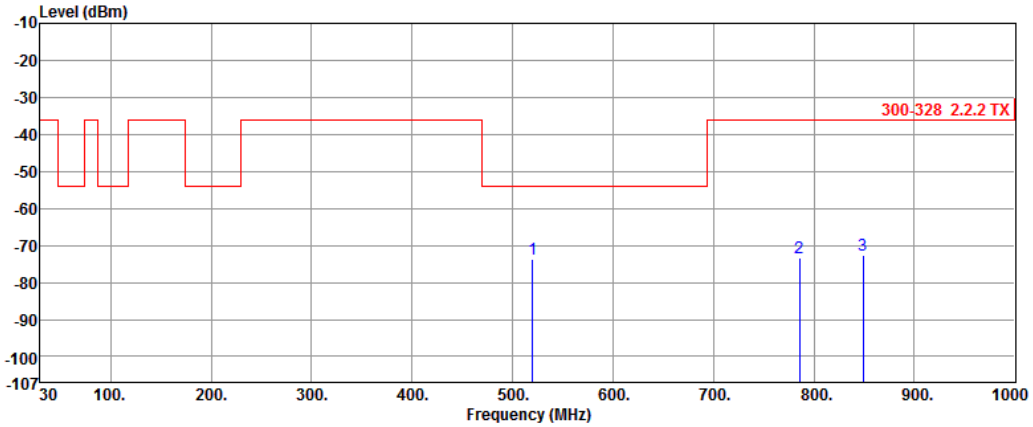
Modulation	GFSK/125kbps	Test Freq. (MHz)	2480



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	493.66	-72.06	-54.00	-18.06	0.00	-72.06
2	720.64	-70.77	-36.00	-34.77	0.00	-70.77
3	841.89	-71.43	-36.00	-35.43	0.00	-71.43

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

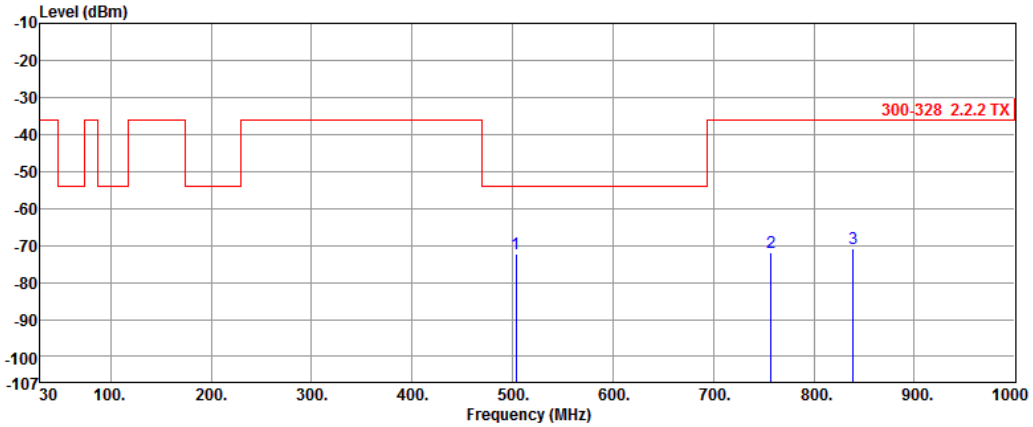
Modulation	GFSK/500kbps	Test Freq. (MHz)	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	519.85	-73.76	-54.00	-19.76	0.00	-73.76
2	785.63	-73.18	-36.00	-37.18	0.00	-73.18
3	848.68	-72.78	-36.00	-36.78	0.00	-72.78

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

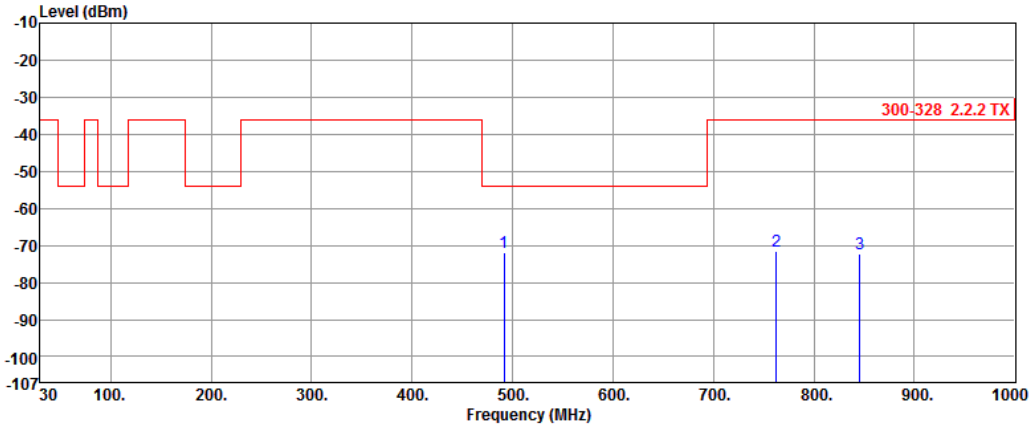
Modulation	GFSK/500kbps	Test Freq. (MHz)	2480



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	503.36	-72.33	-54.00	-18.33	0.00	-72.33
2	757.50	-71.86	-36.00	-35.86	0.00	-71.86
3	838.98	-70.96	-36.00	-34.96	0.00	-70.96

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

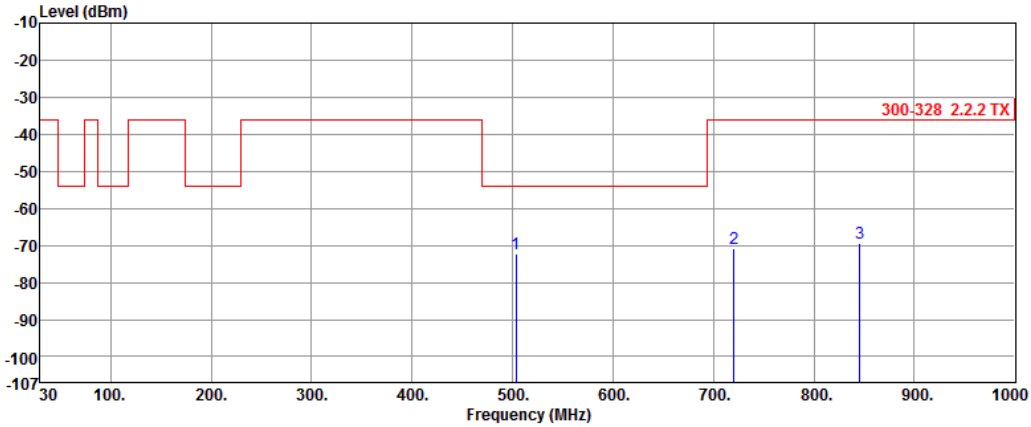
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	491.72	-71.90	-54.00	-17.90	0.00	-71.90
2	762.35	-71.46	-36.00	-35.46	0.00	-71.46
3	845.77	-72.15	-36.00	-36.15	0.00	-72.15

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

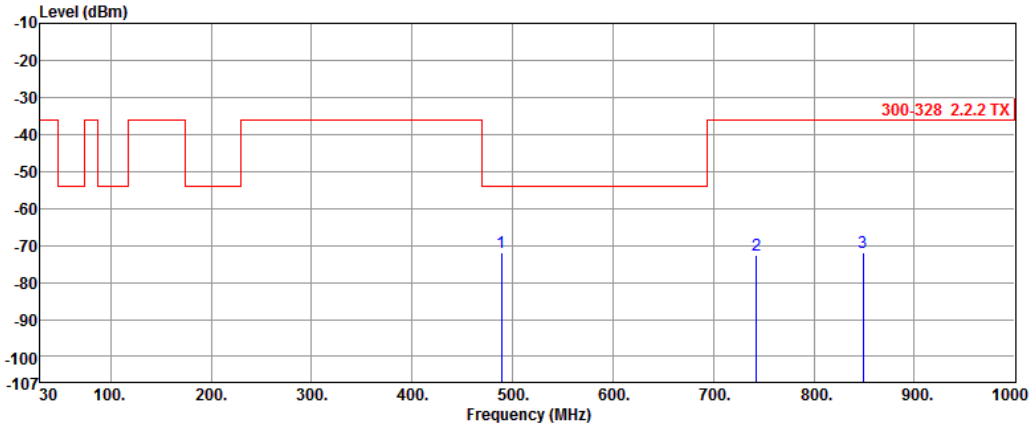
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2480



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	503.36	-72.33	-54.00	-18.33	0.00	-72.33
2	720.64	-70.77	-36.00	-34.77	0.00	-70.77
3	845.77	-69.46	-36.00	-33.46	0.00	-69.46

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

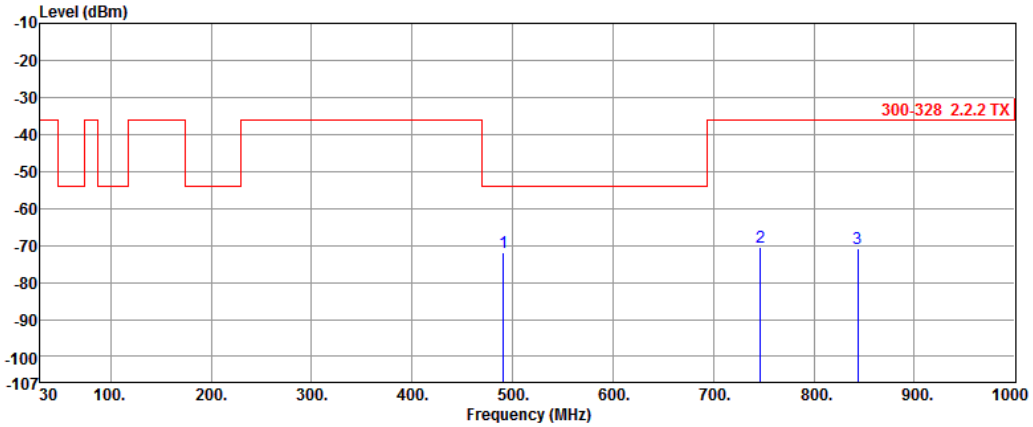
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	488.81	-71.97	-54.00	-17.97	0.00	-71.97
2	742.95	-72.62	-36.00	-36.62	0.00	-72.62
3	848.68	-71.79	-36.00	-35.79	0.00	-71.79

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

Modulation	GFSK/2Mbps	Test Freq. (MHz)	2480

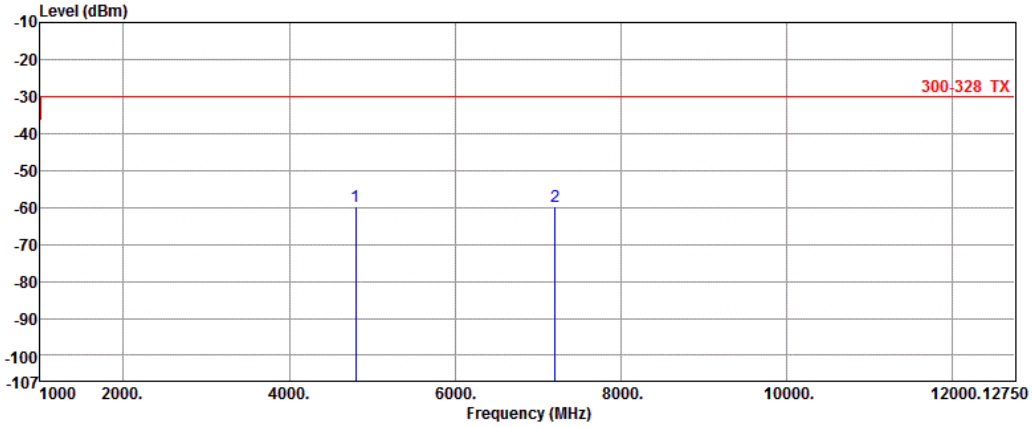


	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	490.75	-71.85	-54.00	-17.85	0.00	-71.85
2	746.83	-70.32	-36.00	-34.32	0.00	-70.32
3	843.83	-70.72	-36.00	-34.72	0.00	-70.72

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

3.5.5 Transmitter Conducted Unwanted Emissions (Above 1GHz)

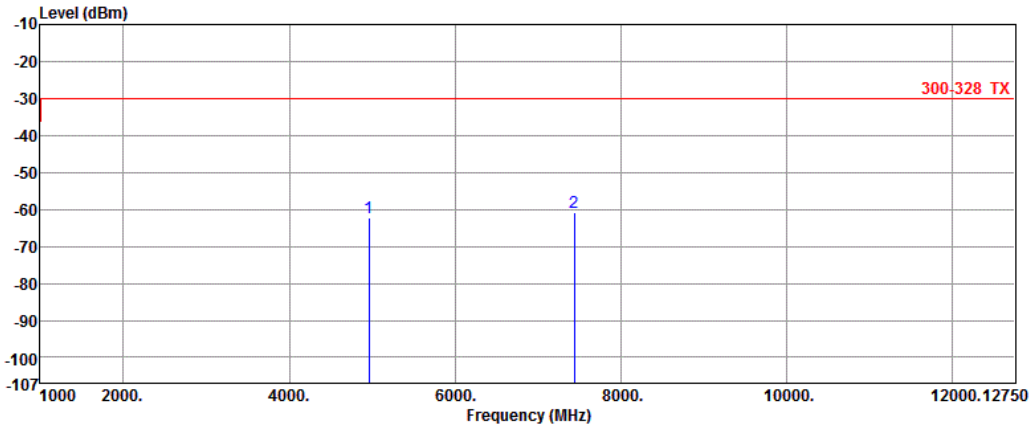
Modulation	GFSK/125kbps	Test Freq. (MHz)	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.03	-59.93	-30.00	-29.93	0.00	-59.93
2	7206.04	-59.85	-30.00	-29.85	0.00	-59.85

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

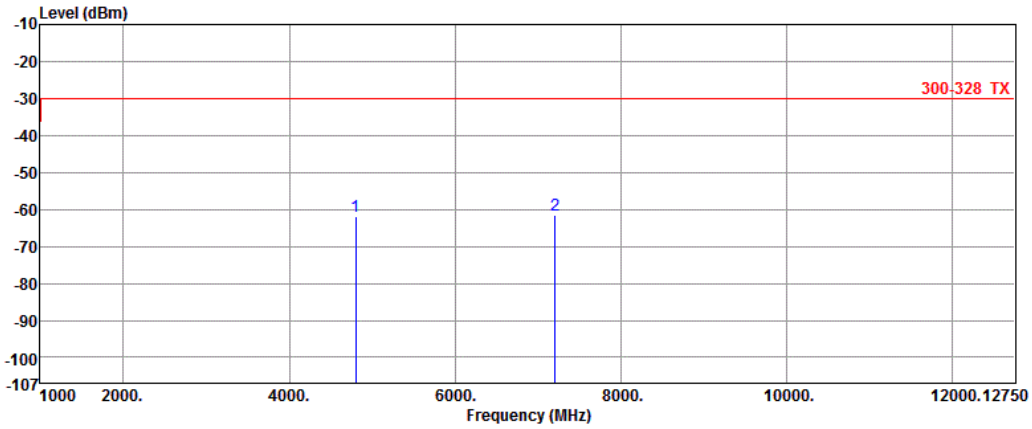
Modulation	GFSK/125kbps	Test Freq. (MHz)	2480



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.02	-62.10	-30.00	-32.10	0.00	-62.10
2	7440.03	-60.91	-30.00	-30.91	0.00	-60.91

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

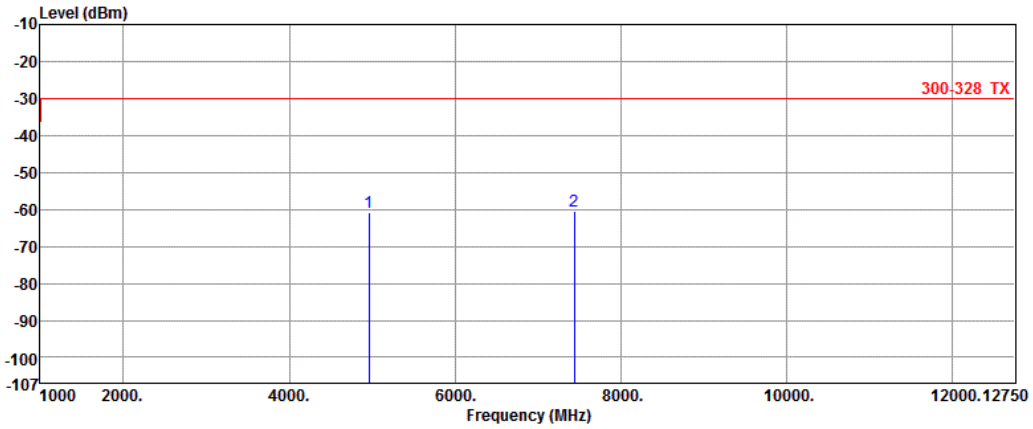
Modulation	GFSK/500kbps	Test Freq. (MHz)	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4803.99	-62.01	-30.00	-32.01	0.00	-62.01
2	7206.00	-61.48	-30.00	-31.48	0.00	-61.48

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

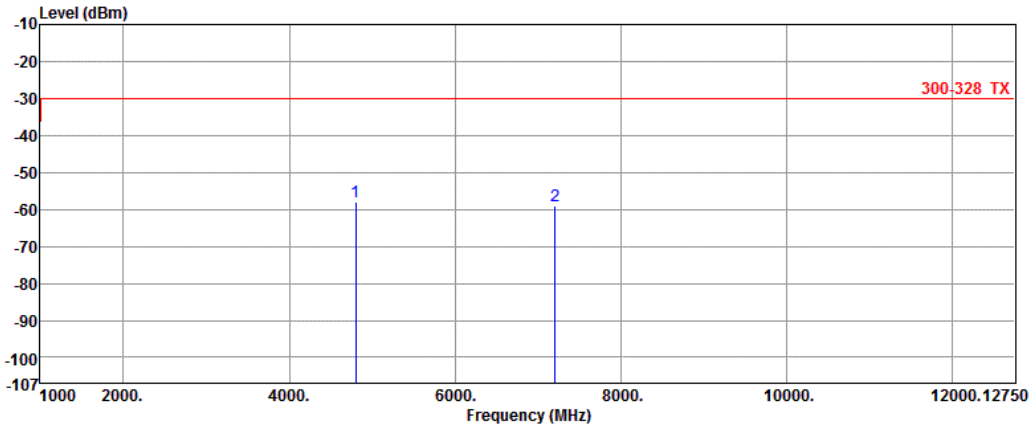
Modulation	GFSK/500kbps	Test Freq. (MHz)	2480



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.01	-60.79	-30.00	-30.79	0.00	-60.79
2	7440.05	-60.55	-30.00	-30.55	0.00	-60.55

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

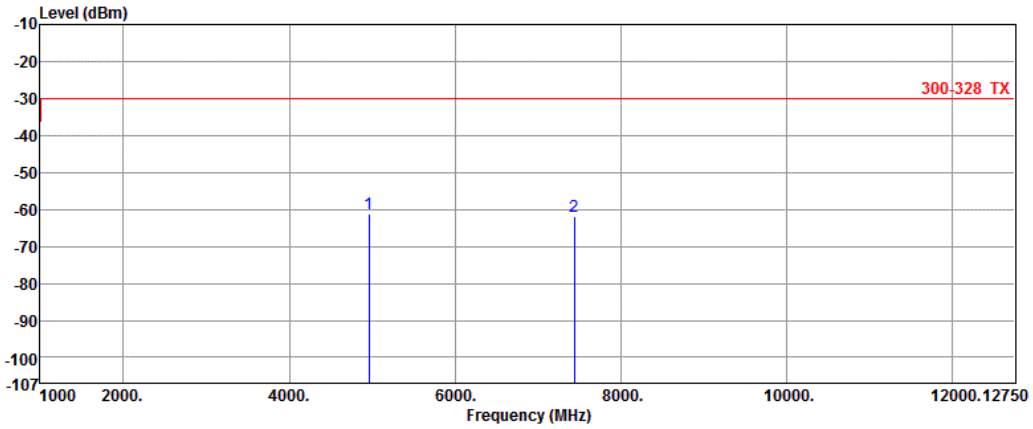
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.00	-57.87	-30.00	-27.87	0.00	-57.87
2	7206.02	-59.05	-30.00	-29.05	0.00	-59.05

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

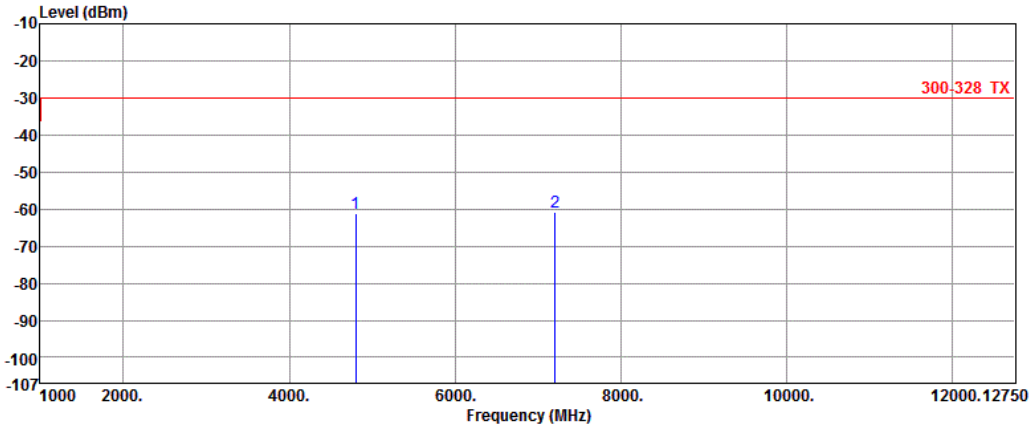
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2480



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.01	-61.12	-30.00	-31.12	0.00	-61.12
2	7440.01	-61.90	-30.00	-31.90	0.00	-61.90

