



FCC PART 24 and 90

TEST REPORT

For

**Hytera Communications Corporation Limited**

Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road, Nanshan District, Shenzhen,  
518057 China

**FCC ID: YAMPD98XU5**

<b>Report Type:</b> Original Report	<b>Product Type:</b> Digital Portable Radio
<b>Report Number:</b>	RDG170802009-00D
<b>Report Date:</b>	2017-10-16
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**Note:** This test report is prepared for the customer shown above and for the equipment described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

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## GENERAL INFORMATION

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### Product Description for Equipment under Test (EUT)

The *Hytera Communications Corporation Limited's* product, model number: *PD982 U(5) (FCC ID: YAMDS-6250U1)* in this report is a *Digital Portable Radio* which was measured approximately: 14 cm (L) x 6.5 cm (W) x 4.0 cm (H), rated input voltage: DC 7.4 V or DC 12V from adapter.

#### Adapter Information:

Model: HKA01212010-XQ

Input: AC 100-240V, 50/60Hz, 0.5A

Output: DC 12V, 1.0 A

*\* All measurement and test data in this report was gathered from production sample serial number: 170802009 (Assigned by BAACL, Shenzhen). The EUT supplied by the applicant was received on 2017-08-02.*

### Objective

This test report is prepared on behalf of *Hytera Communications Corporation Limited* in accordance with Part 2, and Part 24, 90 of the Federal Communication Commissions rules.

### Related Submittal(s)/Grant(s)

Part 15.247 DTS&DSS submissions with FCC ID: YAMPD98XU5.

### Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2, Sub-part J as well as the following individual parts:

Part 24 –PERSONAL COMMUNICATIONS SERVICES

Part 90 – Private Land Mobile Radio Service

Applicable Standards: TIA 603-D.

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

**Measurement Uncertainty**

Parameter	uncertainty
Occupied Channel Bandwidth	±5%
RF Output Power with Power meter	±0.5dB
RF conducted test with spectrum	±1.5dB
All emissions, radiated	±4.88dB
Temperature	±3°C
Humidity	±6%
Supply voltages	±0.4%

**Test Facility**

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China.

Bay Area Compliance Laboratories Corp. (Shenzhen) has been accredited to ISO/IEC 17025 by CNAS(Lab code: L2408). And accredited to ISO/IEC 17025 by NVLAP(Lab code: 200707-0), the FCC Designation No. CN5001 under the KDB 974614 D01.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Bay Area Compliance Laboratories Corp. (Shenzhen) was registered with ISED Canada under ISED Canada Registration Number 3062B.

## SYSTEM TEST CONFIGURATION

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### Description of Test Configuration

The system was configured for testing in a test mode which has been done in the factory.

### EUT Exercise Software

No exercise software was used.

### Special Accessories

No special accessory was used.

### Equipment Modifications

No modification was made to the EUT tested.

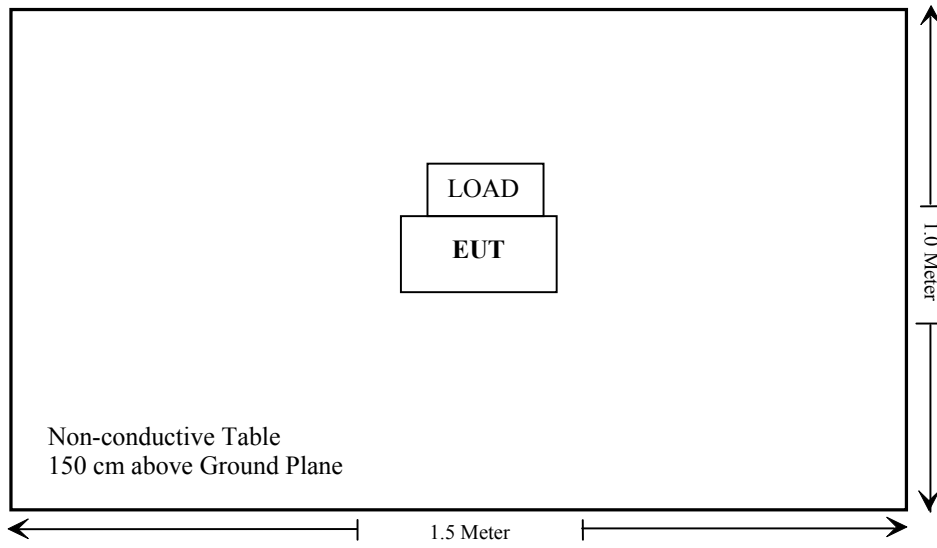
### Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
N/A	Load	N/A	N/A

### External I/O Cable

Cable Description	Length (m)	From Port	To
N/A	N/A	N/A	N/A

**Block Diagram of Test Setup**



**SUMMARY OF TEST RESULTS**

<b>FCC Rules</b>	<b>Description of Test</b>	<b>Results</b>
FCC §1.1307(b) & §2.1093	Rf Exposure	Compliance
§2.1046; §24.132; §90.205	RF Output Power	Compliance
§2.1047; §90.207	Modulation Characteristic	Not Applicable
§2.1049; § 24.131; § 24.133; §90.209; §90.210	Occupied Bandwidth & Emission Mask	Compliance
§2.1051; §24.133; §90.210	Spurious Emission at Antenna Terminal	Compliance
§2.1053; § 24.133; §90.210	Spurious Radiated Emissions	Compliance
§2.1055; § 24.135; §90.213	Frequency Stability	Compliance

**TEST EQUIPMENT LIST**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
<b>Radiated Emission Test</b>					
Sunol Sciences	Horn Antenna	DRH-118	A052604	2014-12-29	2017-12-28
Rohde & Schwarz	Signal Generator	FSIQ26	8386001028	2017-04-24	2018-04-24
Sunol Sciences	Bi-log Antenna	JB1	A040904-2	2014-12-17	2017-12-16
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2017-02-14	2018-02-14
HP	Amplifier	HP8447E	1937A01046	2017-05-21	2017-11-19
Anritsu	Signal Generator	68369B	004114	2016-12-05	2017-12-05
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2016-12-07	2017-12-07
COM POWER	Dipole Antenna	AD-100	041000	NCR	NCR
A.H. System	Horn Antenna	SAS-200/571	135	2015-08-18	2018-08-17
Ducommun technologies	RF Cable	UFA210A-1-4724-30050U	MFR64369 223410-001	2017-05-21	2017-11-19
Ducommun technologies	RF Cable	104PEA	218124002	2017-05-21	2017-11-19
Ducommun technologies	RF Cable	RG-214	1	2017-05-21	2017-11-19
Ducommun technologies	RF Cable	RG-214	2	2017-05-22	2017-11-22
<b>RF Conducted Test</b>					
Rohde & Schwarz	Signal Analyzer	FSIQ26	837405/023	2017-04-24	2018-04-24
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200120	2016-12-05	2017-12-05
ESPEC	Temperature & Humidity Chamber	EL-10KA	09107726	2016-11-22	2017-11-22
Long Wei	DC Power Supply	TPR-6420D	398363	NCR	NCR
Aglient	ESG Vector Signal Generator	E4438C	MY42080875	2017-05-09	2018-05-09
Ducommun technologies	RF Cable	RG-214	3	2017-05-22	2017-11-22
WEINSCHEL	30dB Attenuator	53-30-43	PG633	2017-05-22	2017-11-22

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



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## **FCC §1.1307(b) & §2.1093 - RF EXPOSURE**

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### **Applicable Standard**

According to FCC §1.1307(b) and §2.1093, portable device operates Part 90 should be subjected to routine environmental evaluation for RF exposure prior or equipment authorization or use.

**Result:** Compliance.

Please refer to SAR Report Number: RDG170802009-20A.

**FCC §2.1046 & §24.132 & §90.205 - RF OUTPUT POWER****Applicable Standard**

FCC §2.1046, §24.132 and §90.205

- (a) Stations transmitting in the 901-902 MHz band are limited to 7 watts e.r.p.  
(b) Mobile stations transmitting in the 930-931 MHz and 940-941 MHz bands are limited to 7 watts e.r.p.

**Test Procedure**

Conducted RF Output Power:

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

Spectrum Analyzer Setting:

R B/W	Video B/W
100 kHz	300 kHz

**Test Data****Environmental Conditions**

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Xiangguang Kong on 2017-09-06.*

*Test Mode: Transmitting*

**Test Result:** Compliance. Please refer to following table.

Modulation	Channel Separation (kHz)	Frequency (MHz)	Power Level	Output Power (dBm)	Output Power (W)	Remark
Analog	12.5	806.0125	High	34.76	2.99	Part 90
			Low	30.39	1.09	
	12.5	868.9875	High	34.34	2.72	Part 90
			Low	29.56	0.90	
	12.5	896.0125	High	34.11	2.58	Part 90
			Low	30.28	1.07	
	12.5	901.0125	High	34.27	2.67	Part 24
			Low	30.44	1.11	
	12.5	935.0125	High	34.78	3.01	Part 90
			Low	29.82	0.96	
	12.5	940.9875	High	34.66	2.92	Part 24
			Low	30.33	1.08	
	25	806.0125	High	34.75	2.99	Part 90
			Low	30.20	1.05	
25	868.9875	High	34.33	2.71	Part 90	
		Low	29.34	0.86		
Digital	12.5	806.0125	High	34.84	3.05	Part 90
			Low	30.28	1.07	
	12.5	868.9875	High	34.31	2.70	Part 90
			Low	30.29	1.07	
	12.5	896.0125	High	34.83	3.04	Part 90
			Low	30.00	1.00	
	12.5	901.0125	High	34.25	2.66	Part 24
			Low	30.47	1.11	
	12.5	935.0125	High	34.68	2.94	Part 90
			Low	30.43	1.10	
	12.5	940.9875	High	34.68	2.94	Part 24
			Low	30.38	1.09	

Note: Rated high output power is 3 W  
 Rated low output power is 1 W

For part 24 Analog e.r.p. :

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 24	
			Height (m)	Polar (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
901.0125 MHz										
901.0125	86.47	100	1.4	H	26.4	0.67	0.0	25.73	38.45	12.72
901.0125	93.92	169	1.6	V	34.7	0.67	0.0	34.03	38.45	4.42
940.0125 MHz										
940.0125	87.34	55	2.1	H	27.3	0.67	0.0	26.63	38.45	11.82
940.0125	94.15	104	1.9	V	34.9	0.67	0.0	34.23	38.45	4.22

For part 24 Digital e.r.p. :

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 24	
			Height (m)	Polar (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
901.0125 MHz										
901.0125	86.63	251	1.9	H	26.6	0.67	0.0	25.93	38.45	12.52
901.0125	93.88	49	1.2	V	34.7	0.67	0.0	34.03	38.45	4.42
940.0125 MHz										
940.0125	86.95	215	2.1	H	26.9	0.67	0.0	26.23	38.45	12.22
940.0125	93.77	158	1.8	V	34.6	0.67	0.0	33.93	38.45	4.52

**Note:**

All above data were tested with no amplifier.

Absolute Level = Substituted Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

**FCC §2.1047 & §90.207 - MODULATION CHARACTERISTIC****Applicable Standard**

FCC§2.1047, §74.463, §80.213 and §90.207:

- (a) Equipment which utilizes voice modulated communication shall show the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz. for equipment which is required to have a low pass filter, the frequency response of the filter, or all of the circuitry installed between the modulation limited and the modulated stage shall be supplied.
- (b) Equipment which employs modulation limiting, a curve showing the percentage of modulation versus the modulation input voltage shall be supplied.

**Test Procedure**

Test Method: TIA/EIA-603 2.2.3

**Test Data****Environmental Conditions**

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Xiangguang Kong on 2017-09-06.*

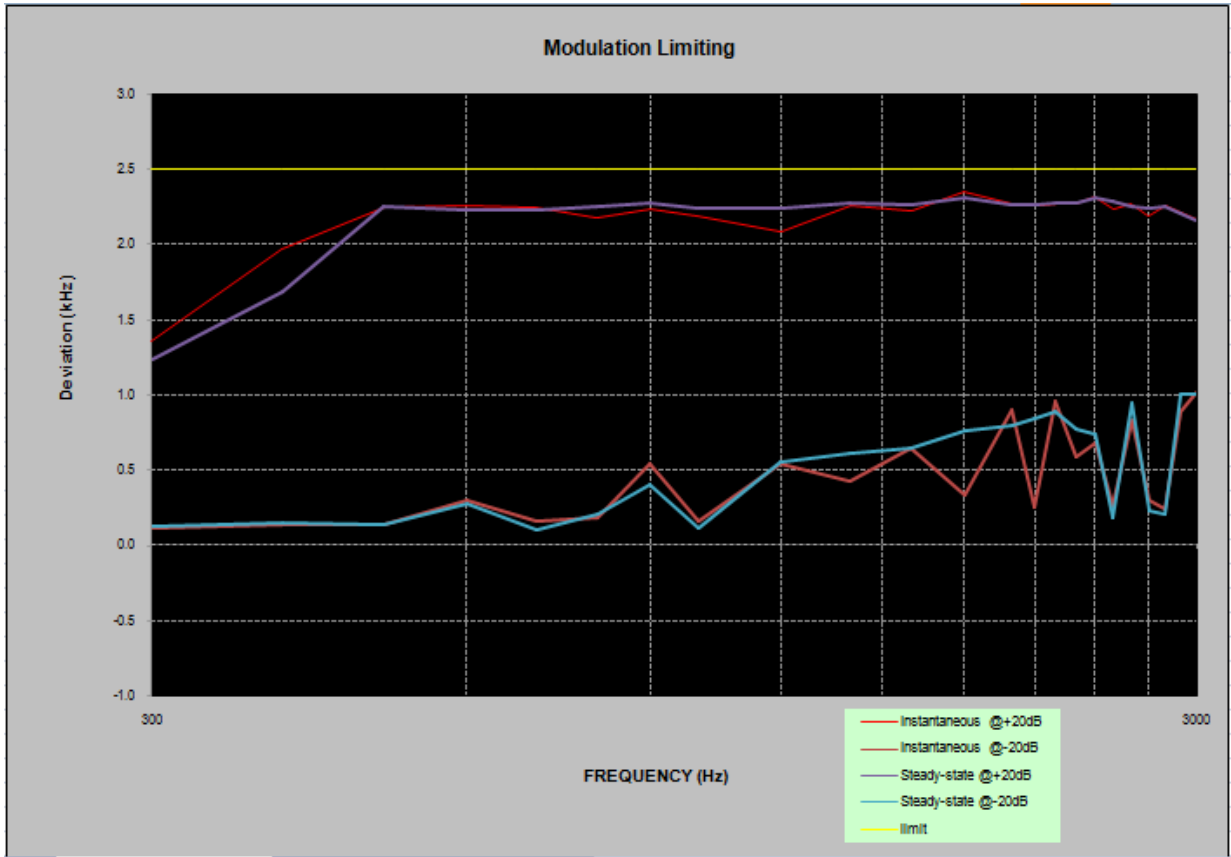
*Test Mode: Transmitting*

**Result:** Compliance.

**Analog Modulation:****MODULATION LIMITING**

Carrier Frequency: 806.0125 MHz, Channel Separation=12.5 kHz

Audio Frequency (Hz)	Instantaneous		Steady-state		FCC Limit [kHz]
	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	
300	1.354	0.106	1.233	0.124	2.5
400	1.965	0.134	1.677	0.147	2.5
500	2.240	0.135	2.254	0.129	2.5
600	2.256	0.296	2.221	0.277	2.5
700	2.241	0.161	2.223	0.102	2.5
800	2.178	0.185	2.245	0.202	2.5
900	2.237	0.535	2.269	0.402	2.5
1000	2.188	0.154	2.243	0.113	2.5
1200	2.082	0.533	2.234	0.545	2.5
1400	2.256	0.423	2.270	0.605	2.5
1600	2.218	0.638	2.261	0.642	2.5
1800	2.349	0.329	2.312	0.754	2.5
2000	2.272	0.891	2.263	0.788	2.5
2100	2.252	0.251	2.266	0.833	2.5
2200	2.265	0.952	2.277	0.884	2.5
2300	2.268	0.585	2.271	0.772	2.5
2400	2.314	0.675	2.303	0.732	2.5
2500	2.227	0.263	2.284	0.184	2.5
2600	2.271	0.832	2.245	0.946	2.5
2700	2.185	0.292	2.242	0.231	2.5
2800	2.254	0.233	2.247	0.201	2.5
2900	2.203	0.882	2.198	1.002	2.5
3000	2.164	1.013	2.155	1.006	2.5

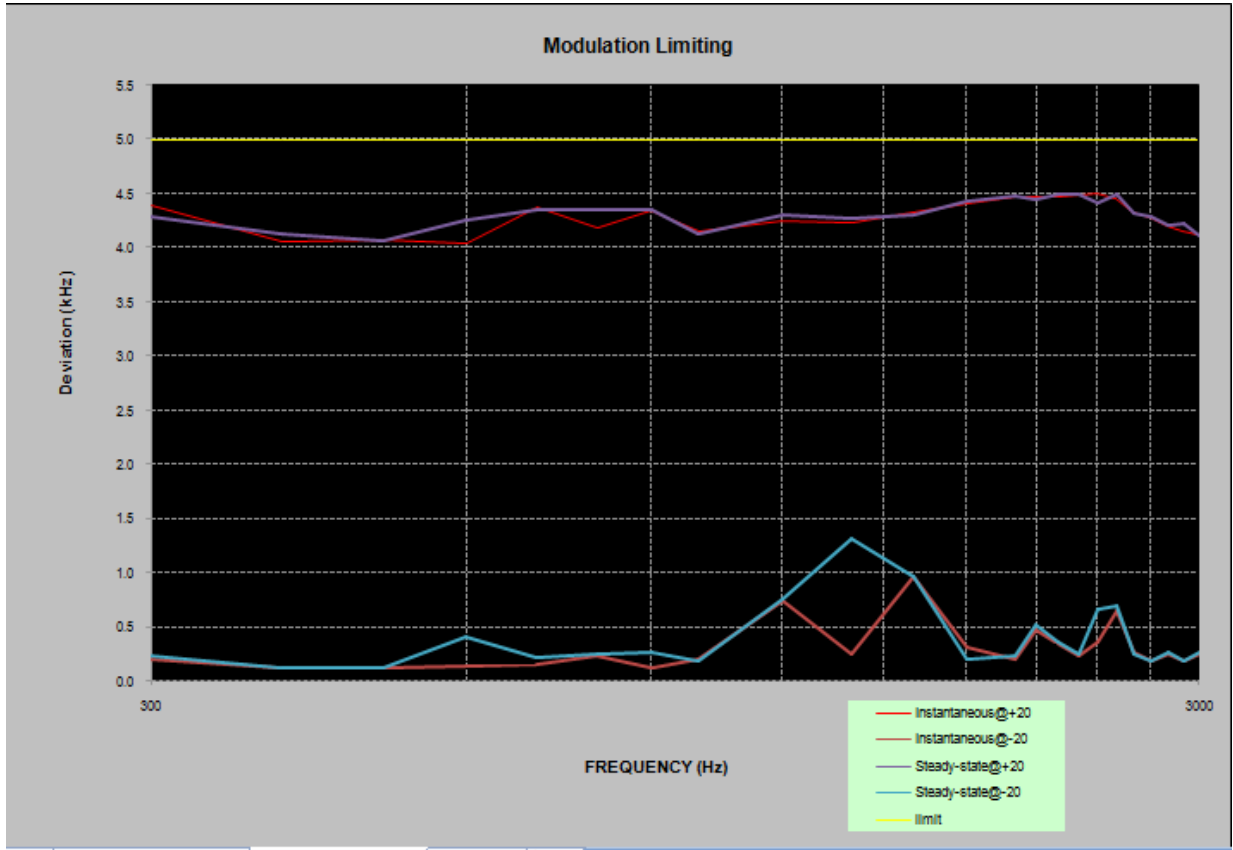


**MODULATION LIMITING**

Carrier Frequency: 806.0125 MHz, Channel Separation=25 kHz

Audio Frequency (Hz)	Instantaneous		Steady-state		FCC Limit [kHz]
	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	
300	4.390	0.212	4.298	0.237	5.0
400	4.056	0.132	4.134	0.123	5.0
500	4.077	0.119	4.064	0.126	5.0
600	4.040	0.148	4.257	0.412	5.0
700	4.385	0.152	4.356	0.218	5.0
800	4.187	0.243	4.354	0.261	5.0
900	4.344	0.122	4.350	0.273	5.0
1000	4.154	0.211	4.138	0.183	5.0
1200	4.256	0.744	4.310	0.756	5.0
1400	4.241	0.256	4.270	1.314	5.0
1600	4.325	0.968	4.308	0.973	5.0
1800	4.412	0.312	4.431	0.207	5.0
2000	4.476	0.212	4.483	0.230	5.0
2100	4.468	0.479	4.452	0.531	5.0
2200	4.477	0.354	4.491	0.370	5.0
2300	4.493	0.240	4.502	0.251	5.0
2400	4.509	0.361	4.418	0.672	5.0
2500	4.454	0.656	4.502	0.701	5.0
2600	4.324	0.271	4.316	0.257	5.0
2700	4.285	0.186	4.288	0.196	5.0
2800	4.210	0.251	4.218	0.267	5.0
2900	4.154	0.192	4.221	0.184	5.0
3000	4.122	0.253	4.113	0.267	5.0

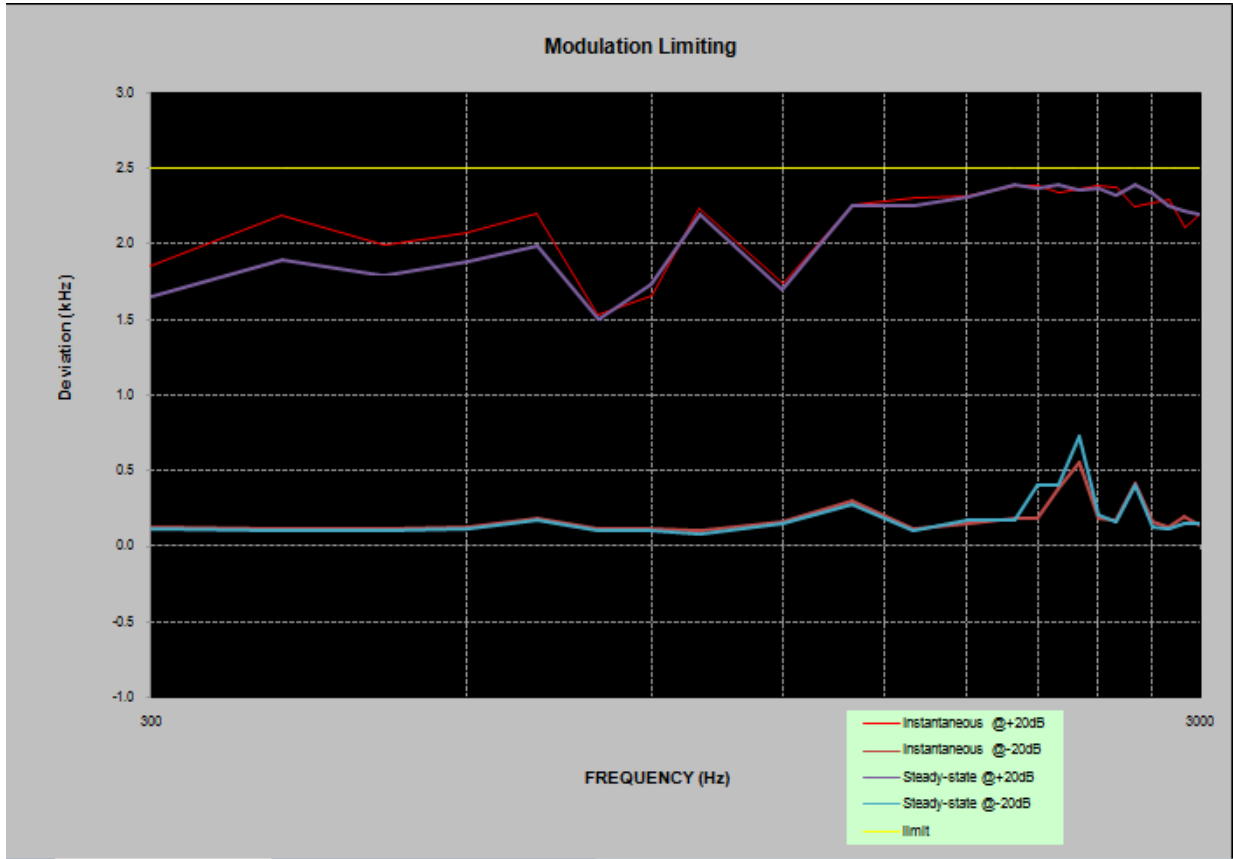




**MODULATION LIMITING**

Carrier Frequency: 868.9875 MHz, Channel Separation=12.5 kHz

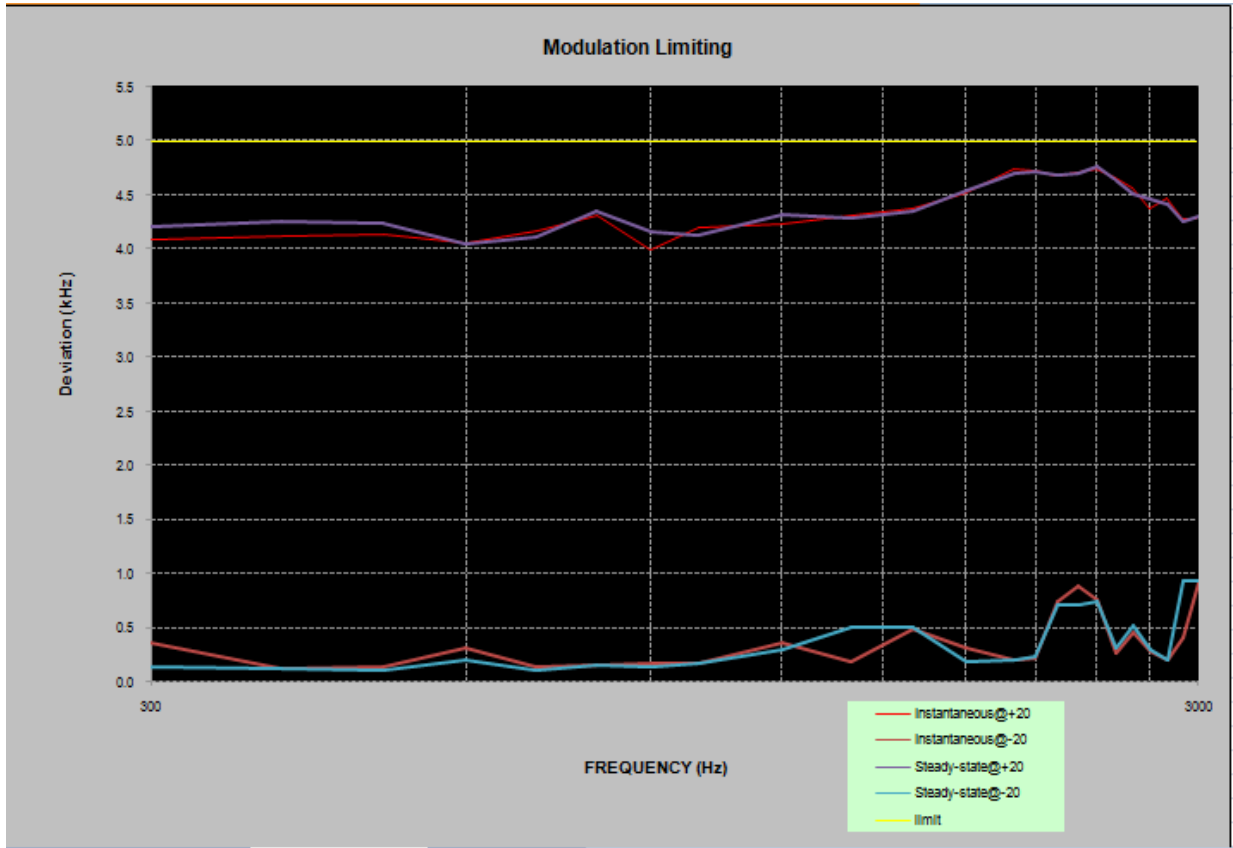
Audio Frequency (Hz)	Instantaneous		Steady-state		FCC Limit [kHz]
	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	
300	1.849	0.127	1.645	0.106	2.5
400	2.188	0.111	1.896	0.098	2.5
500	1.987	0.116	1.782	0.101	2.5
600	2.075	0.117	1.884	0.109	2.5
700	2.201	0.175	1.985	0.164	2.5
800	1.526	0.106	1.497	0.095	2.5
900	1.657	0.107	1.732	0.099	2.5
1000	2.234	0.098	2.189	0.081	2.5
1200	1.738	0.153	1.689	0.149	2.5
1400	2.256	0.298	2.254	0.273	2.5
1600	2.297	0.114	2.249	0.104	2.5
1800	2.317	0.146	2.309	0.165	2.5
2000	2.379	0.180	2.385	0.172	2.5
2100	2.377	0.178	2.364	0.402	2.5
2200	2.338	0.380	2.385	0.403	2.5
2300	2.364	0.547	2.359	0.721	2.5
2400	2.379	0.179	2.364	0.198	2.5
2500	2.376	0.171	2.323	0.153	2.5
2600	2.239	0.414	2.384	0.402	2.5
2700	2.264	0.158	2.332	0.125	2.5
2800	2.288	0.127	2.249	0.113	2.5
2900	2.106	0.187	2.211	0.146	2.5
3000	2.198	0.139	2.191	0.140	2.5



**MODULATION LIMITING**

Carrier Frequency: 868.9875 MHz, Channel Separation=25 kHz

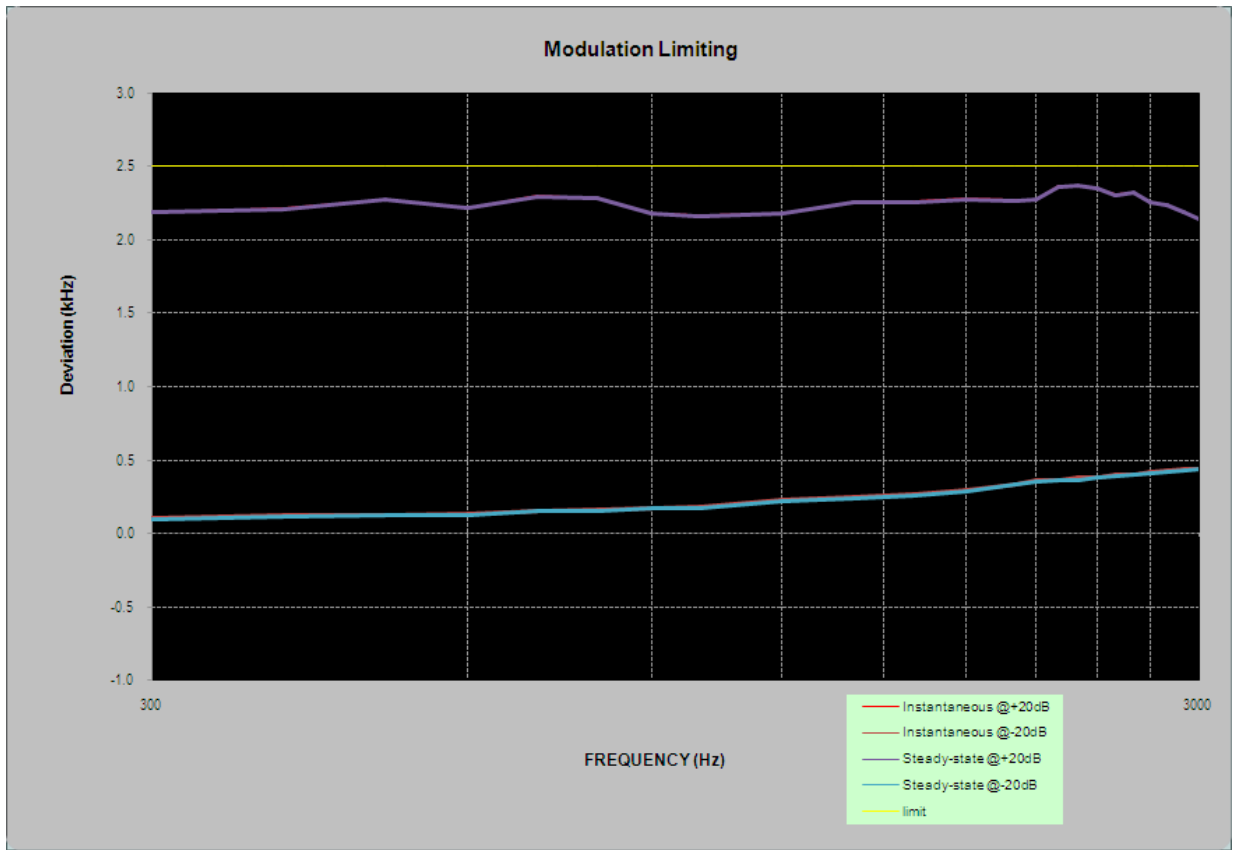
Audio Frequency (Hz)	Instantaneous		Steady-state		FCC Limit [kHz]
	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	
300	4.095	0.365	4.213	0.146	5.0
400	4.123	0.132	4.256	0.123	5.0
500	4.139	0.143	4.246	0.110	5.0
600	4.067	0.324	4.058	0.201	5.0
700	4.178	0.142	4.114	0.116	5.0
800	4.320	0.152	4.352	0.162	5.0
900	4.001	0.171	4.165	0.148	5.0
1000	4.198	0.178	4.138	0.167	5.0
1200	4.236	0.365	4.315	0.298	5.0
1400	4.312	0.185	4.298	0.512	5.0
1600	4.385	0.498	4.355	0.504	5.0
1800	4.514	0.321	4.538	0.195	5.0
2000	4.746	0.202	4.711	0.198	5.0
2100	4.728	0.223	4.724	0.233	5.0
2200	4.685	0.748	4.696	0.719	5.0
2300	4.716	0.882	4.708	0.712	5.0
2400	4.737	0.768	4.768	0.752	5.0
2500	4.666	0.264	4.646	0.316	5.0
2600	4.566	0.462	4.512	0.516	5.0
2700	4.378	0.284	4.465	0.301	5.0
2800	4.473	0.203	4.419	0.205	5.0
2900	4.285	0.412	4.259	0.938	5.0
3000	4.283	0.921	4.302	0.936	5.0