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

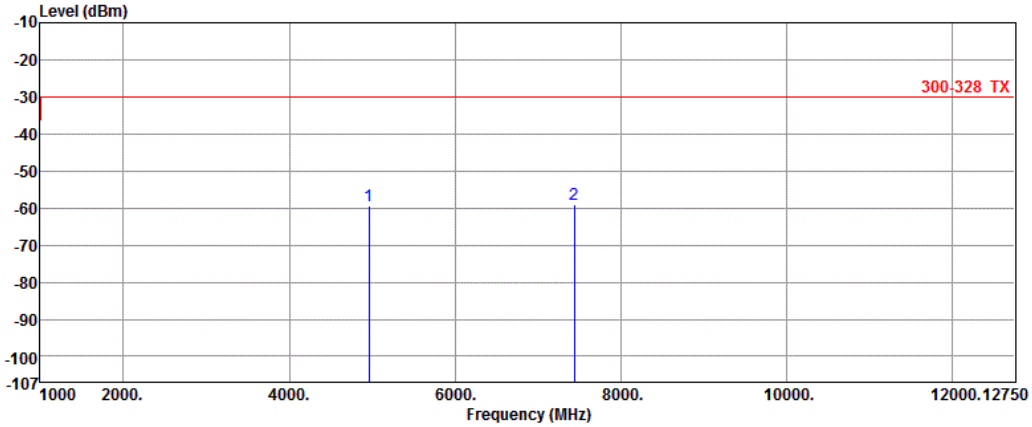
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.05	-61.14	-30.00	-31.14	0.00	-61.14
2	7206.02	-60.95	-30.00	-30.95	0.00	-60.95

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

Modulation	GFSK/2Mbps	Test Freq. (MHz)	2480

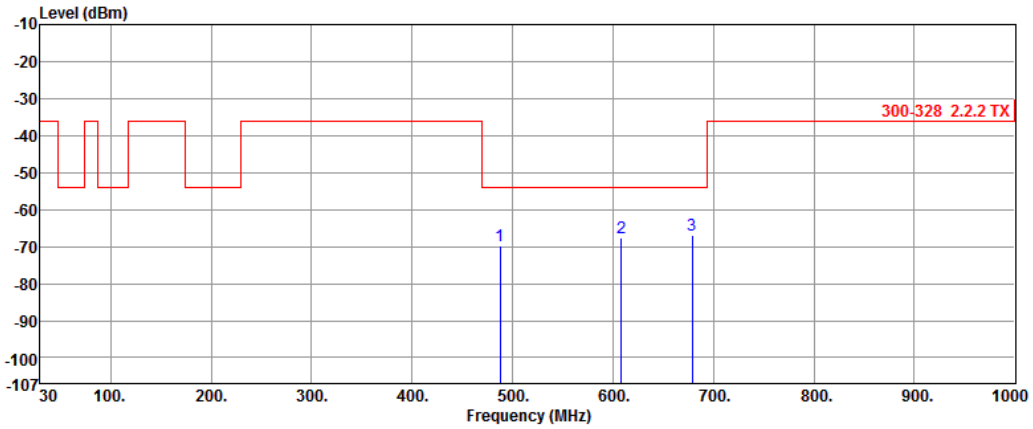


	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.05	-59.36	-30.00	-29.36	0.00	-59.36
2	7439.99	-59.16	-30.00	-29.16	0.00	-59.16

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

3.5.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)

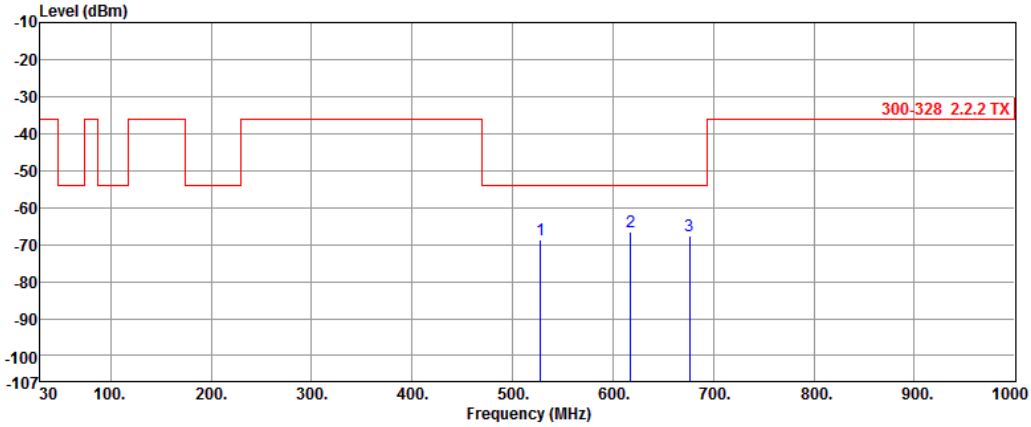
Modulation	GFSK/125kbps	**Test Freq. (MHz)**	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	487.84	-69.90	-54.00	-15.90	3.38	-73.28
2	608.12	-67.47	-54.00	-13.47	6.85	-74.32
3	678.93	-66.97	-54.00	-12.97	7.47	-74.44

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

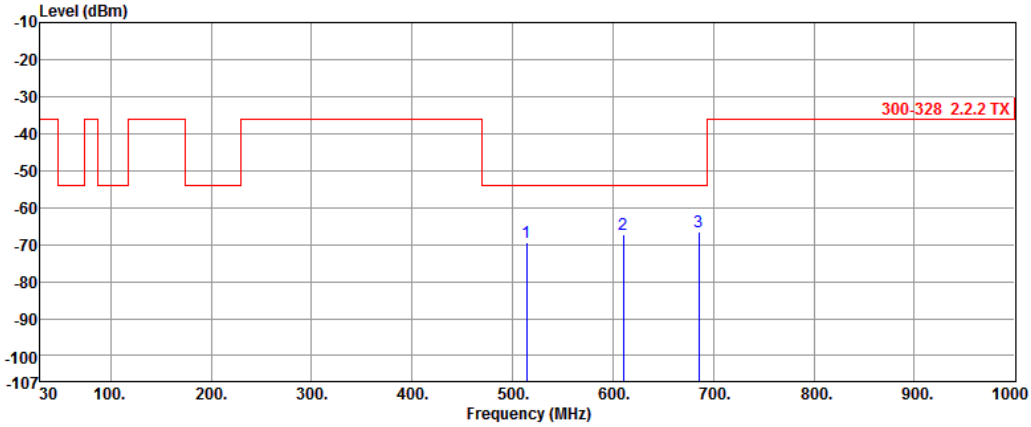
Modulation	GFSK/125kbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	527.61	-68.75	-54.00	-14.75	4.36	-73.11
2	617.82	-66.61	-54.00	-12.61	7.09	-73.70
3	676.02	-67.45	-54.00	-13.45	6.88	-74.33

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

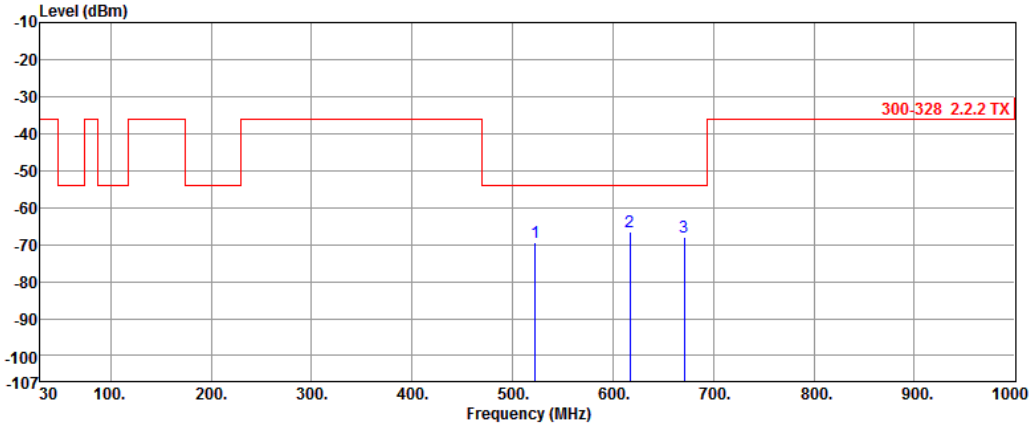
Modulation	GFSK/125kbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	514.03	-69.39	-54.00	-15.39	4.40	-73.79
2	610.06	-67.10	-54.00	-13.10	6.92	-74.02
3	685.72	-66.69	-54.00	-12.69	7.48	-74.17

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

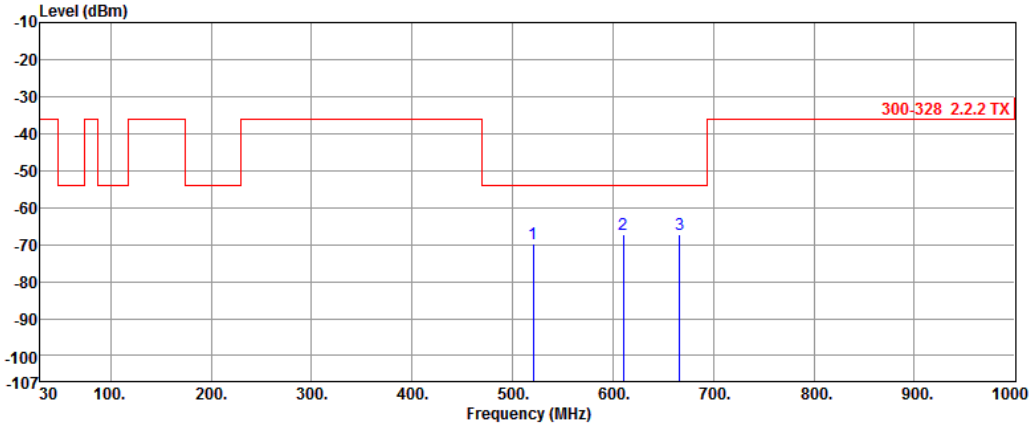
Modulation	GFSK/125kbps	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	522.76	-69.47	-54.00	-15.47	4.37	-73.84
2	616.85	-66.44	-54.00	-12.44	7.14	-73.58
3	671.17	-68.05	-54.00	-14.05	6.83	-74.88

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

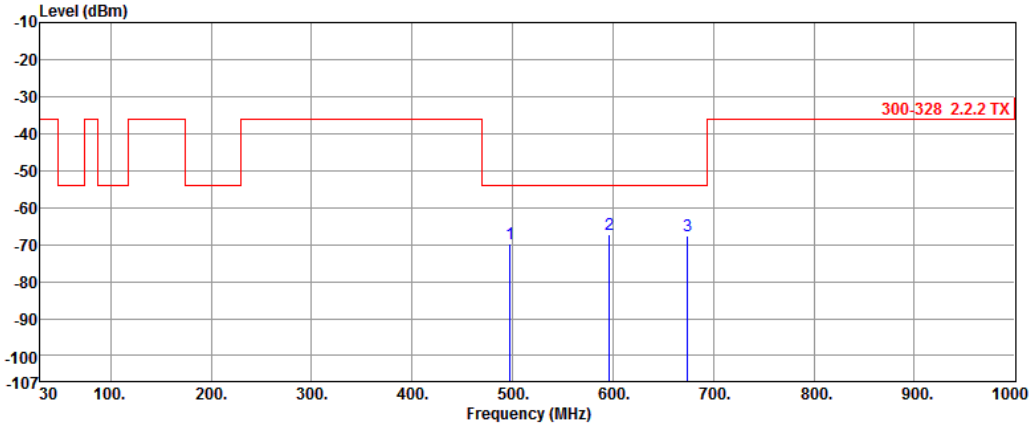
Modulation	GFSK/500kbps	Test Freq. (MHz)	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	520.82	-69.79	-54.00	-15.79	4.66	-74.45
2	610.06	-67.14	-54.00	-13.14	6.92	-74.06
3	666.32	-67.34	-54.00	-13.34	7.26	-74.60

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

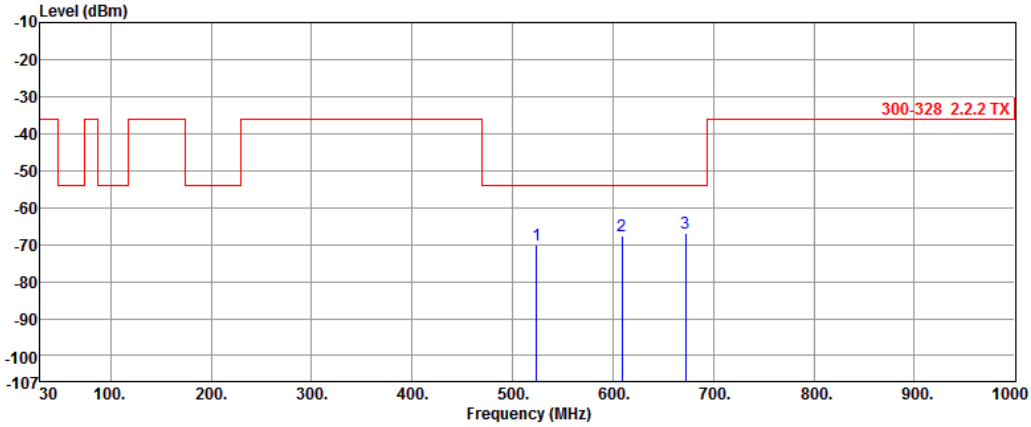
Modulation	GFSK/500kbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	497.54	-69.73	-54.00	-15.73	4.03	-73.76
2	596.48	-67.35	-54.00	-13.35	6.51	-73.86
3	674.08	-67.52	-54.00	-13.52	6.85	-74.37

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

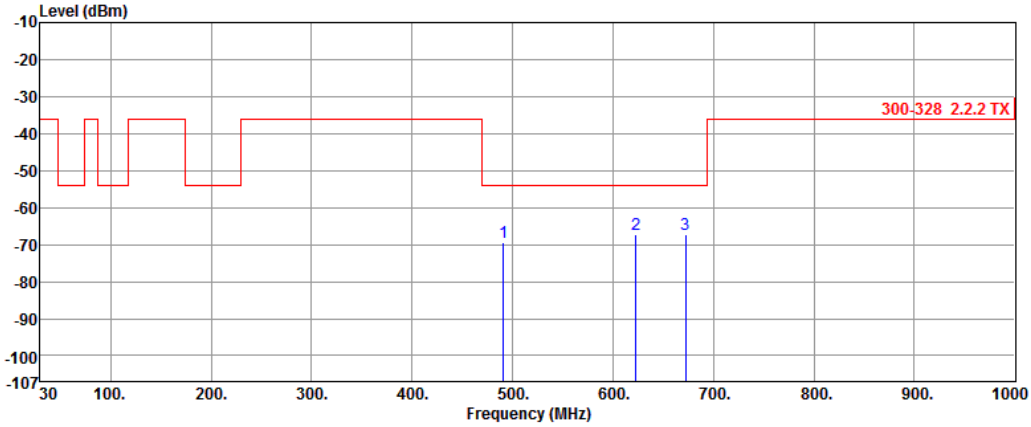
Modulation	GFSK/500kbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	523.73	-69.98	-54.00	-15.98	4.61	-74.59
2	609.09	-67.76	-54.00	-13.76	6.89	-74.65
3	672.14	-66.86	-54.00	-12.86	7.33	-74.19

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

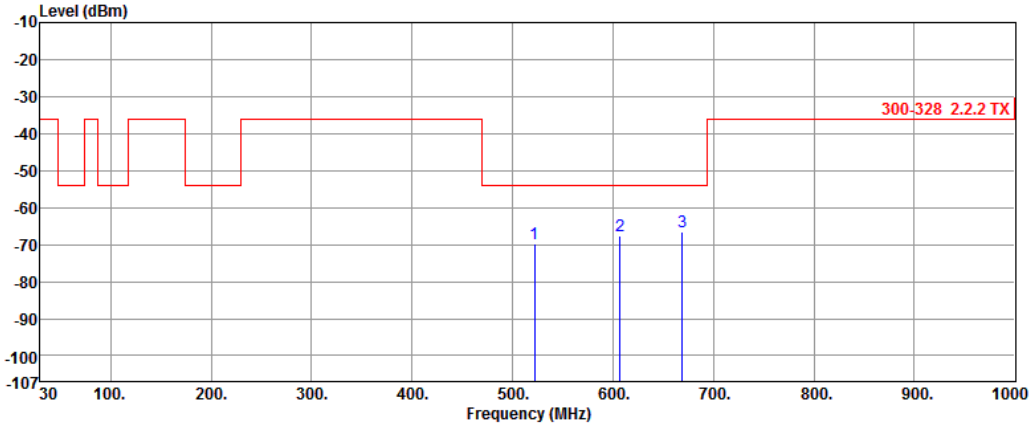
Modulation	GFSK/500kbps	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	490.75	-69.58	-54.00	-15.58	3.74	-73.32
2	622.67	-67.30	-54.00	-13.30	6.80	-74.10
3	672.14	-67.41	-54.00	-13.41	6.84	-74.25

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

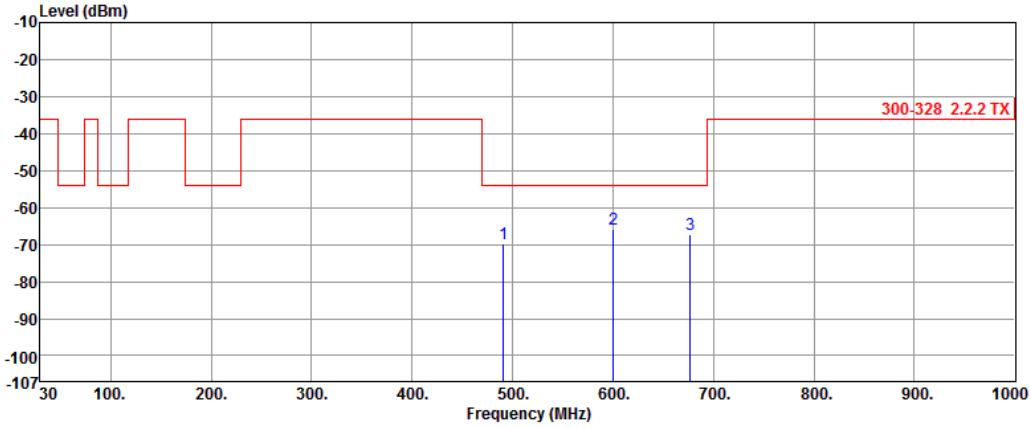
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	521.79	-69.77	-54.00	-15.77	4.64	-74.41
2	607.15	-67.51	-54.00	-13.51	6.81	-74.32
3	669.23	-66.62	-54.00	-12.62	7.29	-73.91

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

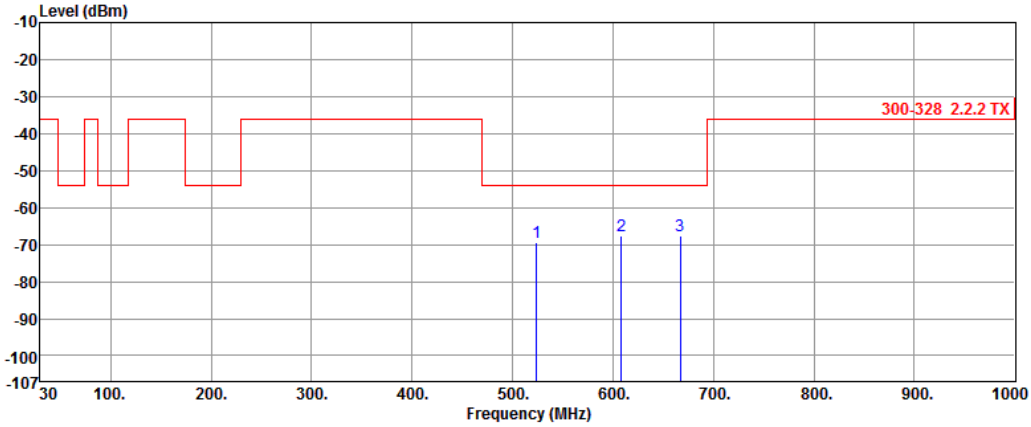
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	490.75	-69.62	-54.00	-15.62	3.74	-73.36
2	600.36	-65.97	-54.00	-11.97	6.71	-72.68
3	676.99	-67.44	-54.00	-13.44	6.91	-74.35

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

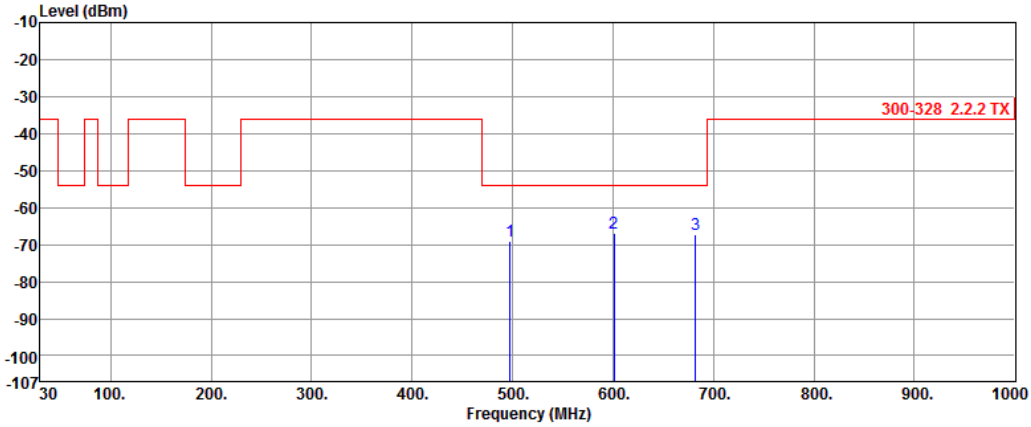
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	523.73	-69.37	-54.00	-15.37	4.61	-73.98
2	608.12	-67.68	-54.00	-13.68	6.85	-74.53
3	667.29	-67.48	-54.00	-13.48	7.27	-74.75