**MODULATION LIMITING**

Carrier Frequency: 896.0125 MHz, Channel Separation=12.5 kHz

Audio Frequency (Hz)	Instantaneous		Steady-state		FCC Limit [kHz]
	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	
300	2.188	0.102	2.185	0.099	2.5
400	2.214	0.119	2.211	0.113	2.5
500	2.276	0.124	2.272	0.119	2.5
600	2.215	0.134	2.213	0.128	2.5
700	2.307	0.151	2.298	0.149	2.5
800	2.288	0.162	2.286	0.154	2.5
900	2.184	0.176	2.179	0.173	2.5
1000	2.172	0.184	2.163	0.176	2.5
1200	2.184	0.228	2.182	0.223	2.5
1400	2.256	0.249	2.254	0.241	2.5
1600	2.261	0.264	2.259	0.261	2.5
1800	2.283	0.294	2.276	0.289	2.5
2000	2.271	0.331	2.268	0.329	2.5
2100	2.276	0.357	2.274	0.351	2.5
2200	2.369	0.365	2.364	0.361	2.5
2300	2.372	0.376	2.368	0.364	2.5
2400	2.351	0.382	2.347	0.376	2.5
2500	2.310	0.395	2.307	0.387	2.5
2600	2.326	0.402	2.321	0.398	2.5
2700	2.258	0.417	2.253	0.411	2.5
2800	2.241	0.424	2.237	0.419	2.5
2900	2.188	0.438	2.186	0.432	2.5
3000	2.143	0.441	2.137	0.436	2.5

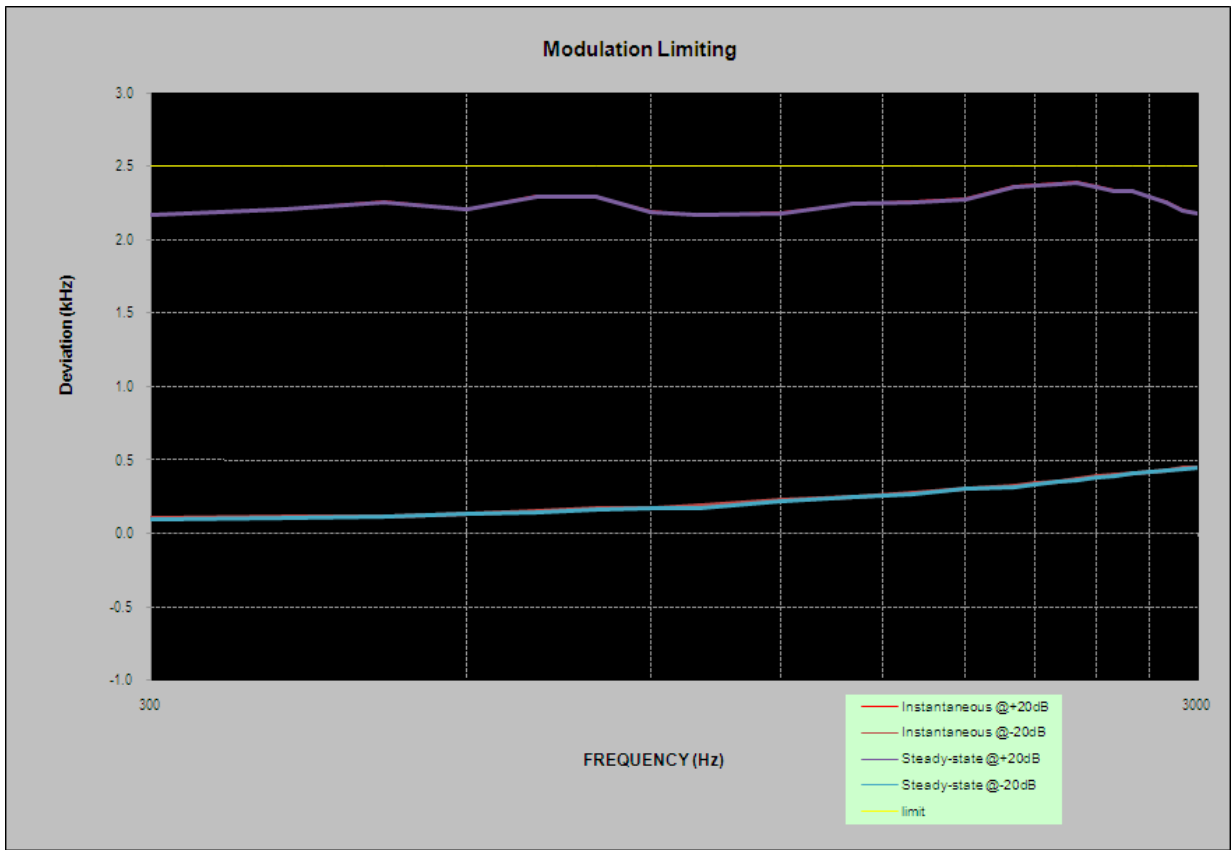


**MODULATION LIMITING**

Carrier Frequency: 901.0125 MHz, Channel Separation=12.5 kHz

Audio Frequency (Hz)	Instantaneous		Steady-state		FCC Limit [kHz]
	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	
300	2.173	0.101	2.170	0.097	2.5
400	2.212	0.113	2.208	0.106	2.5
500	2.267	0.118	2.256	0.113	2.5
600	2.211	0.132	2.209	0.129	2.5
700	2.303	0.149	2.297	0.143	2.5
800	2.297	0.168	2.294	0.162	2.5
900	2.194	0.176	2.191	0.174	2.5
1000	2.173	0.194	2.168	0.167	2.5
1200	2.191	0.229	2.184	0.218	2.5
1400	2.250	0.251	2.244	0.246	2.5
1600	2.263	0.274	2.256	0.268	2.5
1800	2.282	0.308	2.274	0.301	2.5
2000	2.369	0.321	2.361	0.314	2.5
2100	2.377	0.338	2.374	0.331	2.5
2200	2.386	0.354	2.382	0.351	2.5
2300	2.394	0.369	2.389	0.365	2.5
2400	2.371	0.386	2.364	0.384	2.5
2500	2.341	0.397	2.336	0.391	2.5
2600	2.336	0.411	2.329	0.408	2.5
2700	2.298	0.420	2.294	0.418	2.5
2800	2.264	0.431	2.257	0.426	2.5
2900	2.206	0.447	2.198	0.442	2.5
3000	2.184	0.452	2.176	0.443	2.5

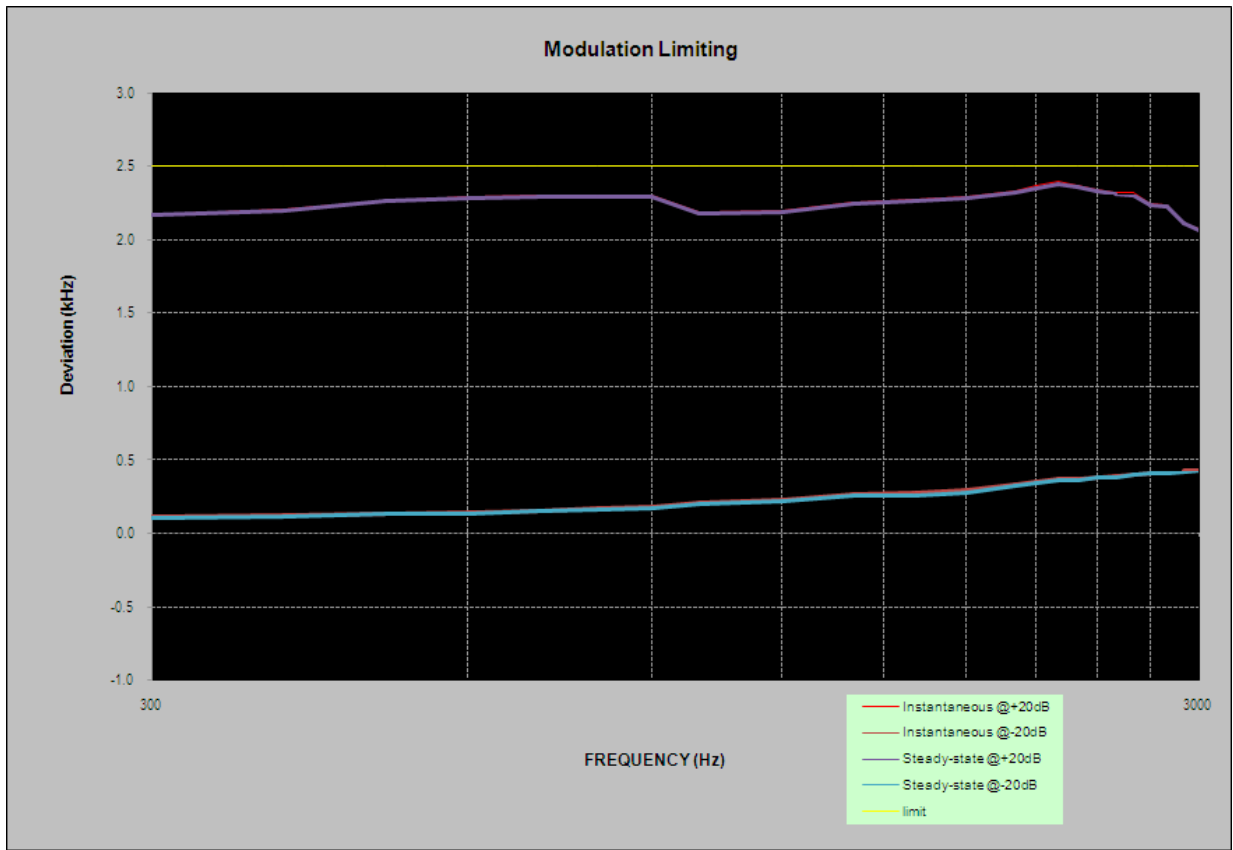




**MODULATION LIMITING**

Carrier Frequency: 935.0125 MHz, Channel Separation=12.5 kHz

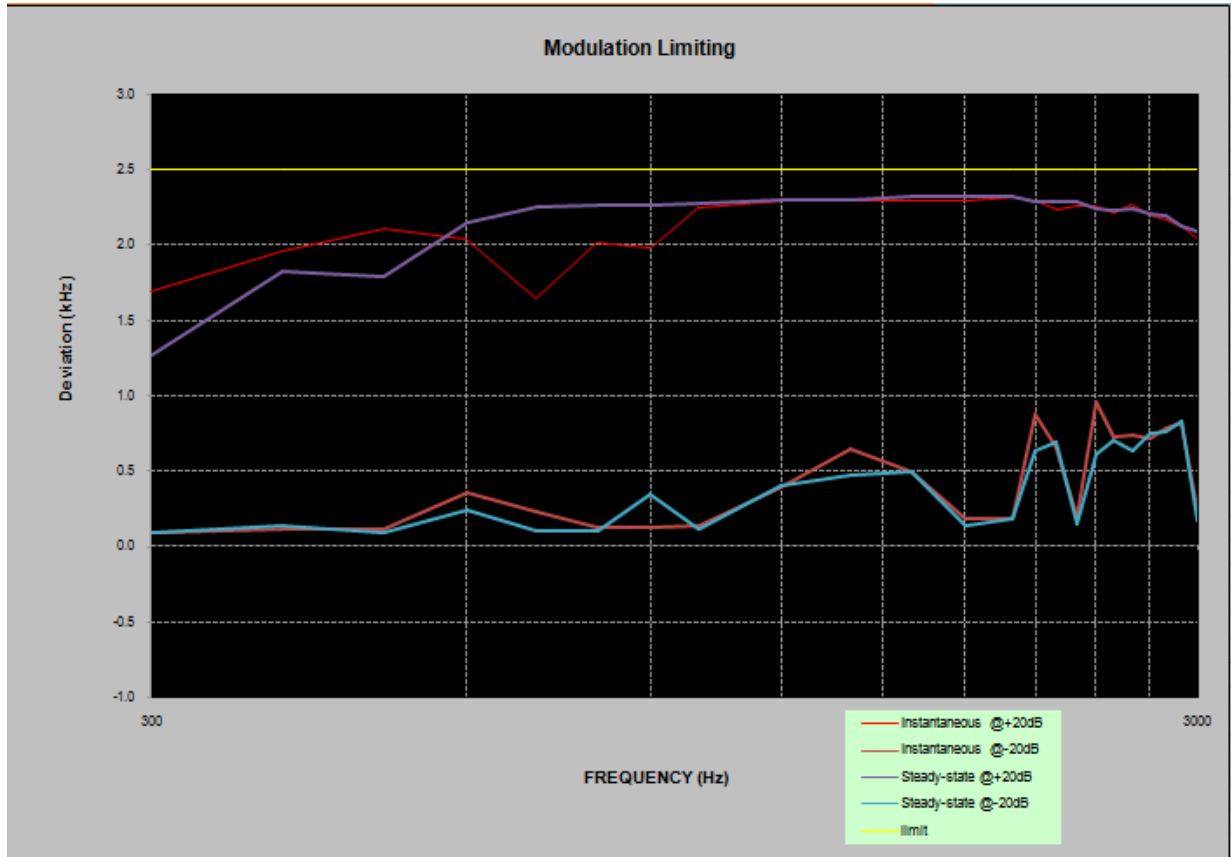
Audio Frequency (Hz)	Instantaneous		Steady-state		FCC Limit [kHz]
	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	
300	2.172	0.114	2.168	0.104	2.5
400	2.208	0.123	2.202	0.118	2.5
500	2.265	0.137	2.261	0.129	2.5
600	2.297	0.146	2.285	0.137	2.5
700	2.302	0.154	2.297	0.149	2.5
800	2.299	0.176	2.291	0.164	2.5
900	2.303	0.184	2.298	0.176	2.5
1000	2.189	0.207	2.184	0.199	2.5
1200	2.196	0.229	2.188	0.218	2.5
1400	2.254	0.267	2.247	0.254	2.5
1600	2.272	0.272	2.261	0.261	2.5
1800	2.296	0.291	2.287	0.277	2.5
2000	2.332	0.334	2.326	0.328	2.5
2100	2.369	0.354	2.354	0.342	2.5
2200	2.394	0.369	2.375	0.361	2.5
2300	2.365	0.371	2.359	0.364	2.5
2400	2.343	0.382	2.334	0.376	2.5
2500	2.322	0.393	2.312	0.384	2.5
2600	2.318	0.402	2.307	0.397	2.5
2700	2.245	0.411	2.232	0.408	2.5
2800	2.234	0.419	2.229	0.411	2.5
2900	2.113	0.428	2.109	0.421	2.5
3000	2.076	0.432	2.064	0.428	2.5



**MODULATION LIMITING**

Carrier Frequency: 940.9875 MHz, Channel Separation=12.5 kHz

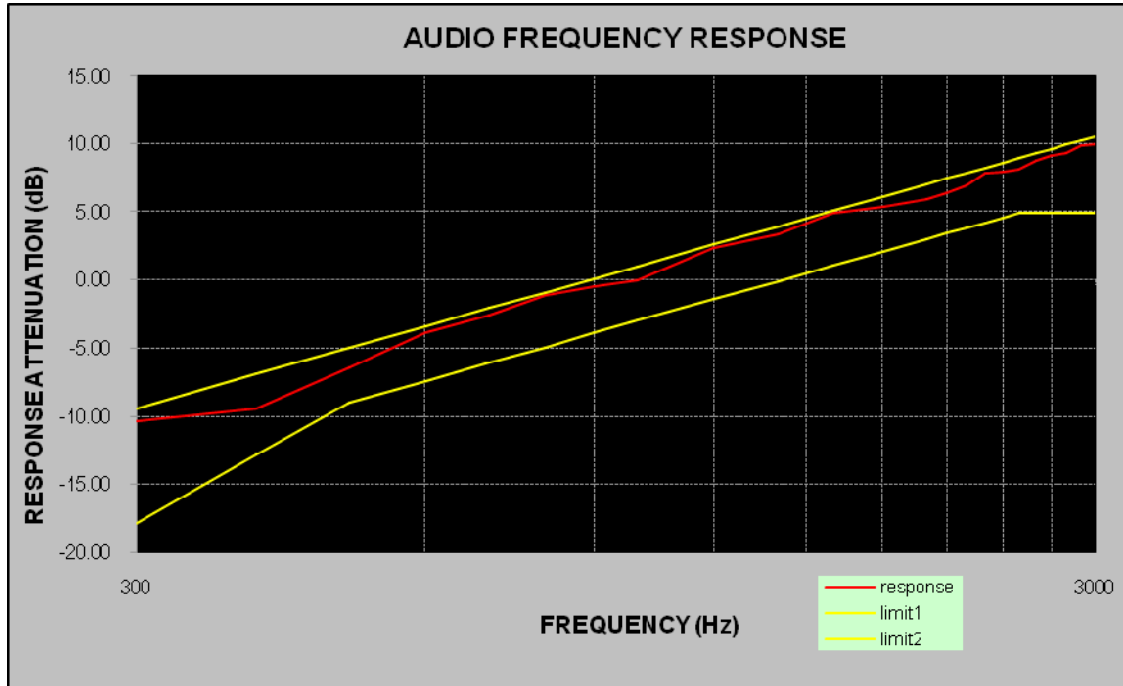
Audio Frequency (Hz)	Instantaneous		Steady-state		FCC Limit [kHz]
	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	
300	1.687	0.089	1.261	0.084	2.5
400	1.956	0.107	1.824	0.129	2.5
500	2.109	0.112	1.785	0.089	2.5
600	2.034	0.356	2.141	0.234	2.5
700	1.646	0.229	2.247	0.102	2.5
800	2.007	0.118	2.265	0.102	2.5
900	1.982	0.125	2.265	0.336	2.5
1000	2.246	0.132	2.273	0.109	2.5
1200	2.285	0.383	2.301	0.397	2.5
1400	2.287	0.642	2.297	0.467	2.5
1600	2.294	0.491	2.321	0.487	2.5
1800	2.288	0.180	2.317	0.134	2.5
2000	2.311	0.179	2.320	0.184	2.5
2100	2.293	0.879	2.287	0.625	2.5
2200	2.234	0.653	2.281	0.692	2.5
2300	2.257	0.197	2.284	0.141	2.5
2400	2.255	0.957	2.241	0.605	2.5
2500	2.203	0.725	2.221	0.698	2.5
2600	2.264	0.738	2.232	0.625	2.5
2700	2.193	0.712	2.201	0.744	2.5
2800	2.163	0.776	2.187	0.757	2.5
2900	2.119	0.813	2.125	0.823	2.5
3000	2.031	0.238	2.091	0.172	2.5



**Audio Frequency Response**

Carrier Frequency: 806.0125 MHz, Channel Separation=12.5 kHz

<b>Audio Frequency (Hz)</b>	<b>Response Attenuation (dB)</b>
300	-10.34
400	-9.42
500	-6.45
600	-3.85
700	-2.57
800	-1.17
900	-0.50
1000	0.00
1200	2.39
1400	3.35
1600	4.92
1800	5.35
2000	5.91
2100	6.35
2200	6.93
2300	7.85
2400	7.90
2500	8.14
2600	8.78
2700	9.12
2800	9.33
2900	9.89
3000	9.98

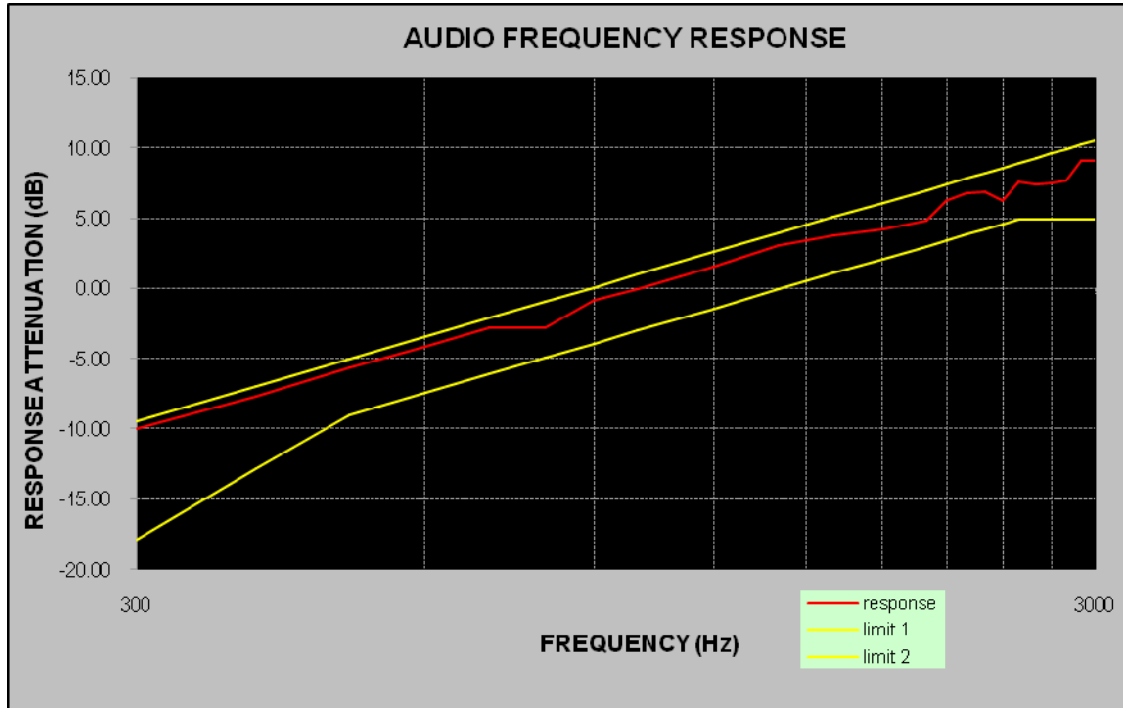


**Audio Frequency Response**

Carrier Frequency: 806.0125 MHz, Channel Separation=25 kHz

<b>Audio Frequency (Hz)</b>	<b>Response Attenuation (dB)</b>
300	-9.95
400	-7.64
500	-5.66
600	-4.14
700	-2.82
800	-2.81
900	-0.84
1000	0.00
1200	1.52
1400	3.03
1600	3.76
1800	4.18
2000	4.83
2100	6.22
2200	6.76
2300	6.90
2400	6.26
2500	7.55
2600	7.44
2700	7.48
2800	7.70
2900	9.06
3000	9.08

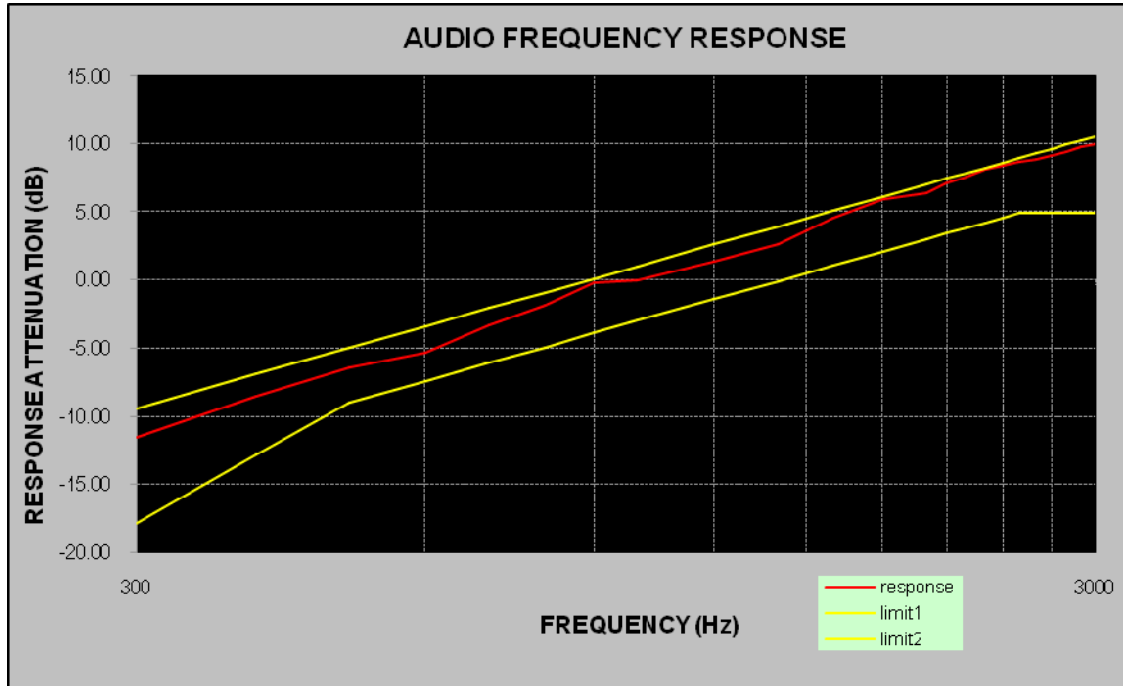




**Audio Frequency Response**

Carrier Frequency: 868.9875 MHz, Channel Separation=12.5 kHz

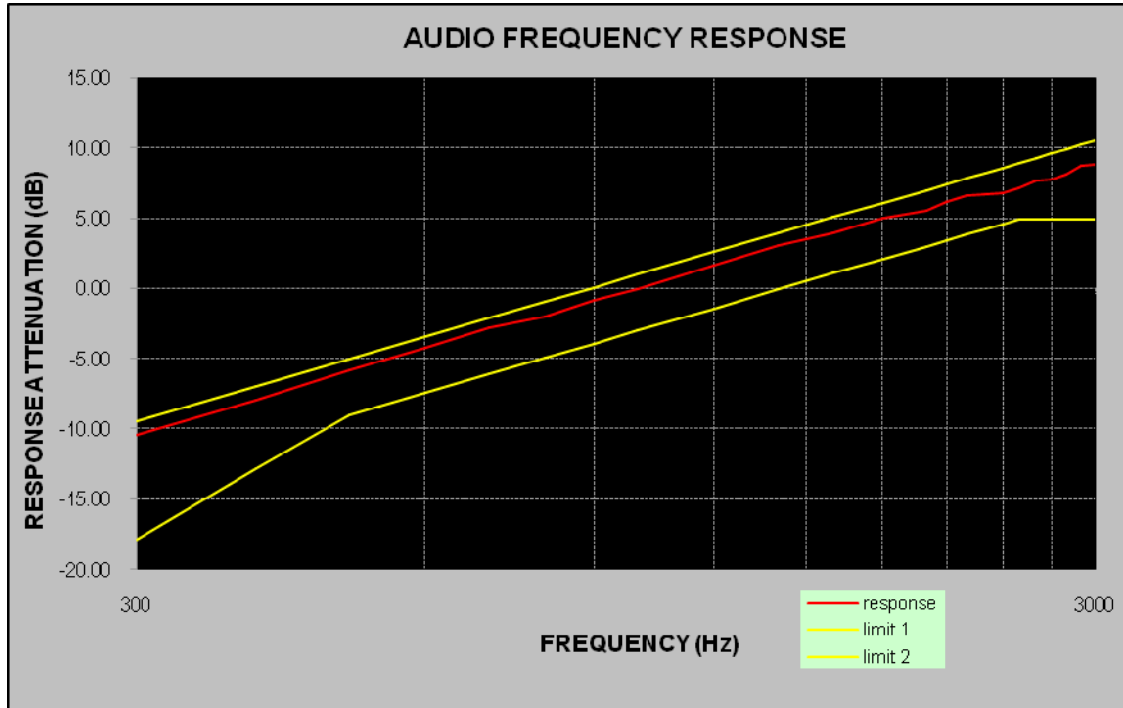
<b>Audio Frequency (Hz)</b>	<b>Response Attenuation (dB)</b>
300	-11.57
400	-8.59
500	-6.48
600	-5.38
700	-3.32
800	-1.87
900	-0.19
1000	0.00
1200	1.30
1400	2.63
1600	4.56
1800	5.95
2000	6.39
2100	7.06
2200	7.52
2300	8.14
2400	8.42
2500	8.66
2600	8.87
2700	9.08
2800	9.38
2900	9.79
3000	9.94



**Audio Frequency Response**

Carrier Frequency: 868.9875 MHz, Channel Separation=25 kHz

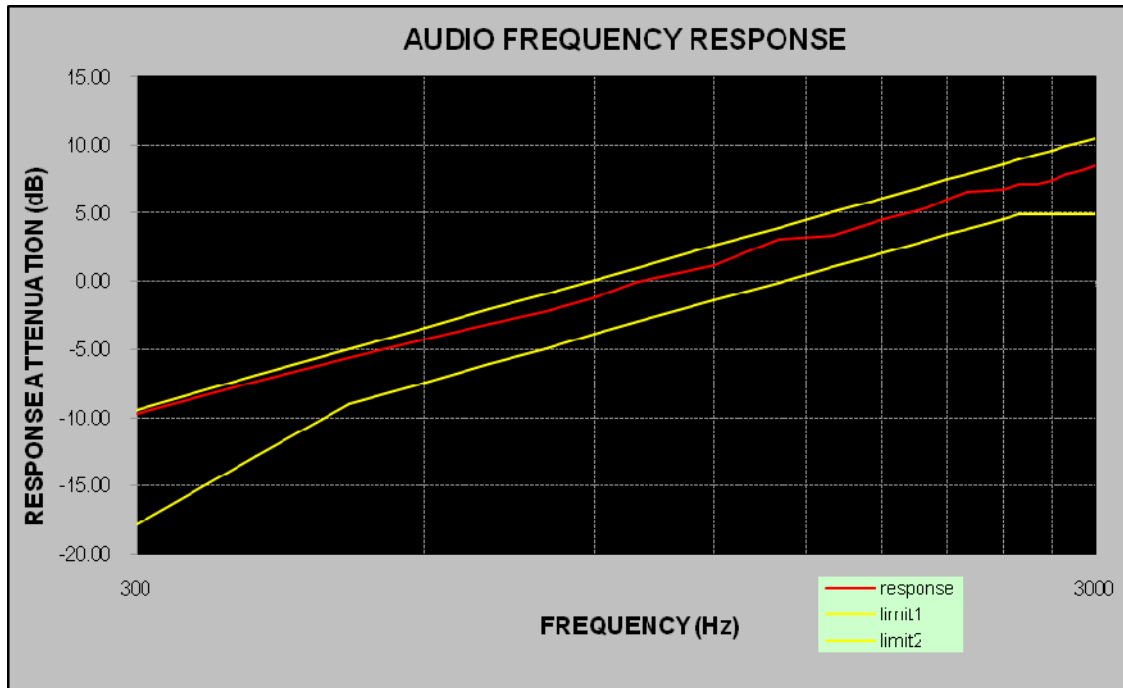
<b>Audio Frequency (Hz)</b>	<b>Response Attenuation (dB)</b>
300	-10.43
400	-7.94
500	-5.81
600	-4.21
700	-2.78
800	-1.97
900	-0.88
1000	0.00
1200	1.60
1400	3.06
1600	3.93
1800	5.06
2000	5.58
2100	6.12
2200	6.59
2300	6.68
2400	6.79
2500	7.17
2600	7.69
2700	7.80
2800	8.08
2900	8.74
3000	8.80



**Audio Frequency Response**

Carrier Frequency: 896.0125 MHz, Channel Separation=12.5 kHz

<b>Audio Frequency (Hz)</b>	<b>Response Attenuation (dB)</b>
300	-9.74
400	-7.33
500	-5.58
600	-4.21
700	-3.12
800	-2.20
900	-1.27
1000	0.00
1200	1.11
1400	3.03
1600	3.38
1800	4.52
2000	5.33
2100	6.05
2200	6.59
2300	6.68
2400	6.76
2500	7.07
2600	7.11
2700	7.37
2800	7.83
2900	8.09
3000	8.49

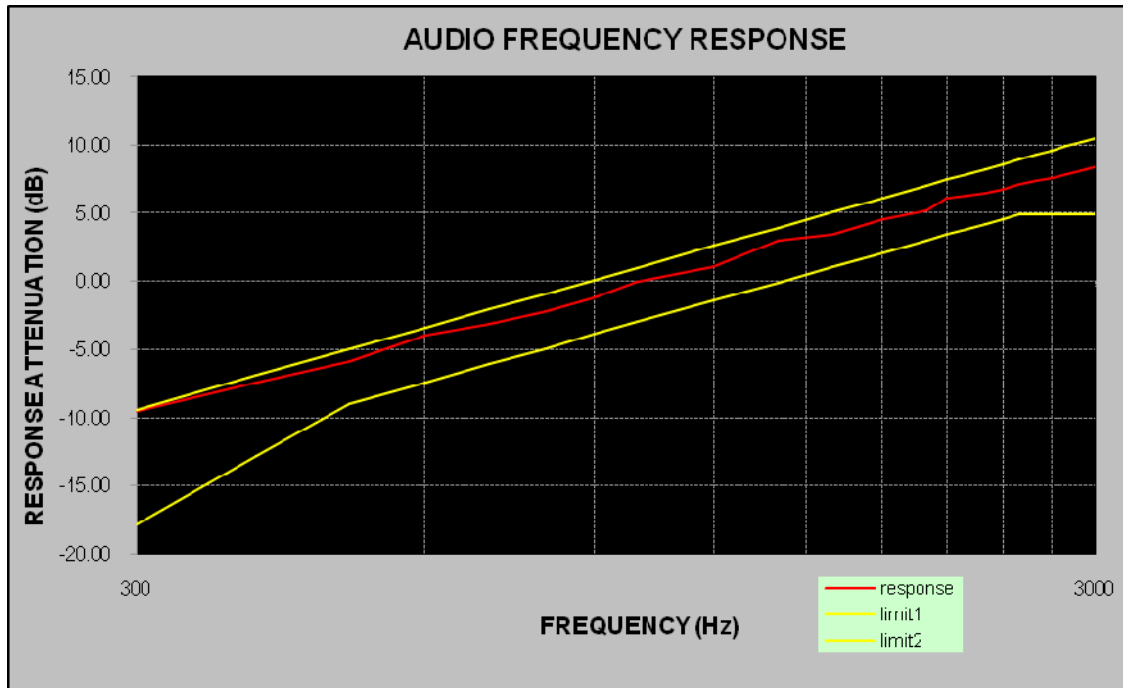


**Audio Frequency Response**

Carrier Frequency: 901.0125 MHz, Channel Separation=12.5 kHz

<b>Audio Frequency (Hz)</b>	<b>Response Attenuation (dB)</b>
300	-9.58
400	-7.41
500	-5.88
600	-3.99
700	-3.12
800	-2.23
900	-1.23
1000	0.00
1200	1.09
1400	3.02
1600	3.45
1800	4.57
2000	5.22
2100	6.09
2200	6.24
2300	6.50
2400	6.76
2500	7.11
2600	7.36
2700	7.55
2800	7.87
2900	8.08
3000	8.41

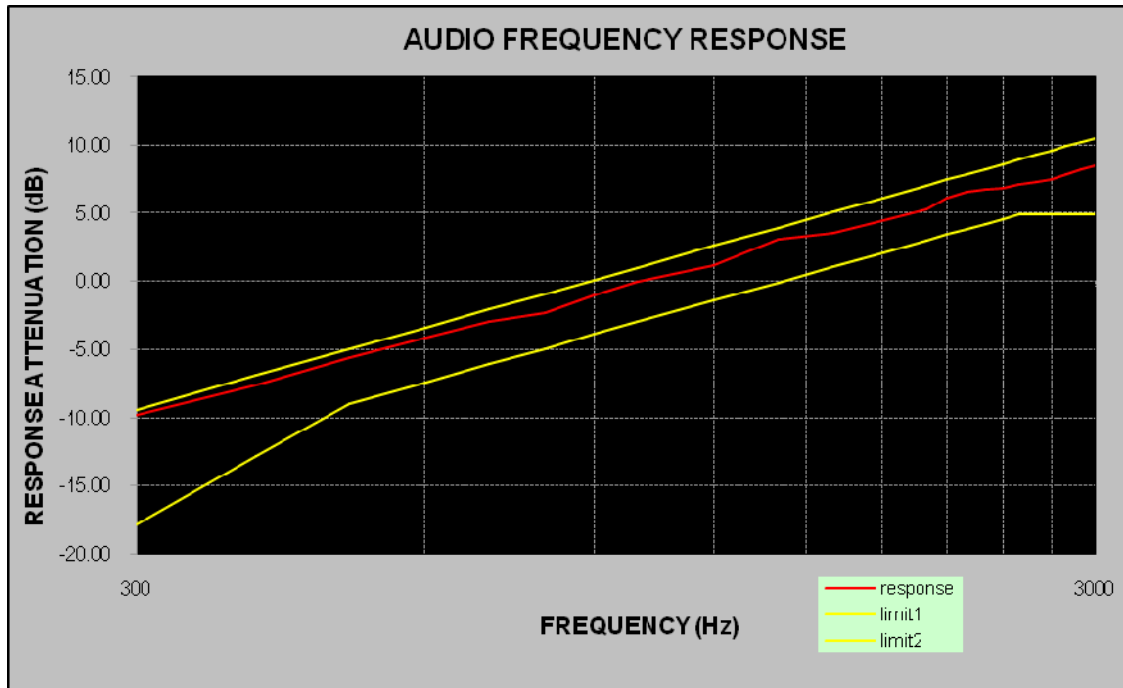




**Audio Frequency Response**

Carrier Frequency: 935.0125 MHz, Channel Separation=12.5 kHz

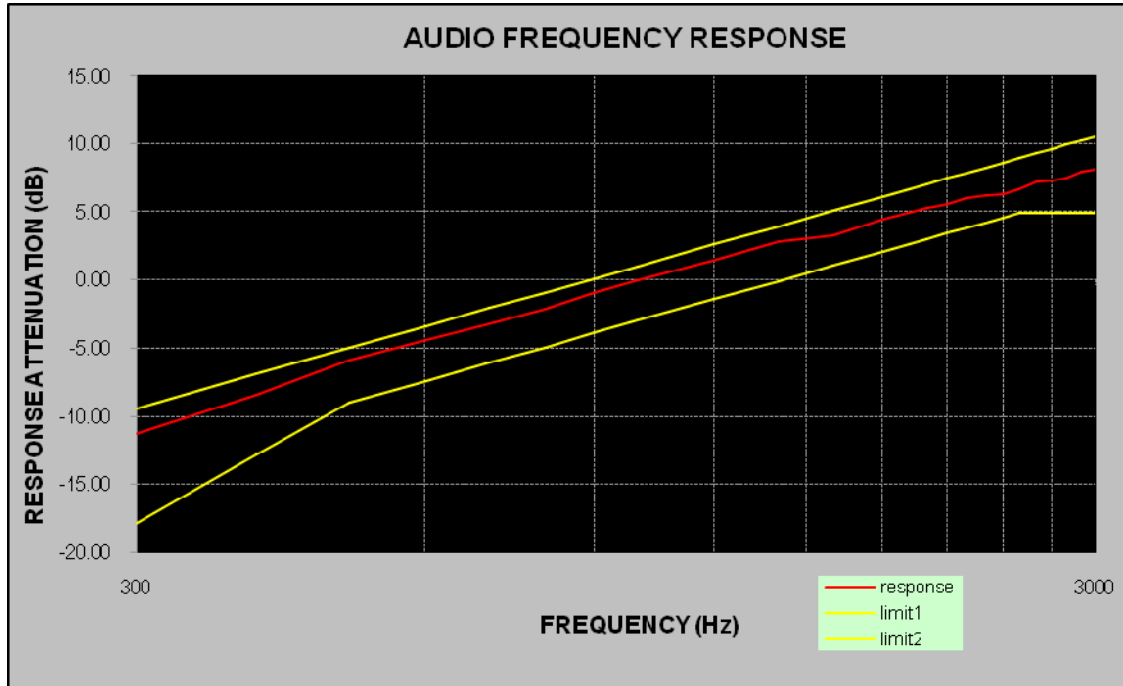
<b>Audio Frequency (Hz)</b>	<b>Response Attenuation (dB)</b>
300	-9.79
400	-7.62
500	-5.58
600	-4.12
700	-2.93
800	-2.36
900	-1.07
1000	0.00
1200	1.11
1400	3.09
1600	3.54
1800	4.43
2000	5.31
2100	6.06
2200	6.57
2300	6.72
2400	6.82
2500	7.07
2600	7.29
2700	7.49
2800	7.88
2900	8.17
3000	8.47



**Audio Frequency Response**

Carrier Frequency: 940.9875 MHz, Channel Separation=12.5 kHz

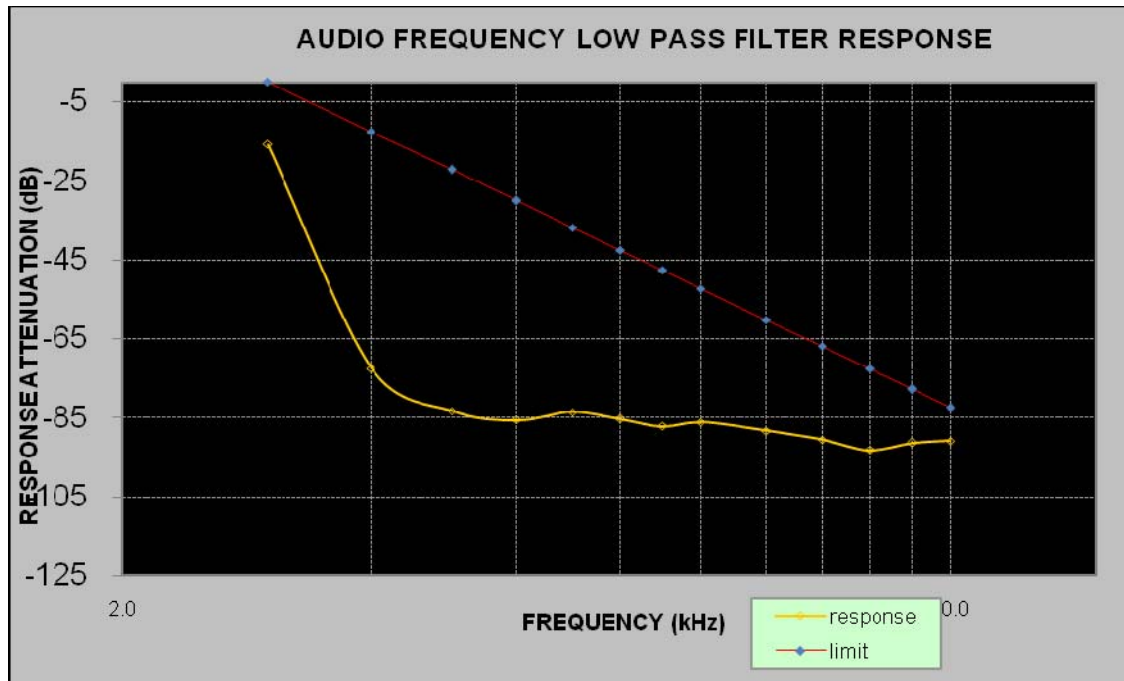
<b>Audio Frequency (Hz)</b>	<b>Response Attenuation (dB)</b>
300	-11.24
400	-8.45
500	-5.88
600	-4.41
700	-3.27
800	-2.18
900	-0.97
1000	0.00
1200	1.42
1400	2.84
1600	3.24
1800	4.41
2000	5.26
2100	5.57
2200	5.96
2300	6.16
2400	6.24
2500	6.64
2600	7.20
2700	7.26
2800	7.47
2900	7.97
3000	8.13



**Audio frequency lows pass filter response**

Carrier Frequency: 806.0125 MHz, Channel Separation=12.5 kHz

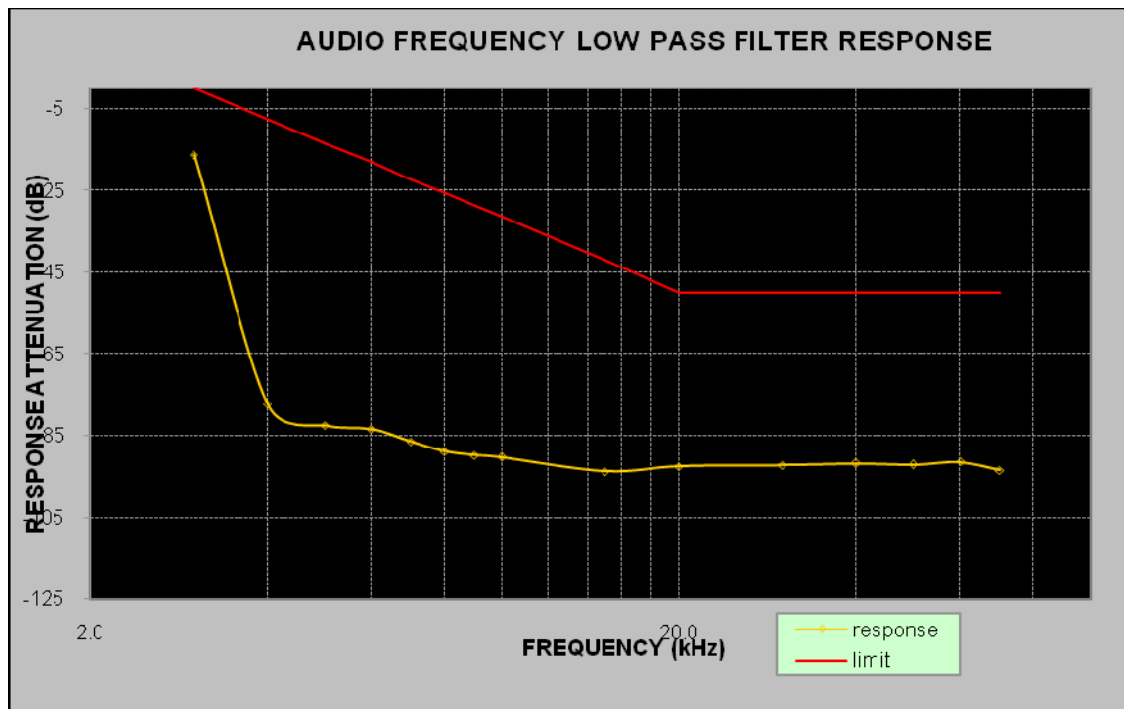
Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1.0	0.0	/
3.0	-15.8	0.0
4.0	-72.6	-12.5
5.0	-83.3	-22.2
6.0	-85.6	-30.1
7.0	-83.6	-36.8
8.0	-85.4	-42.6
9.0	-87.2	-47.7
10.0	-86.1	-52.3
12.0	-88.4	-60.2
14.0	-90.6	-66.9
16.0	-93.2	-72.7
18.0	-91.4	-77.8
20.0	-90.8	-82.5



**Audio frequency lows pass filter response**

Carrier Frequency: 806.0125 MHz, Channel Separation=25 kHz

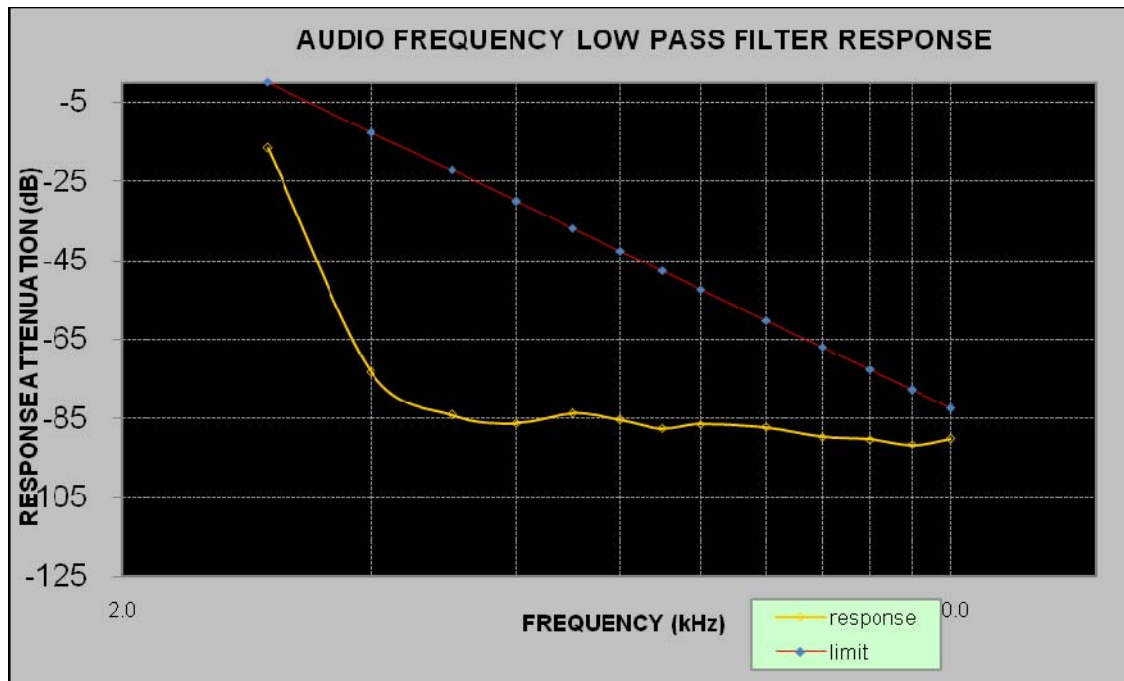
Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1.0	0.0	/
3.0	-16.2	0.0
4.0	-77.4	-7.5
5.0	-82.5	-13.3
6.0	-83.4	-18.1
7.0	-86.5	-22.1
8.0	-88.9	-25.6
9.0	-89.8	-28.6
10.0	-90.3	-31.4
15.0	-93.7	-41.9
20.0	-92.5	-50.0
30.0	-92.3	-50.0
40.0	-91.8	-50.0
50.0	-92.1	-50.0



**Audio frequency lows pass filter response**

Carrier Frequency: 868.9875 MHz, Channel Separation=12.5 kHz

Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1.0	0.0	/
3.0	-16.5	0.0
4.0	-73.4	-12.5
5.0	-84.1	-22.2
6.0	-86.2	-30.1
7.0	-83.8	-36.8
8.0	-85.4	-42.6
9.0	-87.5	-47.7
10.0	-86.4	-52.3
12.0	-87.2	-60.2
14.0	-89.6	-66.9
16.0	-90.3	-72.7
18.0	-91.6	-77.8
20.0	-90.1	-82.5

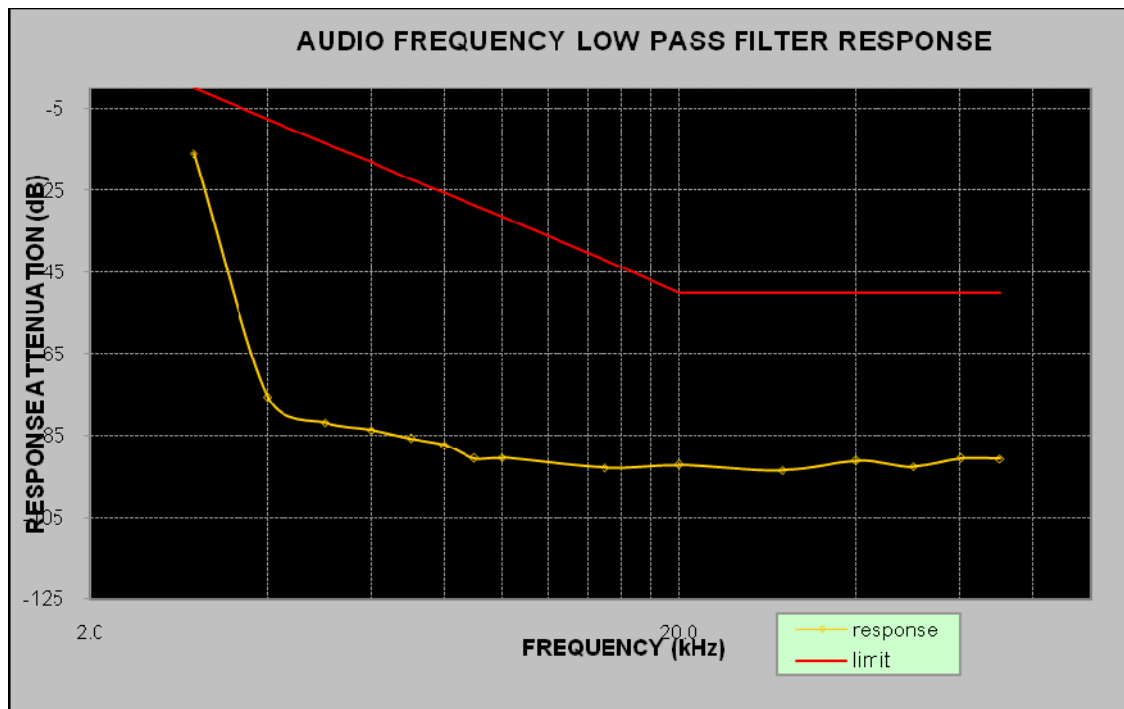




**Audio frequency lows pass filter response**

Carrier Frequency: 868.9875 MHz, Channel Separation=25 kHz

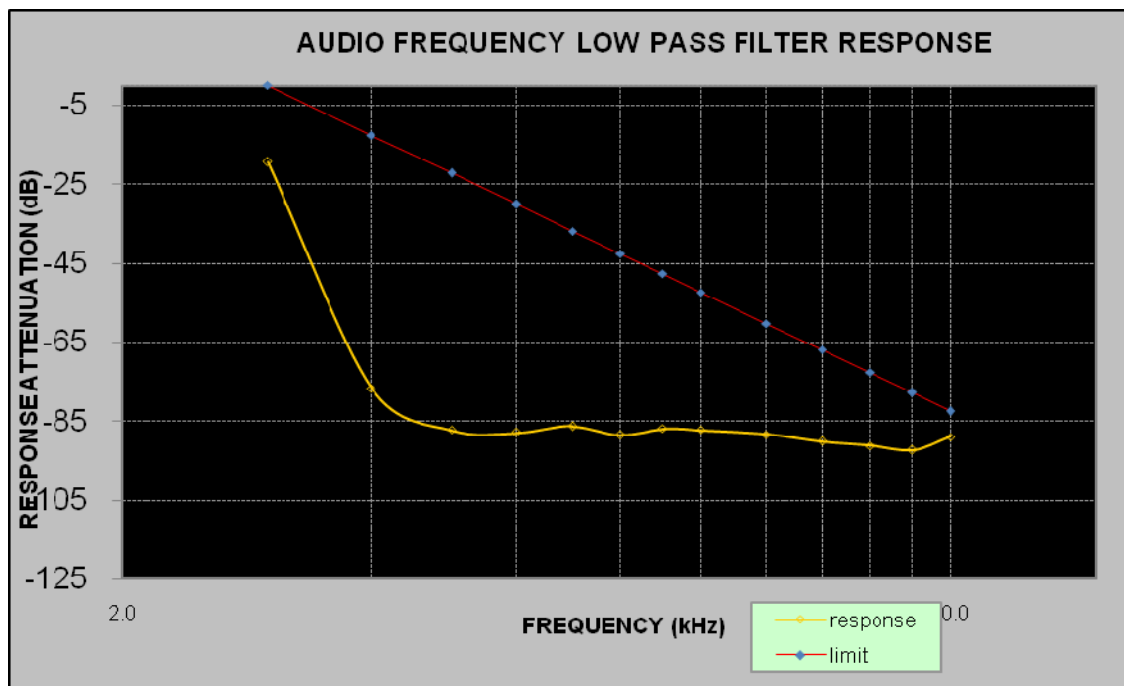
Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1.0	0.0	/
3.0	-15.8	0.0
4.0	-75.6	-7.5
5.0	-81.9	-13.3
6.0	-83.7	-18.1
7.0	-85.7	-22.1
8.0	-87.4	-25.6
9.0	-90.6	-28.6
10.0	-90.4	-31.4
15.0	-92.8	-41.9
20.0	-92.1	-50.0
30.0	-93.4	-50.0
40.0	-91.2	-50.0
50.0	-92.6	-50.0



**Audio frequency lows pass filter response**

Carrier Frequency: 896.0125 MHz, Channel Separation=12.5 kHz

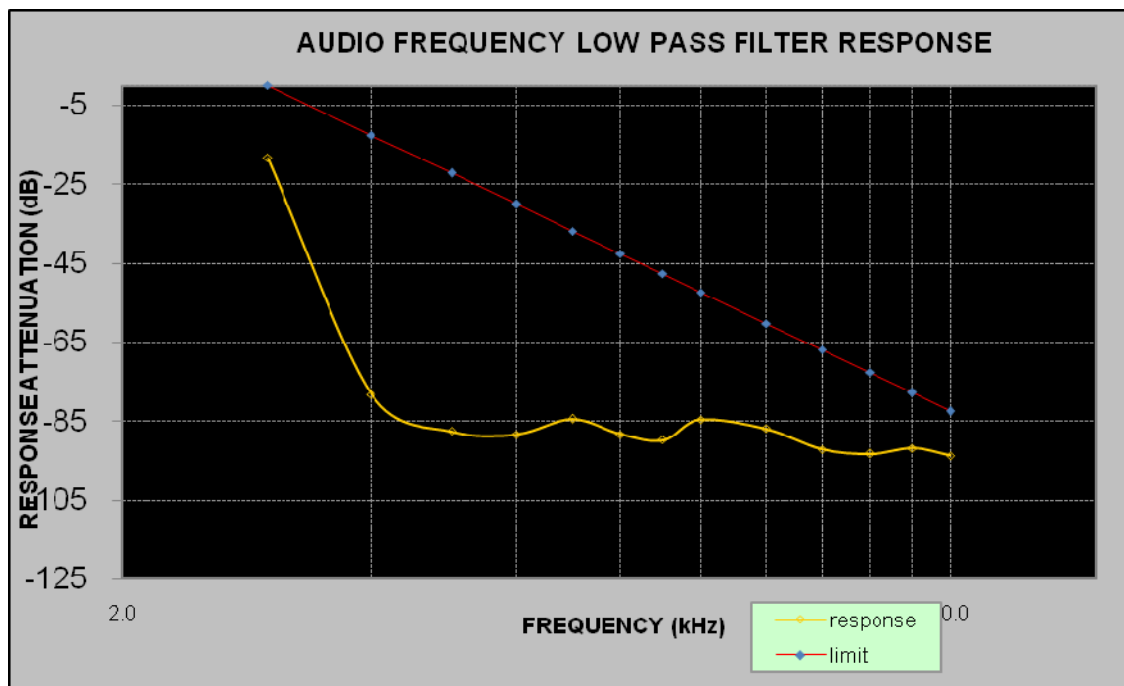
Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1.0	0.0	/
3.0	-19.4	0.0
4.0	-76.6	-12.5
5.0	-87.2	-22.2
6.0	-87.9	-30.1
7.0	-86.3	-36.8
8.0	-88.5	-42.6
9.0	-86.9	-47.7
10.0	-87.2	-52.3
12.0	-88.3	-60.2
14.0	-90.1	-66.9
16.0	-91.2	-72.7
18.0	-92.3	-77.8
20.0	-88.9	-82.5



**Audio frequency lows pass filter response**

Carrier Frequency: 901.0125 MHz, Channel Separation=12.5 kHz

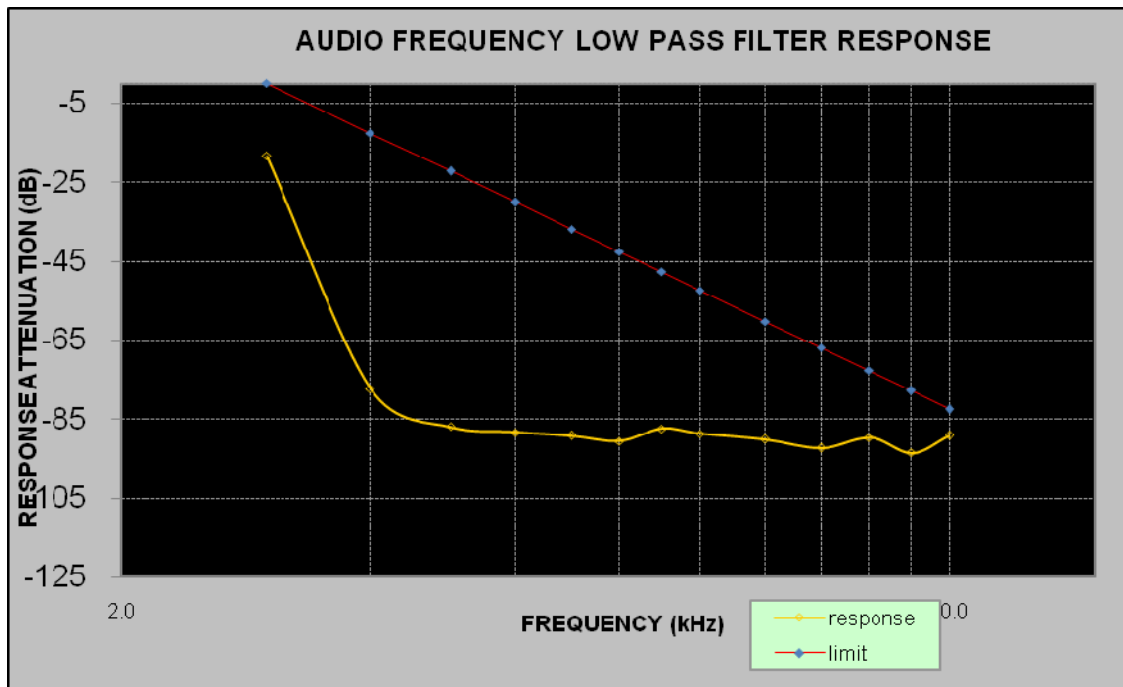
Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1.0	0.0	/
3.0	-18.3	0.0
4.0	-78.2	-12.5
5.0	-87.5	-22.2
6.0	-88.3	-30.1
7.0	-84.4	-36.8
8.0	-88.3	-42.6
9.0	-89.7	-47.7
10.0	-84.6	-52.3
12.0	-86.9	-60.2
14.0	-92.1	-66.9
16.0	-93.3	-72.7
18.0	-91.8	-77.8
20.0	-93.7	-82.5



**Audio frequency lows pass filter response**

Carrier Frequency: 935.0125 MHz, Channel Separation=12.5 kHz

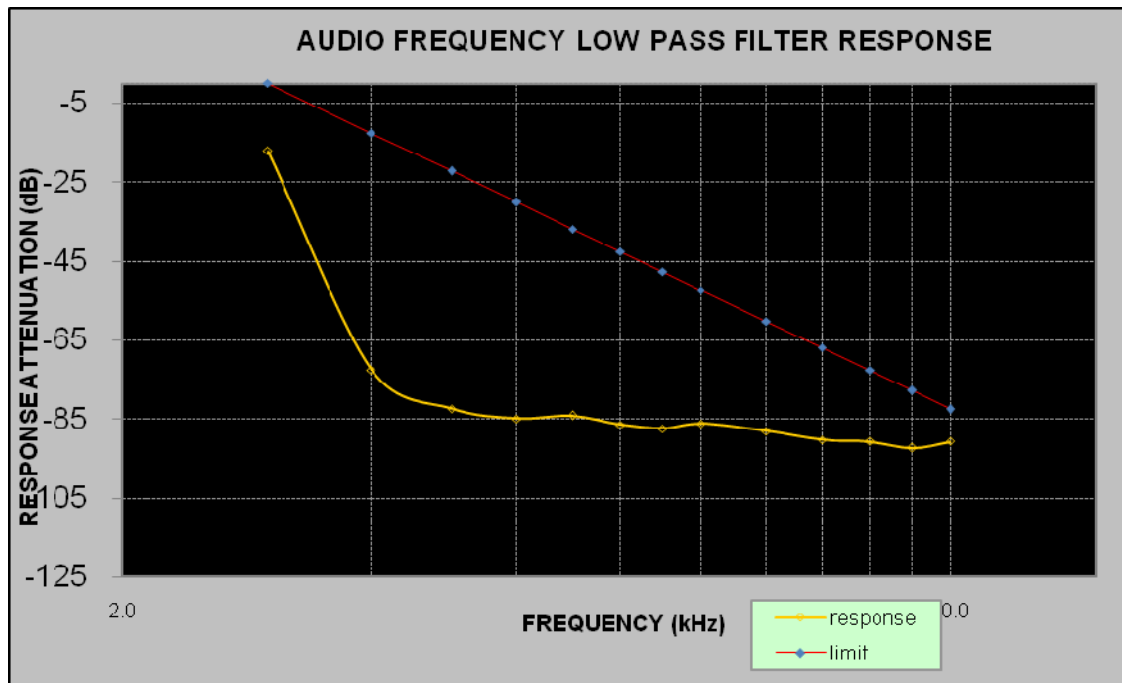
Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1.0	0.0	/
3.0	-18.3	0.0
4.0	-77.3	-12.5
5.0	-86.9	-22.2
6.0	-88.3	-30.1
7.0	-89.2	-36.8
8.0	-90.6	-42.6
9.0	-87.4	-47.7
10.0	-88.7	-52.3
12.0	-90.1	-60.2
14.0	-92.3	-66.9
16.0	-89.6	-72.7
18.0	-93.5	-77.8
20.0	-89.2	-82.5



**Audio frequency lows pass filter response**

Carrier Frequency: 940.9875 MHz, Channel Separation=12.5 kHz

Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1.0	0.0	/
3.0	-17.1	0.0
4.0	-72.5	-12.5
5.0	-82.3	-22.2
6.0	-84.8	-30.1
7.0	-84.1	-36.8
8.0	-86.5	-42.6
9.0	-87.4	-47.7
10.0	-86.2	-52.3
12.0	-88.1	-60.2
14.0	-90.3	-66.9
16.0	-90.7	-72.7
18.0	-92.3	-77.8
20.0	-90.7	-82.5



## **FCC §2.1049 & § 24.131 & § 24.133 & §90.209 & §90.210 – OCCUPIED BANDWIDTH & EMISSION MASK**

### **Applicable Standard**

FCC §2.1049, § 24.131, §90.209 and §90.210

Emission Mask B - 25 kHz channel bandwidth equipment. For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.

(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.

(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least  $43 + 10 \log (P)$  dB.

Emission Mask D - 12.5 kHz channel bandwidth equipment. For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

1) For any frequency removed from the center of the authorized bandwidth  $f_0$  to 5.625 kHz removed from  $f_0$ , 0dB.

2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of more than 5.626 kHz but no more than 12.5 kHz, at least  $7.27 (f_d - 2.88 \text{ kHz})$  dB.

3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of more than 12.5 kHz at least: At least  $50 + 10 \log (P)$  dB or 70 dB, whichever is the lesser attenuation.

§ 24.131 The authorized bandwidth of narrowband PCS channels will be 10 kHz for 12.5 kHz channels and 45 kHz for 50 kHz channels. For aggregated adjacent channels, a maximum authorized bandwidth of 5 kHz less than the total aggregated channel width is permitted.

§ 24.133 (a) The power of any emission shall be attenuated below the transmitter power (P), as measured in accordance with §24.132(f), in accordance with the following schedule:

(2) For transmitters authorized a bandwidth of 10 kHz:

(i) On any frequency outside the authorized bandwidth and removed from the edge of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of up to and including 20 kHz: at least  $116 \times \text{Log}_{10} ((f_d + 5)/3.05)$  decibels or  $50 + 10 \times \text{Log}_{10}(P)$  decibels or 70 decibels, whichever is the lesser attenuation;

(ii) On any frequency outside the authorized bandwidth and removed from the edge of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of more than 20 kHz: at least  $43 + 10 \text{Log}_{10} (P)$  decibels or 80 decibels, whichever is the lesser attenuation.