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

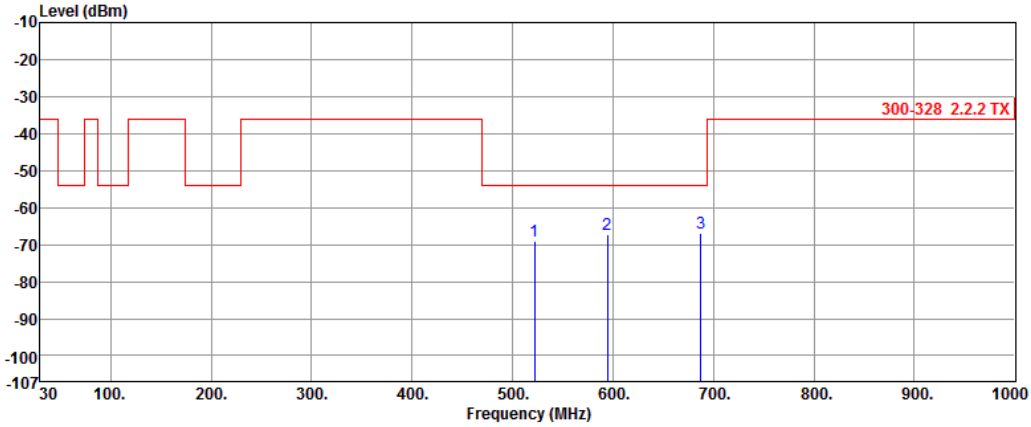
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	497.54	-69.04	-54.00	-15.04	4.03	-73.07
2	601.33	-67.06	-54.00	-13.06	6.78	-73.84
3	681.84	-67.33	-54.00	-13.33	6.99	-74.32

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

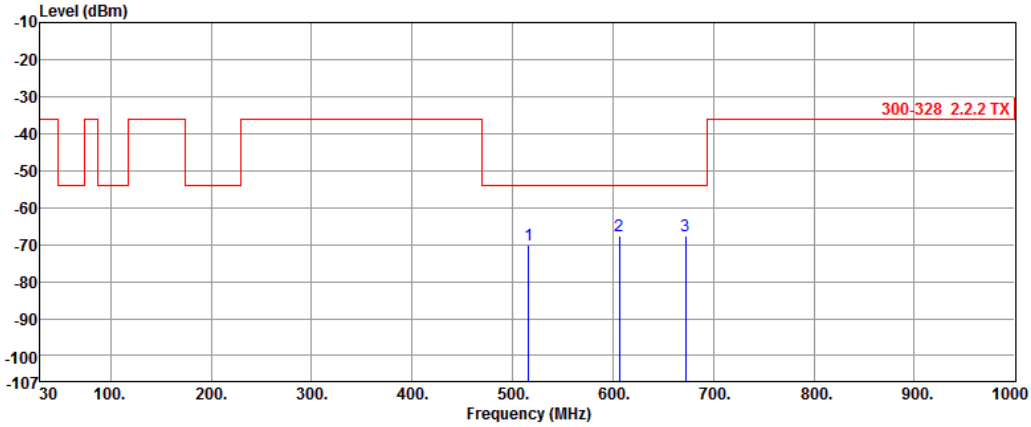
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	521.79	-69.22	-54.00	-15.22	4.64	-73.86
2	594.54	-67.42	-54.00	-13.42	6.55	-73.97
3	687.66	-67.02	-54.00	-13.02	7.44	-74.46

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

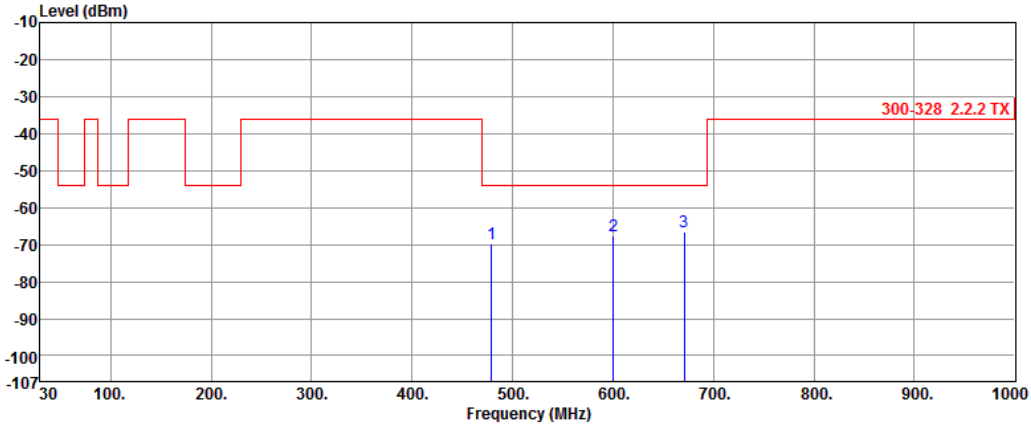
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	515.97	-69.98	-54.00	-15.98	4.39	-74.37
2	606.18	-67.46	-54.00	-13.46	7.10	-74.56
3	672.14	-67.49	-54.00	-13.49	6.84	-74.33

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

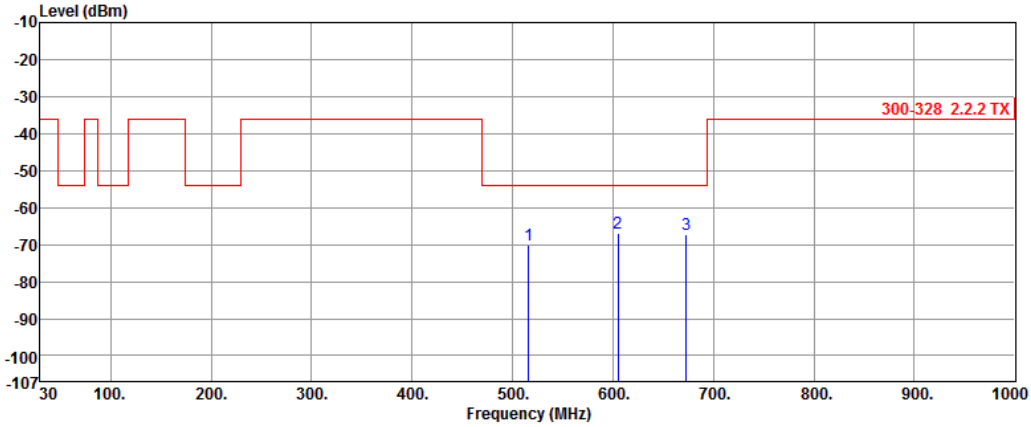
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	479.11	-69.83	-54.00	-15.83	3.35	-73.18
2	600.36	-67.66	-54.00	-13.66	6.56	-74.22
3	671.17	-66.60	-54.00	-12.60	7.31	-73.91

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

Modulation	GFSK/2Mbps	Test Freq. (MHz)	2480
Polarization	Vertical		

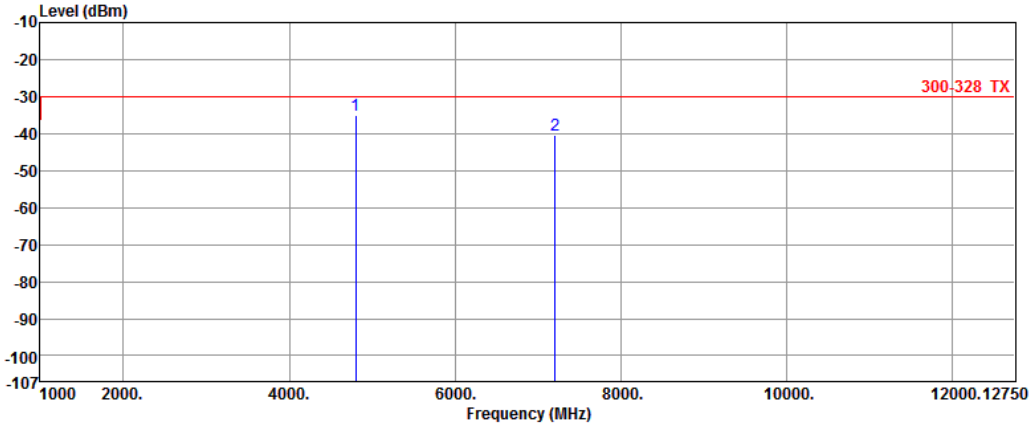


	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	515.97	-69.98	-54.00	-15.98	4.39	-74.37
2	605.21	-67.00	-54.00	-13.00	7.07	-74.07
3	673.11	-67.10	-54.00	-13.10	6.85	-73.95

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

3.5.7 Transmitter Radiated Unwanted Emissions (Above 1GHz)

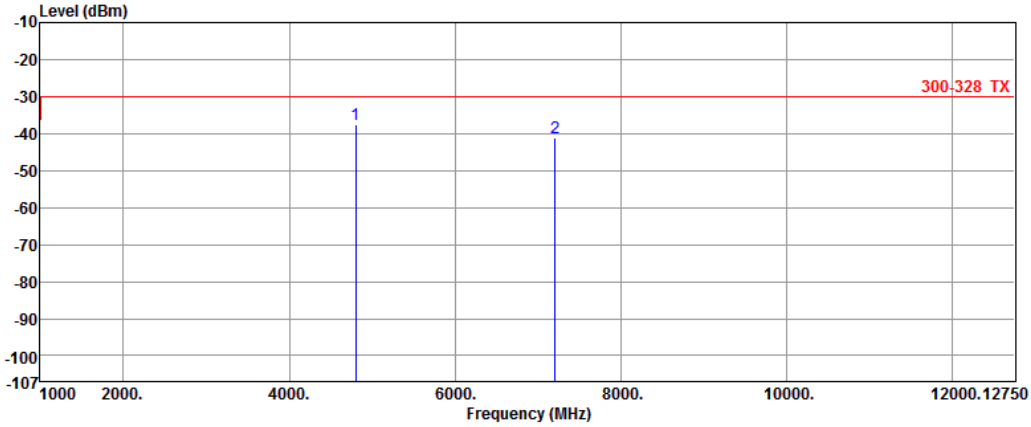
Modulation	GFSK/125kbps	**Test Freq. (MHz)**	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.56	-35.05	-30.00	-5.05	13.47	-48.52
2	7206.89	-40.41	-30.00	-10.41	18.64	-59.05

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

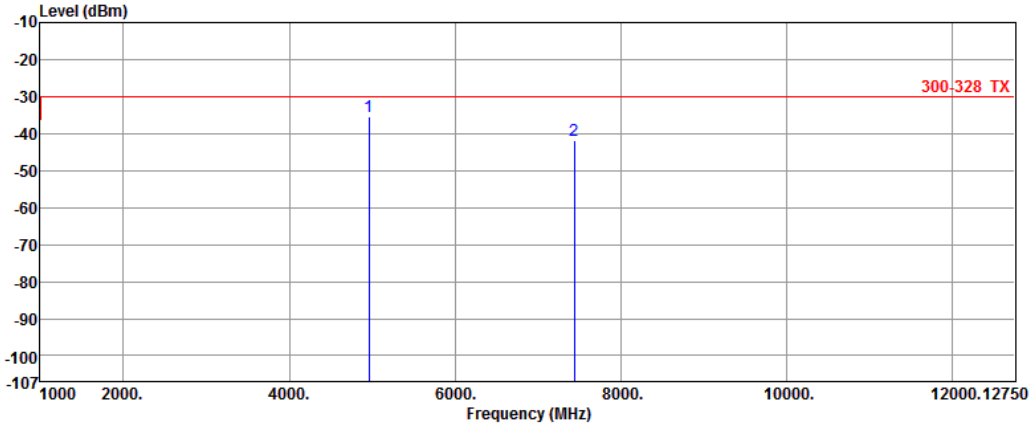
Modulation	GFSK/125kbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.47	-37.62	-30.00	-7.62	13.58	-51.20
2	7206.24	-41.17	-30.00	-11.17	18.97	-60.14

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

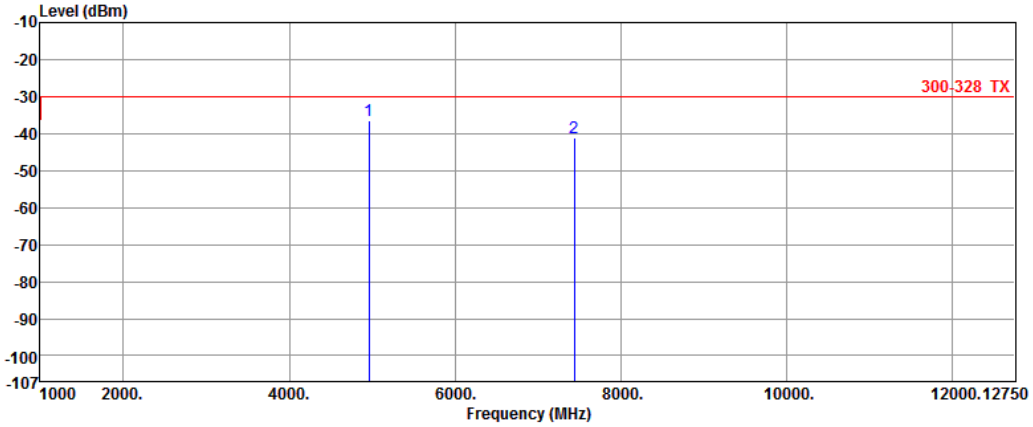
Modulation	GFSK/125kbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.47	-35.40	-30.00	-5.40	13.13	-48.53
2	7440.26	-41.83	-30.00	-11.83	18.94	-60.77

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

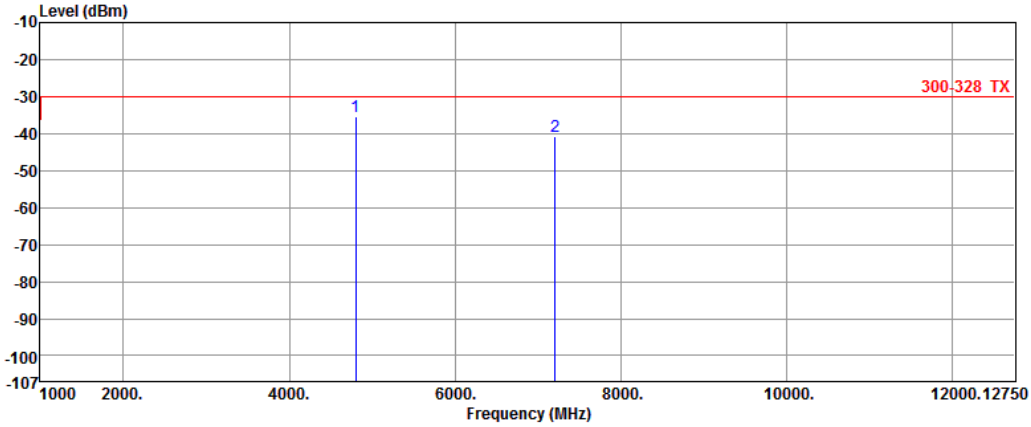
Modulation	GFSK/125kbps	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.51	-36.33	-30.00	-6.33	13.00	-49.33
2	7440.62	-41.05	-30.00	-11.05	18.86	-59.91

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

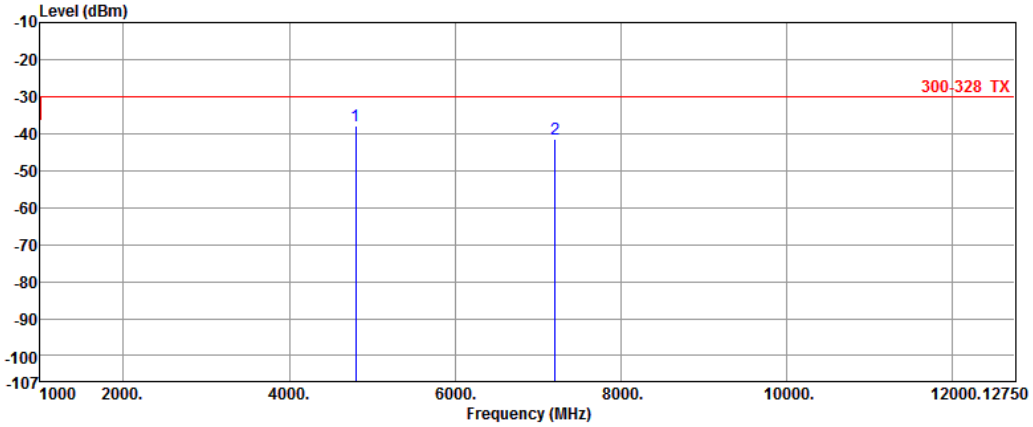
Modulation	GFSK/500kbps	Test Freq. (MHz)	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.53	-35.46	-30.00	-5.46	13.47	-48.93
2	7206.22	-40.68	-30.00	-10.68	18.64	-59.32

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

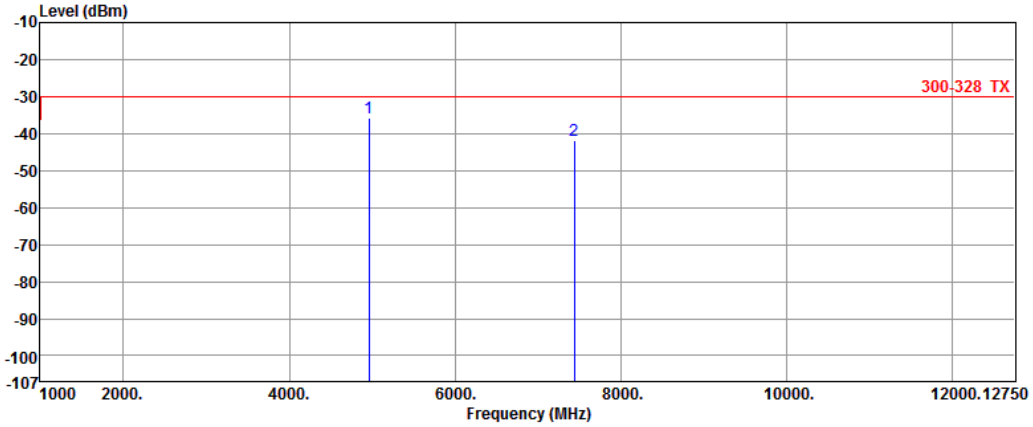
Modulation	GFSK/500kbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.50	-37.82	-30.00	-7.82	13.58	-51.40
2	7206.27	-41.56	-30.00	-11.56	18.97	-60.53

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

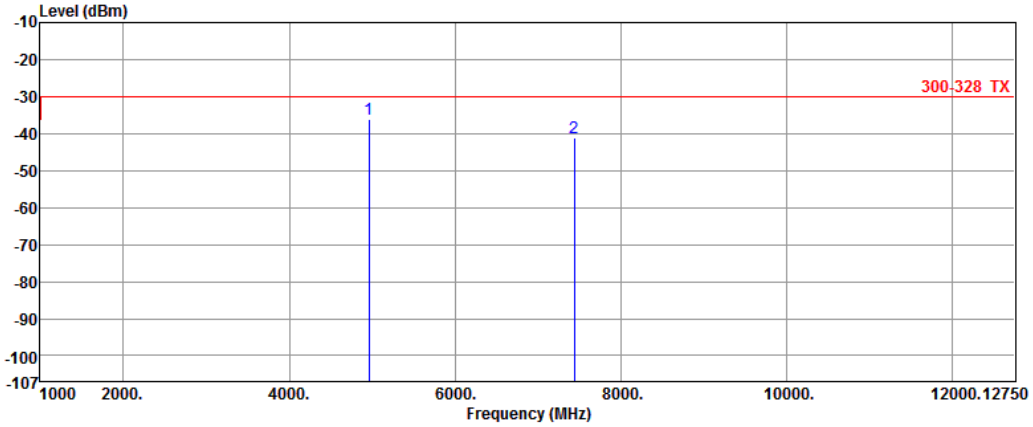
Modulation	GFSK/500kbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.46	-35.78	-30.00	-5.78	13.13	-48.91
2	7440.55	-42.03	-30.00	-12.03	18.94	-60.97

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

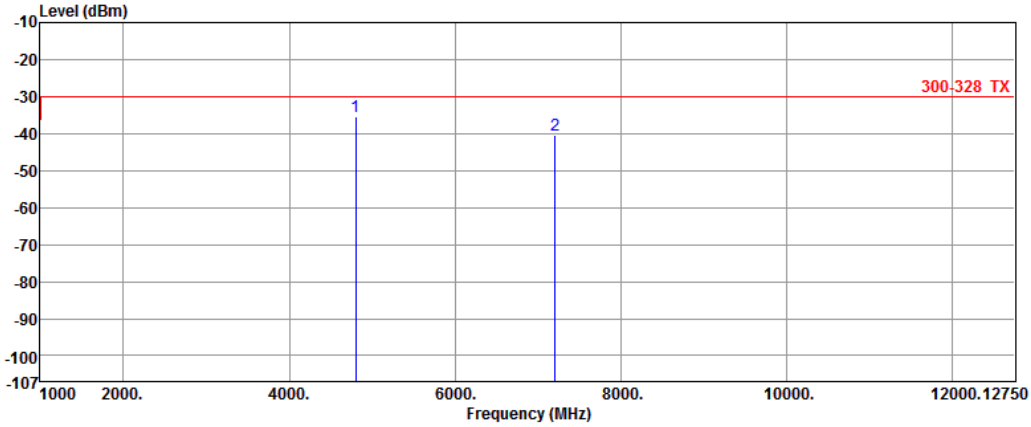
Modulation	GFSK/500kbps	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.43	-36.15	-30.00	-6.15	13.00	-49.15
2	7440.08	-41.17	-30.00	-11.17	18.86	-60.03