Emission Mask I. For transmitters that are equipped with an audio low pass filter, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) as follows:

- (1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 6.8 kHz, but no more than 9.0 kHz: At least 25 dB;
- (2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 9.0 kHz, but no more than 15 kHz: At least 35 dB;
- (3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 15 kHz: At least  $43 + 10 \log (P)$  dB, or 70 dB, whichever is the lesser attenuation.

### Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 100 Hz or 300 Hz and the spectrum was recorded in the frequency band  $\pm 50$  kHz from the carrier frequency.

### Test Data

#### Environmental Conditions

<b>Temperature:</b>	24~25 °C
<b>Relative Humidity:</b>	53~56 %
<b>ATM Pressure:</b>	100.9~101.0 kPa

*The testing was performed by Xiangguang Kong from 2017-08-31 to 2017-10-16.*

Frequency(MHz)	Modulation	Channel space(kHz)	power	99% Bandwidth(kHz)	26dB Bandwidth (kHz)
806.0125	Analog	12.5	H	10.02	10.34
			L	9.94	10.26
		25	H	14.74	15.54
			L	14.90	15.71
	Digital	12.5	H	7.37	9.54
			L	7.45	9.70

Frequency(MHz)	Modulation	Channel space(kHz)	power	99% Bandwidth(kHz)	26dB Bandwidth (kHz)
868.9875	Analog	12.5	H	10.02	10.18
			L	10.02	10.18
		25	H	15.14	15.63
			L	15.14	15.63
	Digital	12.5	H	7.53	9.54
			L	7.29	9.29

Frequency(MHz)	Modulation	Channel space(kHz)	power	99% Bandwidth(kHz)	26dB Bandwidth (kHz)
896.0125	Analog	12.5	H	9.94	10.18
			L	9.94	10.18
	Digital	12.5	H	7.53	9.62
			L	7.37	9.78

Frequency(MHz)	Modulation	Channel space(kHz)	power	99% Bandwidth(kHz)	26dB Bandwidth (kHz)
901.0125	Analog	12.5	H	9.06	10.18
			L	9.94	10.18
	Digital	12.5	H	7.53	9.13
			L	7.53	9.38

Frequency(MHz)	Modulation	Channel space(kHz)	power	99% Bandwidth(kHz)	26dB Bandwidth (kHz)
935.0125	Analog	12.5	H	9.94	10.18
			L	9.94	10.18
	Digital	12.5	H	7.29	8.57
			L	6.09	8.81



Frequency(MHz)	Modulation	Channel space(kHz)	power	99% Bandwidth(kHz)	26dB Bandwidth (kHz)
940.9875	Analog	12.5	H	10.02	10.26
			L	9.94	10.26
	Digital	12.5	H	7.29	9.78
			L	7.45	9.38

*Emission Designator Per CFR 47 §2.201 & §2.202,  $B_n = 2M + 2D$*

**For FM Mode (Channel Spacing: 12.5 kHz)**

*Emission Designator 11K0F3E In this case, the maximum modulating frequency is 3.0 kHz with a 2.5 kHz deviation.  $BW = 2(M+D) = 2*(3.0\text{ kHz} + 2.5\text{ kHz}) = 11\text{ kHz} \rightarrow 11K0$*

*F3E portion of the designator represents an FM voice transmission Therefore, the entire designator for 12.5 kHz channel spacing FM mode is 11K0F3E.*

**For Digital Mode (Channel Spacing: 12.5 kHz)**

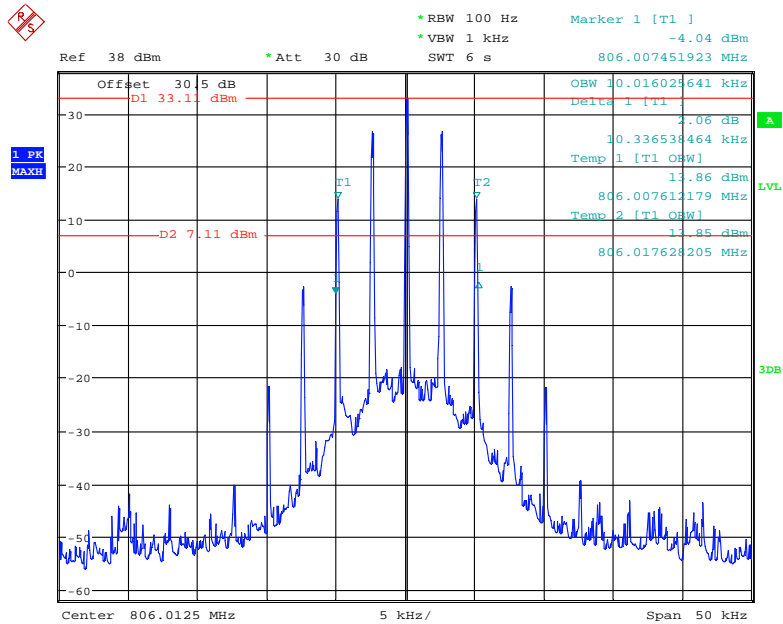
*Emission Designator 7K60F1D and 7K60F1E*

*The 99% energy rule (title 47CFR 2.1049) was used for digital mode. It basically states that 99% of the modulation energy falls within X kHz, in this case, 7.53 kHz. The emission mask was obtained from 47CFR 90.210(d).*

*F1D and F1E portion of the designator indicates digital information.*

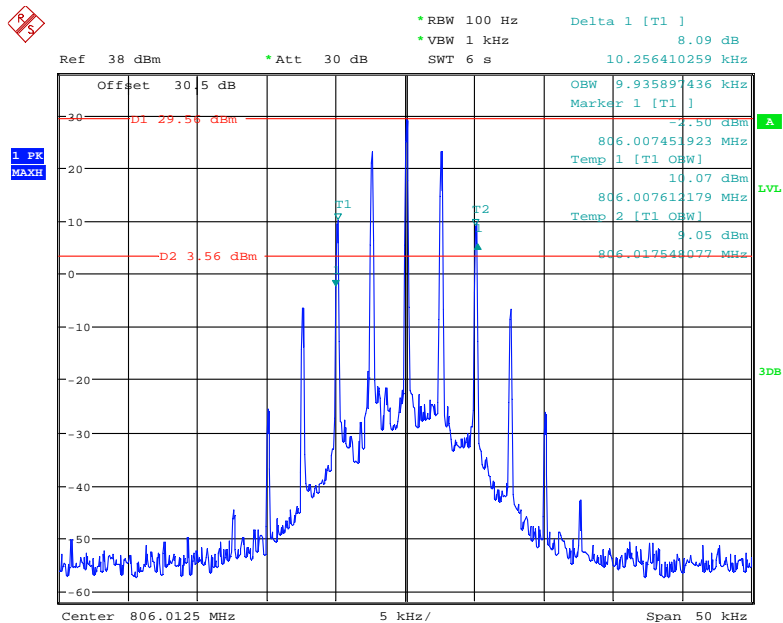
*Therefore, the entire designator for 12.5 kHz channel spacing digital mode is 7K60F1D and 7K60F1E.*

**Analog Modulation(12.5 kHz):  
Frequency 806.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power**



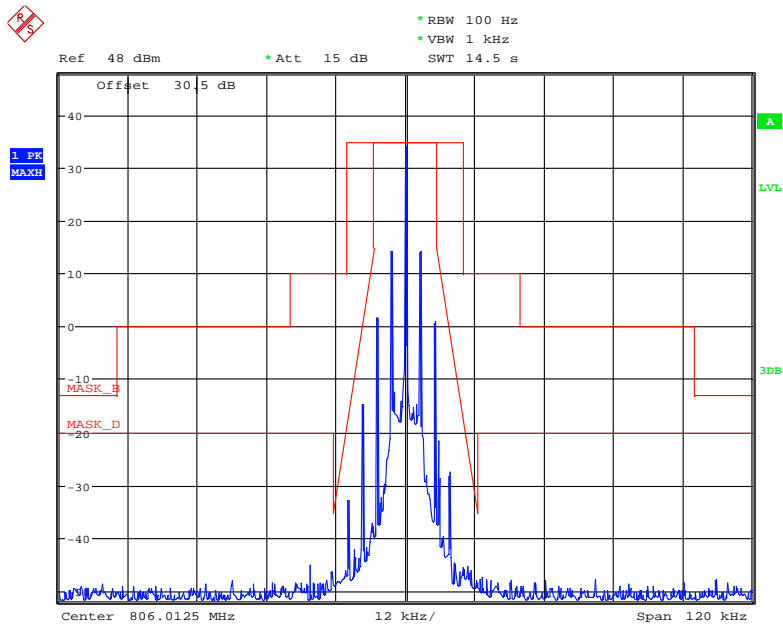
Date: 31.AUG.2017 14:35:58

**Frequency 806.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power**



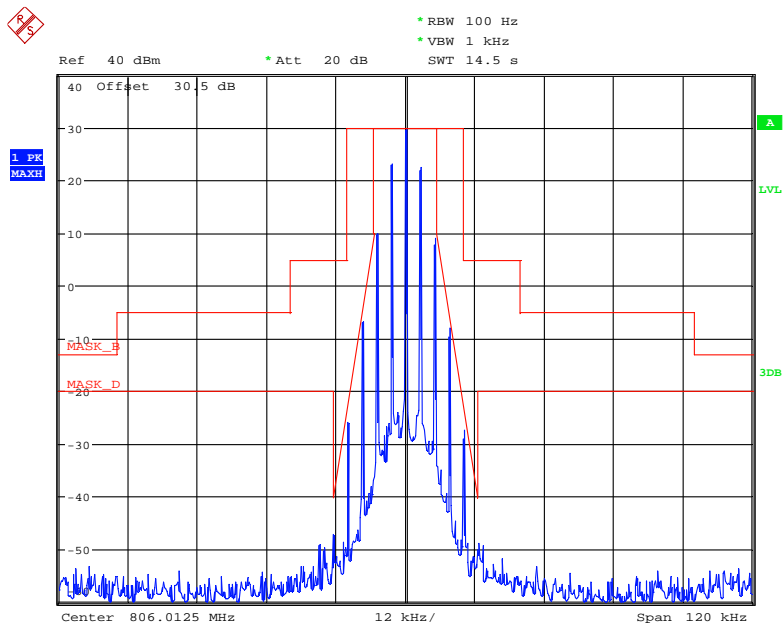
Date: 31.AUG.2017 14:39:34

### Frequency 806.0125 MHz: Emission Mask D, High Power



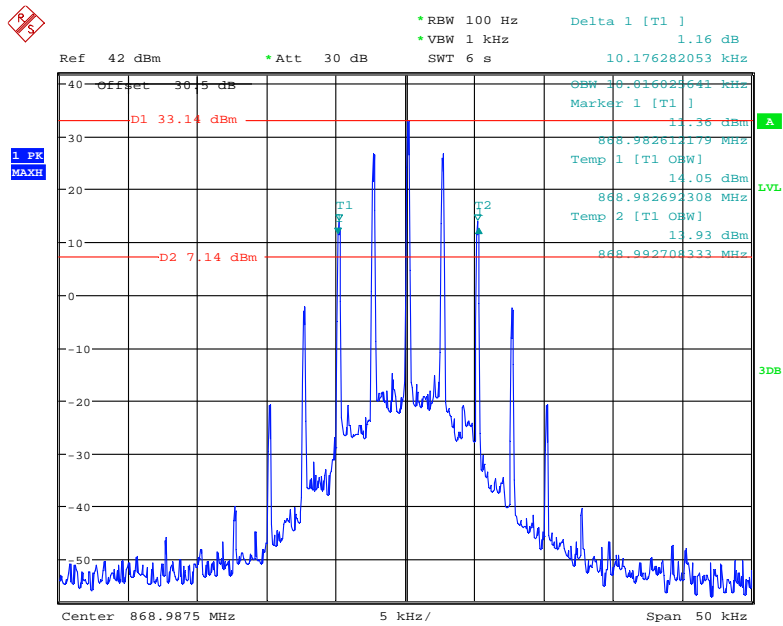
Date: 7.SEP.2017 17:15:32

### Frequency 806.0125 MHz: Emission Mask D, Low Power



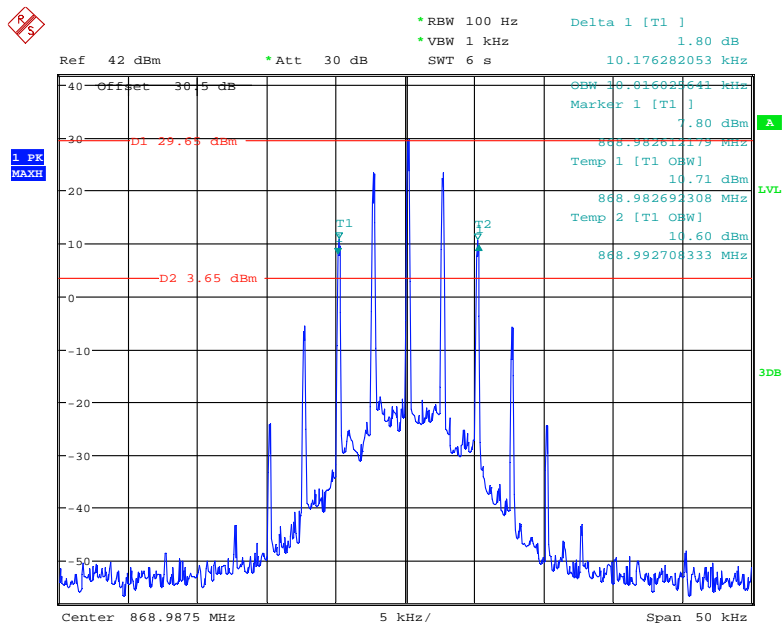
Date: 8.SEP.2017 08:51:13

**Frequency 868.9875 MHz: 99% Occupied & 26 dB Bandwidth, High Power**



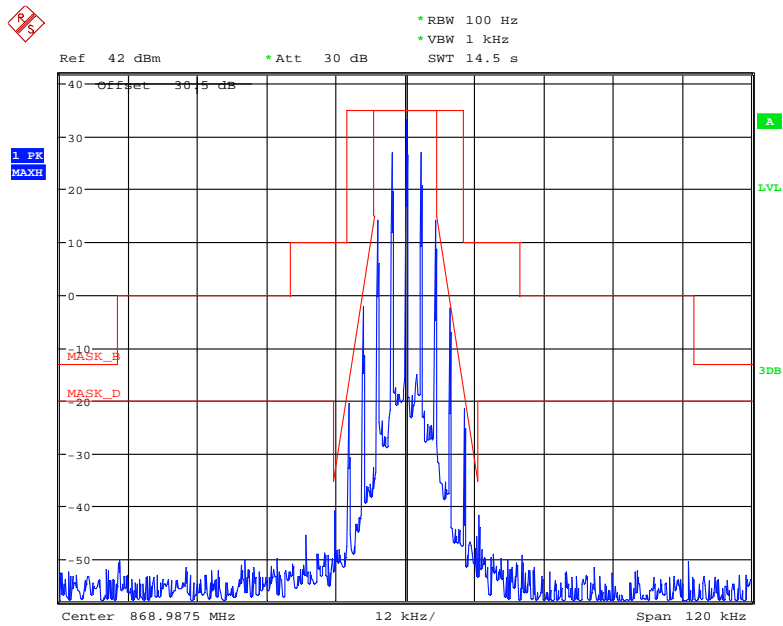
Date: 14.OCT.2017 16:41:51

**Frequency 868.9875 MHz: 99% Occupied & 26 dB Bandwidth, Low Power**



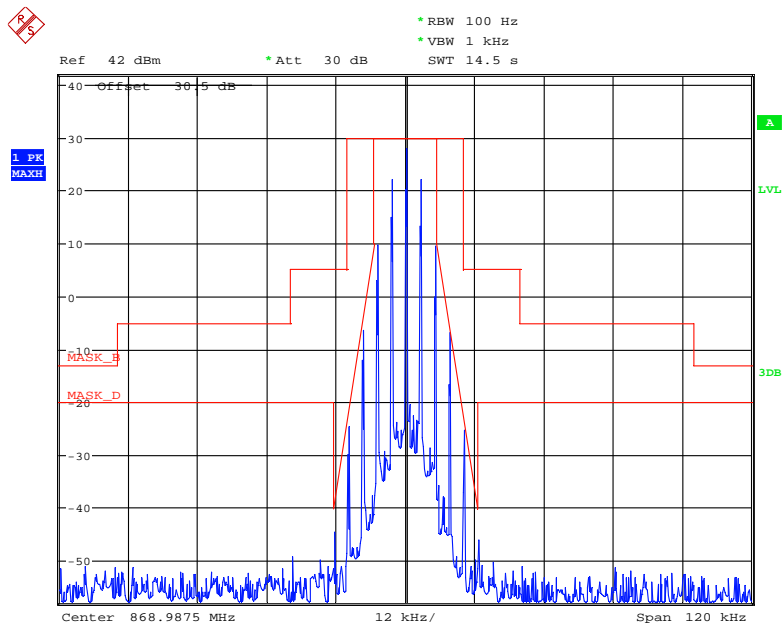
Date: 14.OCT.2017 16:39:17

### Frequency 868.9875 MHz: Emission Mask D, High Power



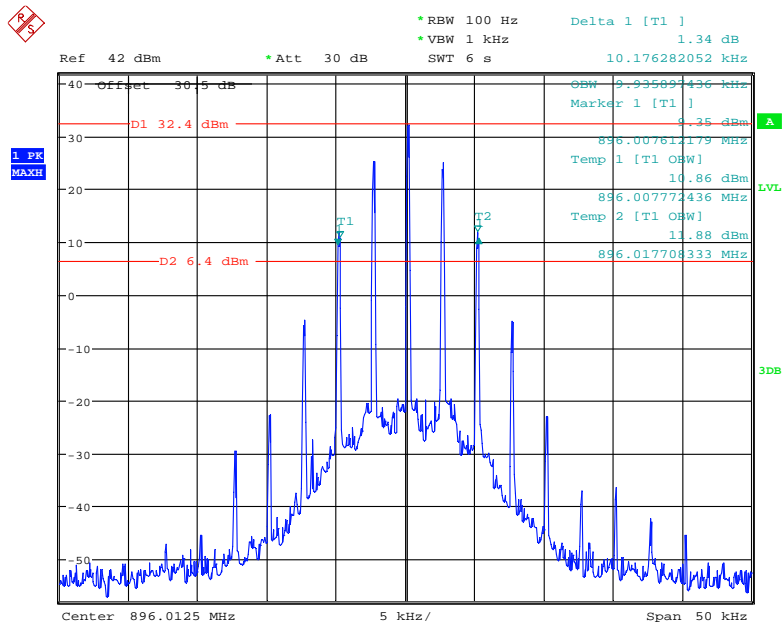
Date: 14.OCT.2017 13:13:57

### Frequency 868.9875 MHz: Emission Mask D, Low Power



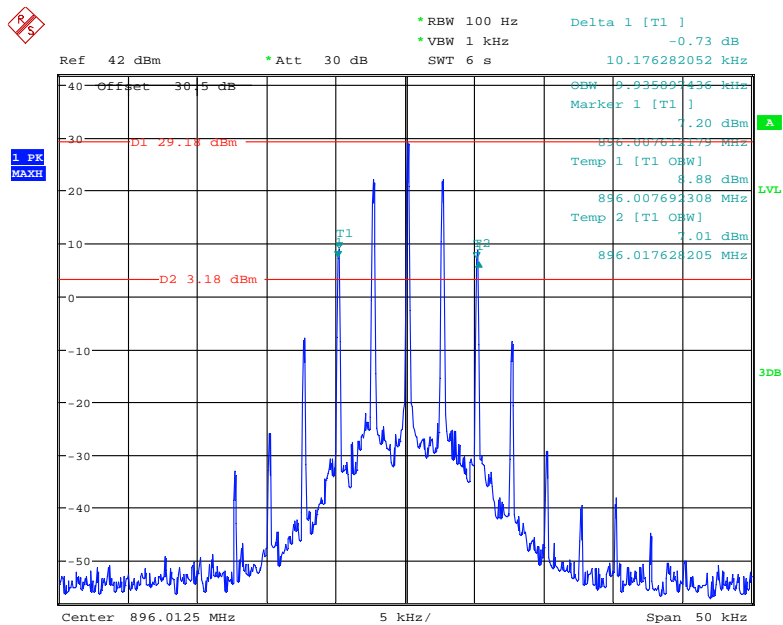
Date: 14.OCT.2017 11:56:10

**Frequency 896.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power**



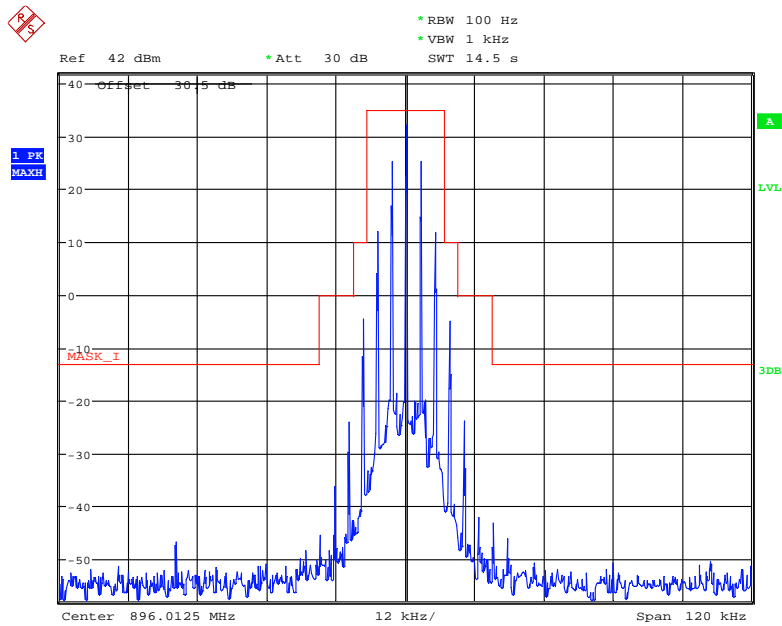
Date: 14.OCT.2017 16:43:54

**Frequency 896.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power**



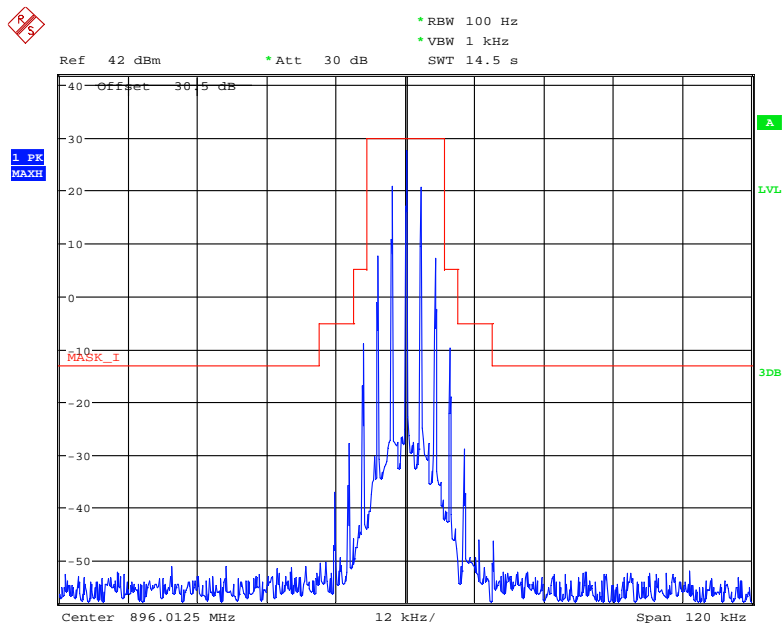
Date: 14.OCT.2017 16:46:29

### Frequency 896.0125 MHz: Emission Mask I, High Power



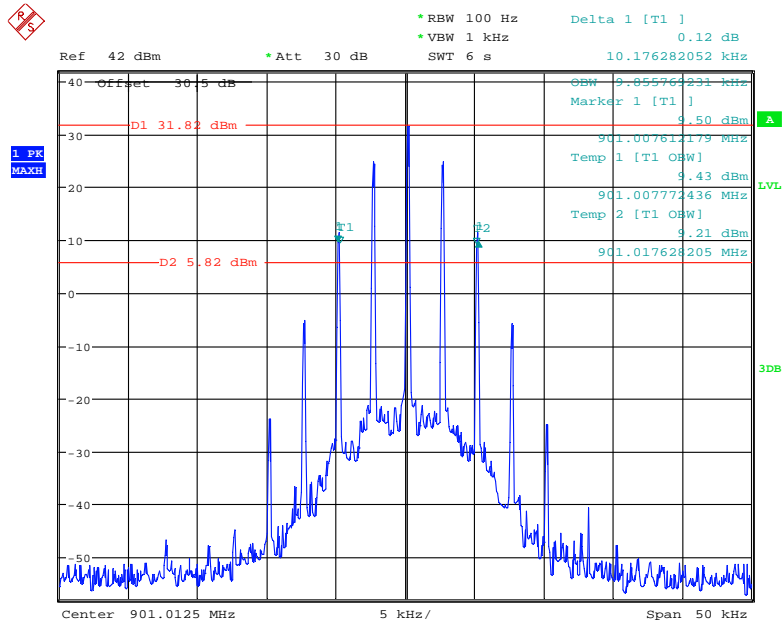
Date: 16.OCT.2017 11:38:33

### Frequency 896.0125 MHz: Emission Mask I, Low Power



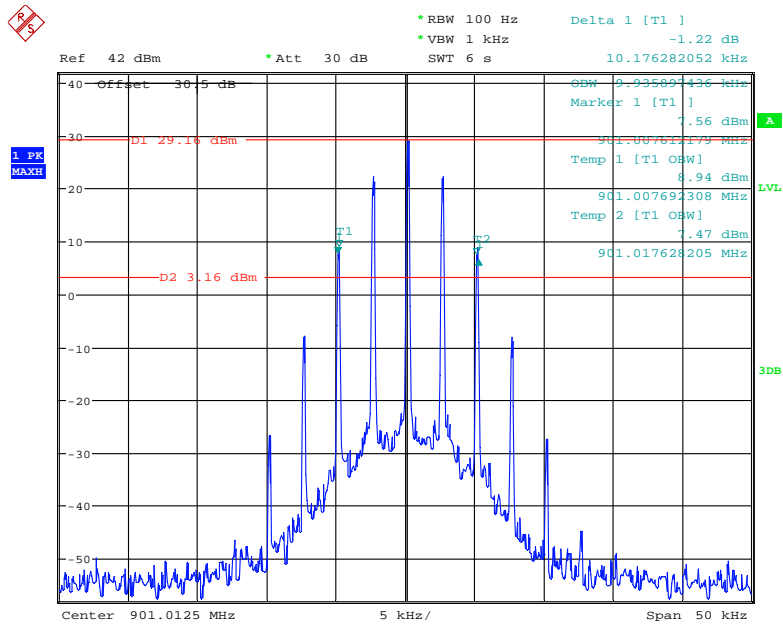
Date: 16.OCT.2017 11:34:09

### Frequency 901.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power



Date: 14.OCT.2017 16:49:08

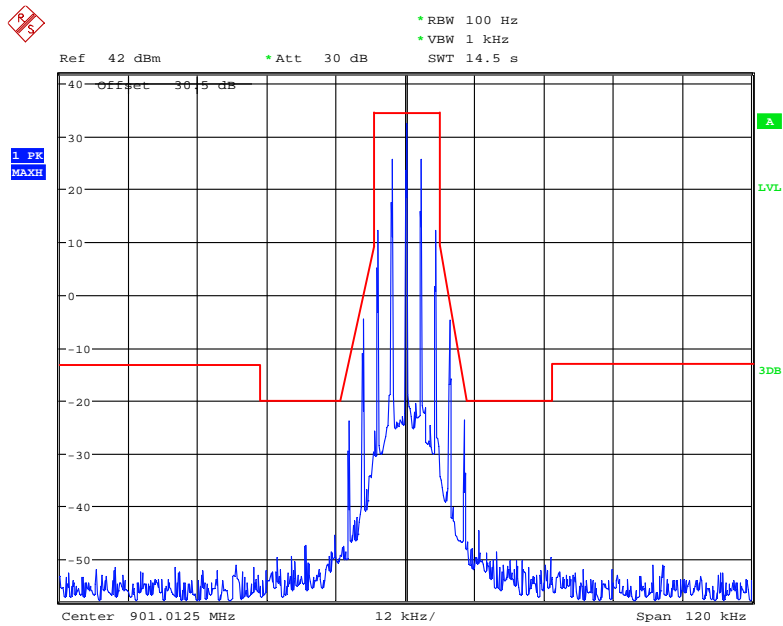
### Frequency 901.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