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

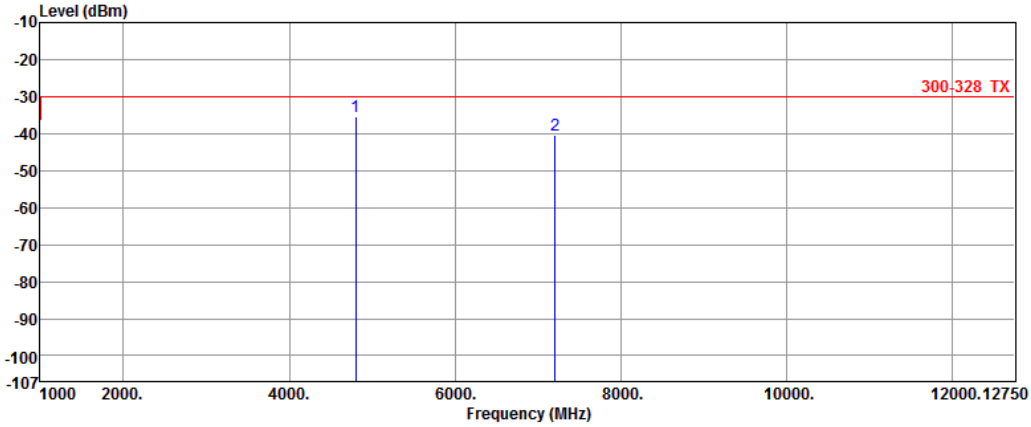
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.38	-35.41	-30.00	-5.41	13.47	-48.88
2	7206.09	-40.58	-30.00	-10.58	18.64	-59.22

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

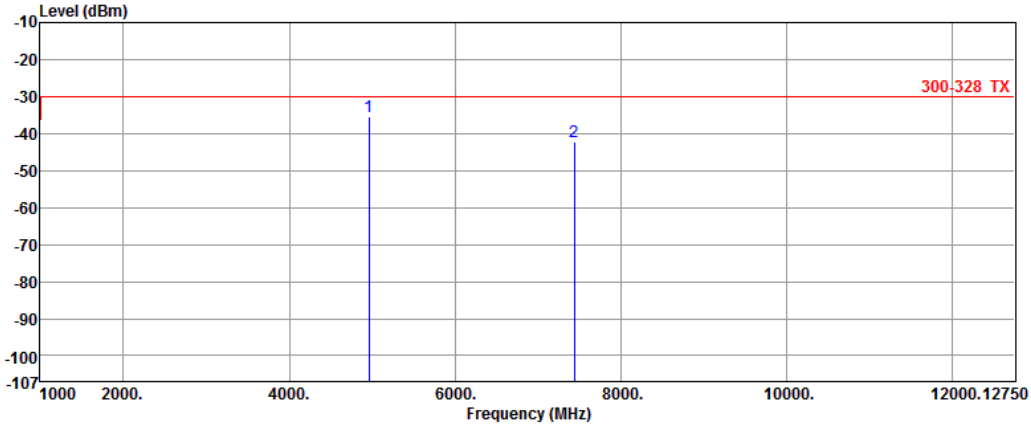
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.44	-35.41	-30.00	-5.41	13.58	-48.99
2	7206.33	-40.41	-30.00	-10.41	18.97	-59.38

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

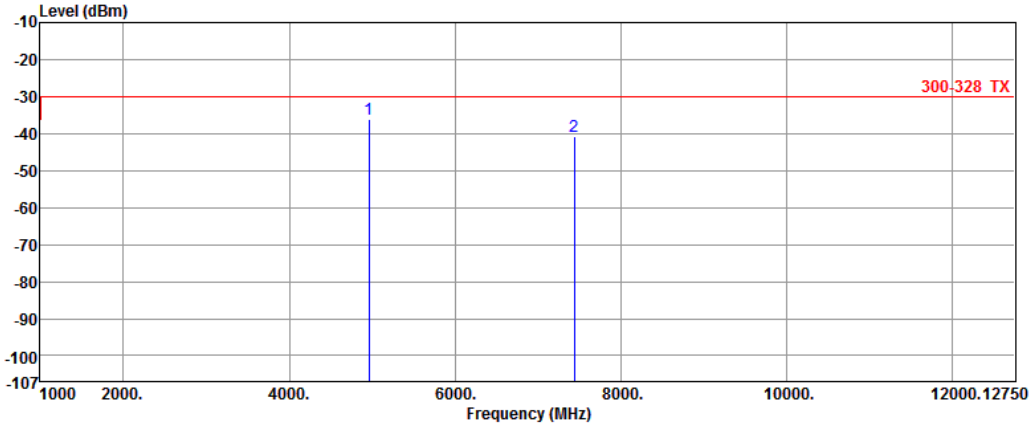
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.50	-35.51	-30.00	-5.51	13.13	-48.64
2	7440.74	-42.06	-30.00	-12.06	18.94	-61.00

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

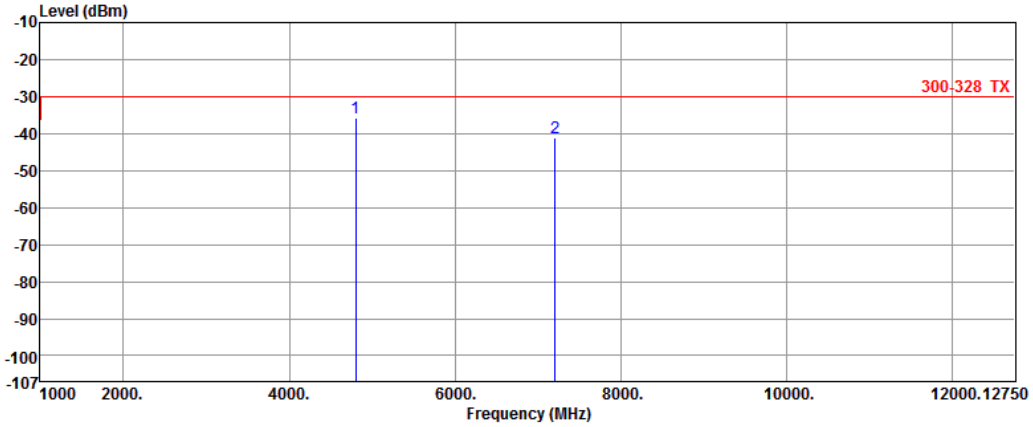
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.46	-36.26	-30.00	-6.26	13.00	-49.26
2	7440.61	-40.89	-30.00	-10.89	18.86	-59.75

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

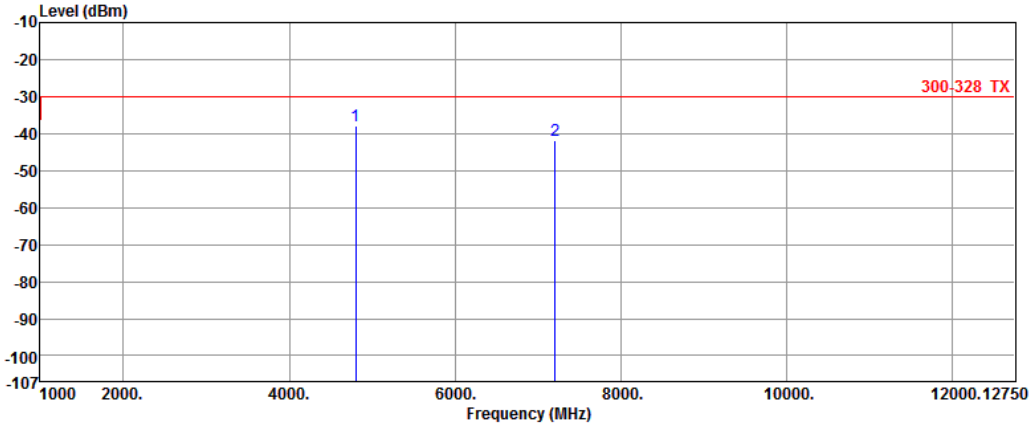
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.95	-35.77	-30.00	-5.77	13.47	-49.24
2	7206.16	-41.11	-30.00	-11.11	18.64	-59.75

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

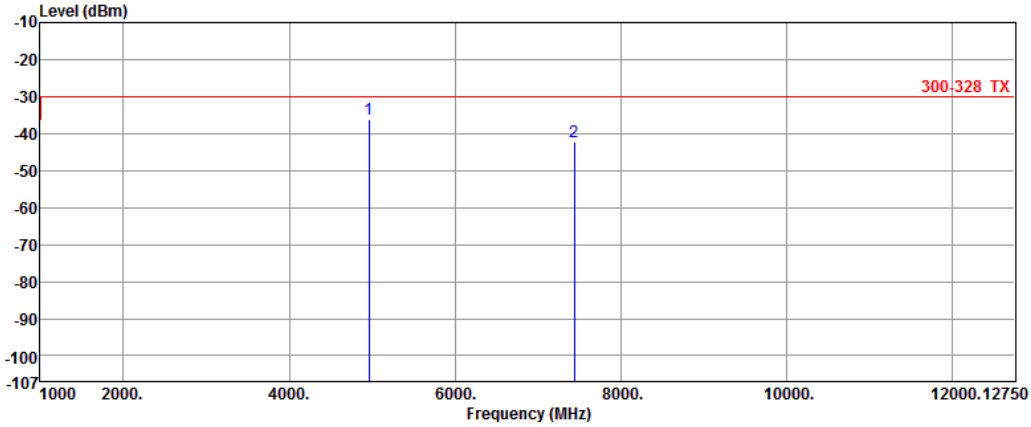
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.06	-37.80	-30.00	-7.80	13.58	-51.38
2	7206.48	-41.71	-30.00	-11.71	18.97	-60.68

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

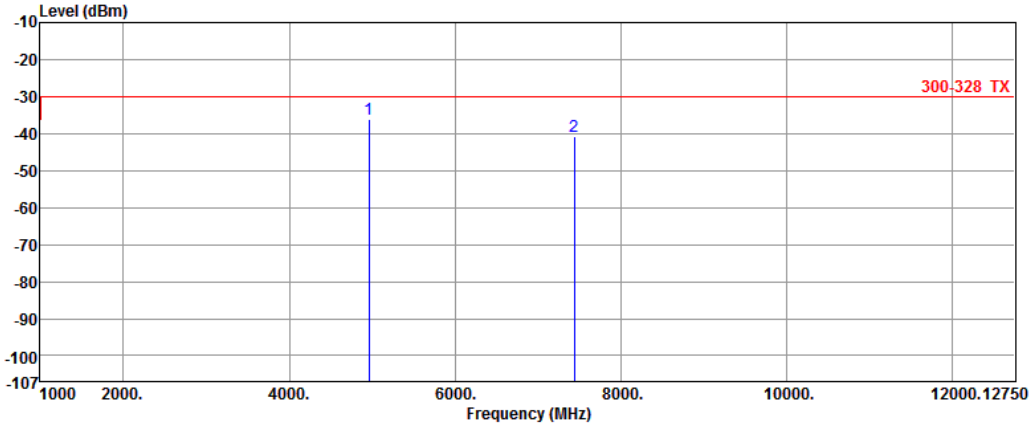
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.86	-36.03	-30.00	-6.03	13.13	-49.16
2	7440.43	-42.37	-30.00	-12.37	18.94	-61.31

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

Modulation	GFSK/2Mbps	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.06	-36.14	-30.00	-6.14	13.00	-49.14
2	7440.51	-40.79	-30.00	-10.79	18.86	-59.65

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

4 Receiver Test Results

4.1 Receiver Spurious Emissions

4.1.1 Limit of Receiver Spurious Emissions

Frequency Range	Maximum power (dBm)	Measurement bandwidth (kHz)
30 MHz to 1 GHz	-57	100
Above 1 GHz to 12,75 GHz	-47	1000

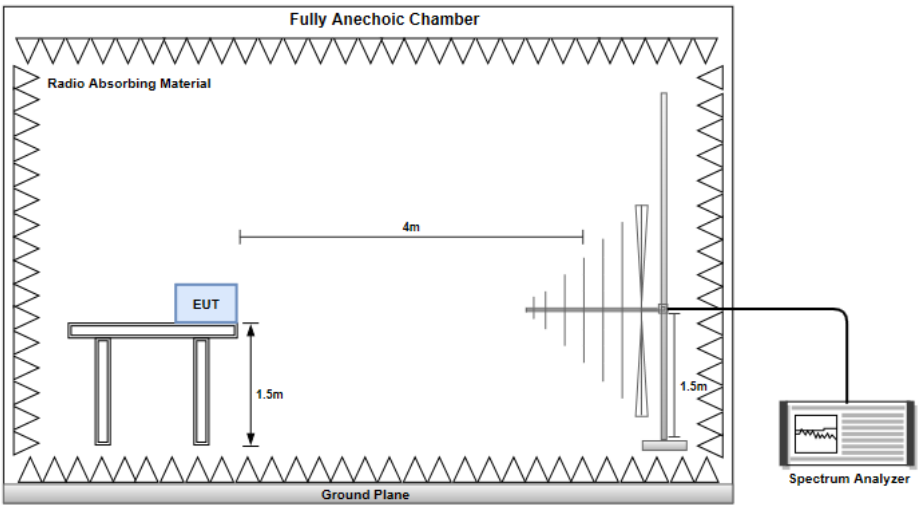
4.1.2 Test Procedures

Reference to clause 5.4.10.2 of ETSI EN 300 328 V2.2.2 (2019-07) .

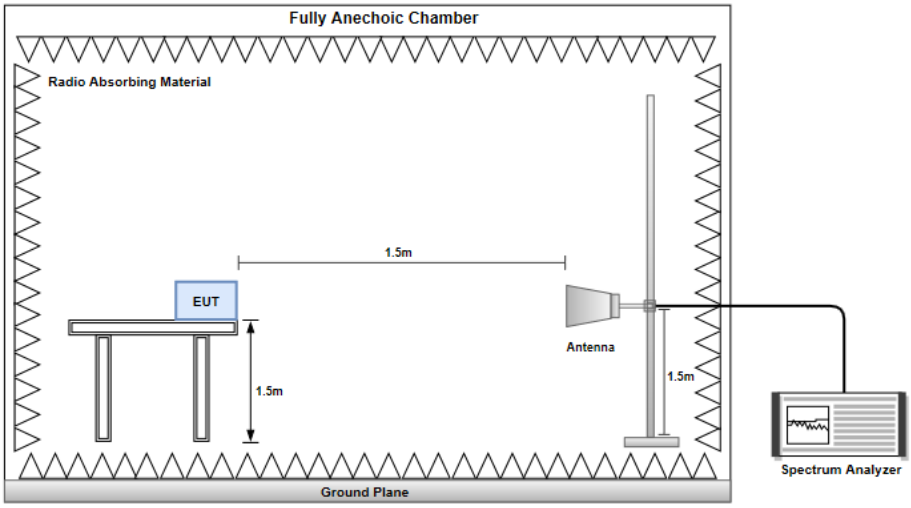
4.1.3 Test Setup

Radiated Emission

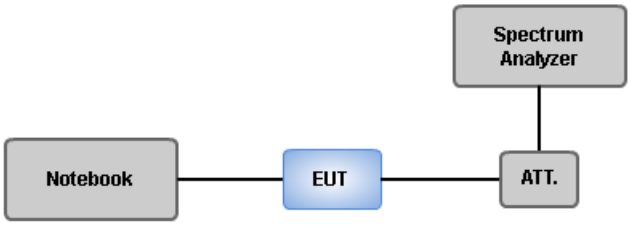
Below 1GHz



Above 1 GHz

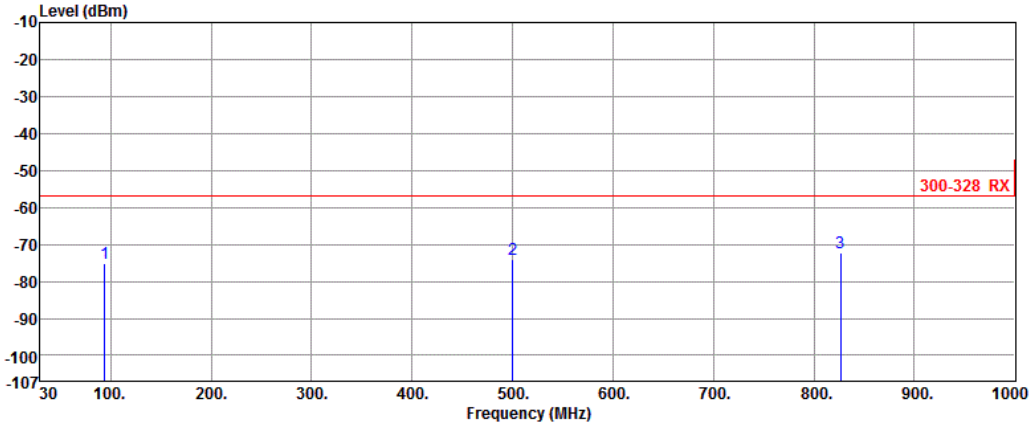


Conducted Emission



4.1.4 Receiver Conducted Unwanted Emissions (Below 1GHz)

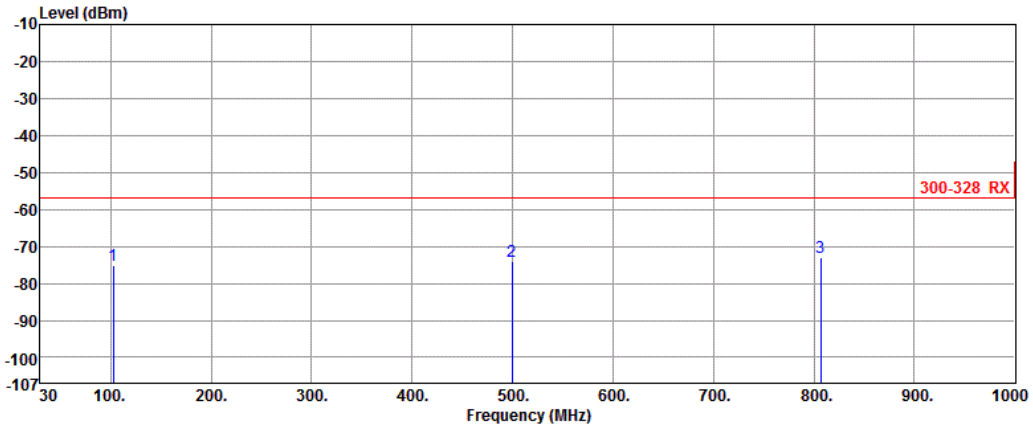
Modulation	GFSK/125kbps	**Test Freq. (MHz)**	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	94.02	-75.02	-57.00	-18.02	0.00	-75.02
2	500.49	-74.04	-57.00	-17.04	0.00	-74.04
3	826.37	-72.32	-57.00	-15.32	0.00	-72.32

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

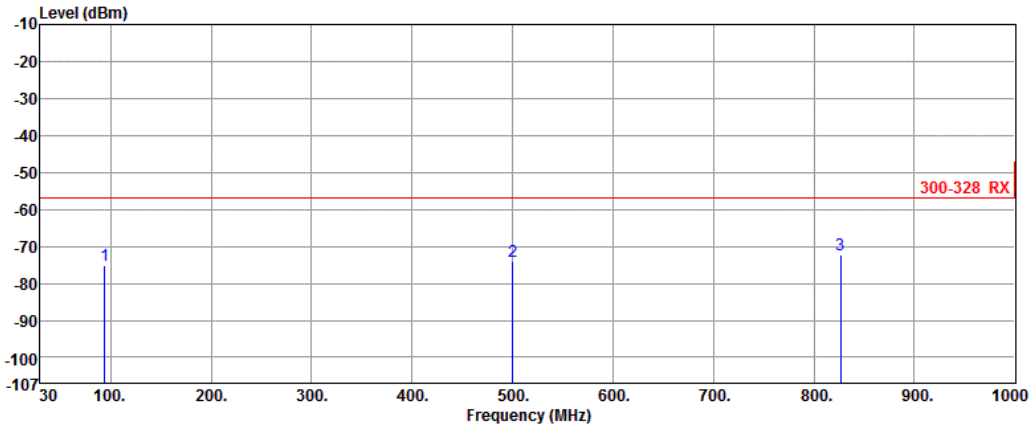
Modulation	GFSK/125kbps	Test Freq. (MHz)	2480



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	102.63	-75.31	-57.00	-18.31	0.00	-75.31
2	499.62	-73.95	-57.00	-16.95	0.00	-73.95
3	806.50	-73.14	-57.00	-16.14	0.00	-73.14

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

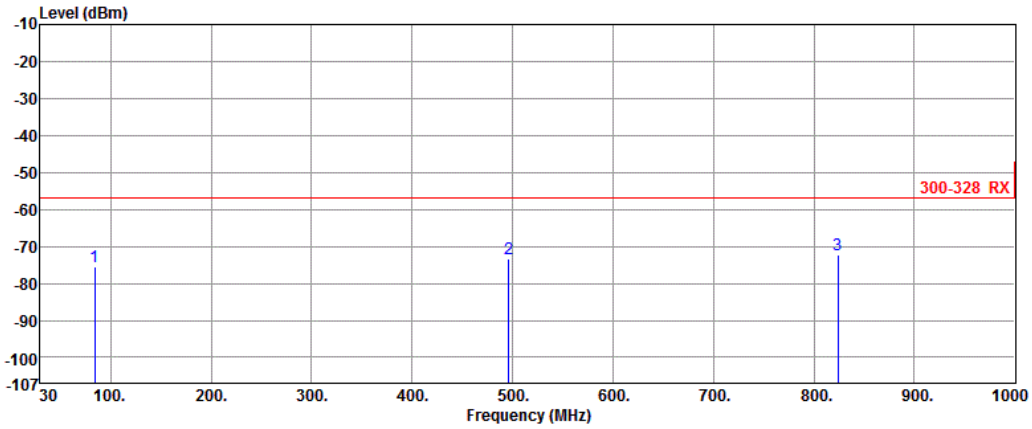
Modulation	GFSK/500kbps	Test Freq. (MHz)	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	94.02	-75.02	-57.00	-18.02	0.00	-75.02
2	500.49	-74.04	-57.00	-17.04	0.00	-74.04
3	826.37	-72.32	-57.00	-15.32	0.00	-72.32