Date: 14.OCT.2017 16:50:18

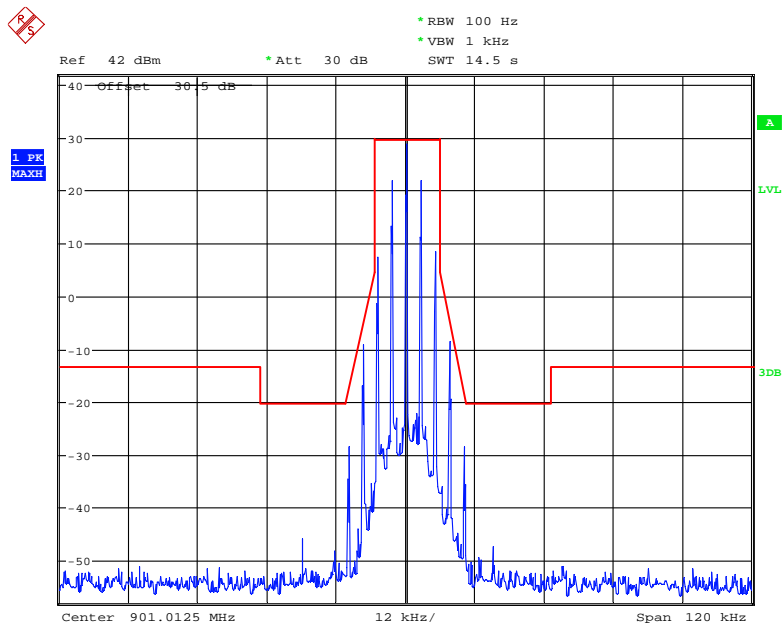


### Frequency 901.0125 MHz: Emission Mask 24.133, High Power



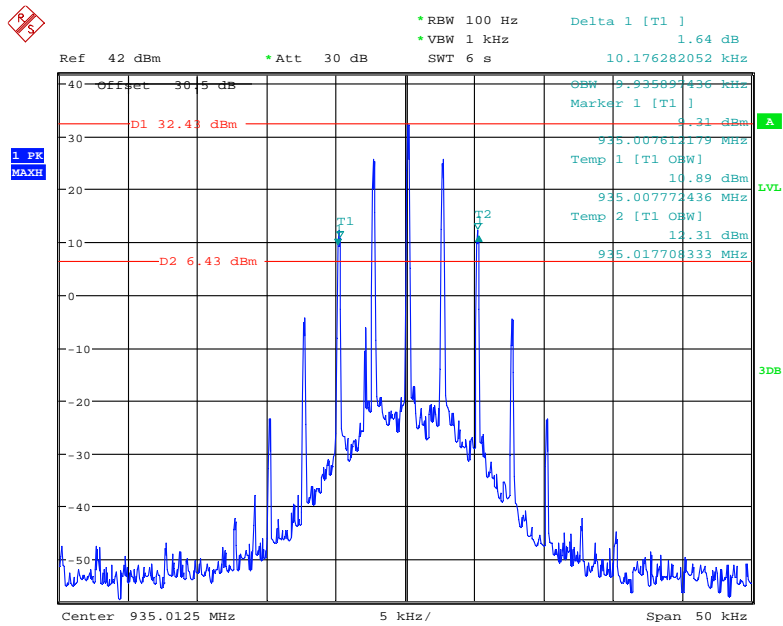
Date: 16.OCT.2017 11:37:01

### Frequency 901.0125 MHz: Emission Mask 24.133, Low Power



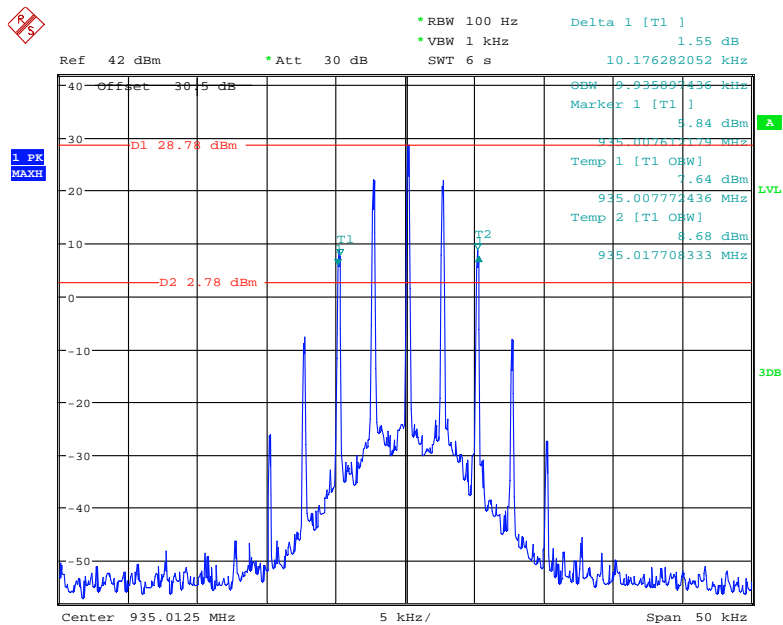
Date: 16.OCT.2017 11:36:17

**Frequency 935.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power**



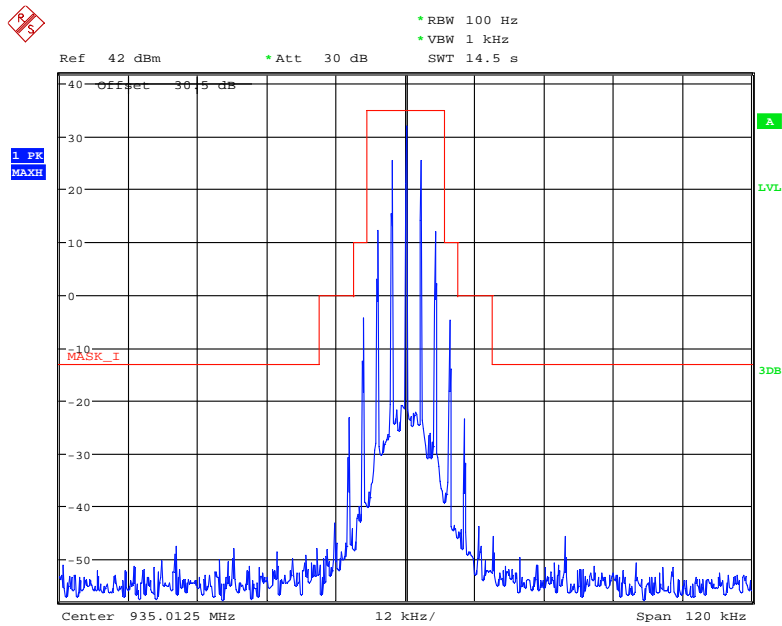
Date: 14.OCT.2017 16:53:23

**Frequency 935.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power**



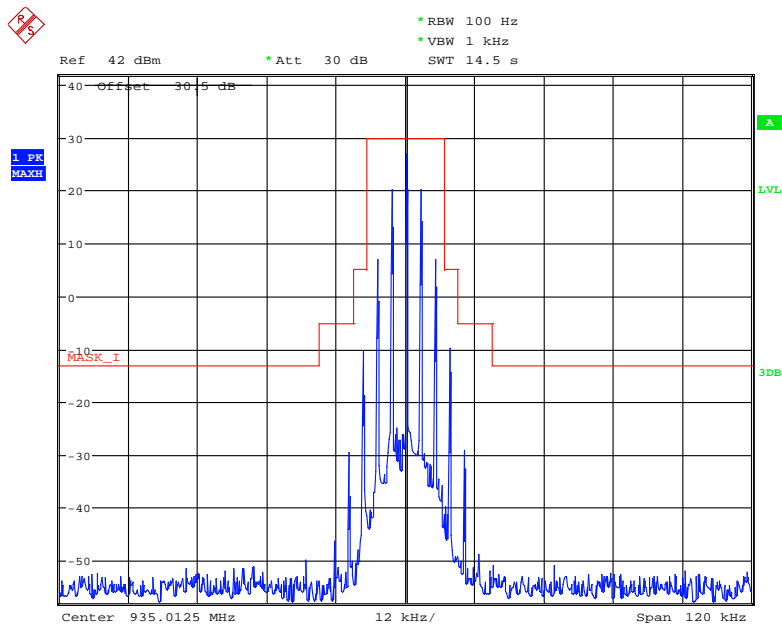
Date: 14.OCT.2017 16:52:10

### Frequency 935.0125 MHz: Emission Mask I, High Power



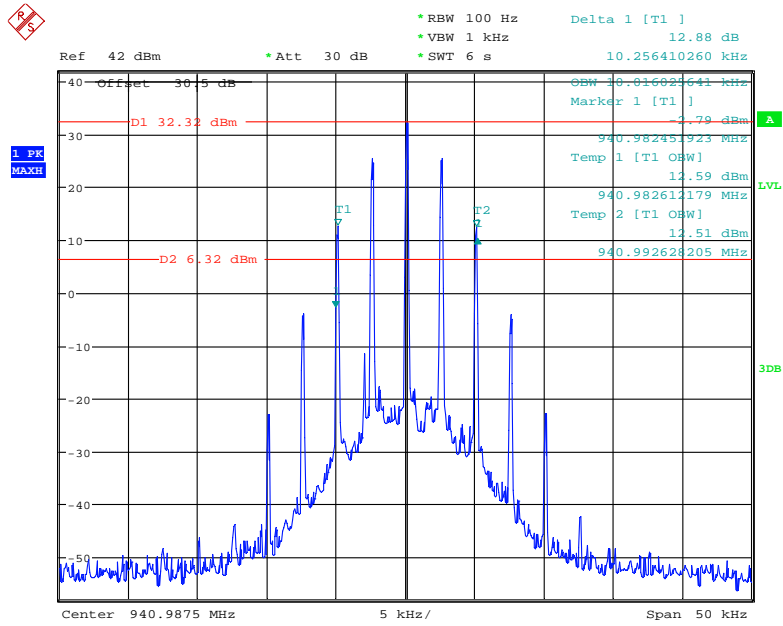
Date: 16.OCT.2017 11:17:07

### Frequency 935.0125 MHz: Emission Mask I, Low Power



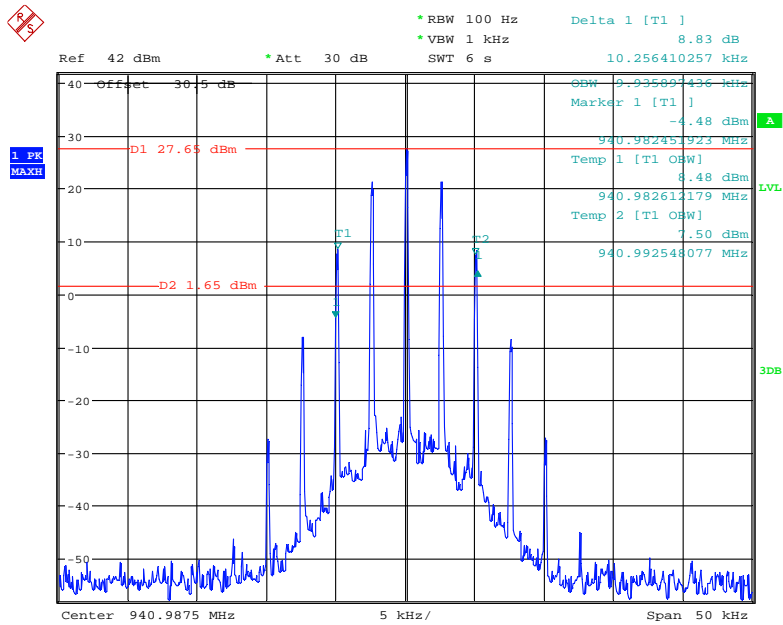
Date: 16.OCT.2017 11:00:16

### Frequency 940.9875 MHz: 99% Occupied & 26 dB Bandwidth, High Power



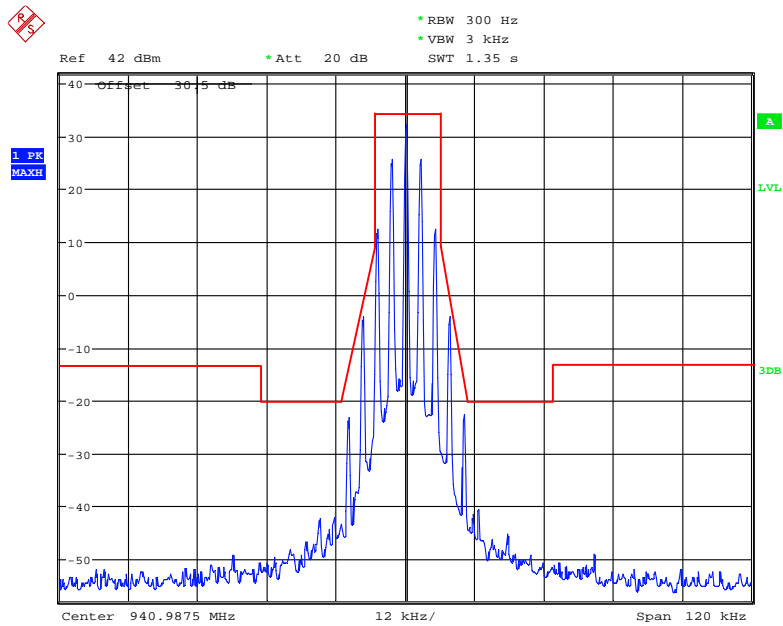
Date: 31.AUG.2017 15:23:37

### Frequency 940.9875 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



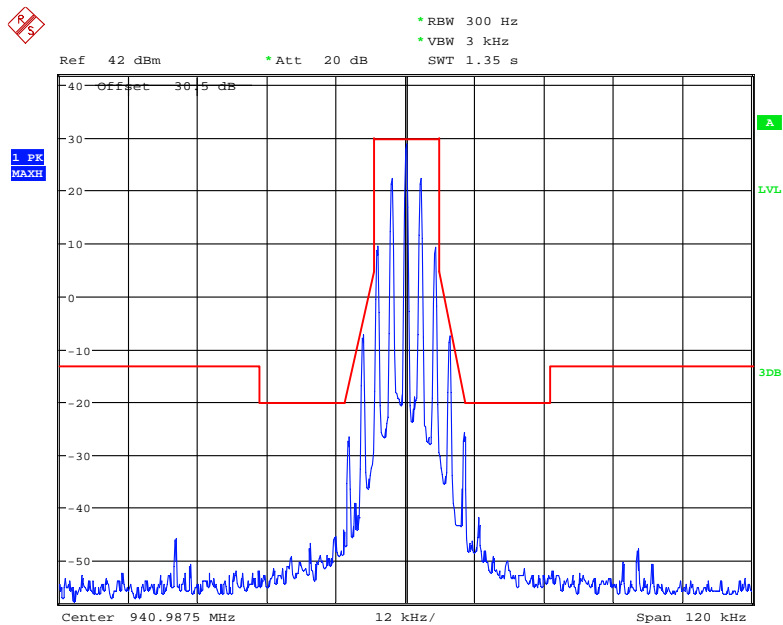
Date: 31.AUG.2017 15:01:45

### Frequency 940.9875 MHz: Emission Mask 24.133, High Power



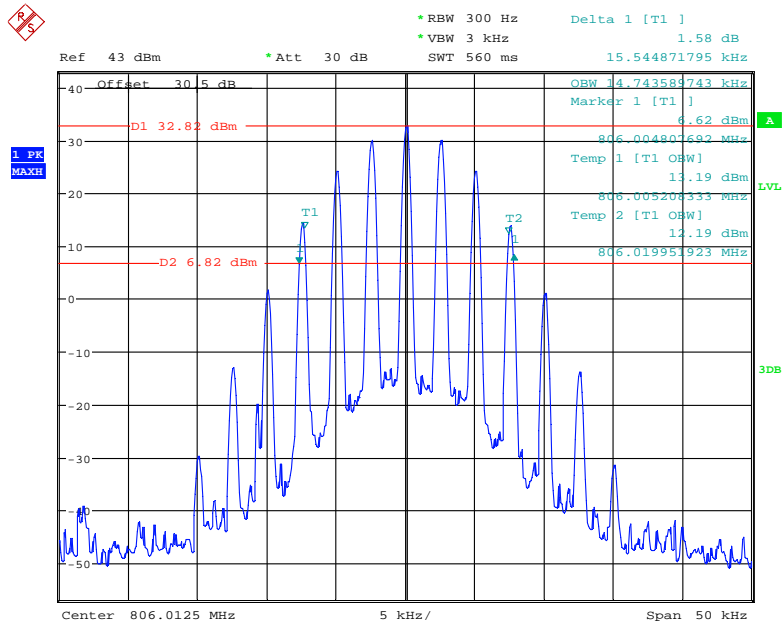
Date: 25.SEP.2017 10:51:28

### Frequency 940.9875 MHz: Emission Mask 24.133, Low Power



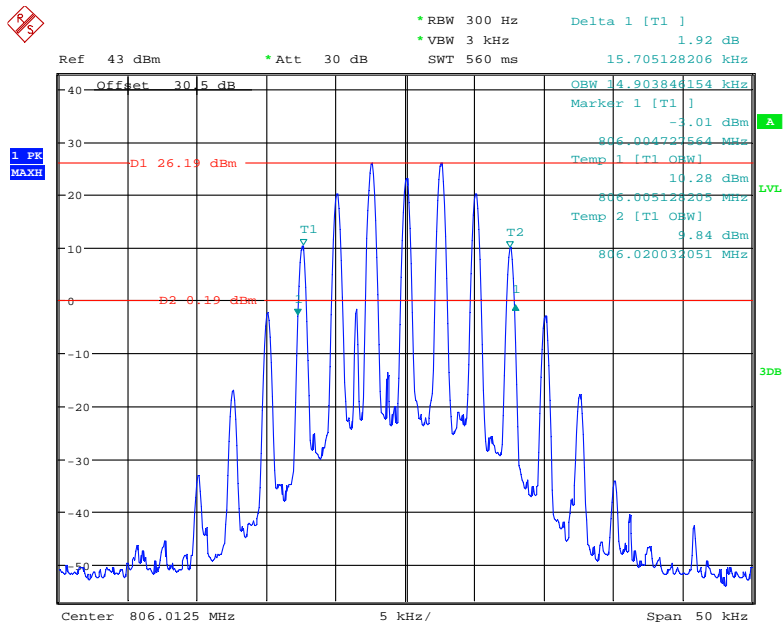
Date: 25.SEP.2017 10:53:41

**Analog Modulation(25 kHz):  
Frequency 806.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power**



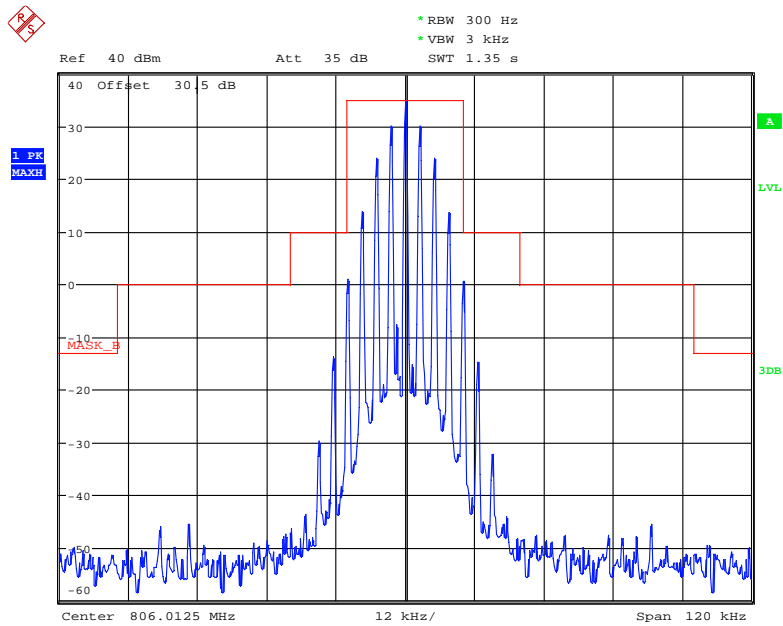
Date: 31.AUG.2017 15:37:40

**Frequency 806.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power**



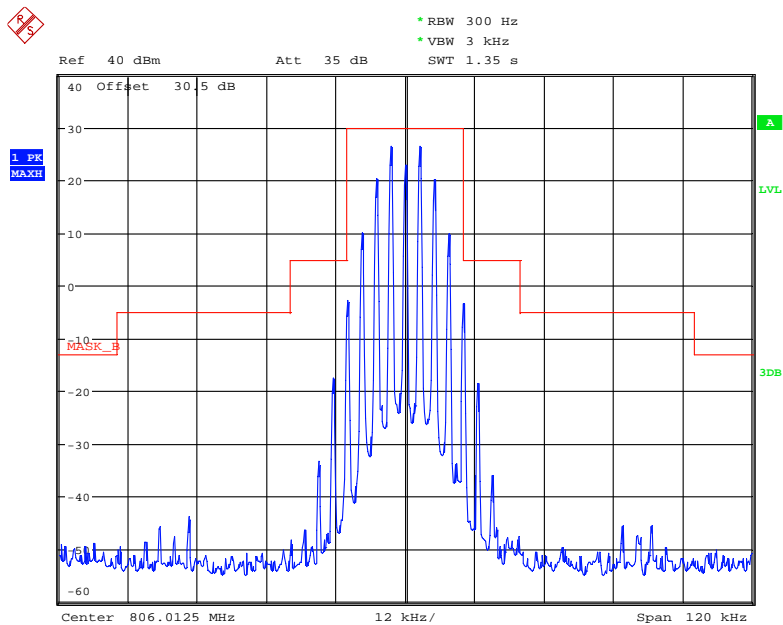
Date: 31.AUG.2017 15:36:31

### Frequency 806.0125 MHz: Emission Mask B, High Power



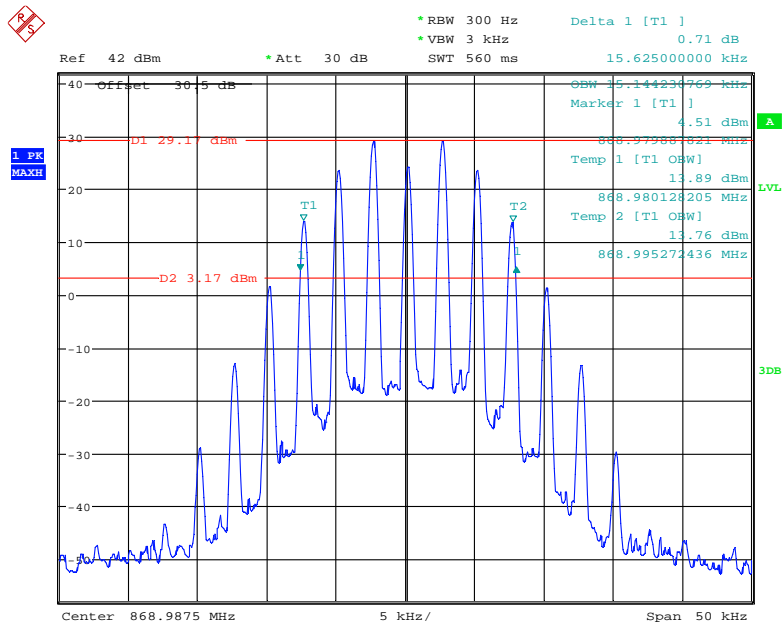
Date: 8.SEP.2017 10:37:25

### Frequency 806.0125 MHz: Emission Mask B, Low Power



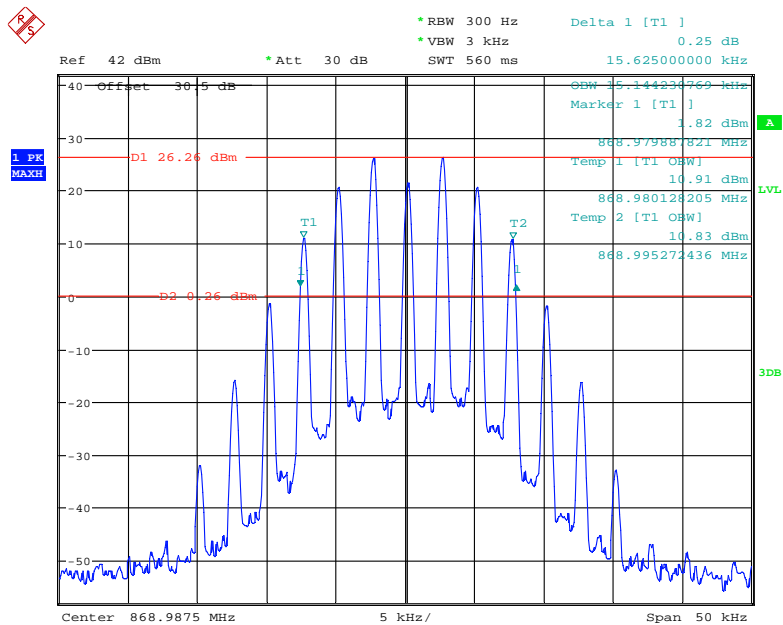
Date: 8.SEP.2017 10:32:36

**Frequency 868.9875 MHz: 99% Occupied & 26 dB Bandwidth, High Power**



Date: 14.OCT.2017 16:55:02

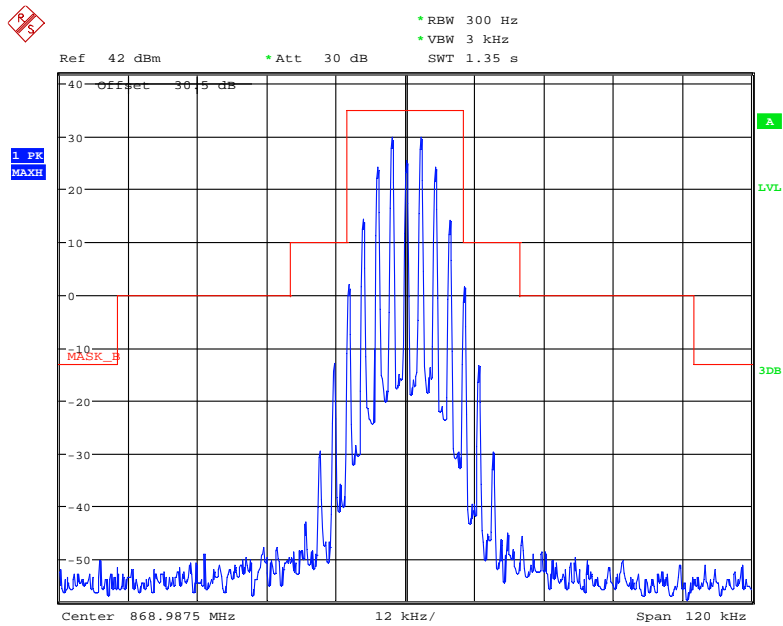
**Frequency 868.9875 MHz: 99% Occupied & 26 dB Bandwidth, Low Power**



Date: 14.OCT.2017 16:55:51

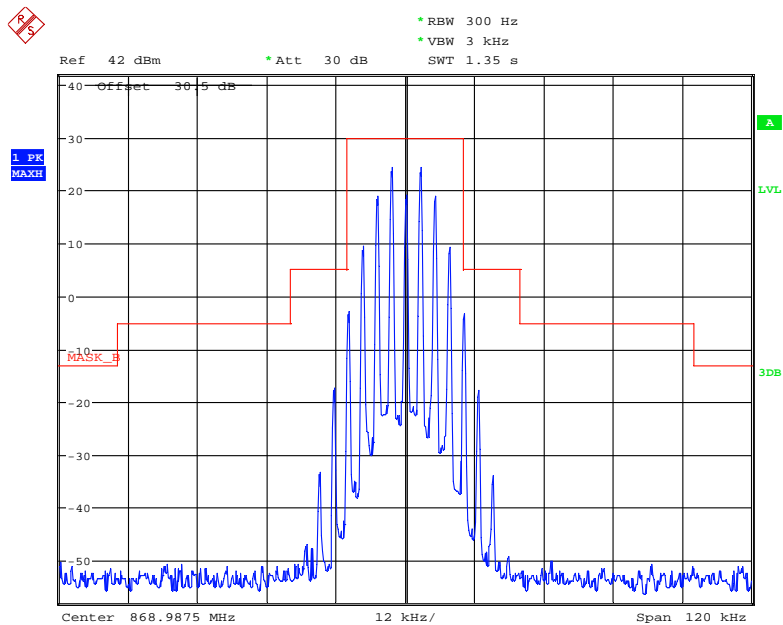


### Frequency 868.9875 MHz: Emission Mask B, High Power



Date: 14.OCT.2017 13:15:04

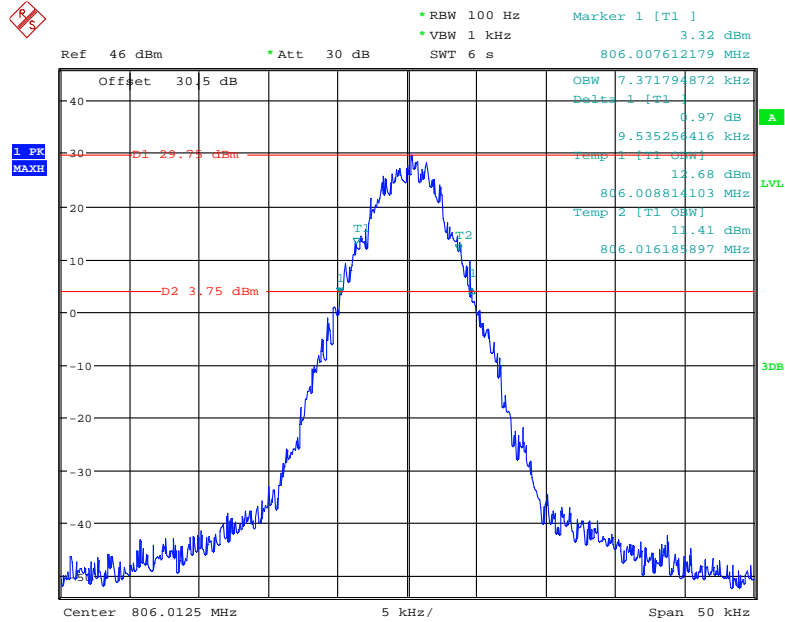
### Frequency 868.9875 MHz: Emission Mask B, Low Power