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

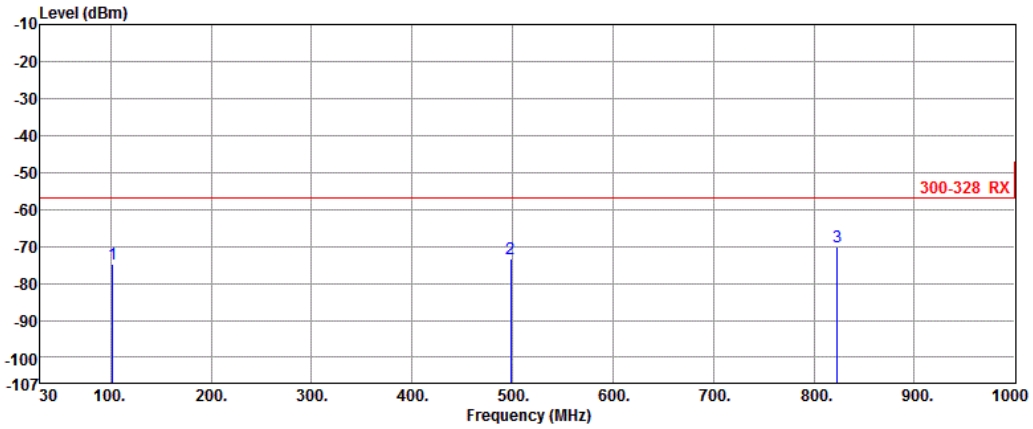
Modulation	GFSK/500kbps	Test Freq. (MHz)	2480



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	84.32	-75.49	-57.00	-18.49	0.00	-75.49
2	496.52	-73.36	-57.00	-16.36	0.00	-73.36
3	823.65	-72.36	-57.00	-15.36	0.00	-72.36

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

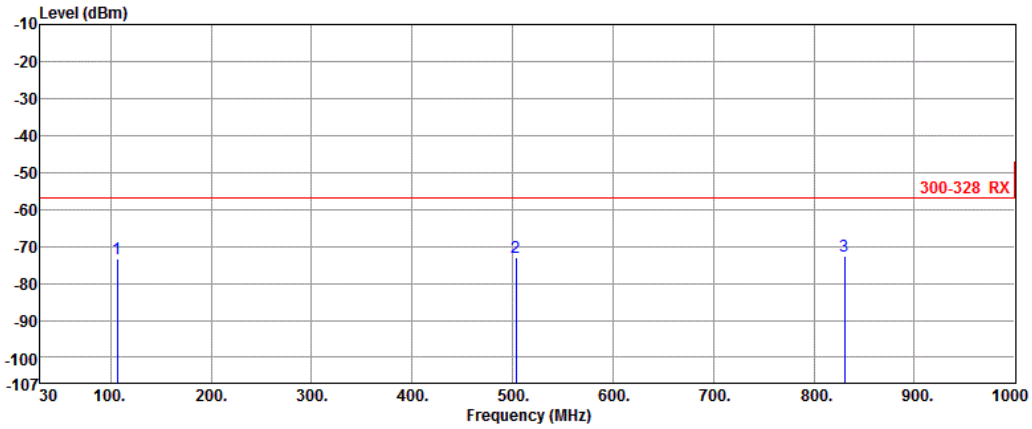
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	101.78	-74.61	-57.00	-17.61	0.00	-74.61
2	498.20	-73.42	-57.00	-16.42	0.00	-73.42
3	823.46	-70.15	-57.00	-13.15	0.00	-70.15

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

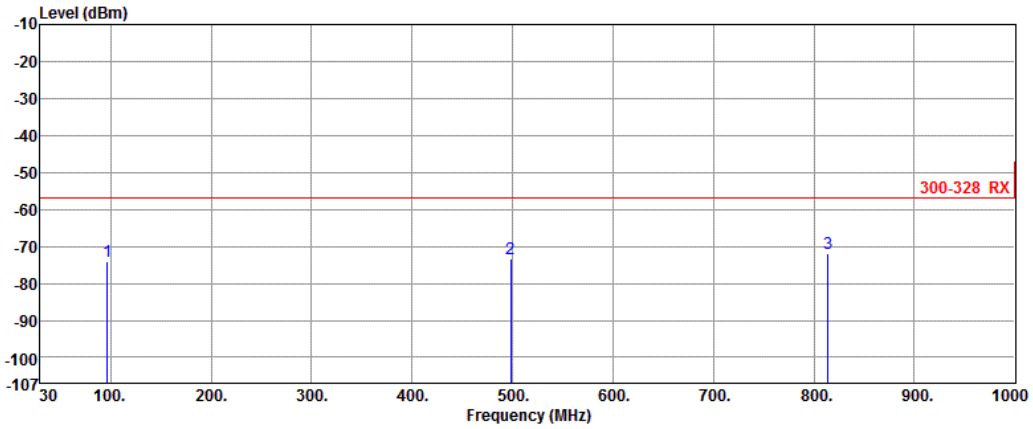
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2480



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	106.63	-73.52	-57.00	-16.52	0.00	-73.52
2	503.36	-73.07	-57.00	-16.07	0.00	-73.07
3	830.25	-72.76	-57.00	-15.76	0.00	-72.76

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

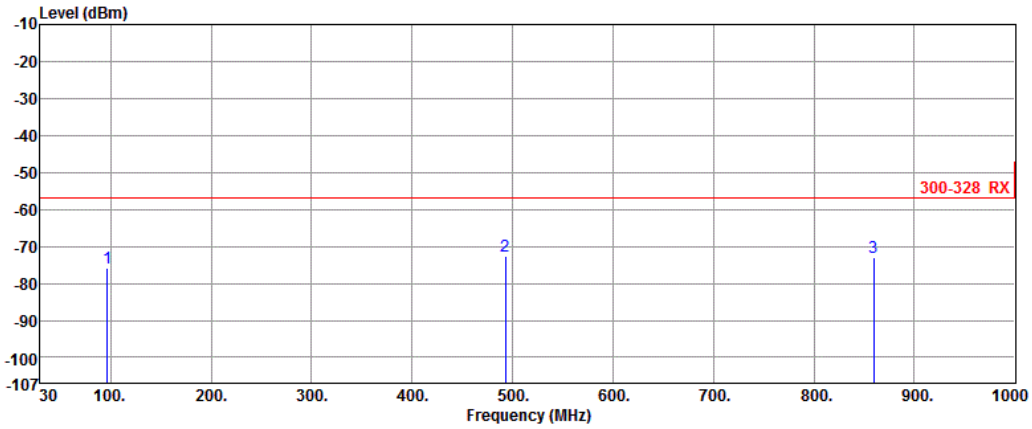
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	96.93	-74.25	-57.00	-17.25	0.00	-74.25
2	498.51	-73.34	-57.00	-16.34	0.00	-73.34
3	813.76	-71.84	-57.00	-14.84	0.00	-71.84

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

Modulation	GFSK/2Mbps	Test Freq. (MHz)	2480

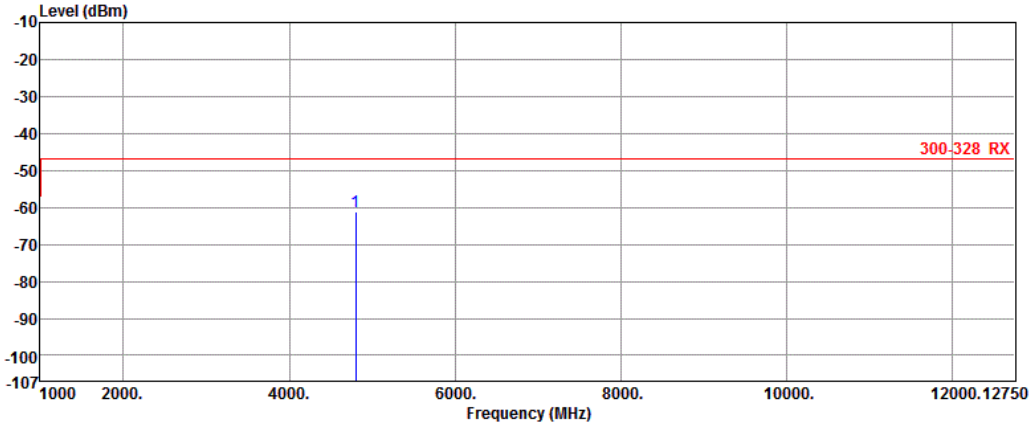


	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	96.93	-75.97	-57.00	-18.97	0.00	-75.97
2	492.69	-72.75	-57.00	-15.75	0.00	-72.75
3	859.35	-72.92	-57.00	-15.92	0.00	-72.92

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

4.1.5 Receiver Conducted Unwanted Emissions (Above 1GHz)

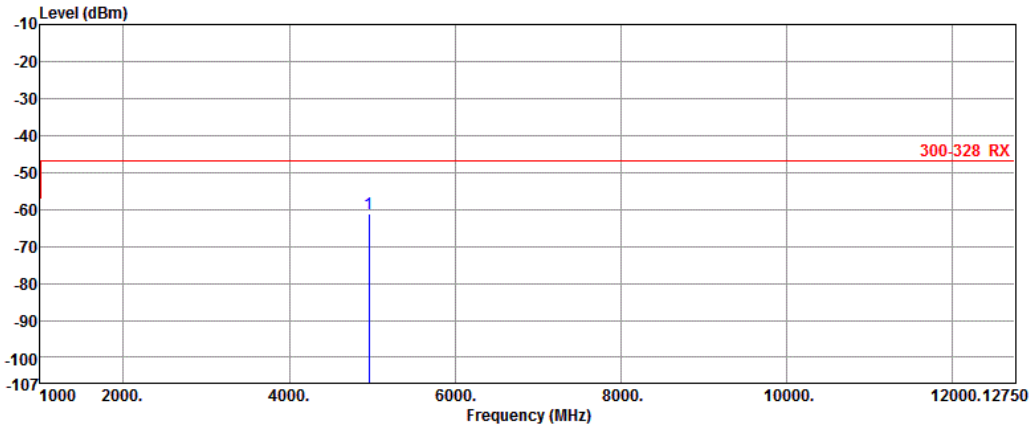
Modulation	GFSK/125kbps	Test Freq. (MHz)	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.00	-61.15	-47.00	-14.15	0.00	-61.15

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

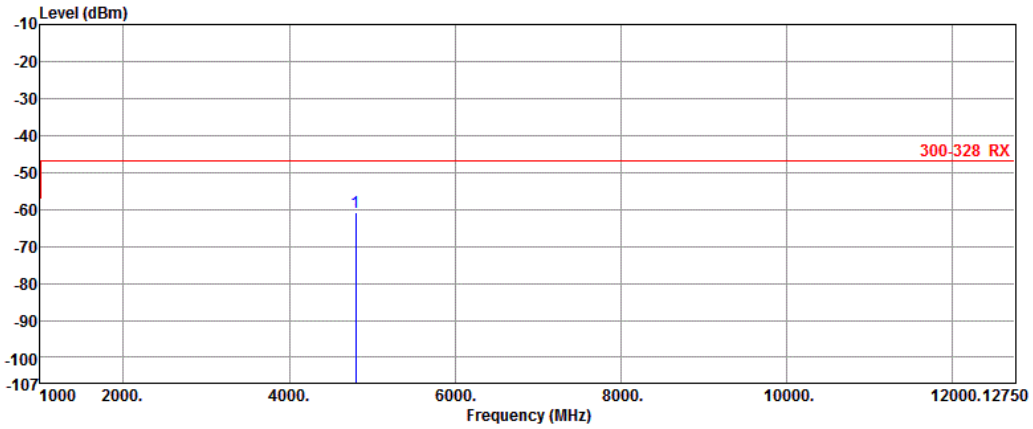
Modulation	GFSK/125kbps	Test Freq. (MHz)	2480



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.00	-61.14	-47.00	-14.14	0.00	-61.14

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

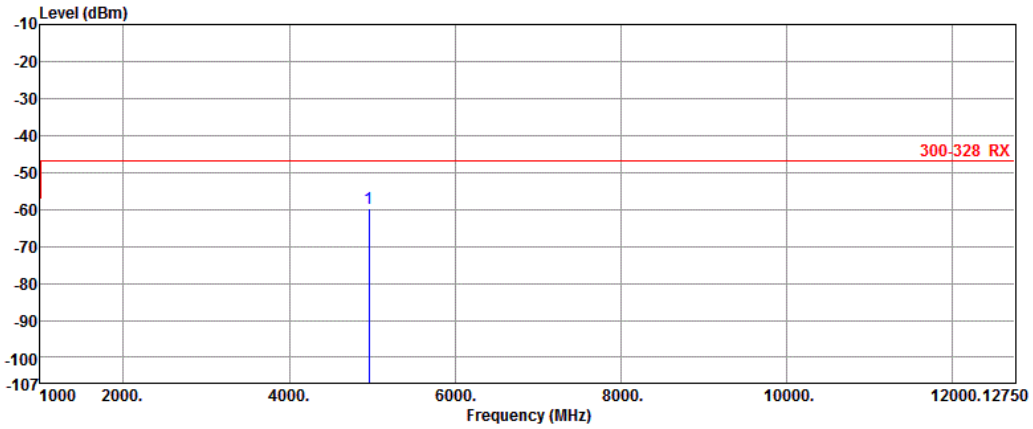
Modulation	GFSK/500kbps	Test Freq. (MHz)	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.00	-60.88	-47.00	-13.88	0.00	-60.88

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

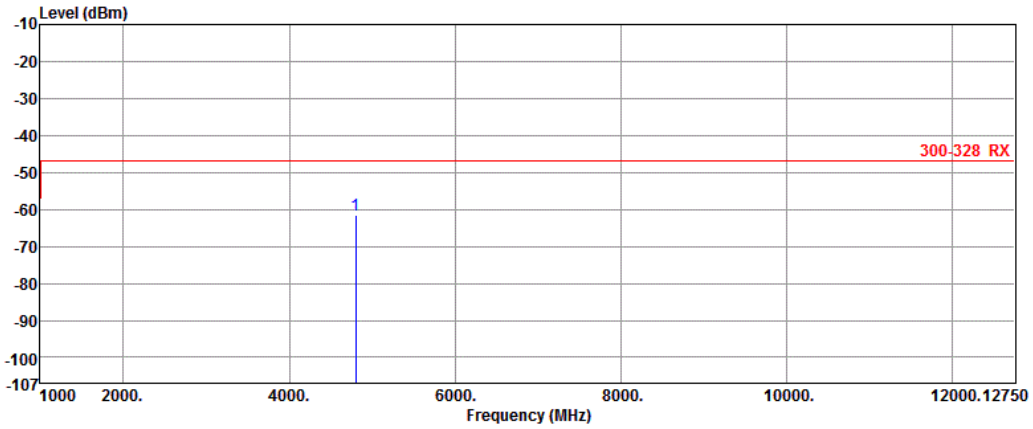
Modulation	GFSK/500kbps	Test Freq. (MHz)	2480



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.07	-59.68	-47.00	-12.68	0.00	-59.68

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

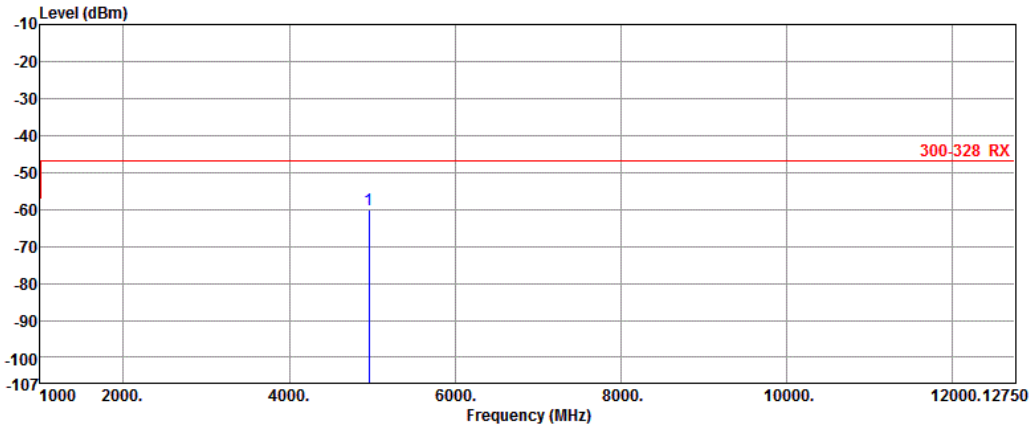
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.01	-61.50	-47.00	-14.50	0.00	-61.50

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

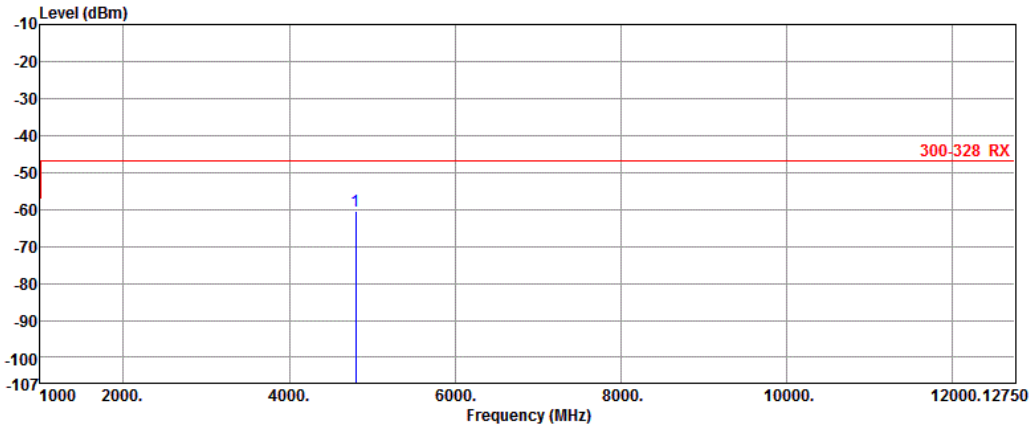
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2480



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.00	-60.29	-47.00	-13.29	0.00	-60.29

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

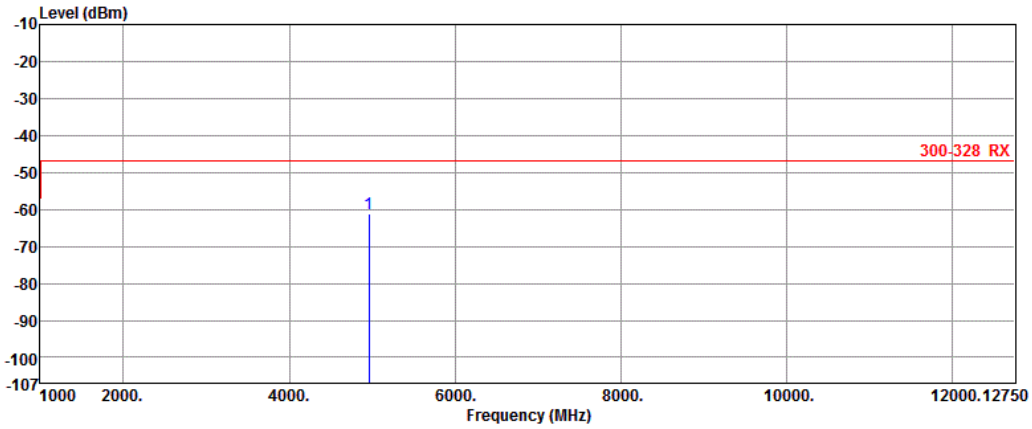
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2402



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.00	-60.58	-47.00	-13.58	0.00	-60.58

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

Modulation	GFSK/2Mbps	Test Freq. (MHz)	2480

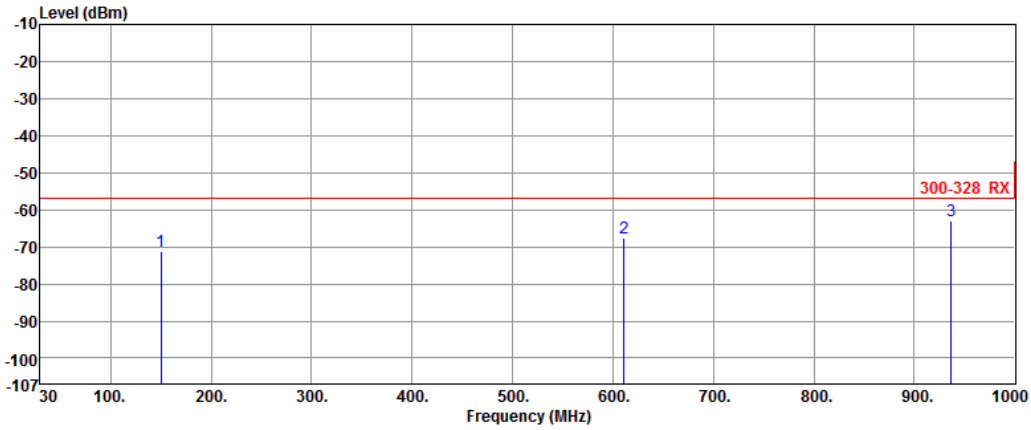


	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.03	-61.09	-47.00	-14.09	0.00	-61.09