Date: 14.OCT.2017 11:51:59

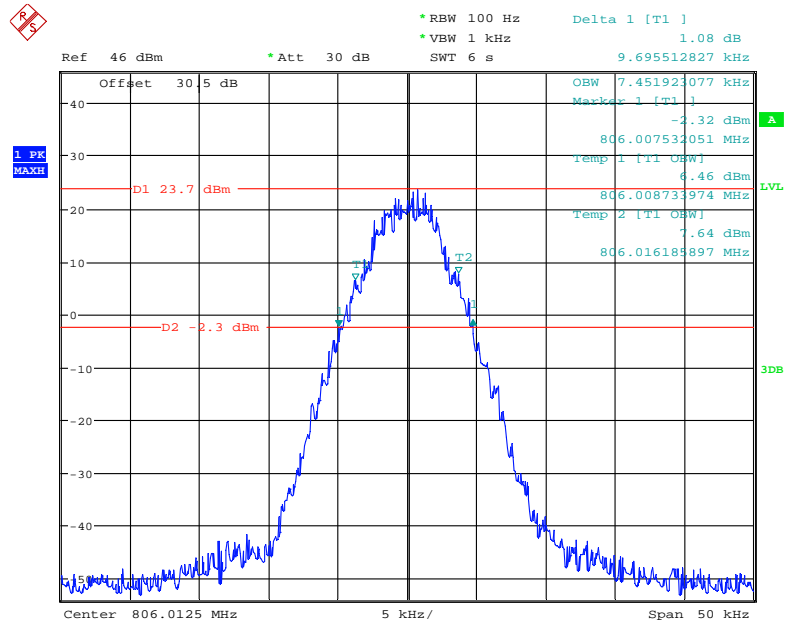
**Digital Modulation:**

**Frequency 806.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power**



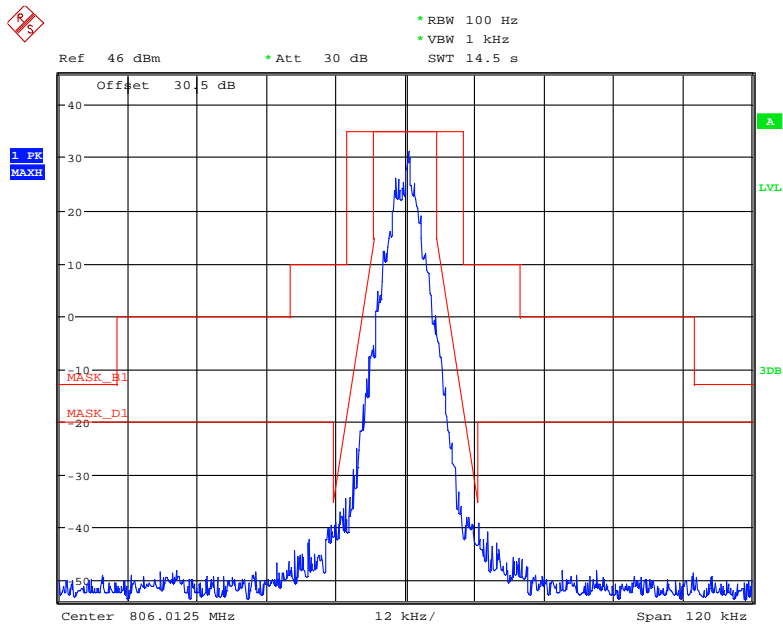
Date: 15.SEP.2017 17:15:50

**Frequency 806.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power**



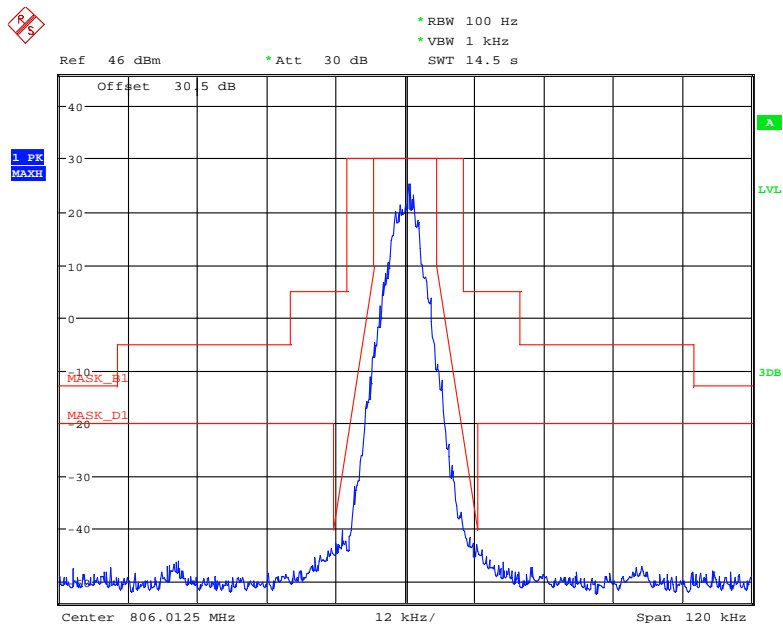
Date: 15.SEP.2017 17:18:47

### Frequency 806.0125 MHz: Emission Mask D, High Power



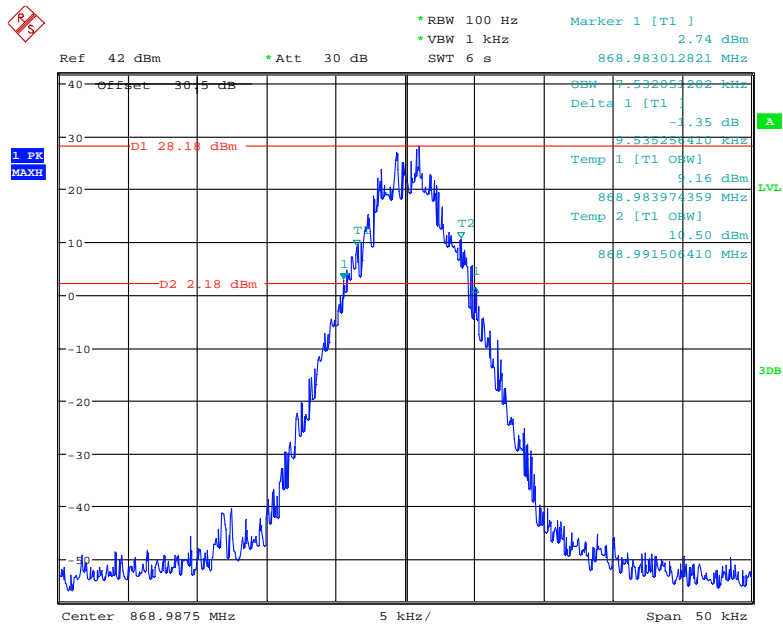
Date: 15.SEP.2017 17:34:15

### Frequency 806.0125 MHz: Emission Mask D, Low Power



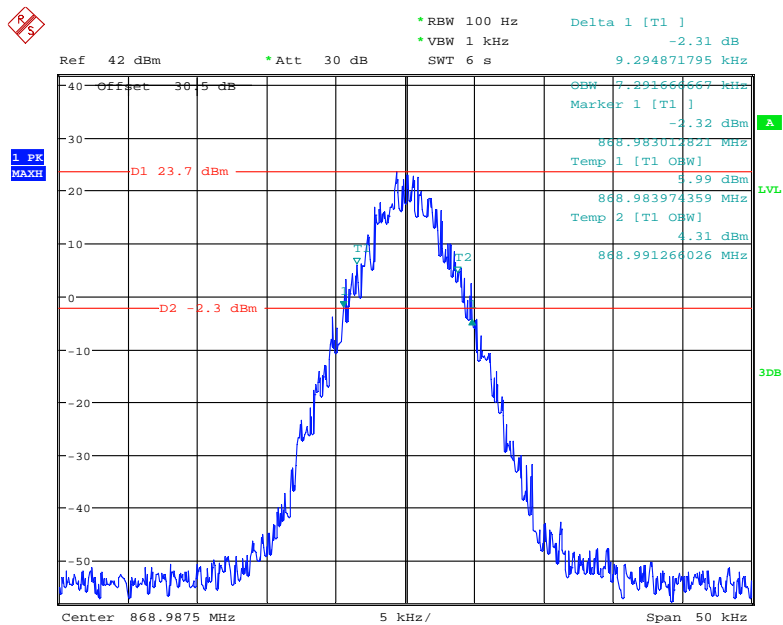
Date: 15.SEP.2017 17:31:00

**Frequency 868.9875 MHz: 99% Occupied & 26 dB Bandwidth, High Power**



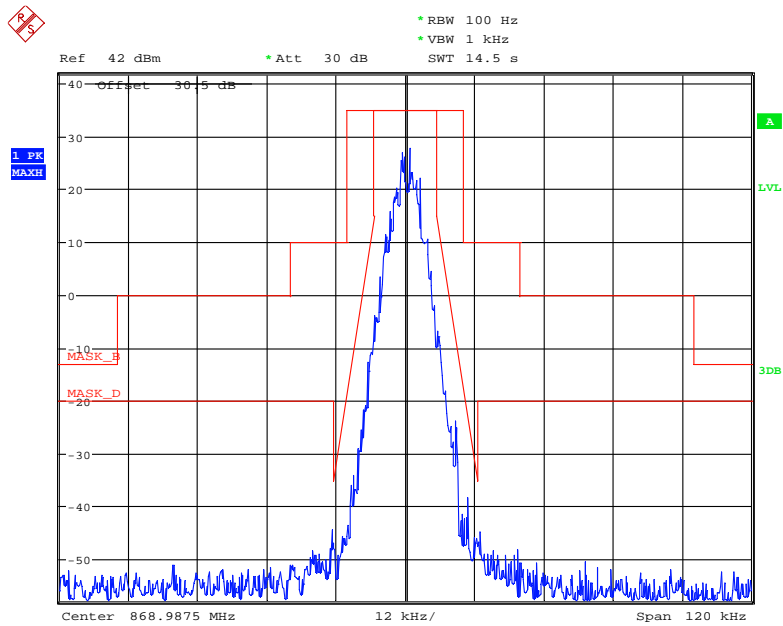
Date: 14.OCT.2017 16:57:49

**Frequency 868.9875 MHz: 99% Occupied & 26 dB Bandwidth, Low Power**



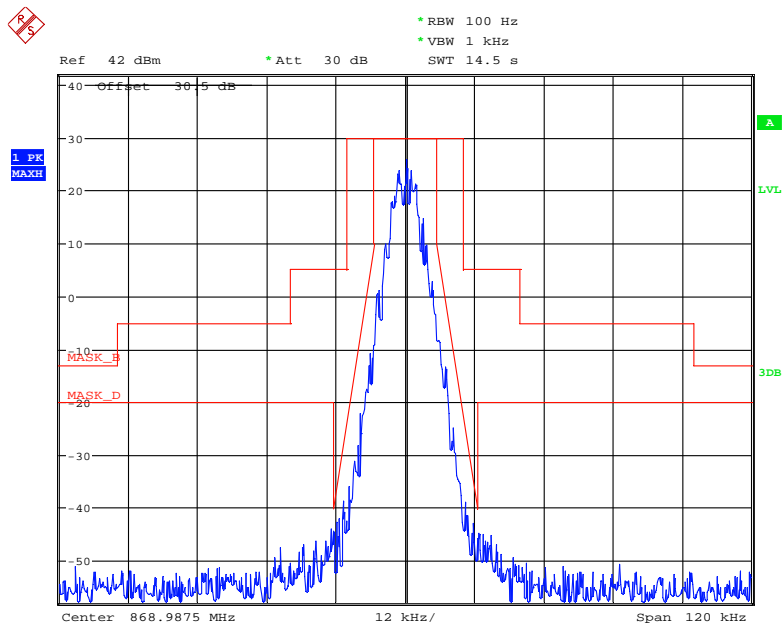
Date: 14.OCT.2017 16:59:12

### Frequency 868.9875 MHz: Emission Mask D, High Power



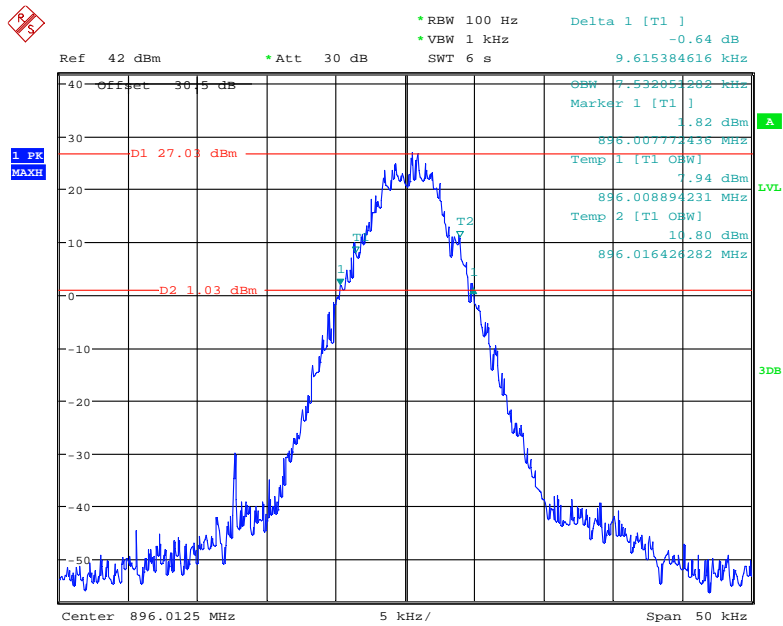
Date: 14.OCT.2017 13:16:34

### Frequency 868.9875 MHz: Emission Mask D, Low Power



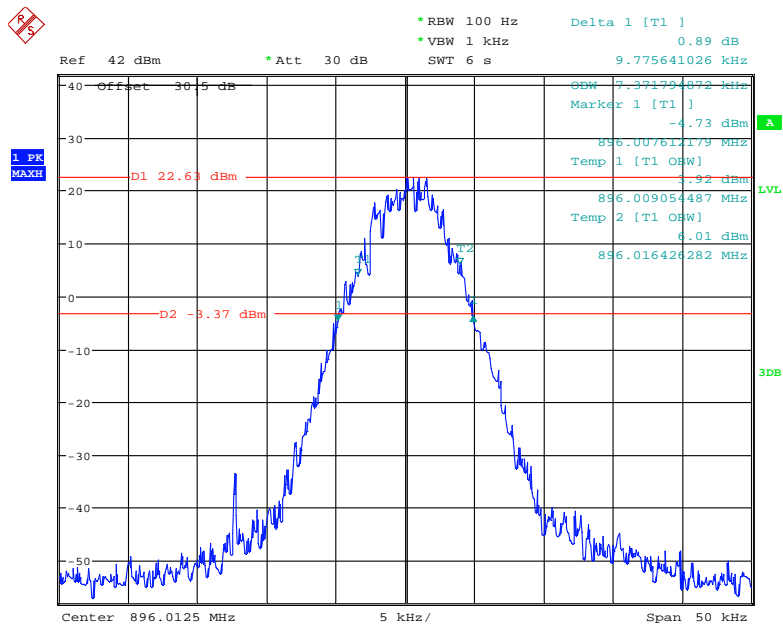
Date: 14.OCT.2017 11:57:20

**Frequency 896.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power**



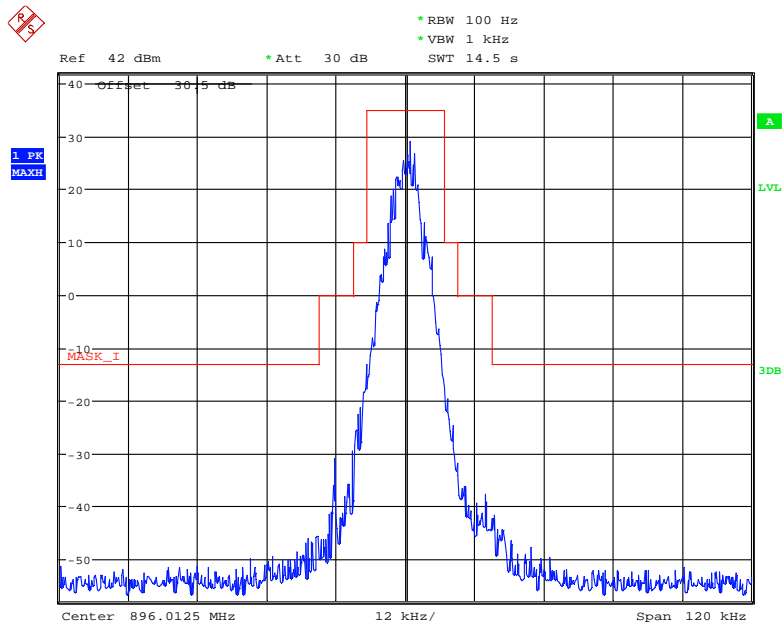
Date: 14.OCT.2017 17:08:01

**Frequency 896.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power**



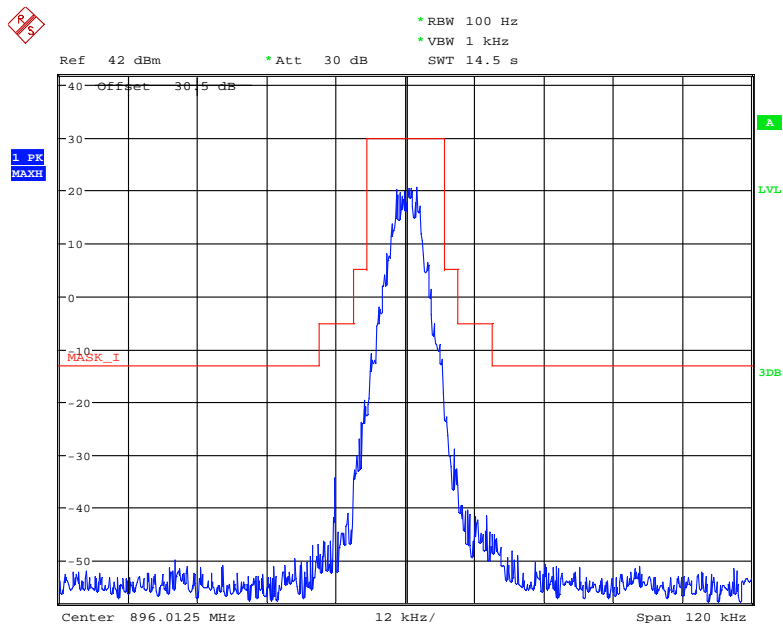
Date: 14.OCT.2017 17:06:11

### Frequency 896.0125 MHz: Emission Mask I, High Power



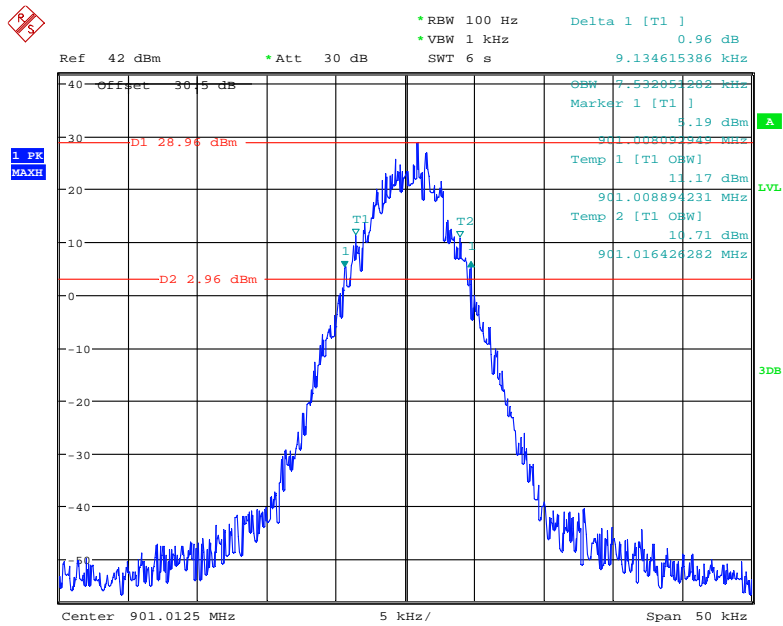
Date: 16.OCT.2017 11:28:42

### Frequency 896.0125 MHz: Emission Mask I, Low Power



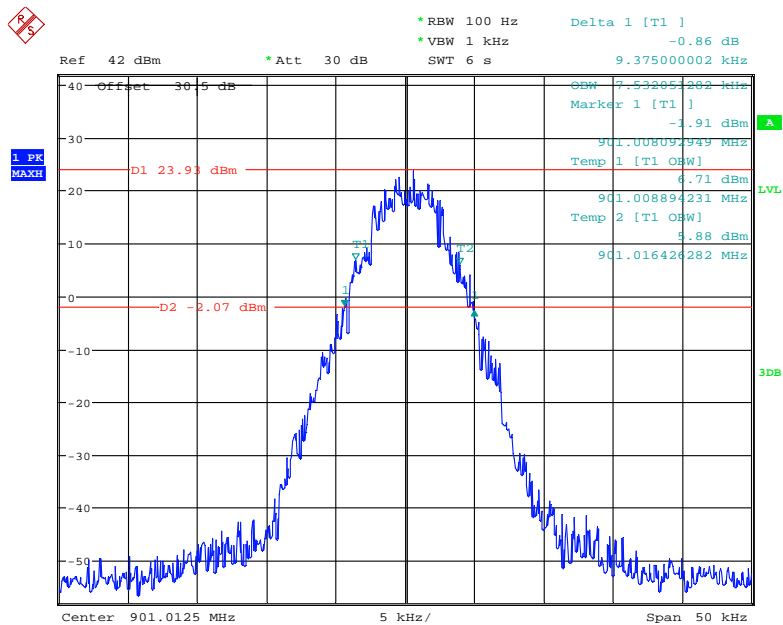
Date: 16.OCT.2017 11:30:27

**Frequency 901.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power**



Date: 14.OCT.2017 17:09:39

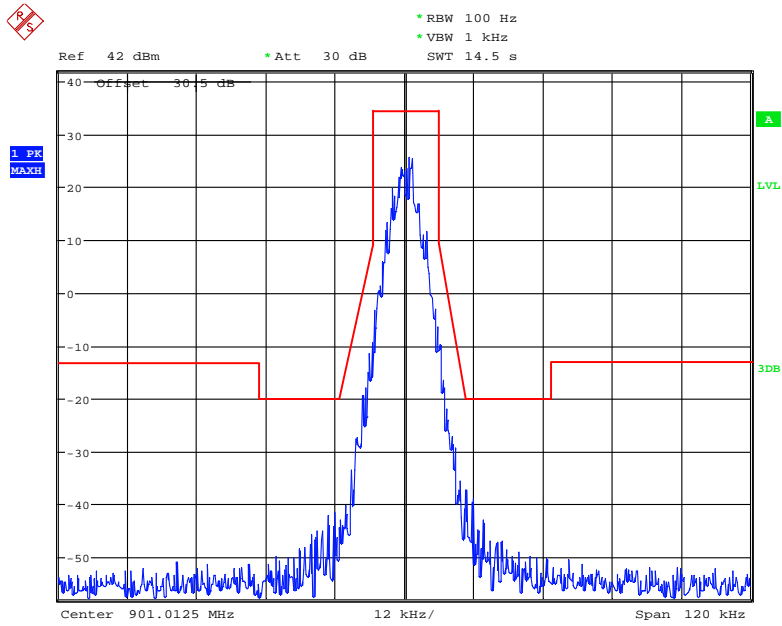
**Frequency 901.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power**



Date: 14.OCT.2017 17:11:20

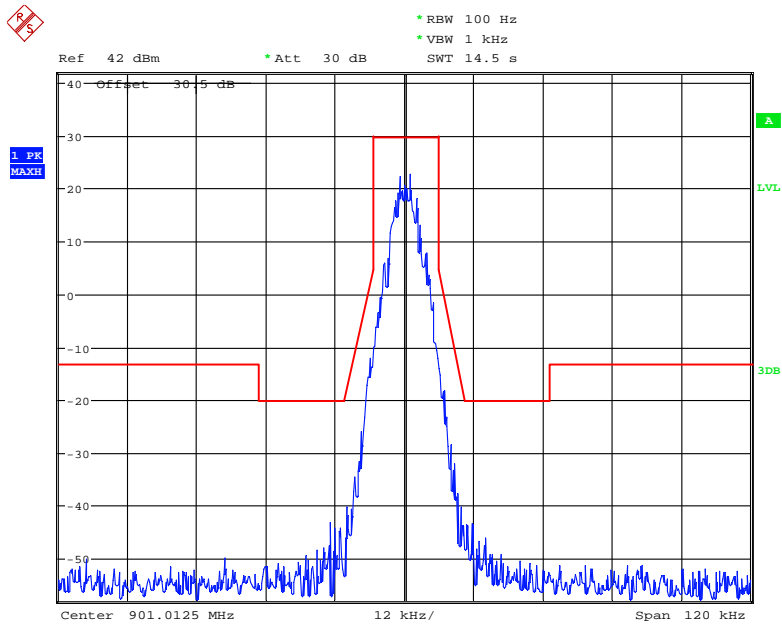


### Frequency 901.0125 MHz: Emission Mask 24.133, High Power



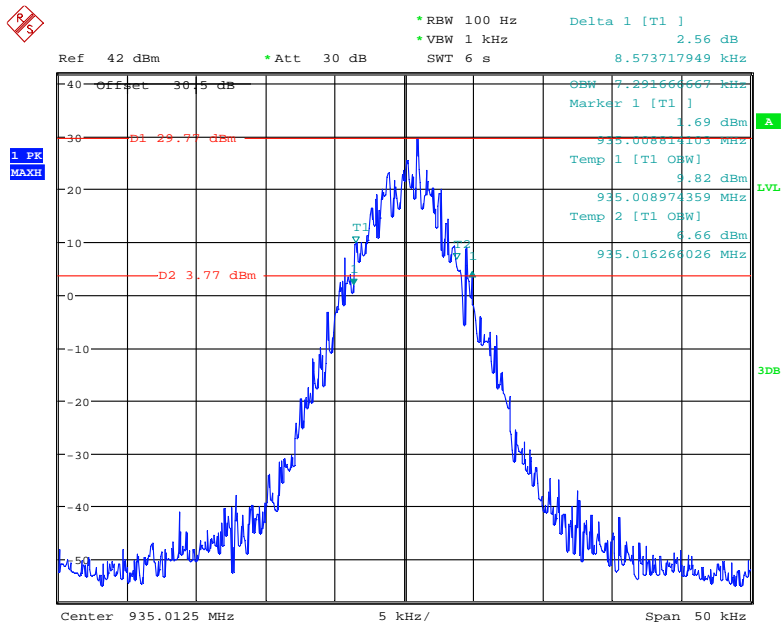
Date: 16.OCT.2017 11:25:24

### Frequency 901.0125 MHz: Emission Mask 24.133, Low Power



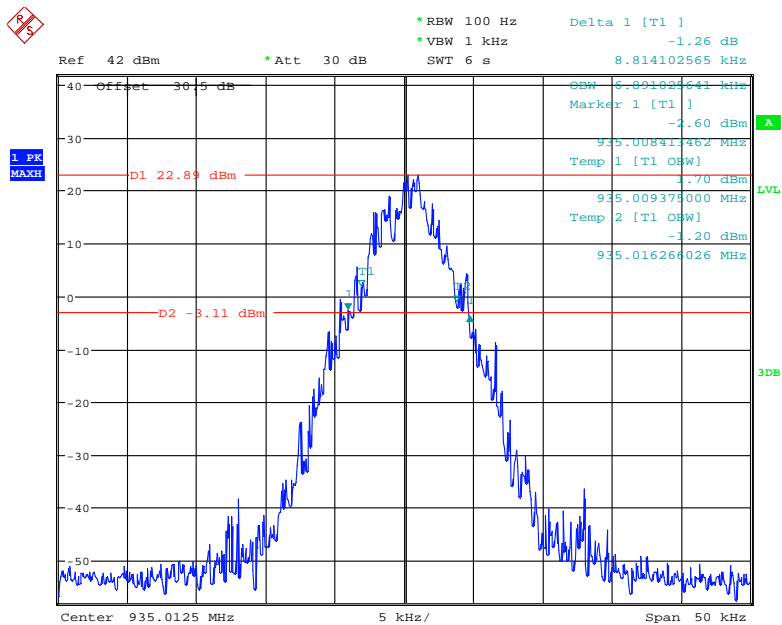
Date: 16.OCT.2017 11:26:34

**Frequency 935.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power**



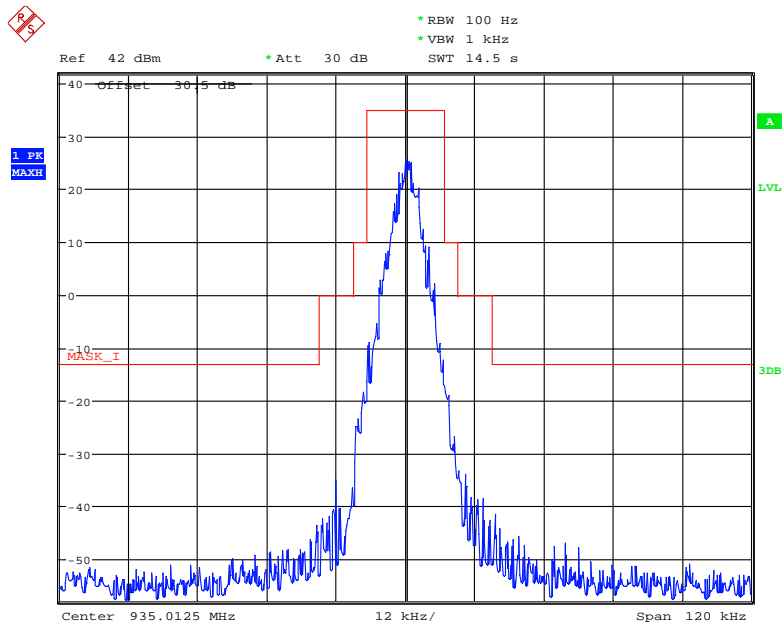
Date: 14.OCT.2017 17:01:40

**Frequency 935.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power**



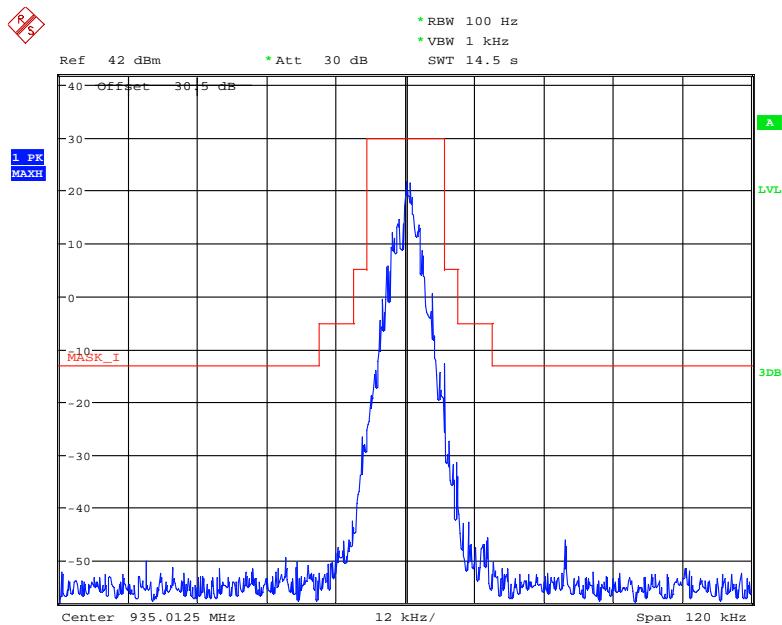
Date: 14.OCT.2017 17:03:29

### Frequency 935.0125 MHz: Emission Mask I, High Power



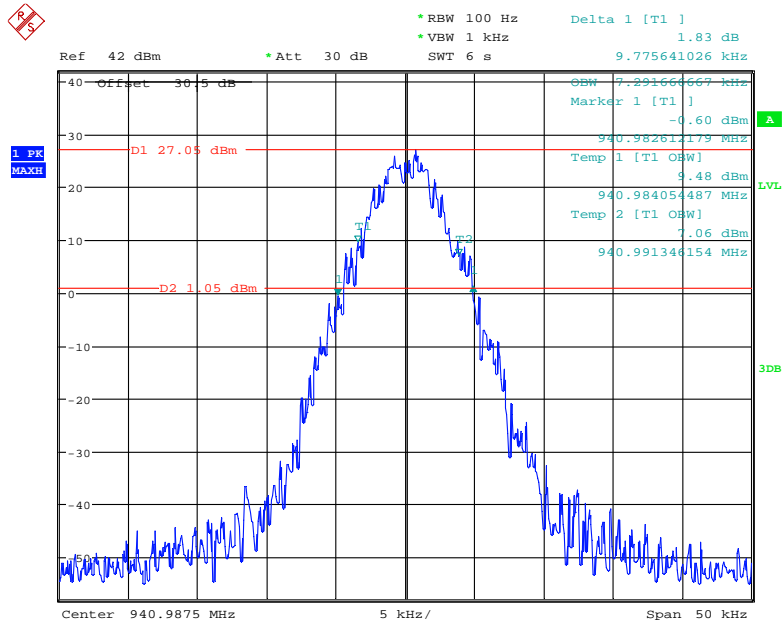
Date: 16.OCT.2017 11:18:21

### Frequency 935.0125 MHz: Emission Mask I, Low Power



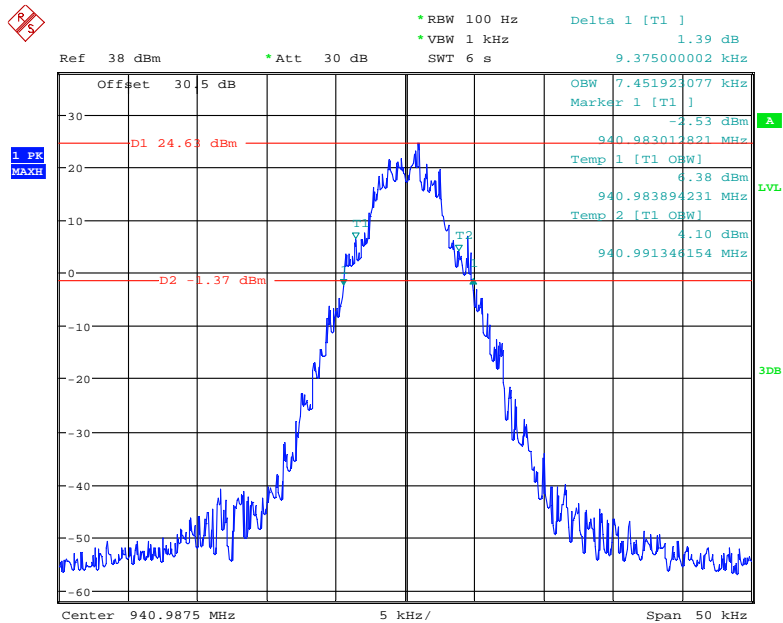
Date: 16.OCT.2017 11:01:36

**Frequency 940.9875 MHz: 99% Occupied & 26 dB Bandwidth, High Power**



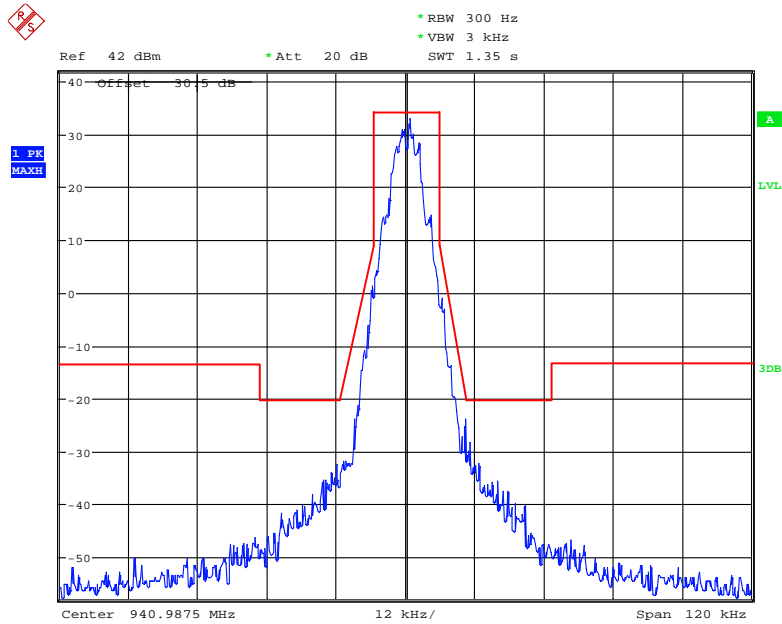
Date: 31.AUG.2017 14:01:15

**Frequency 940.9875 MHz: 99% Occupied & 26 dB Bandwidth, Low Power**



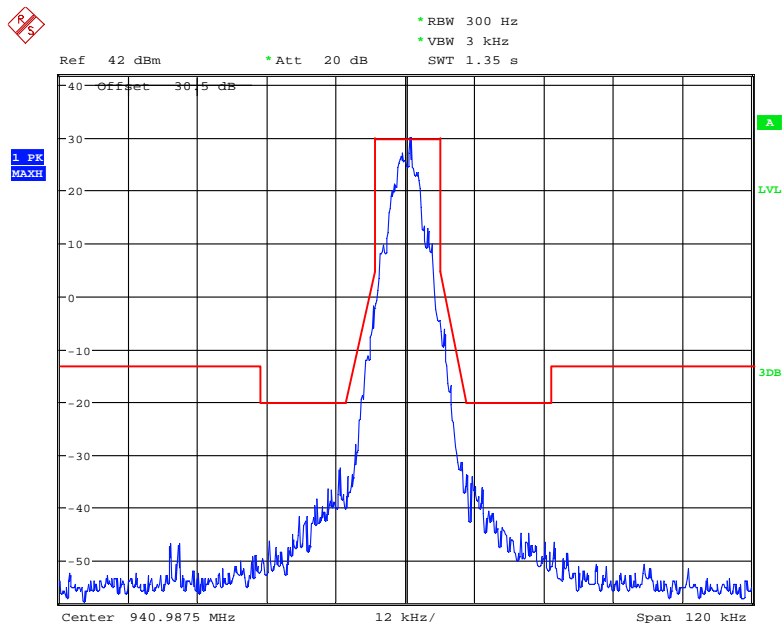
Date: 31.AUG.2017 14:12:57

### Frequency 940.9875 MHz: Emission Mask 24.133, High Power



Date: 25.SEP.2017 10:57:16

### Frequency 940.9875 MHz: Emission Mask 24.133, Low Power



Date: 25.SEP.2017 10:55:59

## FCC §2.1051 & §24.132 & §90.210 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

### Applicable Standard

Emission Mask D—12.5 kHz channel bandwidth equipment. For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

- 1) For any frequency removed from the center of the authorized bandwidth  $f_0$  to 5.625 kHz removed from  $f_0$ , 0 dB.
- 2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of more than 5.626 kHz but no more than 12.5 kHz, at least  $7.27 (f_d - 2.88 \text{ kHz})$  dB.
- 3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of more than 12.5 kHz: At least  $50 + 10 \log (P)$  dB or 70 dB, whichever is the lesser attenuation.

Emission Mask B - 25 kHz channel bandwidth equipment. For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

- (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.
- (2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.
- (3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least  $43 + 10 \log (P)$  dB.

Emission Mask 24.133 (i) On any frequency outside the authorized bandwidth and removed from the edge of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of up to and including 20 kHz: at least  $116 \times \text{Log}_{10} ((f_d + 5)/3.05)$  decibels or  $50 + 10 \times \text{Log}_{10}(P)$  decibels or 70 decibels, whichever is the lesser attenuation;

(ii) On any frequency outside the authorized bandwidth and removed from the edge of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of more than 20 kHz: at least  $43 + 10 \text{Log}_{10} (P)$  decibels or 80 decibels, whichever is the lesser attenuation.

Emission Mask I. For transmitters that are equipped with an audio low pass filter, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) as follows:

- (1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 6.8 kHz, but no more than 9.0 kHz: At least 25 dB;
- (2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 9.0 kHz, but no more than 15 kHz: At least 35 dB;

(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 15 kHz: At least  $43 + 10 \log (P)$  dB, or 70 dB, whichever is the lesser attenuation.

### Test Procedure

The RF output of the EUT was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100kHz for below 1GHz, and 1MHz for above 1GHz. Sufficient scans were taken to show any out of band emissions up to 10<sup>th</sup> harmonic.

### Test Data

#### Environmental Conditions

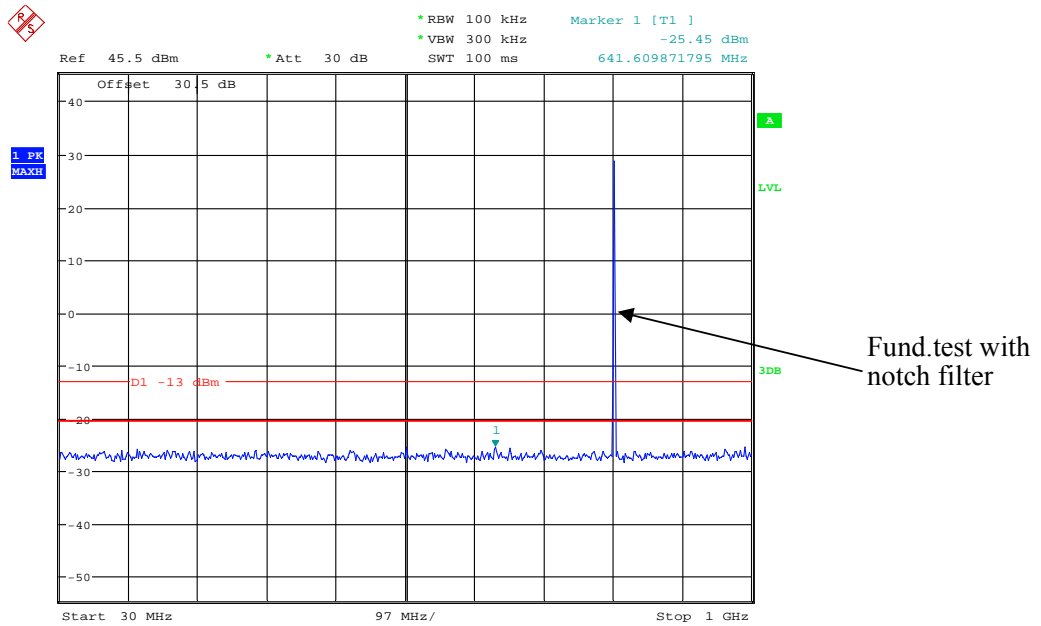
<b>Temperature:</b>	24~25 °C
<b>Relative Humidity:</b>	53~56 %
<b>ATM Pressure:</b>	100.9~101.0 kPa

*The testing was performed by Xiangguang Kong from 2017-09-06 to 2017-10-14.*

*Test Mode: Transmitting, please refer to the following plots.*

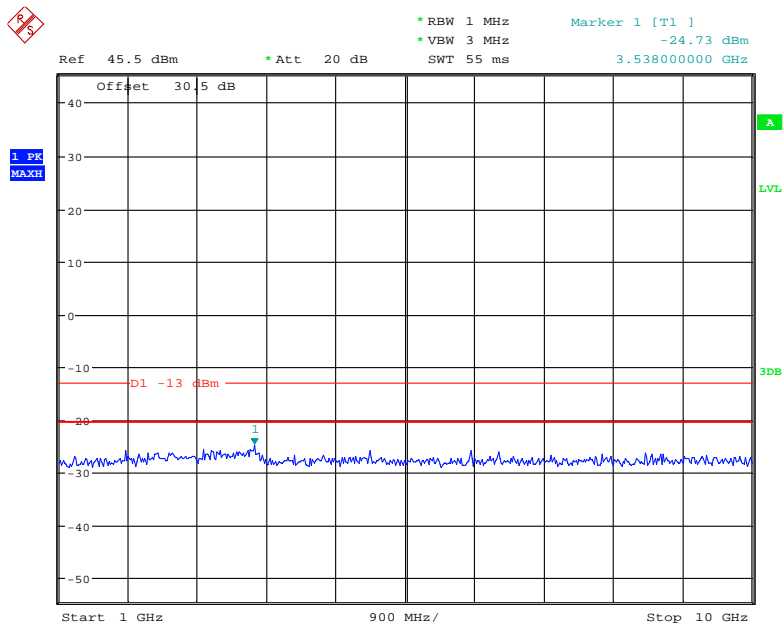
Analog Modulation(12.5 kHz):

30MHz – 1 GHz, 806.0125 MHz



Date: 6.SEP.2017 11:42:51

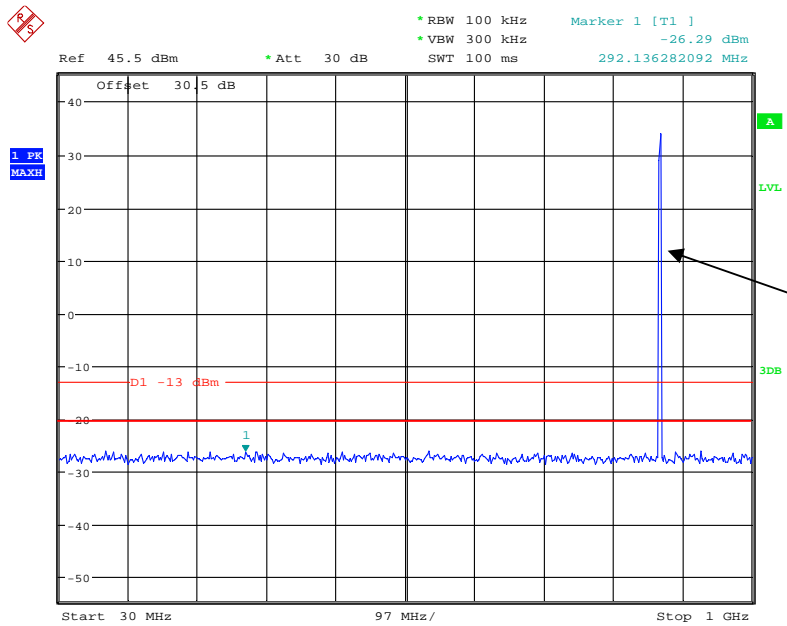
1 GHz – 10 GHz, 806.0125 MHz



Date: 6.SEP.2017 12:06:04

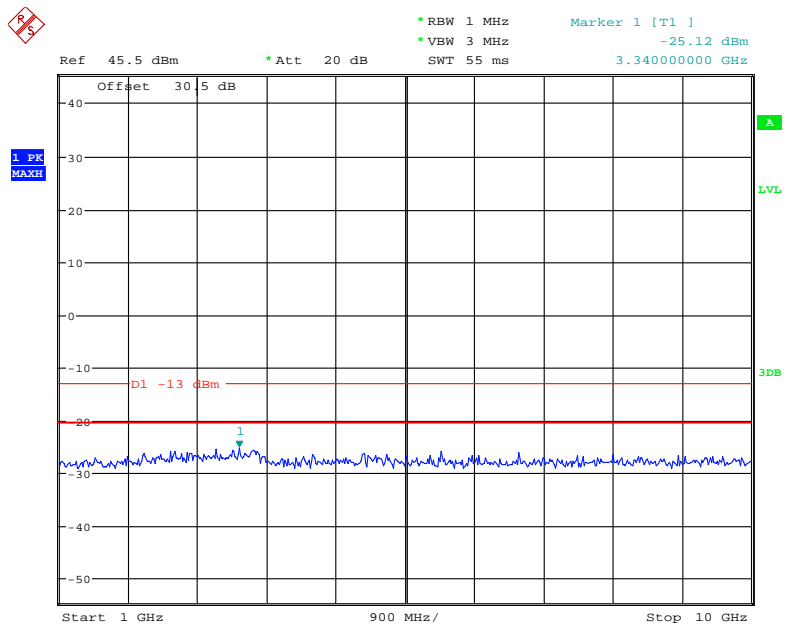


### 30MHz – 1 GHz, 868.9875 MHz



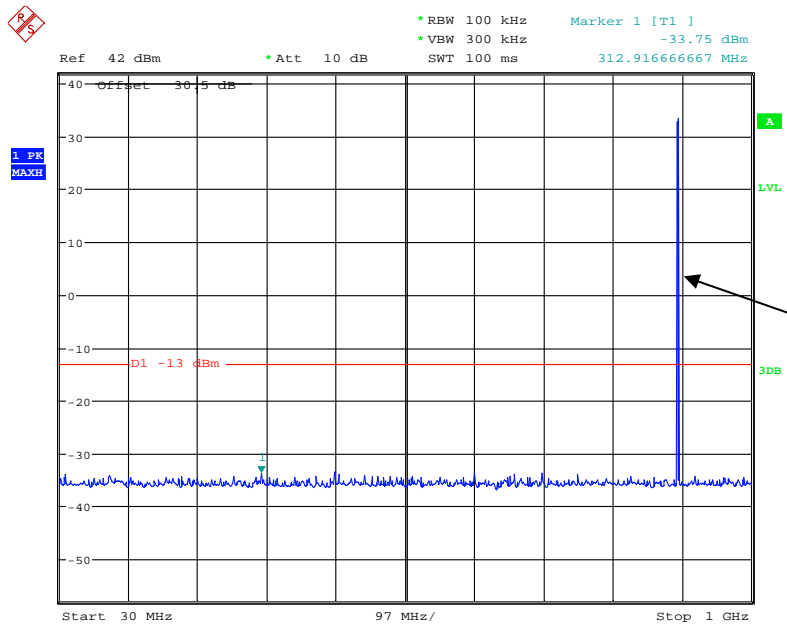
Date: 6.SEP.2017 11:48:47

### 1 GHz – 10 GHz, 868.9875 MHz



Date: 6.SEP.2017 12:05:46

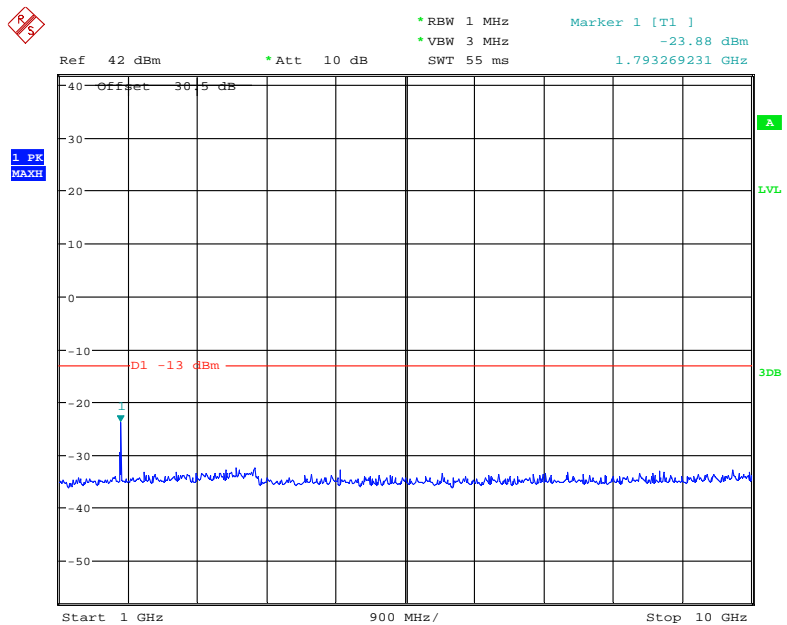
### 30MHz – 1 GHz, 896.0125 MHz



Fund.test with notch filter

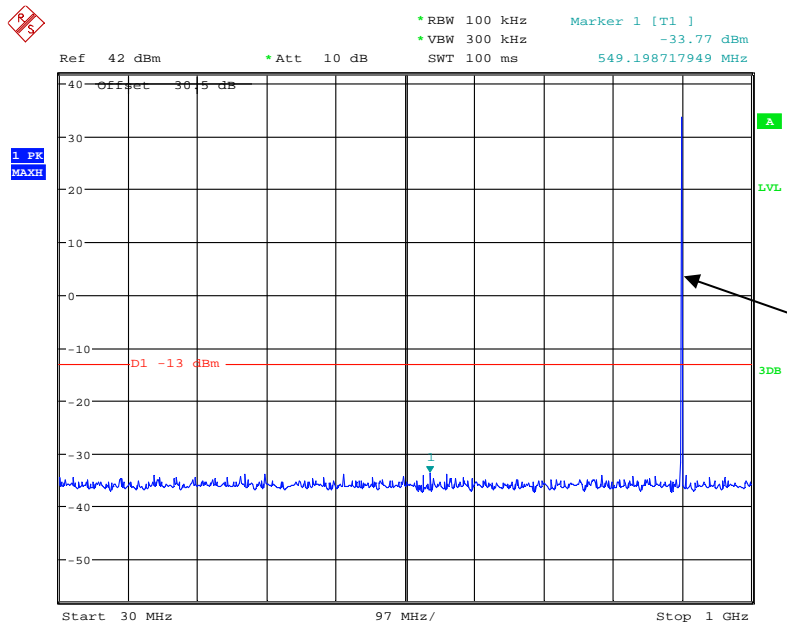
Date: 14.OCT.2017 14:34:17

### 1 GHz – 10 GHz, 896.0125 MHz



Date: 14.OCT.2017 14:44:32

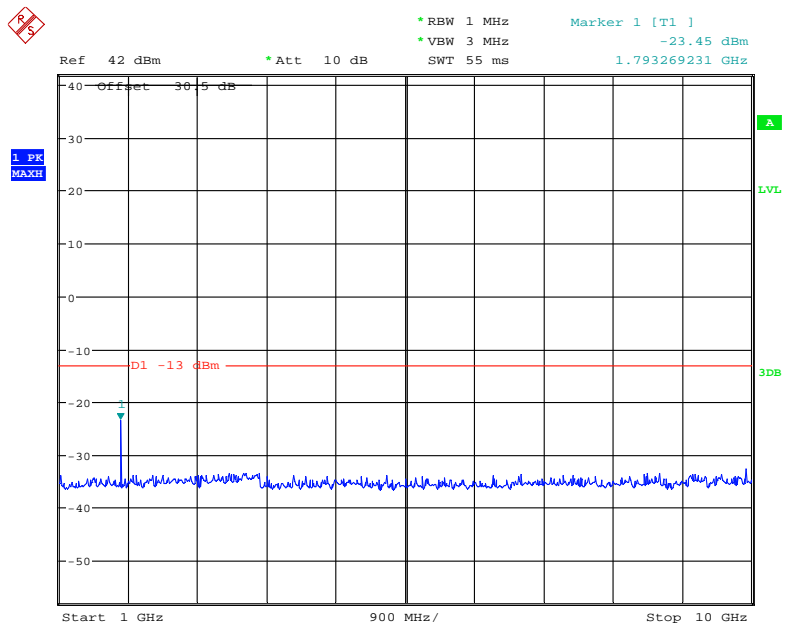
### 30MHz – 1 GHz, 901.0125 MHz



Fund.test with notch filter

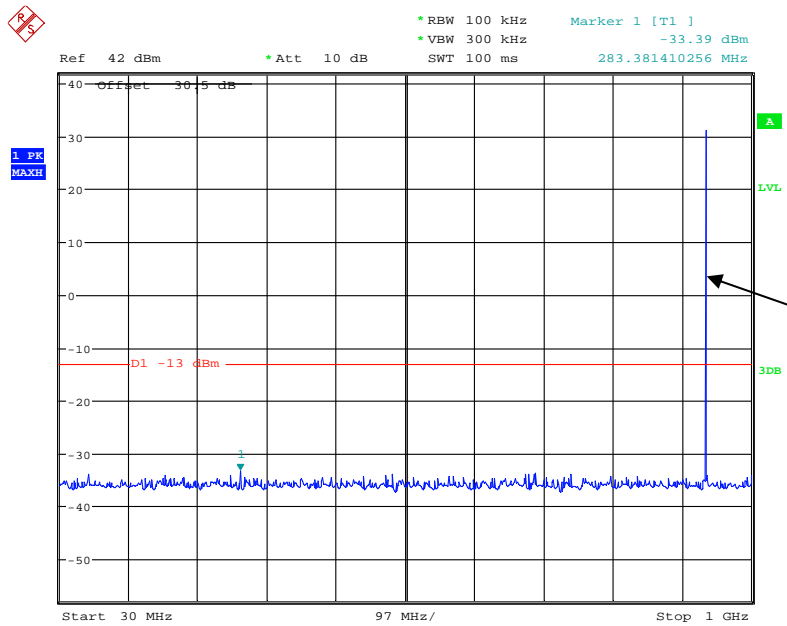
Date: 14.OCT.2017 14:35:01

### 1 GHz – 10 GHz, 901.0125 MHz



Date: 14.OCT.2017 14:44:44

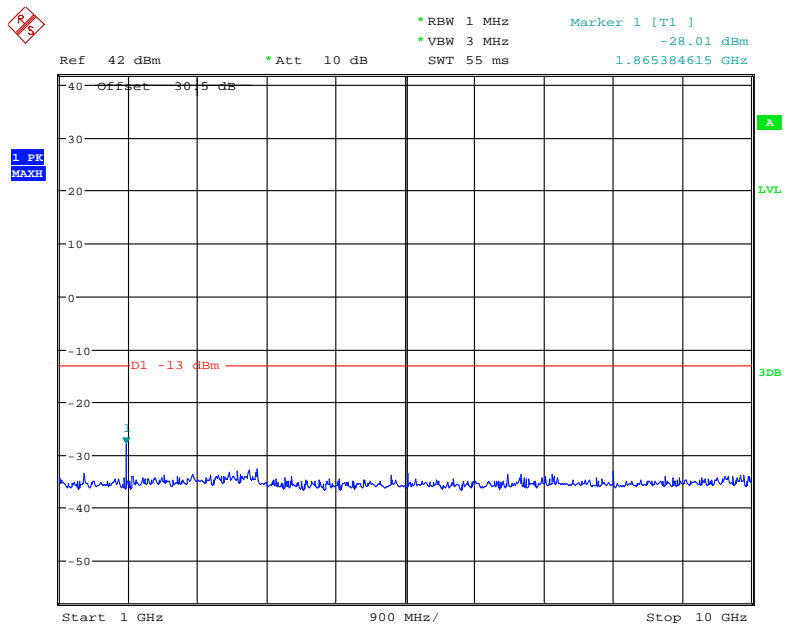
### 30MHz – 1 GHz, 935.0125 MHz



Fund.test with notch filter

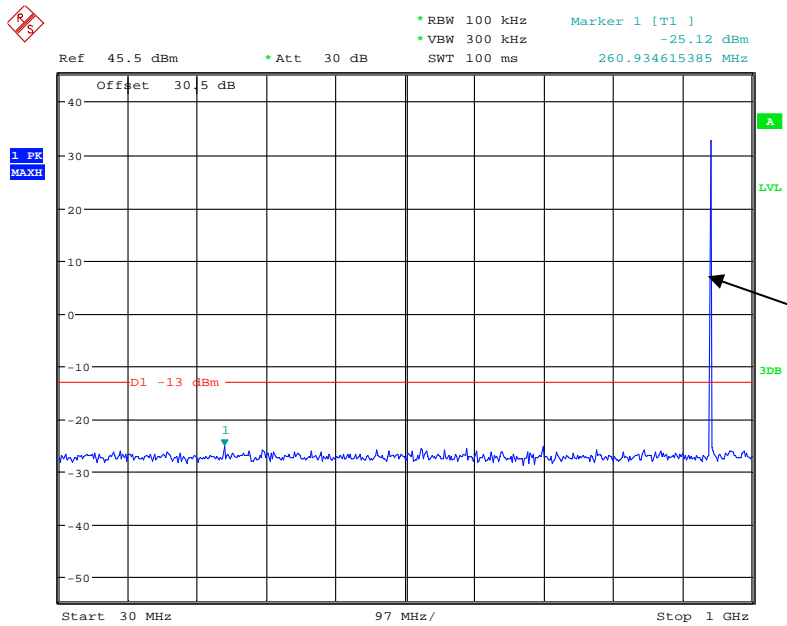
Date: 14.OCT.2017 14:35:44

### 1 GHz – 10 GHz, 935.0125 MHz



Date: 14.OCT.2017 14:45:07

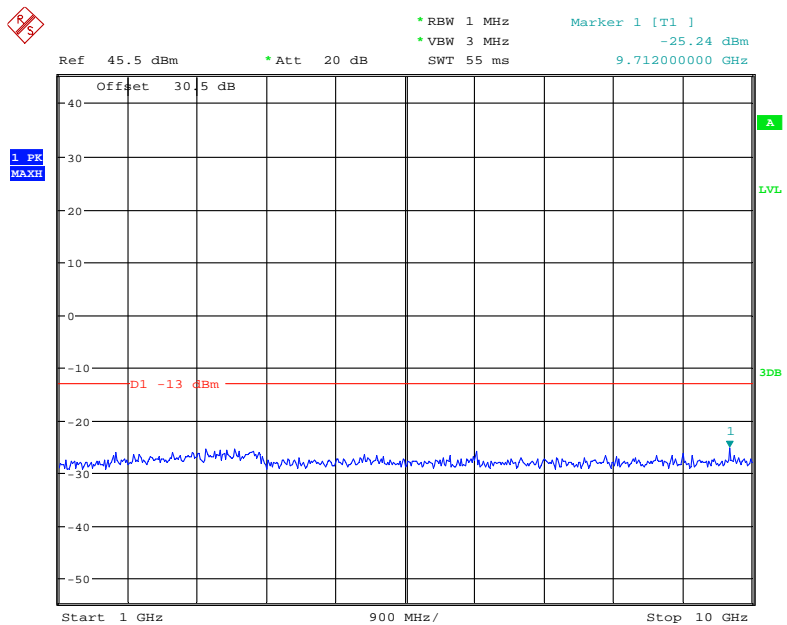
### 30MHz – 1 GHz, 940.9875 MHz



Fund.test with notch filter

Date: 6.SEP.2017 11:49:47

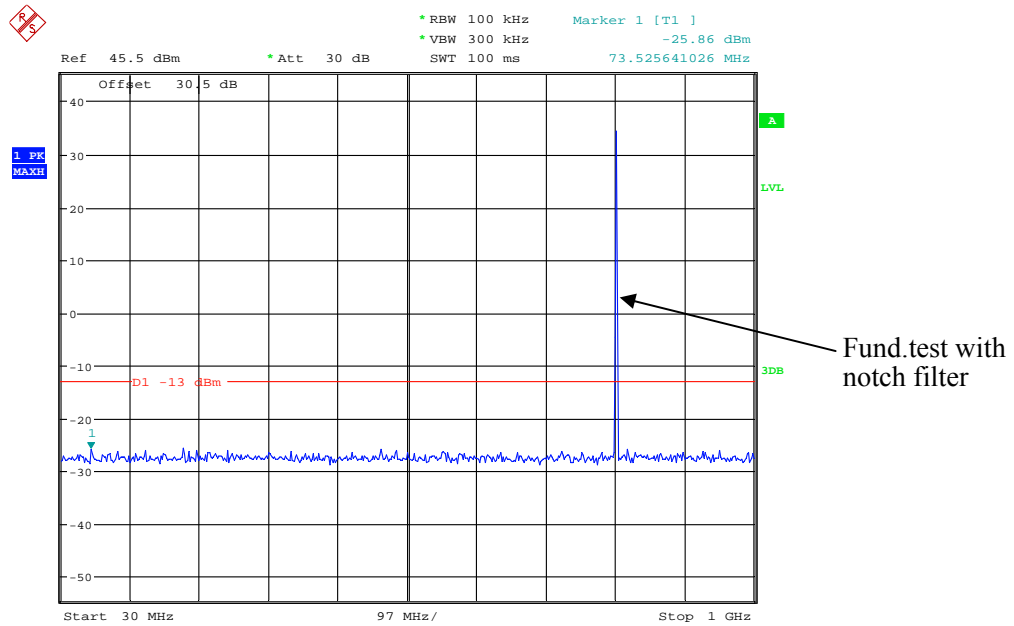
### 1 GHz – 10 GHz, 940.9875 MHz



Date: 6.SEP.2017 12:05:24

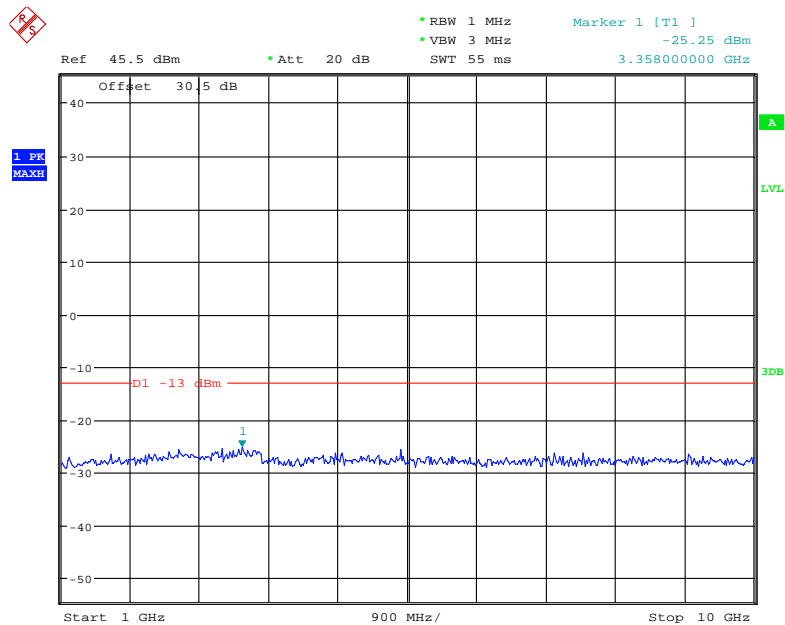
Analog Modulation(25 kHz):