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

4.1.6 Receiver Radiated Unwanted Emissions (Below 1GHz)

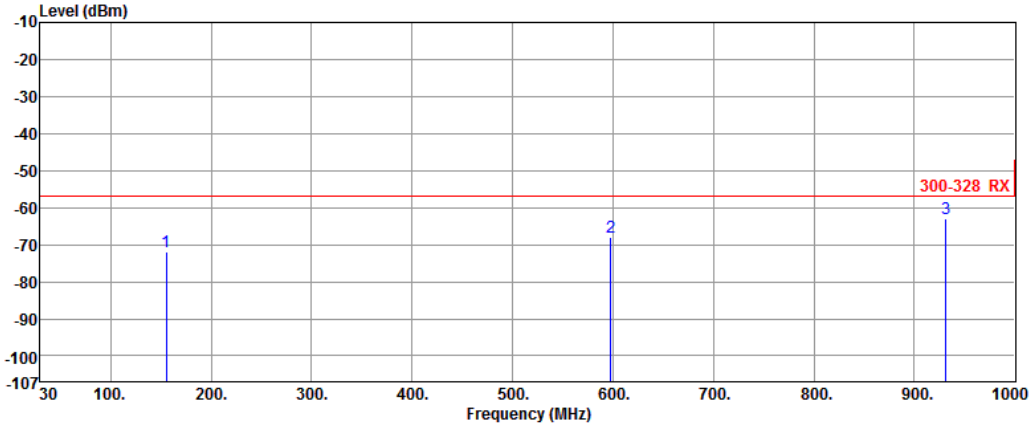
Modulation	GFSK/125kbps	**Test Freq. (MHz)**	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	150.28	-71.18	-57.00	-14.18	-0.04	-71.14
2	611.03	-67.62	-57.00	-10.62	6.94	-74.56
3	936.95	-63.05	-57.00	-6.05	11.86	-74.91

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

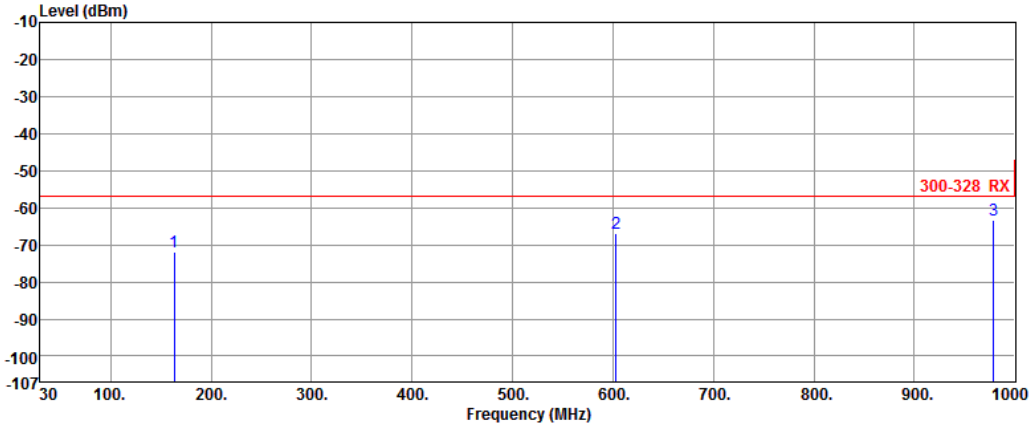
Modulation	GFSK/125kbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	155.13	-72.01	-57.00	-15.01	0.44	-72.45
2	597.45	-68.00	-57.00	-11.00	6.56	-74.56
3	931.13	-63.10	-57.00	-6.10	11.64	-74.74

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

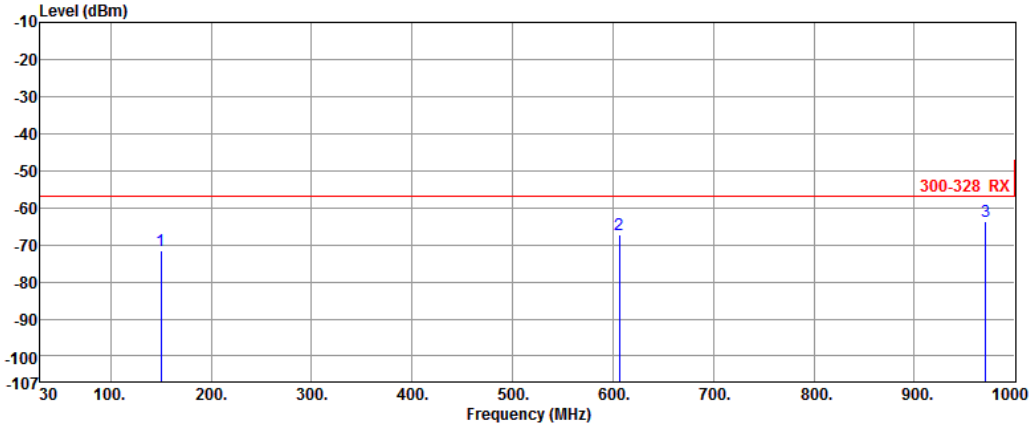
Modulation	GFSK/125kbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	162.89	-72.09	-57.00	-15.09	0.53	-72.62
2	603.27	-66.95	-57.00	-9.95	6.67	-73.62
3	978.66	-63.31	-57.00	-6.31	11.82	-75.13

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

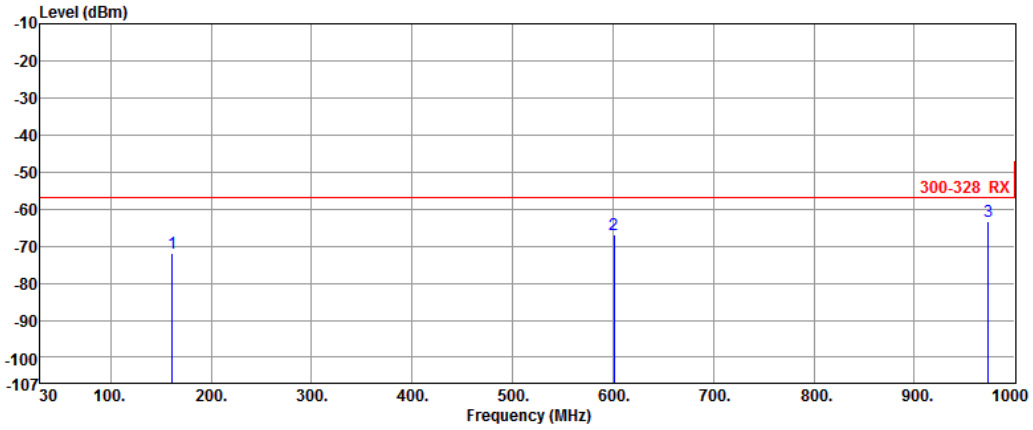
Modulation	GFSK/125kbps	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	150.28	-71.70	-57.00	-14.70	0.21	-71.91
2	606.18	-67.29	-57.00	-10.29	7.10	-74.39
3	970.90	-63.86	-57.00	-6.86	11.79	-75.65

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

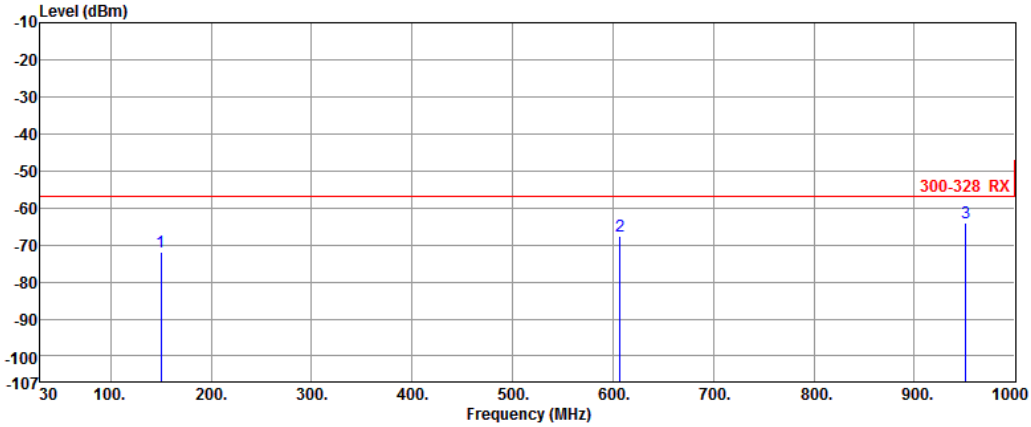
Modulation	GFSK/500kbps	Test Freq. (MHz)	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	160.95	-72.01	-57.00	-15.01	0.79	-72.80
2	601.33	-67.00	-57.00	-10.00	6.60	-73.60
3	973.81	-63.48	-57.00	-6.48	11.74	-75.22

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

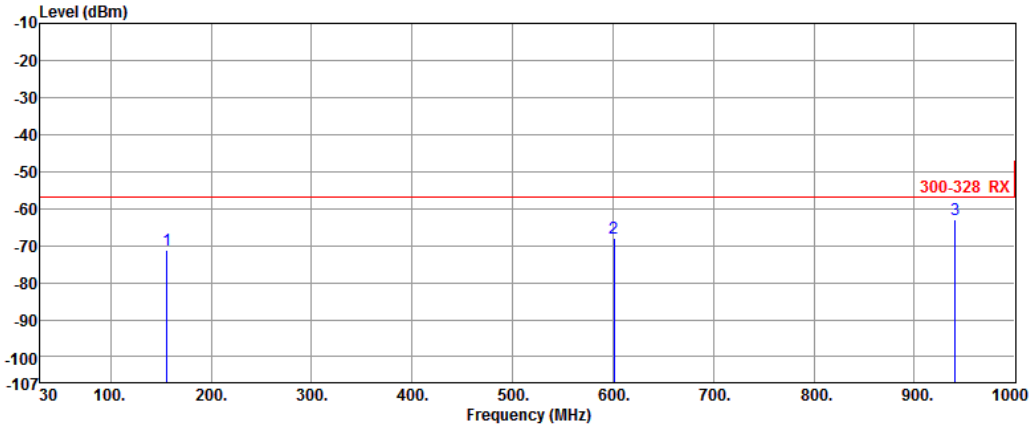
Modulation	GFSK/500kbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	150.28	-71.95	-57.00	-14.95	0.21	-72.16
2	607.15	-67.64	-57.00	-10.64	7.13	-74.77
3	951.50	-64.00	-57.00	-7.00	11.59	-75.59

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

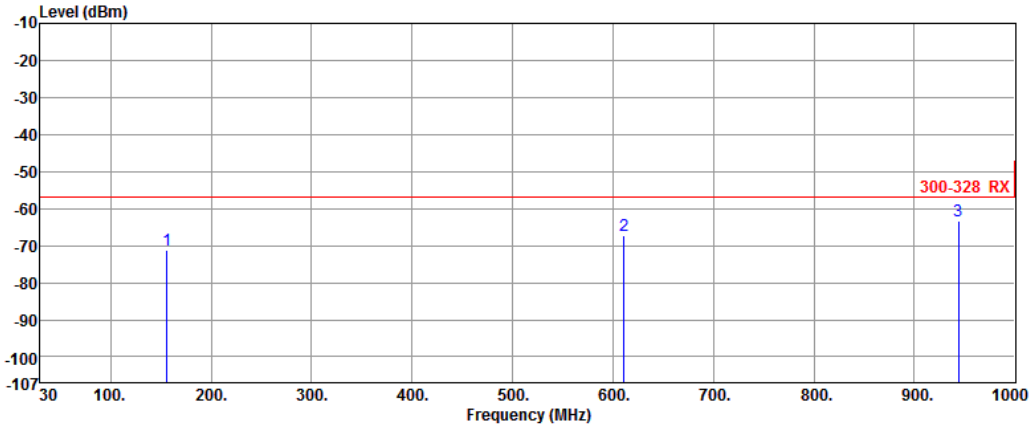
Modulation	GFSK/500kbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	156.10	-71.06	-57.00	-14.06	0.57	-71.63
2	601.33	-67.88	-57.00	-10.88	6.60	-74.48
3	940.83	-63.10	-57.00	-6.10	12.03	-75.13

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

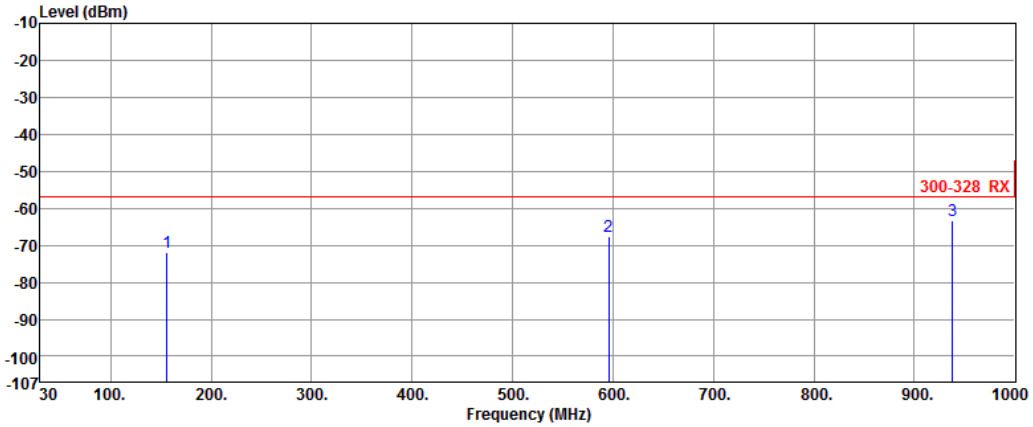
Modulation	GFSK/500kbps	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	156.10	-71.03	-57.00	-14.03	0.55	-71.58
2	611.03	-67.36	-57.00	-10.36	7.23	-74.59
3	943.74	-63.37	-57.00	-6.37	11.60	-74.97

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

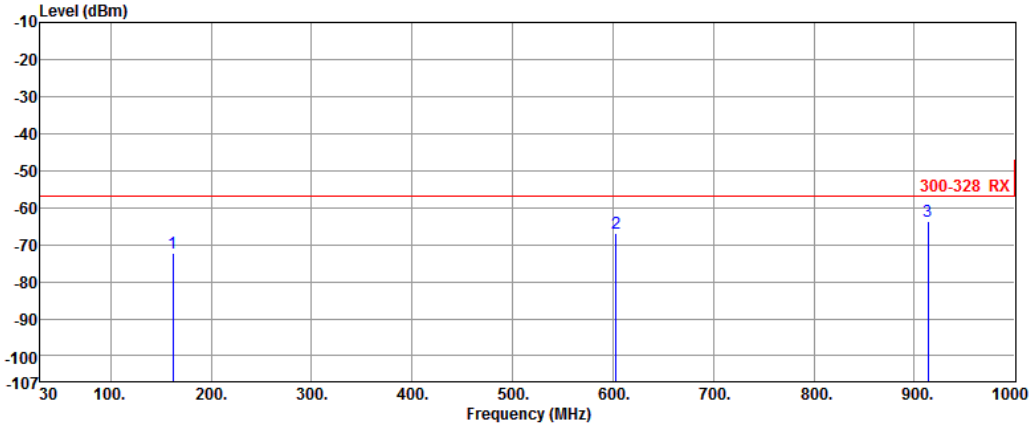
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	156.10	-71.79	-57.00	-14.79	0.57	-72.36
2	595.51	-67.57	-57.00	-10.57	6.57	-74.14
3	937.92	-63.46	-57.00	-6.46	11.92	-75.38

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

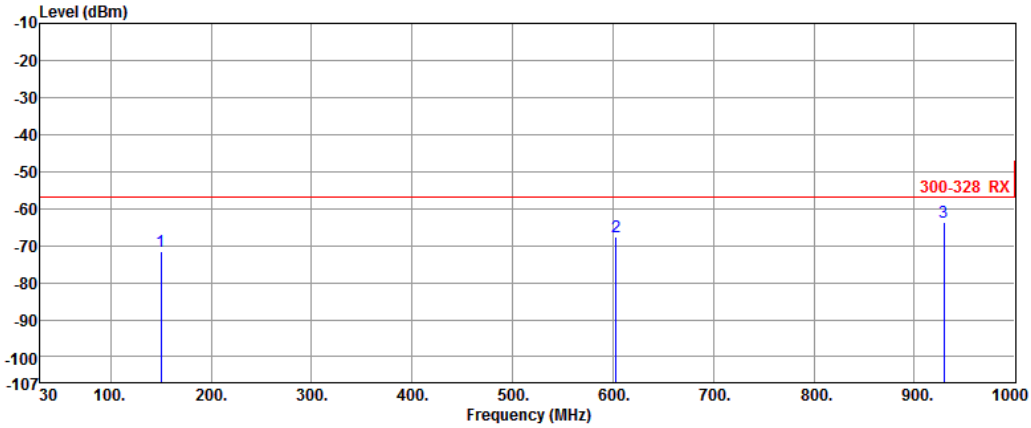
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	161.92	-72.21	-57.00	-15.21	0.83	-73.04
2	603.27	-66.98	-57.00	-9.98	6.93	-73.91
3	913.67	-63.54	-57.00	-6.54	11.24	-74.78

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

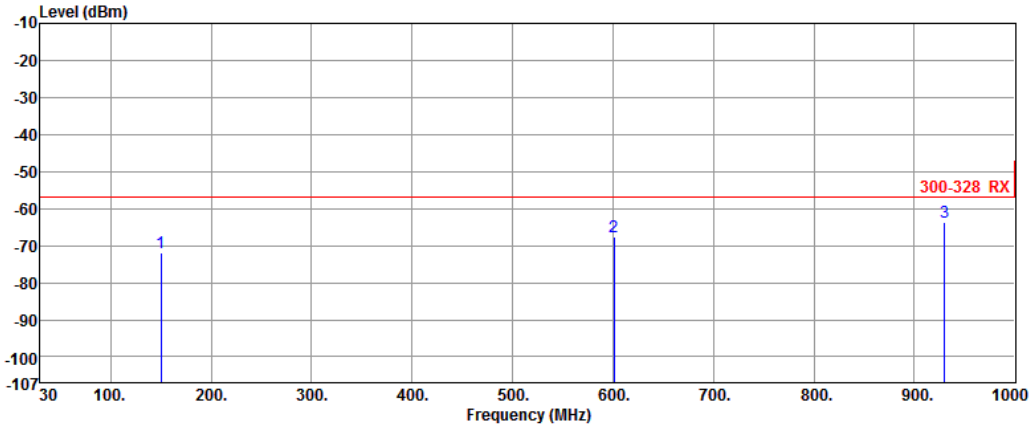
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	150.28	-71.45	-57.00	-14.45	-0.04	-71.41
2	603.27	-67.78	-57.00	-10.78	6.67	-74.45
3	929.19	-63.61	-57.00	-6.61	11.86	-75.47

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

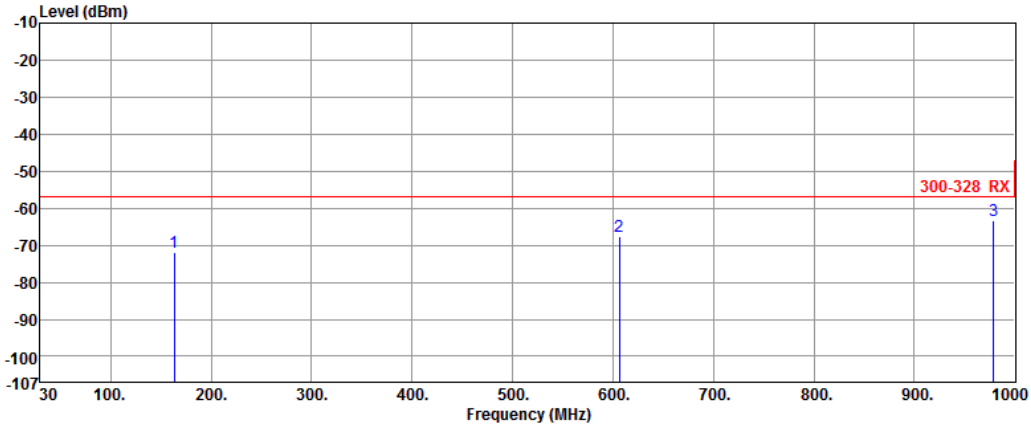
Modulation	GFSK/1Mbps	**Test Freq. (MHz)**	2480
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	150.28	-72.02	-57.00	-15.02	0.21	-72.23
2	601.33	-67.54	-57.00	-10.54	6.78	-74.32
3	930.16	-63.77	-57.00	-6.77	11.70	-75.47

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

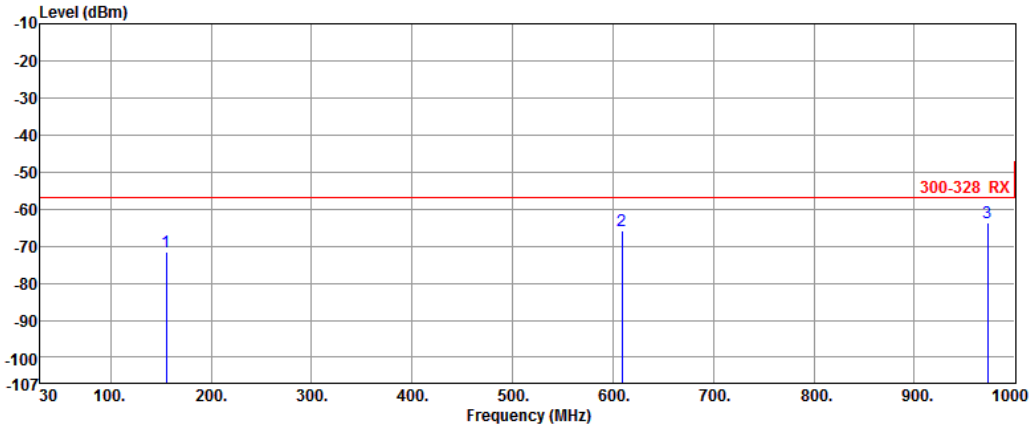
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	162.89	-71.89	-57.00	-14.89	0.53	-72.42
2	606.18	-67.64	-57.00	-10.64	6.77	-74.41
3	978.66	-63.22	-57.00	-6.22	11.82	-75.04

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

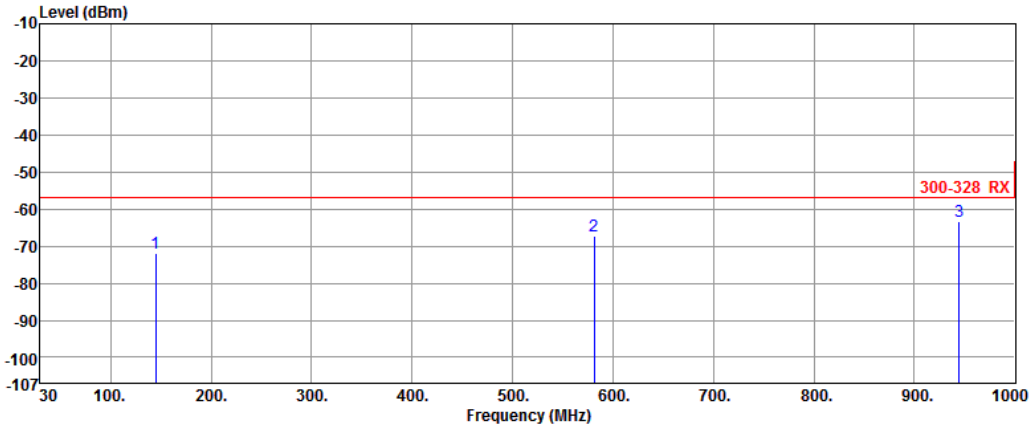
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	155.13	-71.71	-57.00	-14.71	0.44	-72.15
2	609.09	-65.85	-57.00	-8.85	7.20	-73.05
3	972.84	-63.70	-57.00	-6.70	11.75	-75.45

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

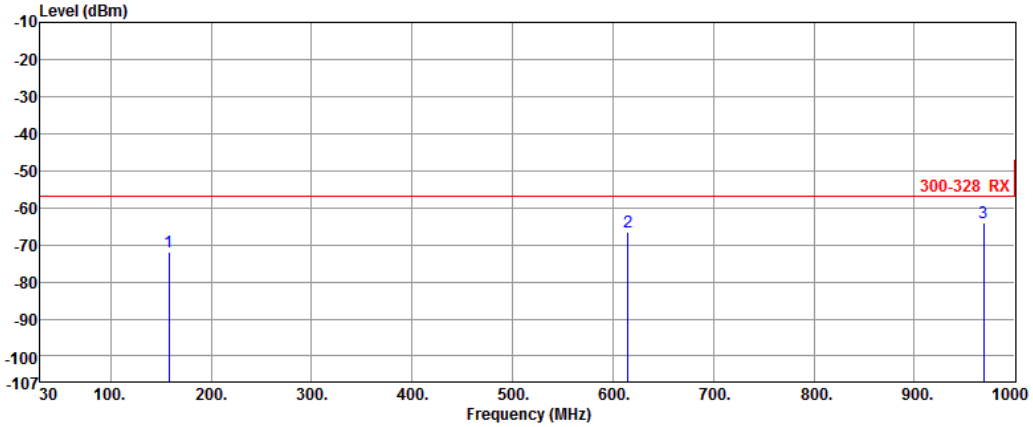
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	144.46	-71.83	-57.00	-14.83	-1.15	-70.68
2	580.96	-67.21	-57.00	-10.21	5.98	-73.19
3	944.71	-63.25	-57.00	-6.25	12.05	-75.30

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

Modulation	GFSK/2Mbps	Test Freq. (MHz)	2480
Polarization	Vertical		

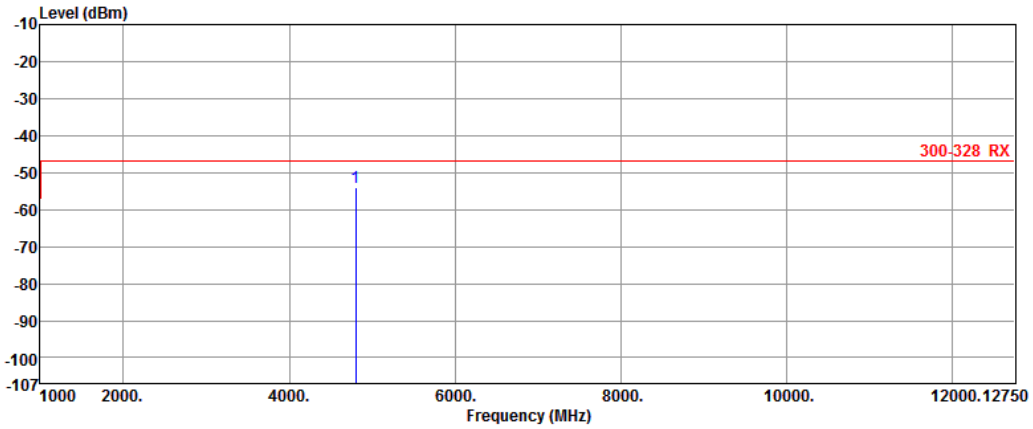


	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	158.04	-71.84	-57.00	-14.84	0.76	-72.60
2	614.91	-66.59	-57.00	-9.59	7.23	-73.82
3	968.96	-63.93	-57.00	-6.93	11.80	-75.73

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

4.1.7 Receiver Radiated Unwanted Emissions (Above 1GHz)

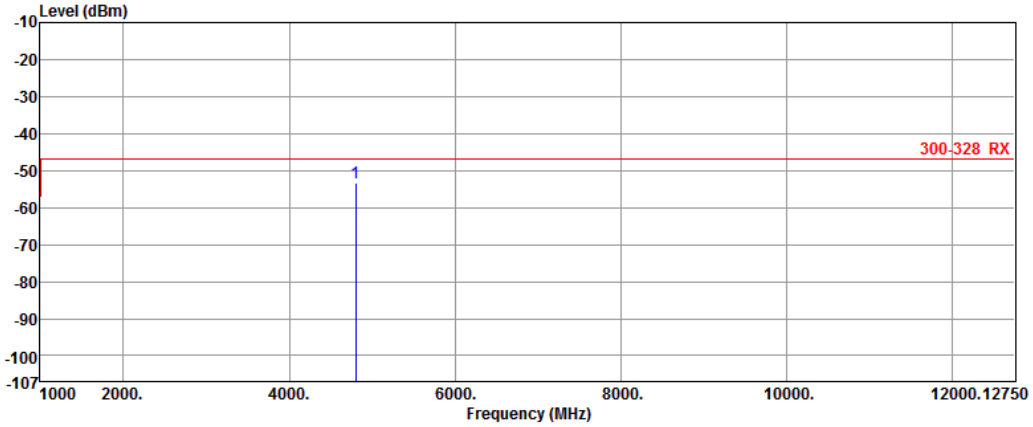
Modulation	GFSK/125kbps	**Test Freq. (MHz)**	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.23	-53.97	-47.00	-6.97	13.47	-67.44

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

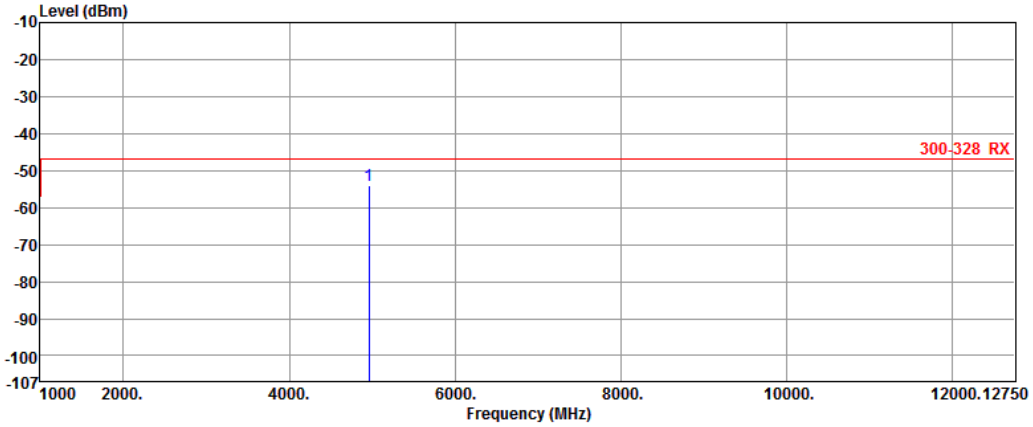
Modulation	GFSK/125kbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.92	-53.33	-47.00	-6.33	13.58	-66.91

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

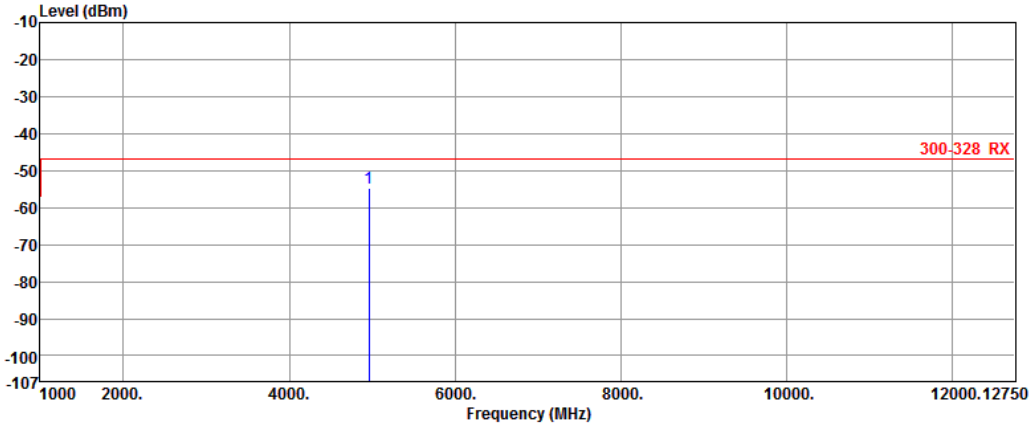
Modulation	GFSK/125kbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.98	-53.85	-47.00	-6.85	13.13	-66.98

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

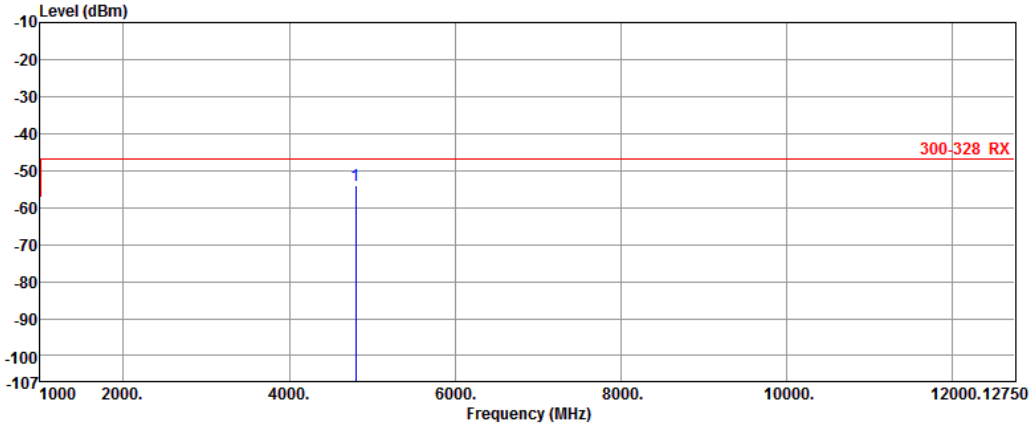
Modulation	GFSK/125kbps	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.96	-54.59	-47.00	-7.59	13.00	-67.59

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

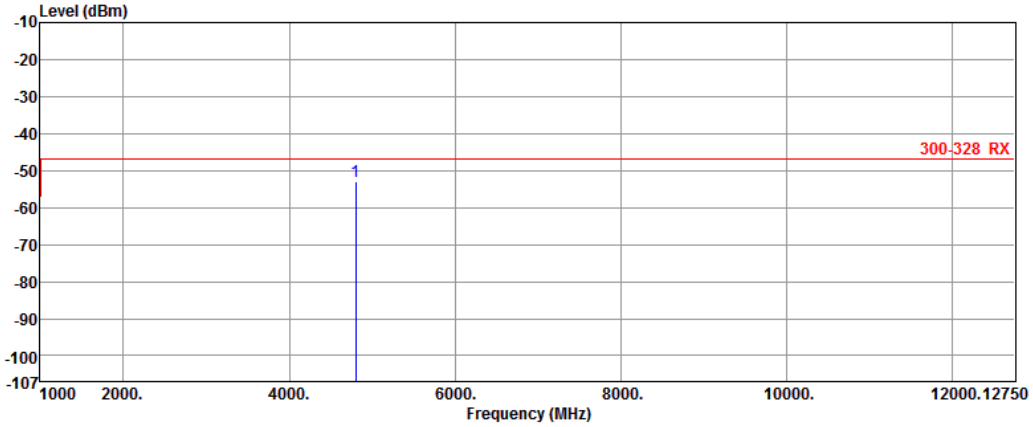
Modulation	GFSK/500kbps	Test Freq. (MHz)	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.19	-54.03	-47.00	-7.03	13.58	-67.61

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

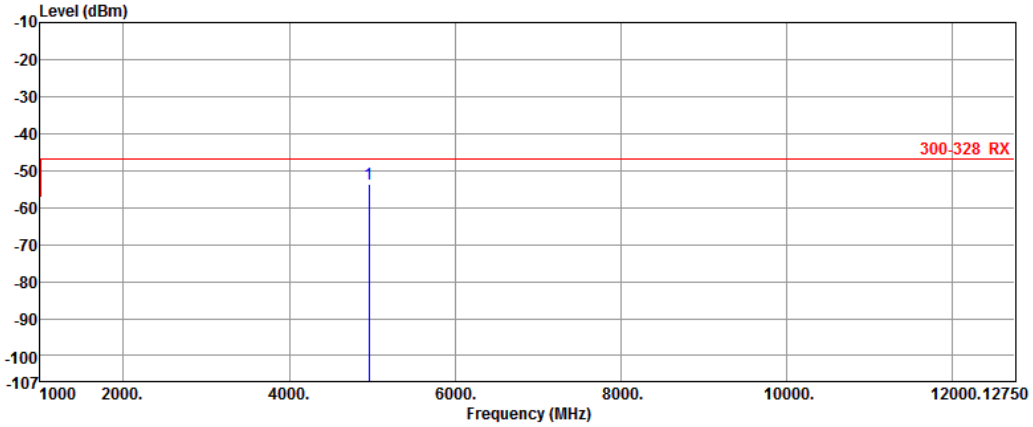
Modulation	GFSK/500kbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.02	-53.08	-47.00	-6.08	13.58	-66.66

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

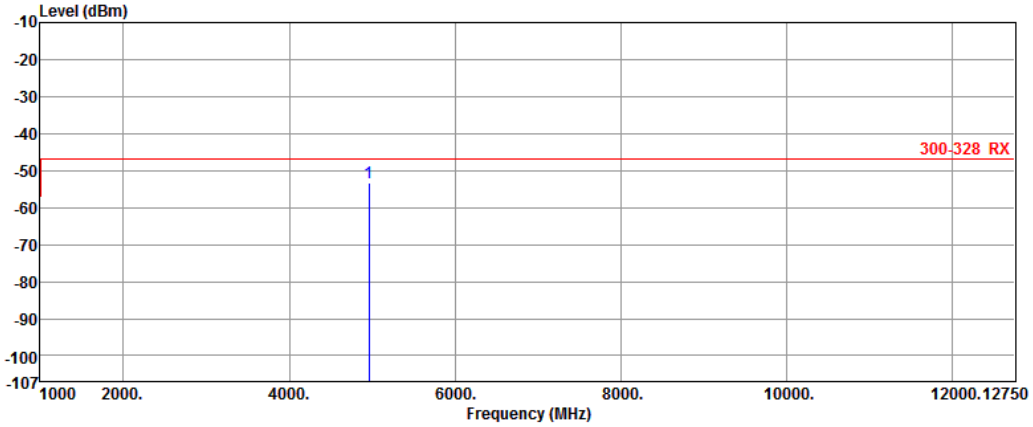
Modulation	GFSK/500kbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.96	-53.58	-47.00	-6.58	13.13	-66.71

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

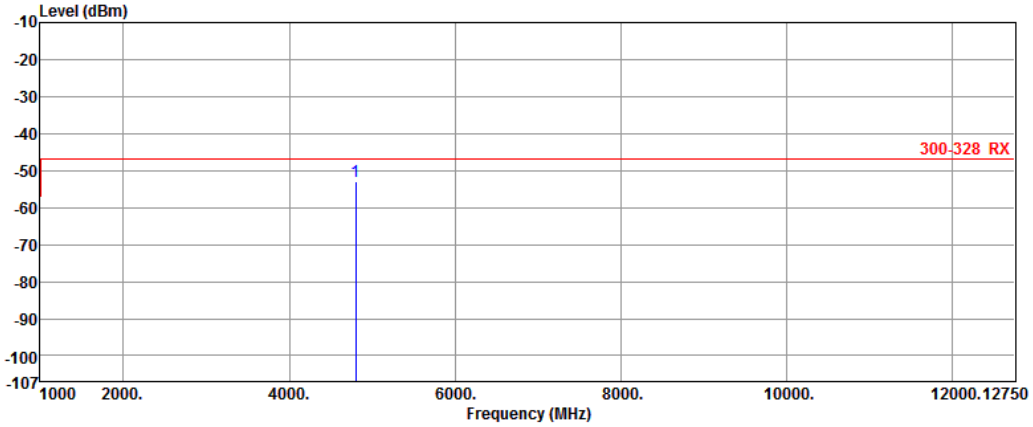
Modulation	GFSK/500kbps	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.20	-53.30	-47.00	-6.30	13.00	-66.30

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

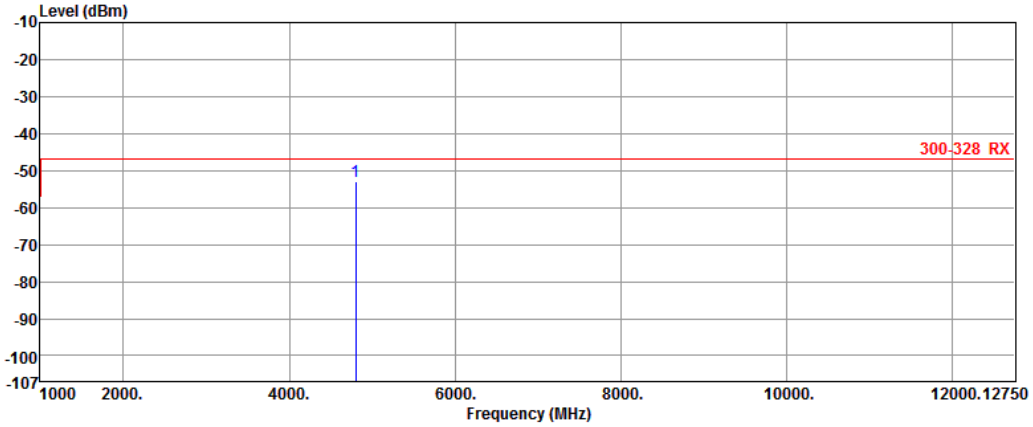
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.93	-52.90	-47.00	-5.90	13.47	-66.37

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

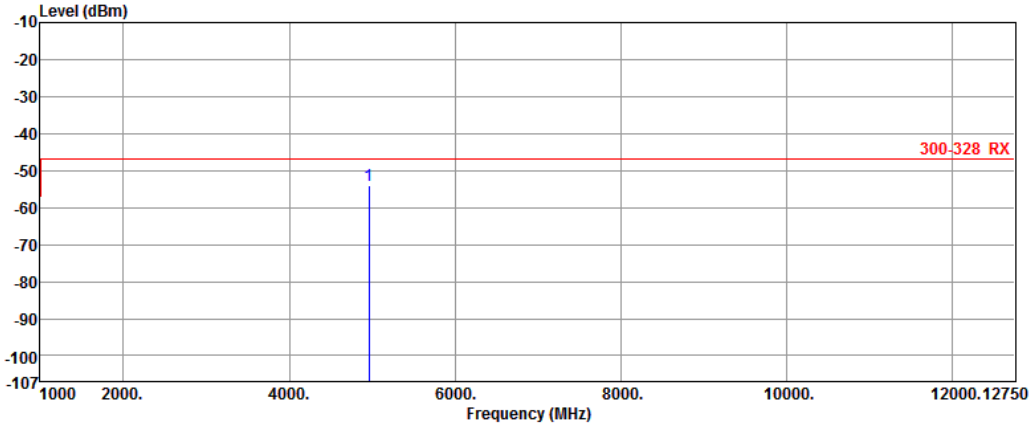
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.88	-52.96	-47.00	-5.96	13.58	-66.54

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

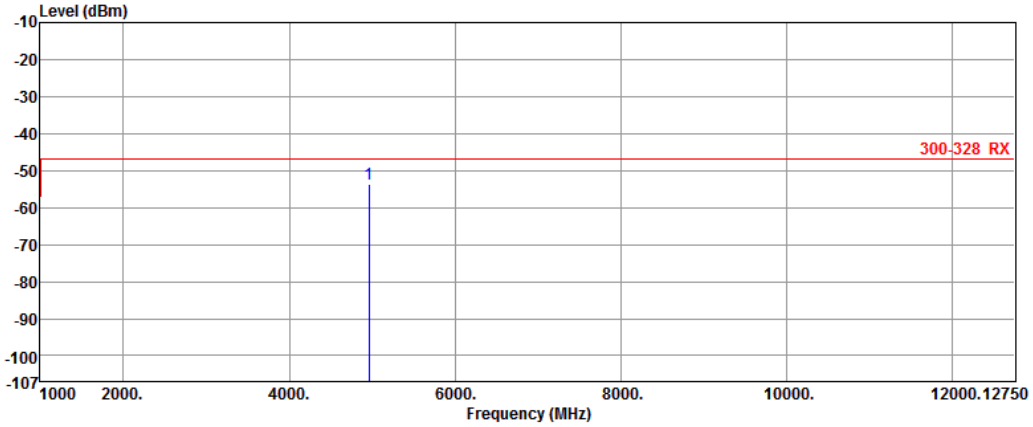
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.90	-53.99	-47.00	-6.99	13.13	-67.12