30MHz – 1 GHz, 806.0125 MHz



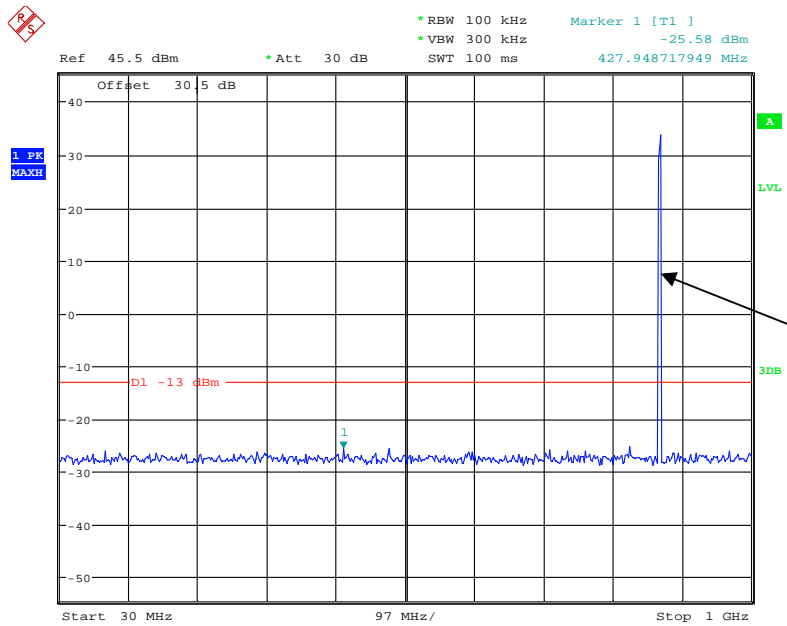
Date: 6.SEP.2017 11:53:03

1 GHz – 10 GHz, 806.0125 MHz



Date: 6.SEP.2017 12:04:54

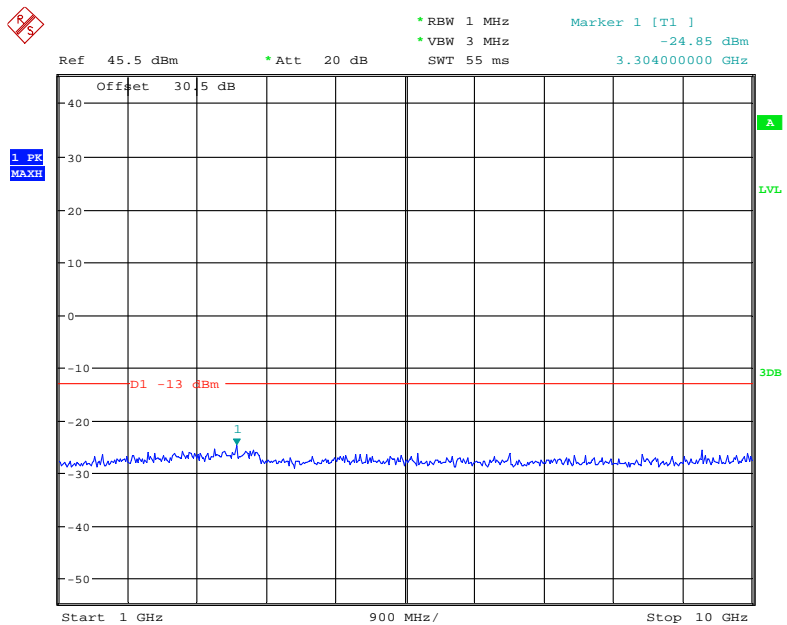
### 30MHz – 1 GHz, 868.9875 MHz



Fund.test with notch filter

Date: 6.SEP.2017 11:53:48

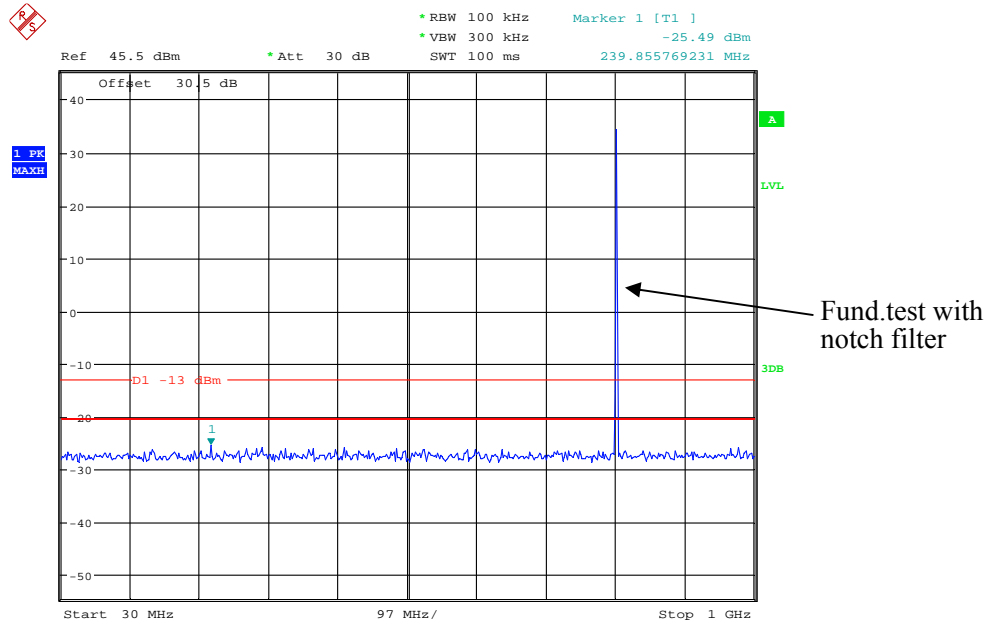
### 1 GHz – 10 GHz, 868.9875 MHz



Date: 6.SEP.2017 12:04:34

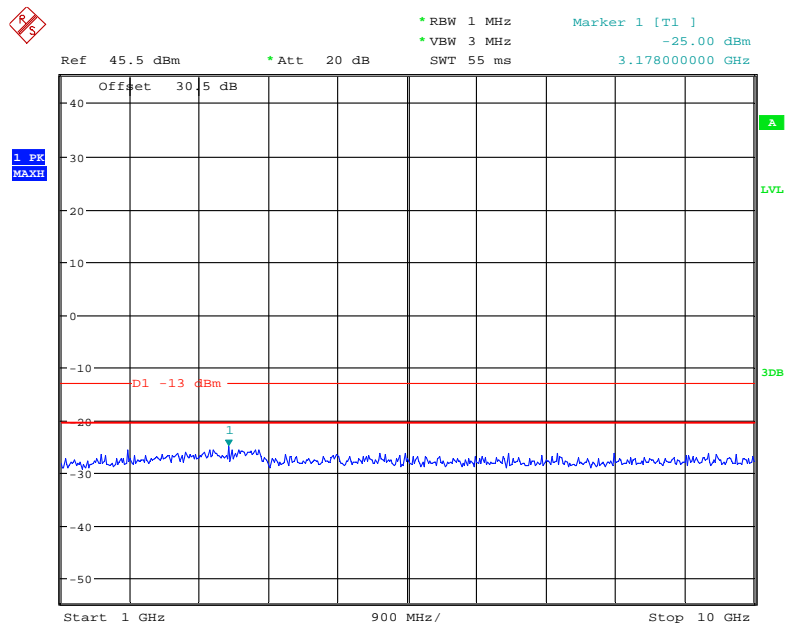
**Digital Modulation(12.5 kHz):**

**30MHz – 1 GHz, 806.0125 MHz**



Date: 6.SEP.2017 11:55:38

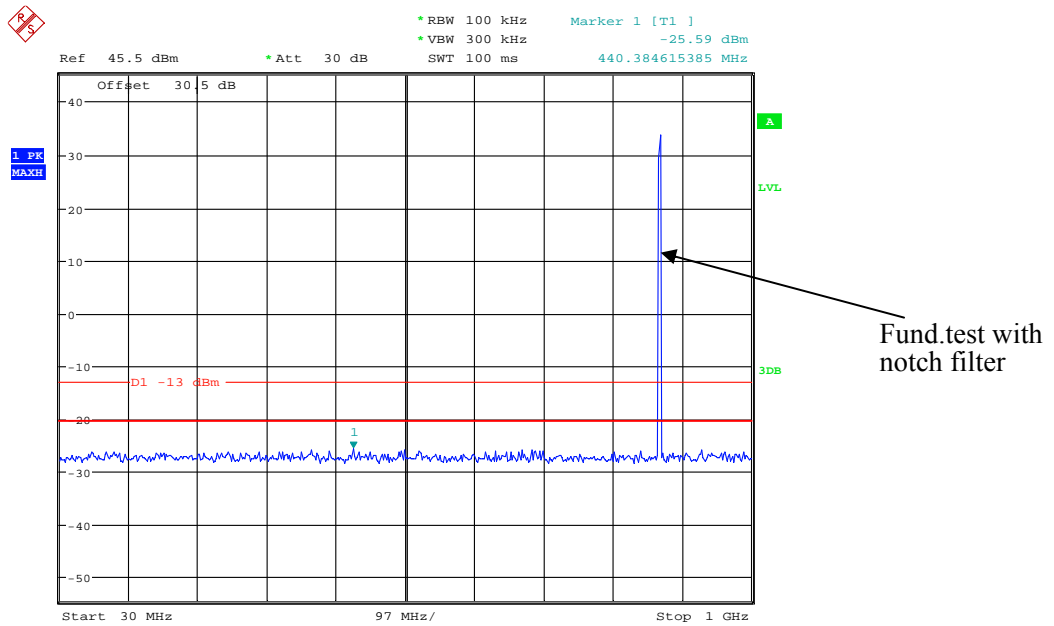
**1 GHz – 10 GHz, 806.0125 MHz**



Date: 6.SEP.2017 12:06:31

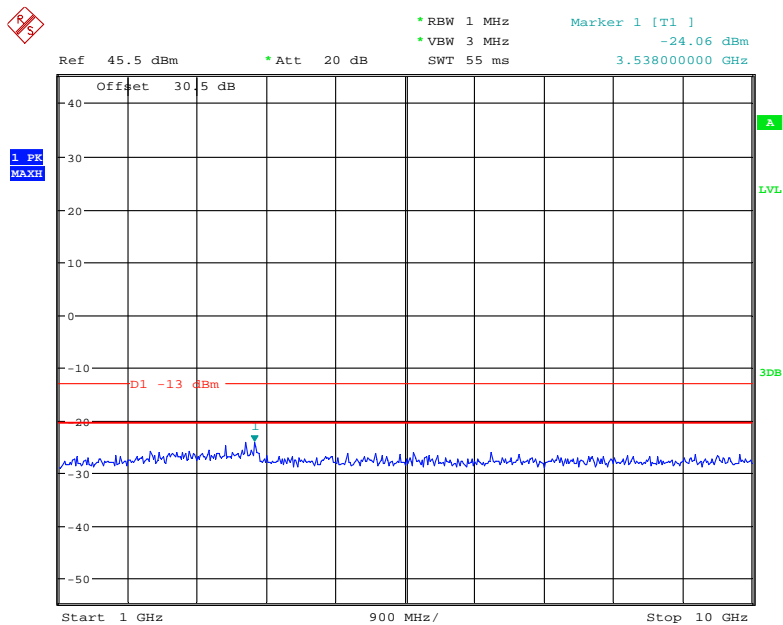


### 30MHz – 1 GHz, 868.9875 MHz



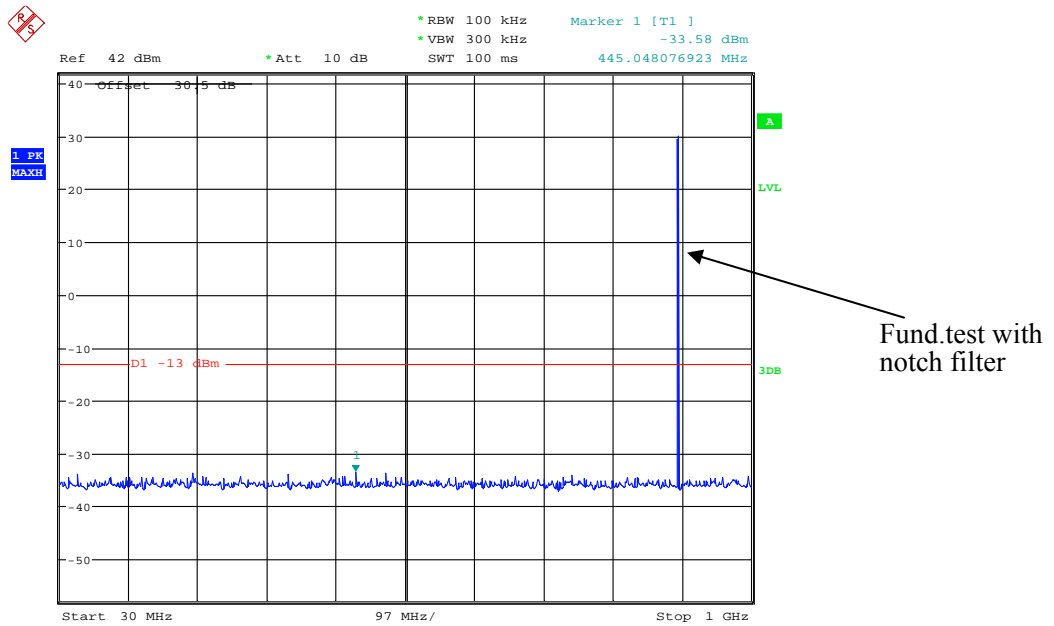
Date: 6.SEP.2017 11:56:28

### 1 GHz – 10 GHz, 868.9875 MHz



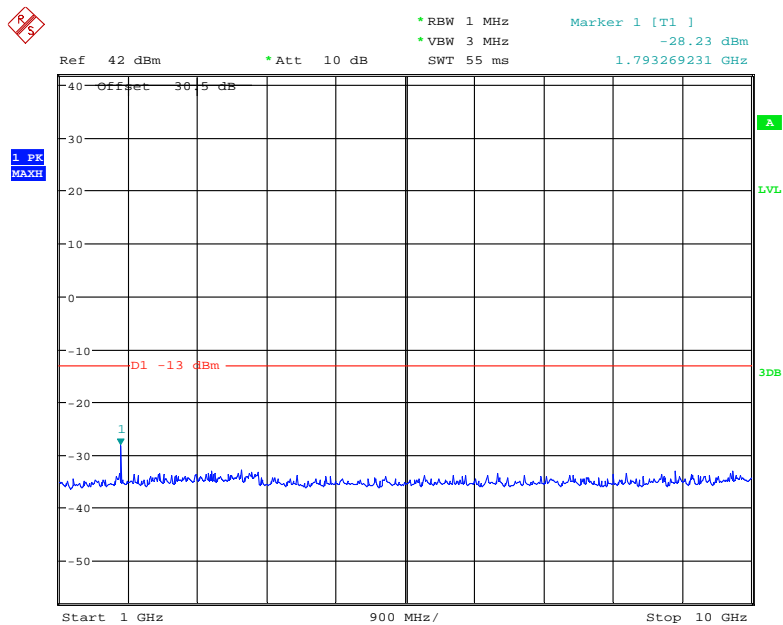
Date: 6.SEP.2017 12:06:57

### 30MHz – 1 GHz, 896.0125 MHz



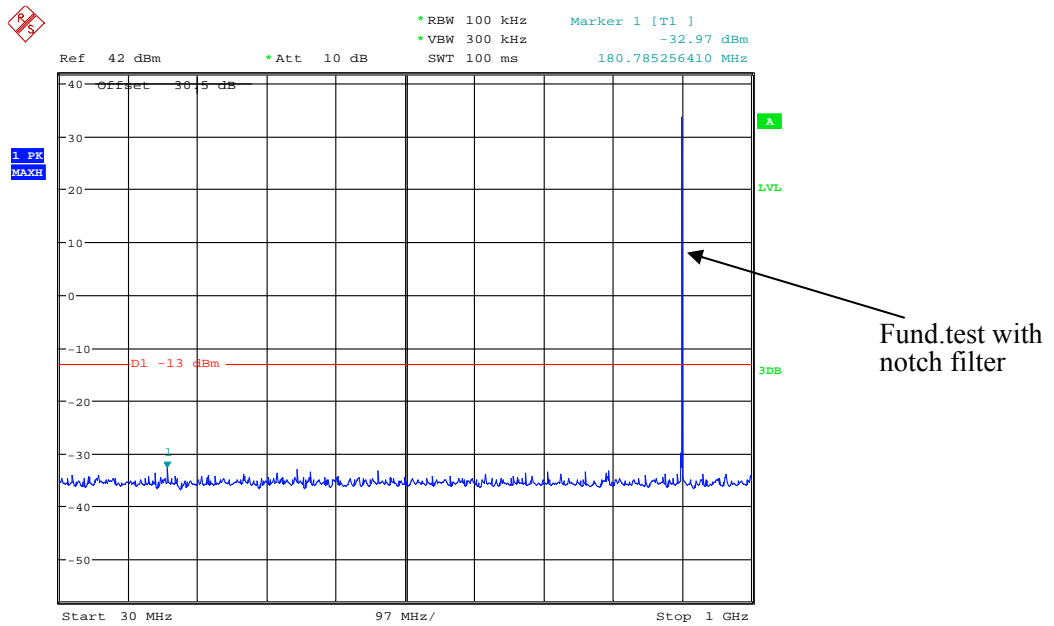
Date: 14.OCT.2017 14:32:06

### 1 GHz – 10 GHz, 896.0125 MHz



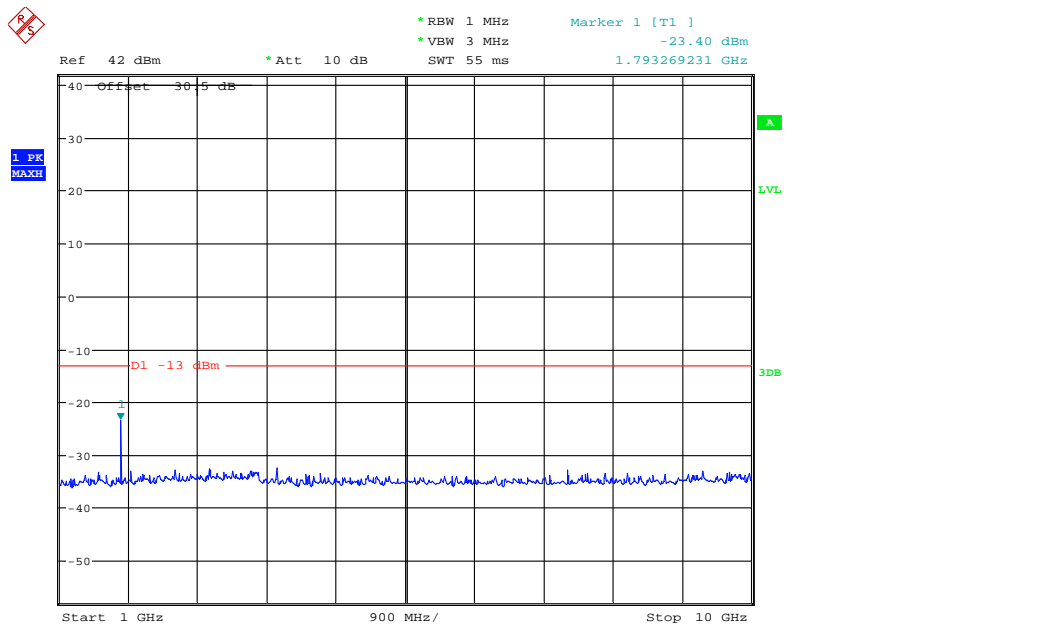
Date: 14.OCT.2017 14:31:15

### 30MHz – 1 GHz, 901.0125 MHz



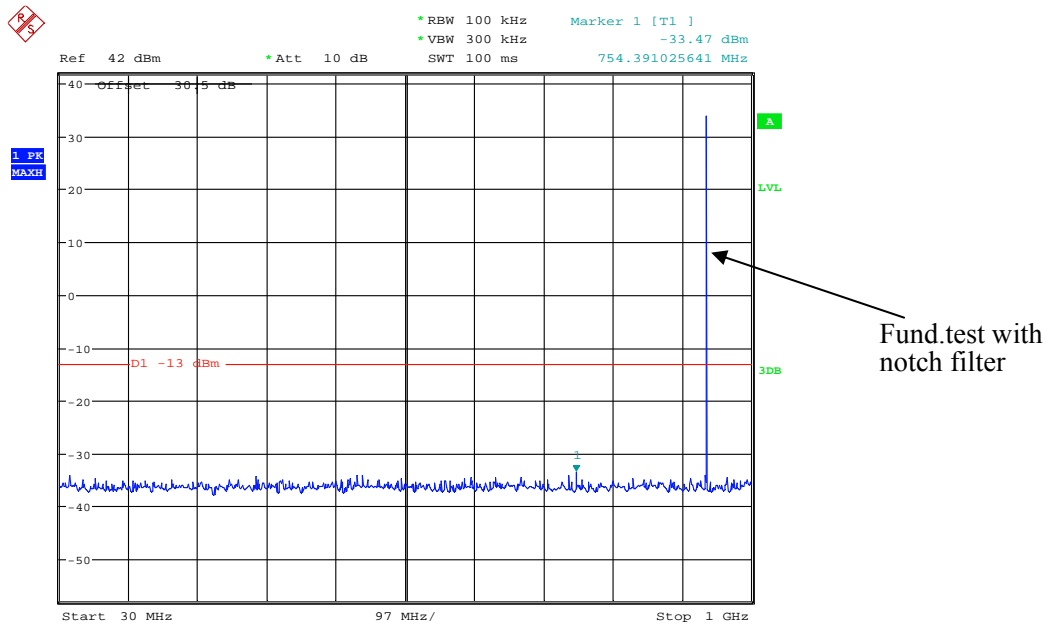
Date: 14.OCT.2017 14:28:58

### 1 GHz – 10 GHz, 901.0125 MHz



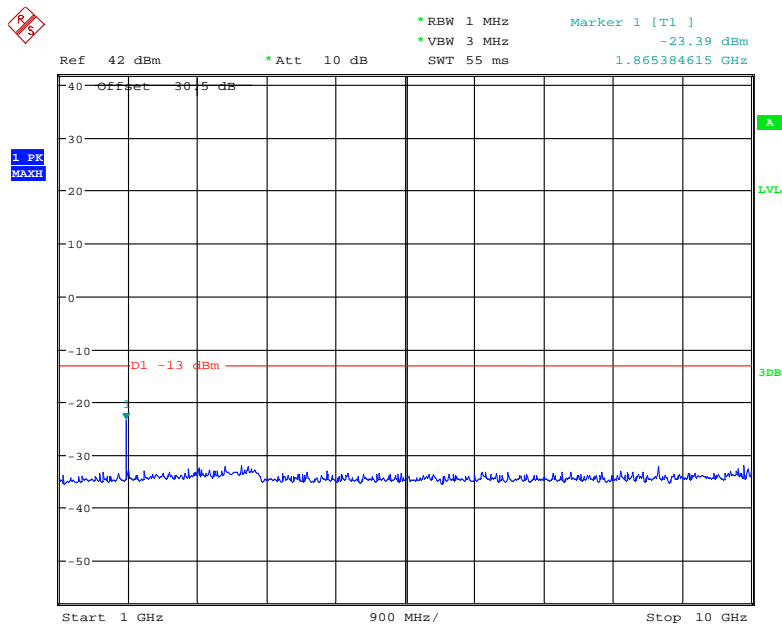
Date: 14.OCT.2017 14:30:00

### 30MHz – 1 GHz, 935.0125 MHz



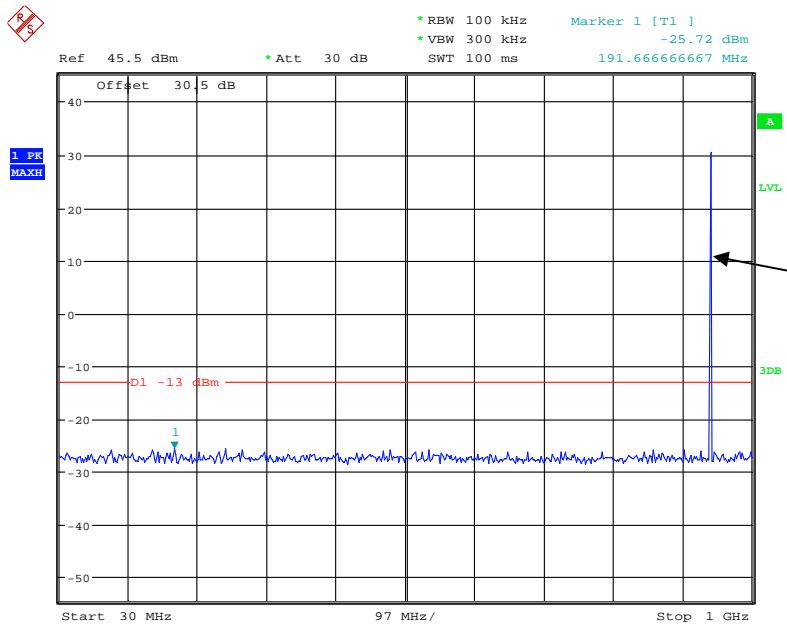
Date: 14.OCT.2017 14:41:46

### 1 GHz – 10 GHz, 935.0125 MHz



Date: 14.OCT.2017 14:42:49

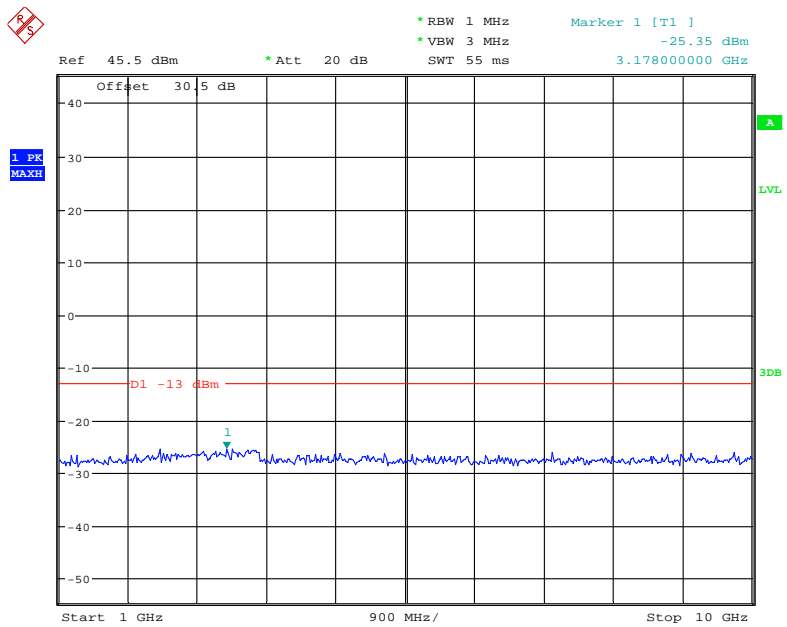
### 30MHz – 1 GHz, 940.9875 MHz



Fund.test with notch filter

Date: 6.SEP.2017 11:57:22

### 1 GHz – 10 GHz, 940.9875 MHz



Date: 6.SEP.2017 12:07:22

## **FCC §2.1053 & § 24.133 & §90.210 - RADIATED SPURIOUS EMISSIONS**

### **Applicable Standard**

FCC §2.1053, § 24.133 and §90.210

### **Test Procedure**

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to teeth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001)-the absolute level

Spurious attenuation limit in dB = 50 + 10 Log<sub>10</sub> (power out in Watts) for EUT with a 12.5 kHz channel bandwidth.

### **Test Data**

#### **Environmental Conditions**

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Xiangguang Kong on 2017-09-16.*

*Test Mode: Transmitting*

**30MHz - 10GHz:**

Frequency (MHz)	Receiver Reading (dBµV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
Analog Modulation 806.0125MHz-12.5 kHz										
440.25	32.80	28	1.3	H	-64.2	0.44	0	-64.64	-20	44.64
440.25	32.84	259	1.8	V	-64.2	0.44	0	-64.64	-20	44.64
1612.03	41.71	107	1.8	H	-66.3	1.40	8.90	-58.80	-20	38.80
1612.03	41.06	154	1.2	V	-66.8	1.40	8.90	-59.30	-20	39.30
2418.04	44.31	244	1.2	H	-60.0	2.30	9.10	-53.20	-20	33.20
2418.04	41.81	304	1.8	V	-61.6	2.30	9.10	-54.80	-20	34.80
Analog Modulation 868.9875MHz-12.5 kHz										
440.25	34.97	222	2.2	H	-62.0	0.44	0	-62.44	-20	42.44
440.25	34.86	159	1.1	V	-62.1	0.44	0	-62.54	-20	42.54
1737.98	41.16	112	1.3	H	-65.9	1.30	9.10	-58.10	-20	38.10
1737.98	49.9	165	2.1	V	-56.6	1.30	9.10	-48.80	-20	28.80
2606.96	42.42	166	1.8	H	-61.3	2.20	9.40	-54.10	-20	34.10
2606.96	43.83	50	1.9	V	-59.5	2.20	9.40	-52.30	-20	32.30
Analog Modulation 896.0125MHz-12.5 kHz										
440.25	34.02	278	1.2	H	-63.0	0.44	0	-63.44	-13	50.44
440.25	33.47	359	1.2	V	-63.5	0.44	0	-63.94	-13	50.94
1792.03	40.49	337	1.9	H	-65.9	1.30	8.50	-58.70	-13	45.70
1792.03	41.02	225	2.5	V	-65.0	1.30	8.50	-57.80	-13	44.80
2688.04	40.99	215	1.9	H	-63.3	2.00	9.60	-55.70	-13	42.70
2688.04	40.73	300	2.2	V	-63.1	2.00	9.60	-55.50	-13	42.50
Analog Modulation 901.0125MHz-12.5 kHz										
440.25	34.51	238	1.5	H	-62.5	0.44	0	-62.94	-13	49.94
440.25	33.30	335	1.2	V	-63.7	0.44	0	-64.14	-13	51.14
1802.03	40.78	323	1.9	H	-65.7	1.30	8.50	-58.50	-13	45.50
1802.03	41.72	172	1.0	V	-64.3	1.30	8.50	-57.10	-13	44.10
2703.04	40.33	161	1.4	H	-63.9	2.00	9.60	-56.30	-13	43.30
2703.04	40.19	356	2.4	V	-63.7	2.00	9.60	-56.10	-13	43.10
Analog Modulation 935.0125MHz-12.5 kHz										
440.25	34.74	32	1.4	H	-62.3	0.44	0	-62.74	-13	49.74
440.25	33.47	306	2.0	V	-63.5	0.44	0	-63.94	-13	50.94
1870.03	40.27	338	1.1	H	-64.2	1.30	8.50	-57.00	-13	44.00
1870.03	41.94	127	1.4	V	-62.7	1.30	8.50	-55.50	-13	42.50
2805.04	40.91	323	1.1	H	-63.5	1.80	9.70	-55.60	-13	42.60
2805.04	41.31	225	1.4	V	-62.7	1.80	9.70	-54.80	-13	41.80

Frequency (MHz)	Receiver Reading (dBµV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
Analog Modulation 940.9875MHz-12.5 kHz										
440.25	33.02	192	1.6	H	-64.0	0.44	0	-64.44	-13	51.44
440.25	33.69	233	2.3	V	-63.3	0.44	0	-63.74	-13	50.74
1881.98	37.44	315	2.4	H	-66.8	1.30	8.50	-59.60	-13	46.60
1881.98	40.23	82	1.6	V	-64.3	1.30	8.50	-57.10	-13	44.10
2822.96	42.79	34	1.6	H	-61.0	1.80	9.70	-53.10	-13	40.10
2822.96	43.57	164	1.5	V	-59.9	1.80	9.70	-52.00	-13	39.00
Analog Modulation 806.0125MHz-25 kHz										
440.25	31.65	185	2.0	H	-65.3	0.44	0	-65.74	-13	52.74
440.25	32.07	15	1.4	V	-64.9	0.44	0	-65.34	-13	52.34
1612.03	41.84	329	2.0	H	-66.2	1.40	8.90	-58.70	-13	45.70
1612.03	42.65	163	1.7	V	-65.2	1.40	8.90	-57.70	-13	44.70
2418.04	41.97	109	1.5	H	-62.4	2.30	9.10	-55.60	-13	42.60
2418.04	43.28	241	2.4	V	-60.1	2.30	9.10	-53.30	-13	40.30
Analog Modulation 868.9875MHz-25 kHz										
440.25	32.97	260	2.4	H	-64.0	0.44	0	-64.44	-13	51.44
440.25	33.95	295	2.0	V	-63.0	0.44	0	-63.44	-13	50.44
1737.98	40.64	43	2.4	H	-66.4	1.30	9.10	-58.60	-13	45.60
1737.98	41.57	46	2.0	V	-64.9	1.30	9.10	-57.10	-13	44.10
2606.96	42.76	271	1.1	H	-60.9	2.20	9.40	-53.70	-13	40.70
2606.96	42.83	205	1.5	V	-60.5	2.20	9.40	-53.30	-13	40.30
Digital Modulation 806.0125MHz-12.5 kHz										
440.25	33.93	27	1.7	H	-63.1	0.44	0	-63.54	-20	43.54
440.25	34.56	185	1.4	V	-62.4	0.44	0	-62.84	-20	42.84
1739.98	42.45	320	1.4	H	-64.6	1.30	9.10	-56.80	-20	36.80
1739.98	43.17	248	1.8	V	-63.3	1.30	9.10	-55.50	-20	35.50
2609.96	43.65	318	2.5	H	-60.1	2.20	9.40	-52.90	-20	32.90
2609.96	43.62	221	1.1	V	-59.7	2.20	9.40	-52.50	-20	32.50
Digital Modulation 868.9875MHz-12.5 kHz										
440.25	32.20	173	1.9	H	-64.8	0.44	0	-65.24	-20	45.24
440.25	33.23	276	2.1	V	-63.8	0.44	0	-64.24	-20	44.24
1737.98	42.45	320	1.4	H	-64.6	1.30	9.10	-56.80	-20	36.80
1737.98	43.17	248	1.8	V	-63.3	1.30	9.10	-55.50	-20	35.50
2606.96	43.65	318	2.5	H	-60.1	2.20	9.40	-52.90	-20	32.90
2606.96	43.62	221	1.1	V	-59.7	2.20	9.40	-52.50	-20	32.50



Frequency (MHz)	Receiver Reading (dBµV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
Digital Modulation 896.0125MHz-12.5 kHz										
440.25	34.50	261	1.3	H	-62.5	0.44	0	-62.94	-13	49.94
440.25	33.91	122	2.3	V	-63.1	0.44	0	-63.54	-13	50.54
1792.03	40.12	210	1.7	V	-66.8	1.60	11.10	-57.30	-13	44.30
1792.03	40.79	45	1.8	H	-66.3	1.30	8.50	-59.10	-13	46.10
2688.04	40.97	156	2.2	V	-65.3	1.30	8.50	-58.10	-13	45.10
2688.04	41.67	356	2.2	H	-63.3	2.00	9.60	-55.70	-13	42.70
Digital Modulation 901.0125MHz-12.5 kHz										
440.25	34.36	36	2.0	H	-62.6	0.44	0	-63.04	-13	50.04
440.25	33.34	77	2.2	V	-63.7	0.44	0	-64.14	-13	51.14
1802.03	40.14	329	1.2	H	-66.3	1.30	8.50	-59.10	-13	46.10
1802.03	41.68	131	1.0	V	-64.4	1.30	8.50	-57.20	-13	44.20
2703.04	40.45	213	1.5	H	-63.8	2.00	9.60	-56.20	-13	43.20
2703.04	41.29	265	2.2	V	-62.6	2.00	9.60	-55.00	-13	42.00
Digital Modulation 935.0125MHz-12.5 kHz										
440.25	34.56	48	1.5	H	-62.4	0.44	0	-62.84	-13	49.84
440.25	33.28	82	1.4	V	-63.7	0.44	0	-64.14	-13	51.14
1870.03	41.28	173	1.0	H	-63.2	1.30	8.50	-56.00	-13	43.00
1870.03	41.51	276	1.0	V	-63.2	1.30	8.50	-56.00	-13	43.00
2805.04	40.73	326	1.4	H	-63.6	1.80	9.70	-55.70	-13	42.70
2805.04	40.99	214	1.5	V	-63.0	1.80	9.70	-55.10	-13	42.10
Digital Modulation 940.9875MHz-12.5 kHz										
440.25	33.74	19	1.2	H	-63.3	0.44	0	-63.74	-13	50.74
440.25	32.96	304	1.9	V	-64.0	0.44	0	-64.44	-13	51.44
1881.98	37.64	72	1.7	H	-66.6	1.30	8.50	-59.40	-13	46.40
1881.98	43.69	181	2.0	V	-60.8	1.30	8.50	-53.60	-13	40.60
2822.96	41.4	120	1.7	H	-62.4	1.80	9.70	-54.50	-13	41.50
2822.96	42.44	91	1.8	V	-61.0	1.80	9.70	-53.10	-13	40.10

**Note:**  
 Absolute Level = Substituted Level - Cable loss + Antenna Gain  
 Margin = Limit- Absolute Level

**FCC §2.1055 & § 24.135 & §90.213 - FREQUENCY STABILITY****Applicable Standard**

FCC §2.1055, § 24.135 and §90.213

**Test Procedure**

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to a frequency counter via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the counter.

**Test Data****Environmental Conditions**

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Xiangguang Kong on 2017-09-06.*

*Test Mode: Transmitting*

For 12.5 kHz:

<b>Analog Modulation, Reference Frequency: 806.0125 MHz, Limit: ±1.5 ppm</b>			
<b>Test Environment</b>		<b>Frequency Measure with Time Elapsed</b>	
<b>Temperature (°C)</b>	<b>Voltage Supplied (V<sub>DC</sub>)</b>	<b>Measured Frequency (MHz)</b>	<b>Frequency Error (ppm)</b>
Frequency Stability versus Input Temperature			
50	7.4	806.012497	-0.0037
40	7.4	806.012495	-0.0062
30	7.4	806.012497	-0.0037
20	7.4	806.012492	-0.0099
10	7.4	806.012495	-0.0062
0	7.4	806.012498	-0.0025
-10	7.4	806.012493	-0.0087
-20	7.4	806.012497	-0.0037
-30	7.4	806.012497	-0.0037
Frequency Stability versus Input Voltage			
20	6.4	806.012495	-0.0062

<b>Analog Modulation, Reference Frequency: 868.9875 MHz, Limit: ±2.5 ppm</b>			
<b>Test Environment</b>		<b>Frequency Measure with Time Elapsed</b>	
<b>Temperature (°C)</b>	<b>Voltage Supplied (V<sub>DC</sub>)</b>	<b>Measured Frequency (MHz)</b>	<b>Frequency Error (ppm)</b>
Frequency Stability versus Input Temperature			
50	7.4	868.987217	-0.3257
40	7.4	868.987451	-0.0564
30	7.4	868.987473	-0.0311
20	7.4	868.987352	-0.1703
10	7.4	868.987398	-0.1174
0	7.4	868.987385	-0.1323
-10	7.4	868.987271	-0.2635
-20	7.4	868.987399	-0.1162
-30	7.4	868.987292	-0.2394
Frequency Stability versus Input Voltage			
20	6.4	868.987271	-0.2635

<b>Analog Modulation, Reference Frequency: 940.9875 MHz, Limit: ±1.0 ppm</b>			
<b>Test Environment</b>		<b>Frequency Measure with Time Elapsed</b>	
<b>Temperature (°C)</b>	<b>Voltage Supplied (V<sub>DC</sub>)</b>	<b>Measured Frequency (MHz)</b>	<b>Frequency Error (ppm)</b>
Frequency Stability versus Input Temperature			
50	7.4	940.987472	-0.0298
40	7.4	940.987477	-0.0244
30	7.4	940.987475	-0.0266
20	7.4	940.987398	-0.1084
10	7.4	940.987473	-0.0287
0	7.4	940.987469	-0.0329
-10	7.4	940.987448	-0.0553
-20	7.4	940.987492	-0.0085
-30	7.4	940.987379	-0.1286
Frequency Stability versus Input Voltage			
20	6.4	940.987469	-0.0329

<b>Digital Modulation, Reference Frequency: 806.0125 MHz, Limit: ±1.5 ppm</b>			
<b>Test Environment</b>		<b>Frequency Measure with Time Elapsed</b>	
<b>Temperature (°C)</b>	<b>Voltage Supplied (V<sub>DC</sub>)</b>	<b>Measured Frequency (MHz)</b>	<b>Frequency Error (ppm)</b>
Frequency Stability versus Input Temperature			
50	7.4	806.012487	-0.0161
40	7.4	806.012428	-0.0893
30	7.4	806.012467	-0.0409
20	7.4	806.012457	-0.0533
10	7.4	806.012475	-0.0310
0	7.4	806.012477	-0.0285
-10	7.4	806.012476	-0.0298
-20	7.4	806.012479	-0.0261
-30	7.4	806.012468	-0.0397
Frequency Stability versus Input Voltage			
20	6.40	806.012428	-0.0893

<b>Digital Modulation, Reference Frequency: 868.9875 MHz, Limit: ±2.5 ppm</b>			
<b>Test Environment</b>		<b>Frequency Measure with Time Elapsed</b>	
<b>Temperature (°C)</b>	<b>Voltage Supplied (V<sub>DC</sub>)</b>	<b>Measured Frequency (MHz)</b>	<b>Frequency Error (ppm)</b>
Frequency Stability versus Input Temperature			
50	7.40	868.987465	-0.0403
40	7.40	868.987451	-0.0564
30	7.40	868.987439	-0.0702
20	7.40	868.987438	-0.0713
10	7.40	868.987482	-0.0207
0	7.40	868.987469	-0.0357
-10	7.40	868.987476	-0.0276
-20	7.40	868.987489	-0.0127
-30	7.40	868.987472	-0.0322
Frequency Stability versus Input Voltage			
20	6.40	868.987439	-0.0702

<b>Digital Modulation, Reference Frequency: 940.9875 MHz, Limit: ±1.0 ppm</b>			
<b>Test Environment</b>		<b>Frequency Measure with Time Elapsed</b>	
<b>Temperature (°C)</b>	<b>Voltage Supplied (V<sub>DC</sub>)</b>	<b>Measured Frequency (MHz)</b>	<b>Frequency Error (ppm)</b>
Frequency Stability versus Input Temperature			
50	7.40	940.987436	-0.0680
40	7.40	940.987459	-0.0436
30	7.40	940.987457	-0.0457
20	7.40	940.987368	-0.1403
10	7.40	940.987449	-0.0542
0	7.40	940.987468	-0.0340
-10	7.40	940.987475	-0.0266
-20	7.40	940.987465	-0.0372
-30	7.40	940.987356	-0.1530
Frequency Stability versus Input Voltage			
20	6.40	940.987457	-0.0457

For 25 kHz:

<b>Analog Modulation, Reference Frequency: 806.0125 MHz, Limit: ±1.5 ppm</b>			
<b>Test Environment</b>		<b>Frequency Measure with Time Elapsed</b>	
<b>Temperature (°C)</b>	<b>Voltage Supplied (V<sub>DC</sub>)</b>	<b>Measured Frequency (MHz)</b>	<b>Frequency Error (ppm)</b>
Frequency Stability versus Input Temperature			
50	7.4	806.012448	-0.0645
40	7.4	806.012446	-0.0670
30	7.4	806.012442	-0.0720
20	7.4	806.012446	-0.0670
10	7.4	806.012448	-0.0645
0	7.4	806.012449	-0.0633
-10	7.4	806.012446	-0.0670
-20	7.4	806.012441	-0.0732
-30	7.4	806.012435	-0.0806
Frequency Stability versus Input Voltage			
20	6.4	806.012436	-0.0794

<b>Analog Modulation, Reference Frequency: 869.9875 MHz, Limit: ±2.5 ppm</b>			
<b>Test Environment</b>		<b>Frequency Measure with Time Elapsed</b>	
<b>Temperature (°C)</b>	<b>Voltage Supplied (V<sub>DC</sub>)</b>	<b>Measured Frequency (MHz)</b>	<b>Frequency Error (ppm)</b>
Frequency Stability versus Input Temperature			
50	7.4	869.987234	-0.3058
40	7.4	869.987338	-0.1862
30	7.4	869.987423	-0.0885
20	7.4	869.987322	-0.2046
10	7.4	869.987349	-0.1736
0	7.4	869.987342	-0.1816
-10	7.4	869.987236	-0.3035
-20	7.4	869.987345	-0.1782
-30	7.4	869.987246	-0.2920
Frequency Stability versus Input Voltage			
20	6.4	869.987365	-0.1552

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