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

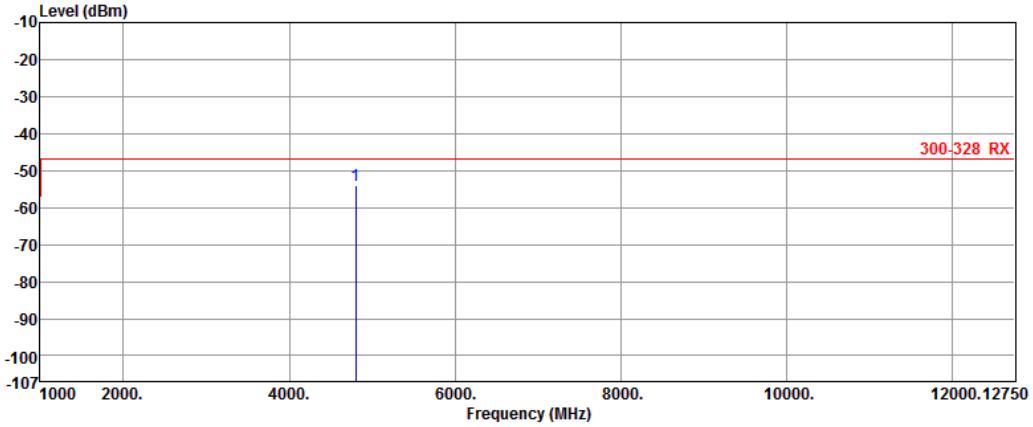
Modulation	GFSK/1Mbps	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.01	-53.78	-47.00	-6.78	13.00	-66.78

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

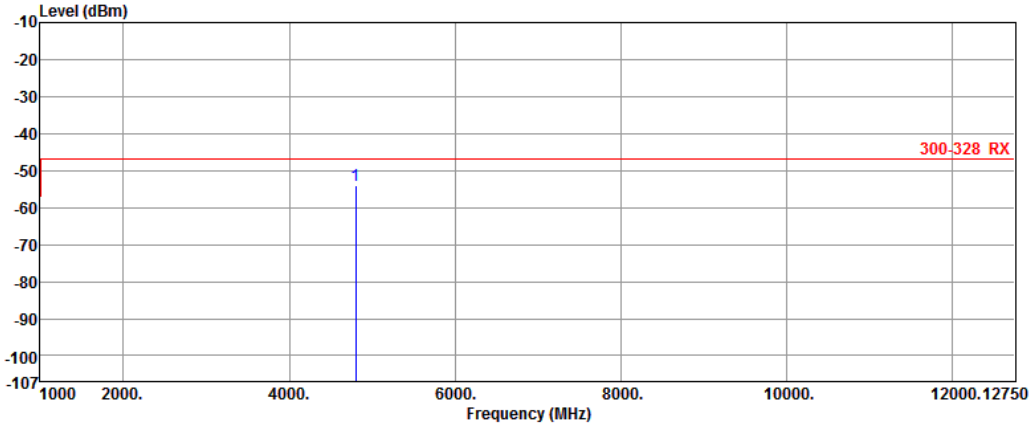
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2402
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.01	-54.06	-47.00	-7.06	13.47	-67.53

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

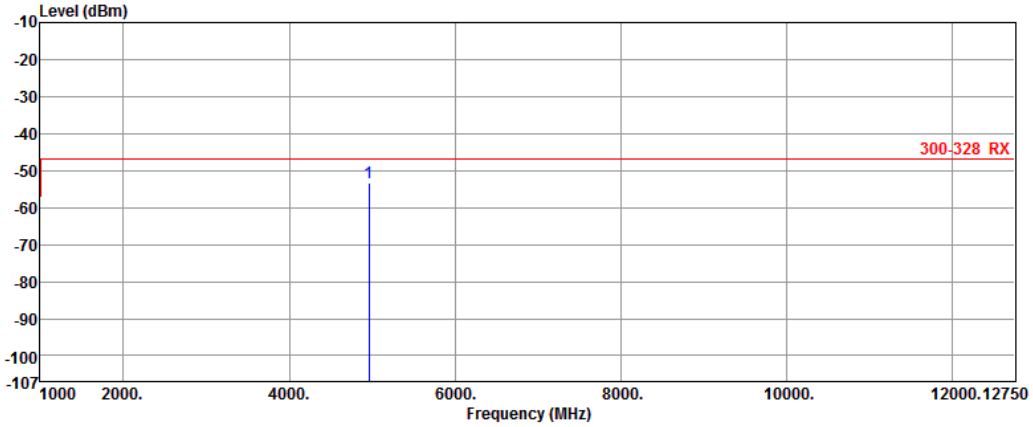
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4804.06	-54.11	-47.00	-7.11	13.58	-67.69

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

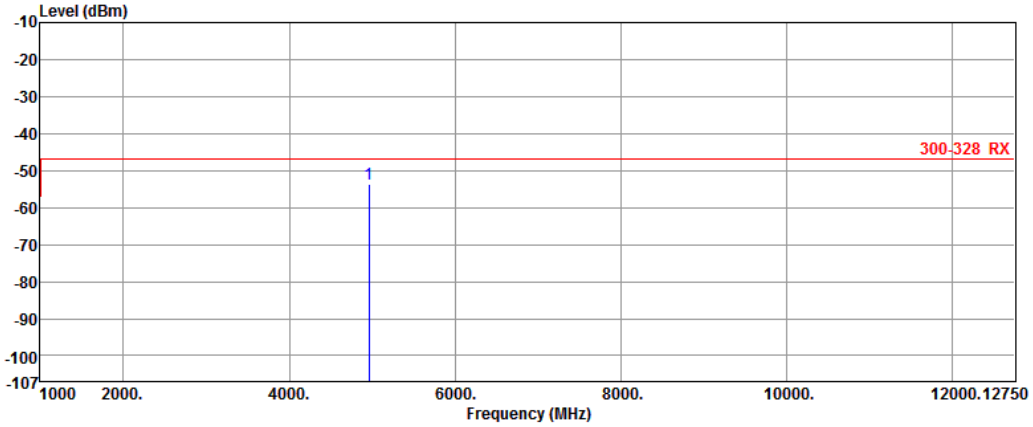
Modulation	GFSK/2Mbps	Test Freq. (MHz)	2480
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.83	-53.36	-47.00	-6.36	13.13	-66.49

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

Modulation	GFSK/2Mbps	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	4960.24	-53.84	-47.00	-6.84	13.00	-66.84

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

5 Receiver Blocking Test Results

5.1 Receiver Blocking

5.1.1 Limit of Receiver Blocking

Receiver Blocking Parameters for Receiver Category 1 Equipment Limit			
Wanted Signal Mean Power from Companion Device (dBm) (see notes 1 and 4)	**Blocking Signal Frequency (MHz)**	**Blocking Signal Power (dBm) (see note 4)**	**Type of Blocking Signal**
(-133 dBm + 10 × log10(OCBW)) or -68 dBm whichever is less (see note 2)	2 380 2 504	-34	CW
(-139 dBm + 10 × log10(OCBW)) or -74 dBm whichever is less (see note 3)	2 300 2 330 2 360 2 524 2 584 2 674		

Note 1: OCBW is in Hz.

Note 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 26 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

Note 3: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 20 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

Note 4: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned.

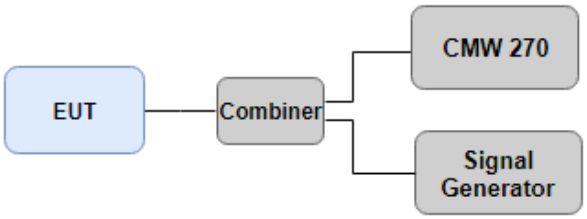
Receiver Blocking Parameters for Receiver Category 2 Equipment Limit			
Wanted Signal Mean Power from Companion Device (dBm) (see notes 1 and 3)	**Blocking Signal Frequency (MHz)**	**Blocking Signal Power (dBm) (see note 3)**	**Type of Blocking Signal**
(-139 dBm + 10 × log10(OCBW) + 10 dB) or (-74 dBm + 10 dB) whichever is less (see note 2)	2 380 2 504 2 300 2 584	-34	CW
Note 1: OCBW is in Hz. Note 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to P_{min} + 26 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal. Note 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned.			

Receiver Blocking Parameters for Receiver Category 3 Equipment Limit			
Wanted Signal Mean Power from Companion Device (dBm) (see notes 1 and 3)	**Blocking Signal Frequency (MHz)**	**Blocking Signal Power (dBm) (see note 3)**	**Type of Blocking Signal**
(-139 dBm + 10 × log10(OCBW) + 20 dB) or (-74 dBm + 20 dB) whichever is less	2 380 2 504 2 300 2 584	-34	CW
Note 1: OCBW is in Hz. Note 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative the test may be performed using a wanted signal up to P_{min} + 30 dB where P_{min} is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal. Note 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned.			

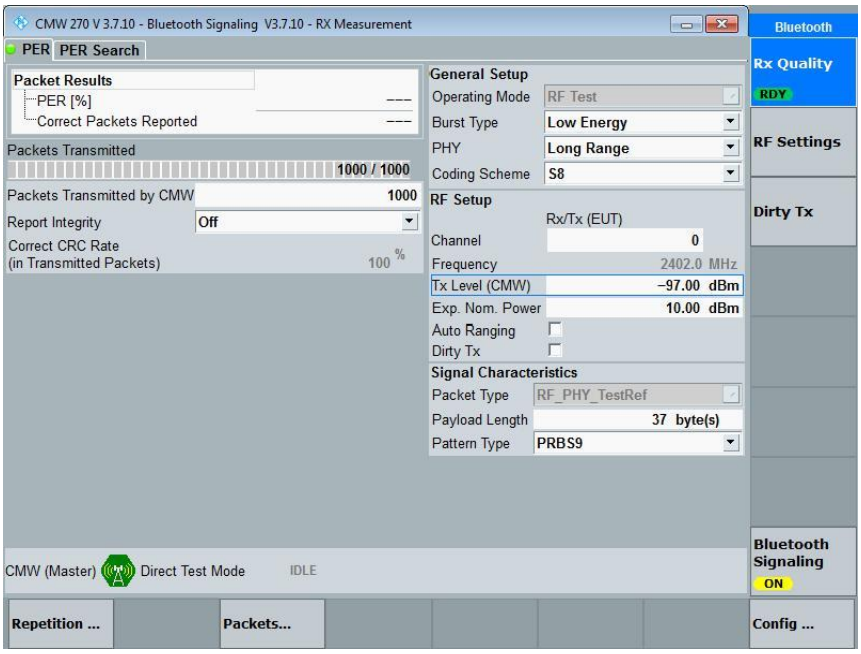
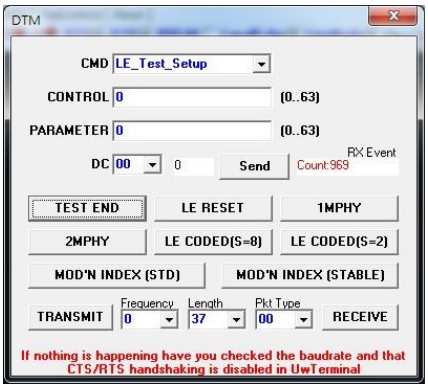
5.1.2 Test Procedures

Reference to clause 5.4.11.2 of ETSI EN 300 328 V2.2.2 (2019-07) .

5.1.3 Test Setup

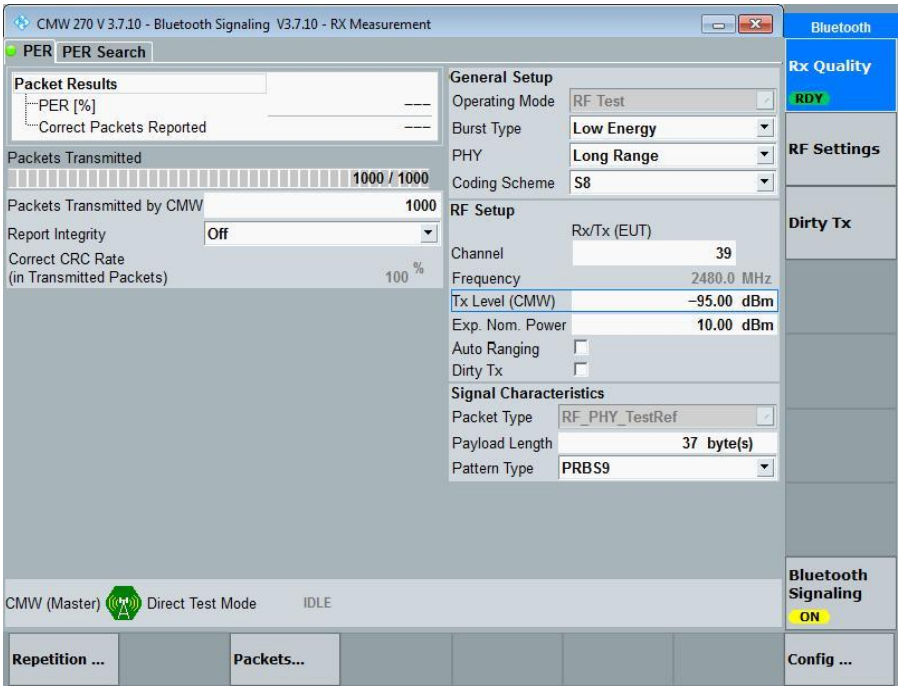


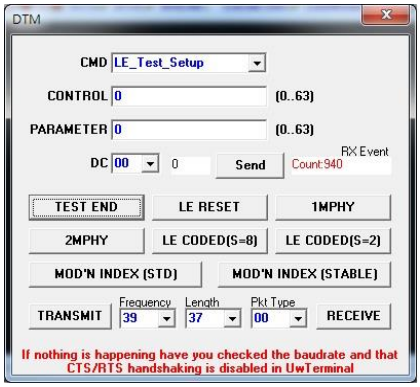
5.1.4 Test Result of Receiver Blocking

2402 MHz	
	
	
Packet Sent Numbers	1000
Packet Received Numbers	969
PER(%)	3.1

Receiver Category	2		
Minimum Level of the Wanted Signal (dBm)	-97		
Wanted Signal Mean Power from Companion Device (dBm)	Blocking Signal Frequency (MHz)	Blocking Signal Power (dBm)	Test Result
-68.80	2380	-31.4	Pass
-68.80	2504	-31.4	Pass
-68.80	2300	-31.4	Pass
-68.80	2584	-31.4	Pass

2480 MHz



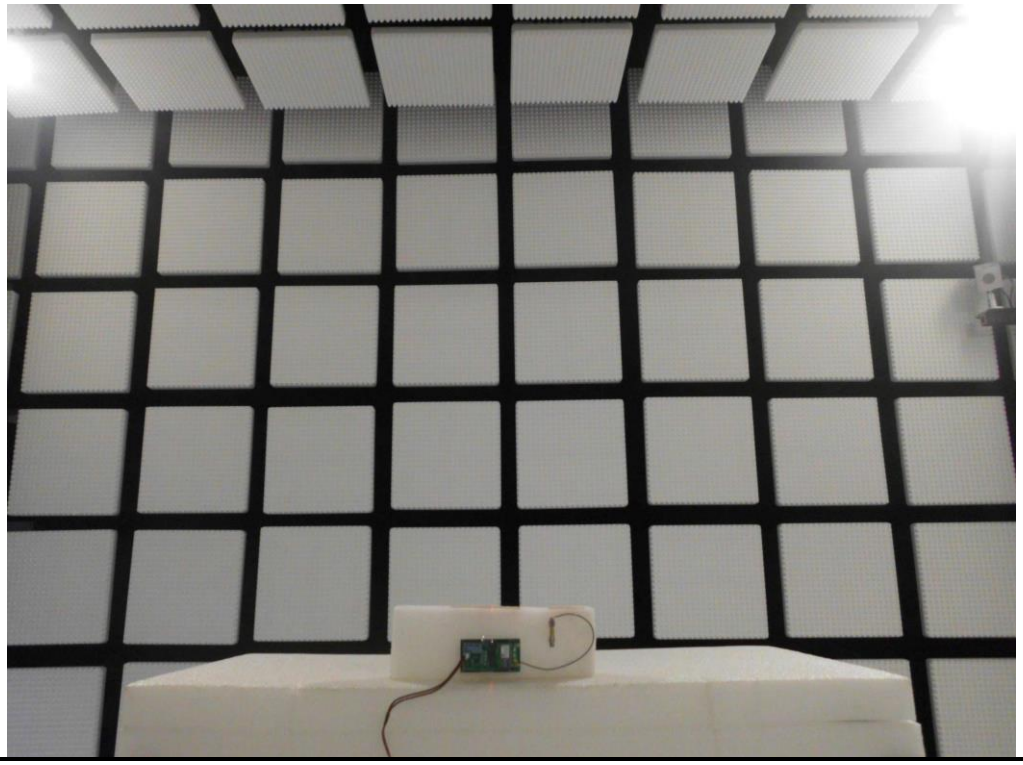


Packet Sent Numbers	1000
Packet Received Numbers	940
PER(%)	6

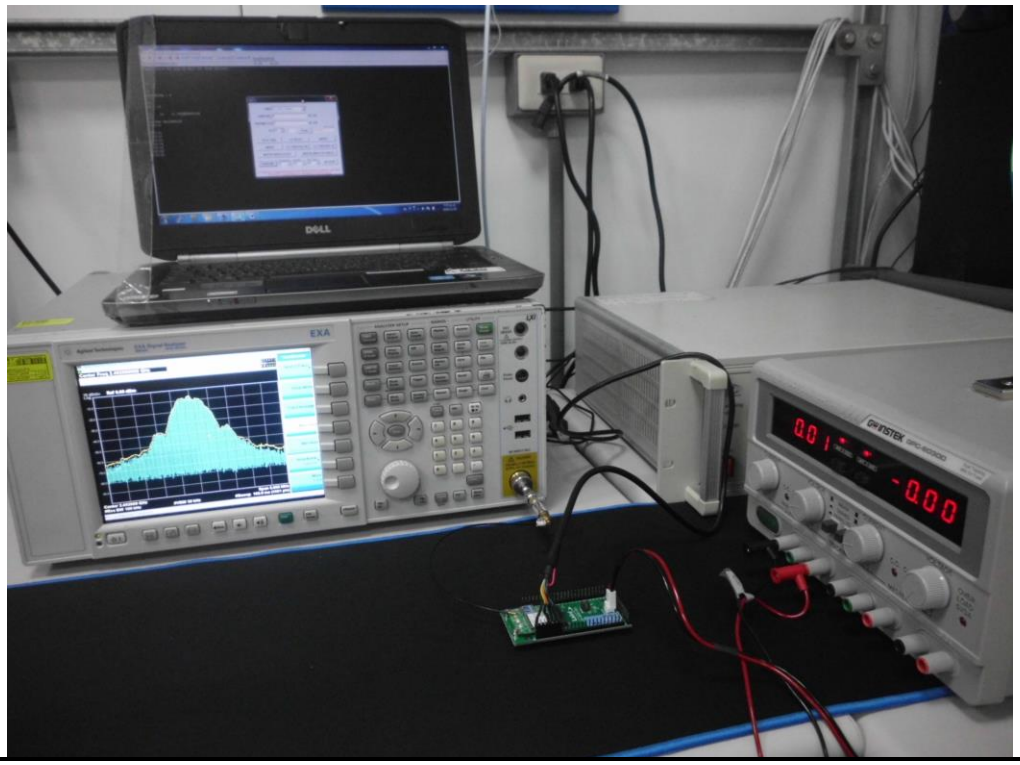
Receiver Category	2		
Minimum Level of the Wanted Signal (dBm)	-95		
Wanted Signal Mean Power from Companion Device (dBm)	**Blocking Signal Frequency (MHz)**	**Blocking Signal Power (dBm)**	**Test Result**
-68.80	2380	-31.4	Pass
-68.80	2504	-31.4	Pass
-68.80	2300	-31.4	Pass
-68.80	2584	-31.4	Pass

6 Photographs of the Test Configuration

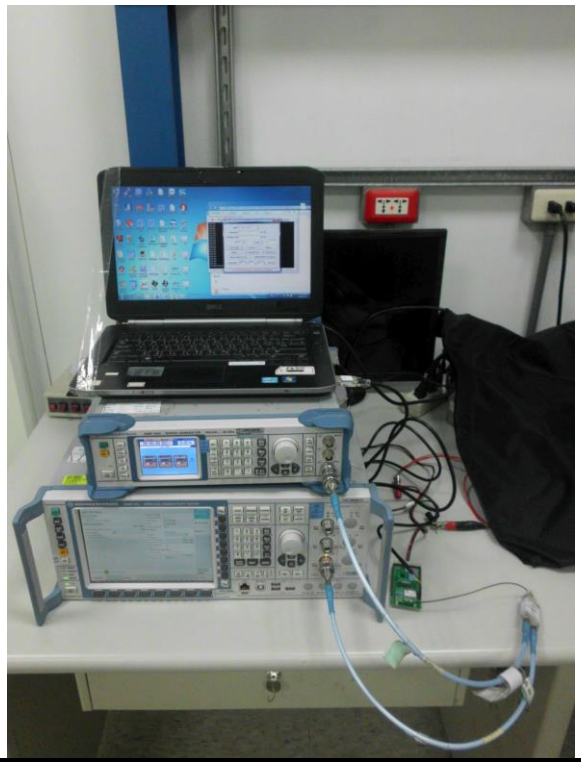
Radiated Spurious Emission Test



Conducted Spurious Emission Test



Receiver Blocking Test



7 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website http://www.icertifi.com.tw.

Linkou	**Kwei Shan**	**Kwei Shan Site II**
Tel: 886-2-2601-1640	Tel: 886-3-271-8666	Tel: 886-3-271-8640
No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan, R.O.C.	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.	No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C..

If you have any suggestion, please feel free to contact us as below information

Tel: 886-3-271-8666
Fax: 886-3-318-0155
Email: ICC_Service@icertifi.com.tw

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