



FCC PART 22, 74 and 80

TEST REPORT

For

Hytera Communications Corporation Limited

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

FCC ID: YAMPD98XVHF

Report Type: Class II Permissive Change	Product Type: Digital Portable Radio
Report Number: RDG170907015-00A1	
Report Date: 2017-09-25	
Reviewed By: RF Engineer	Rocky Kang <i>Rocky Kang</i>
Prepared By: Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn	

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

Product Description for Equipment under Test (EUT)

The *Hytera Communications Corporation Limited*'s product, model number: *PD982 VHF* (FCC ID: *YAMPD98XVHF*) or the "EUT" in this report was a *Digital Portable Radio*, which was measured approximately: 142mm (L) x63mm (W) x38mm (H), rated input voltage: DC 7.2V rechargeable Li-ion battery or DC 12.0V charging from adapter.

Adapter Information:

Model: HKA01212010-XQ

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

Output: DC 12V, 1.0A

** All measurement and test data in this report was gathered from production sample serial number: 170907015 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2017-09-07.*

Objective

This test report is prepared on behalf of *Hytera Communications Corporation Limited* in accordance with Part 2, and Part 22,74,80 of the Federal Communication Commissions rules.

This is a CIIPC application of the device; the differences between the original device and the current one are as follows:

- (1) Adding standars FCC Part 74, 80.
- (2) Changing the model number to PD982 VHF.

Related Submittal(s)/Grant(s)

No Related Submittal(s)/Grant(s).

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 22 – Public Mobile Service

Part 74 – Experimental Radio, Auxiliary, Special Broadcast and other Program Distributonal Service

Part 80 – Stantions in the Maritime 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	$\pm 5\%$
RF output power, conducted	$\pm 1.5\text{dB}$
Unwanted Emission, conducted	$\pm 1.5\text{dB}$
All emissions, radiated	$\pm 4.88\text{dB}$
Temperature	$\pm 1^\circ\text{C}$
Supply voltages	$\pm 0.4\%$

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

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.

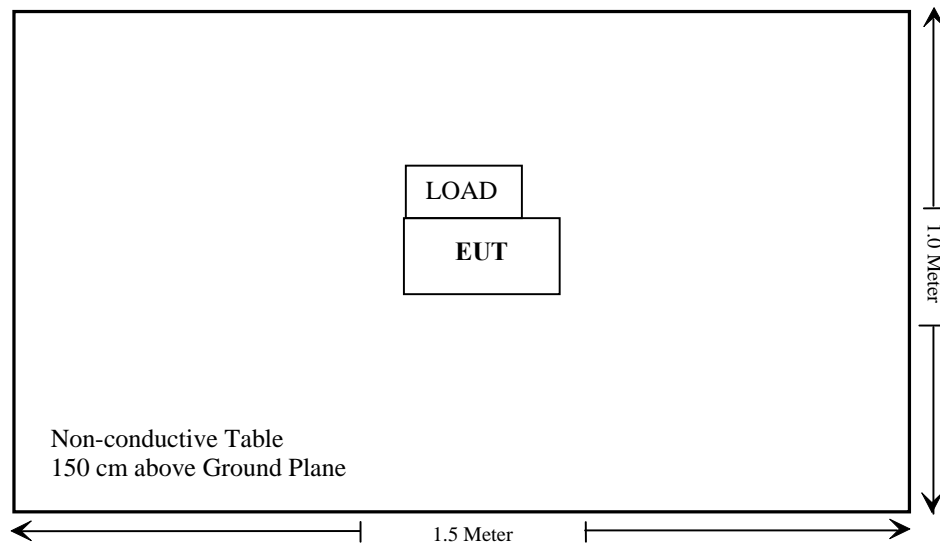
Support Equipment List and Details

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

FCC Rules	Description of Test	Results
FCC §1.1307(b) & §2.1093	Rf Exposure	Compliance
§2.1046; § 22.727; §74.461; § 80.215;	RF Output Power	Compliance
§2.1047; §74.463; §80.213	Modulation Characteristic	Compliance
§2.1049;§22.357;§ 22.731; §74.462; § 80.205; § 80.207	Occupied Bandwidth & Emission Mask	Compliance
§2.1051; §22.861; §74.462; § 80.211	Spurious Emission at Antenna Terminal	Compliance
§2.1053; §22.861; §74.462; § 80.211	Spurious Radiated Emissions	Compliance
§2.1055; § 22.355; §74.464; § 80.209	Frequency Stability	Compliance

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
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
RF Conducted Test					
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
HP Agilent	RF Communication Test Set	HP8920	3325U00859	2017-05-07	2018-05-07
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).

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

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: RDG170907015-20A1.

FCC §2.1046 & § 22.727 & §74.461 & §80.215 - RF OUTPUT POWER**Applicable Standard**

FCC §2.1046, § 22.727, §74.461, § 80.215.

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**

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Simon Wang on 2017-09-16.

Test Mode: Transmitting

Test Result: Compliance. Please refer to following table.

Modulation	Channel Separation (kHz)	Frequency (MHz)	Power	Conducted Output Power (dBm)	Conducted Output Power (W)	Note
Analog	12.5	151.0125	High	37.34	5.42	Part 22
			Low	30.11	1.03	
		153.0125	High	37.35	5.43	Part 74
			Low	30.12	1.03	
	25	151.0125	High	37.28	5.35	Part 22
			Low	30.06	1.01	
		153.0125	High	37.34	5.42	Part 74
			Low	30.09	1.02	
		155.7525	High	37.42	5.52	Part 80
			Low	30.40	1.10	

Modulation	Channel Separation (kHz)	Frequency (MHz)	Power	Conducted Output Power (dBm)	Conducted Output Power (W)	Note
Digital	12.5	151.0125	High	37.30	5.37	Part 22
			Low	30.09	1.02	
		153.0125	High	37.35	5.43	Part 74
			Low	30.11	1.03	

Note: Rated high power is 5W, Rated low power is 1W.

FCC §2.1047 & §74.463 & §80.213 - MODULATION CHARACTERISTIC**Applicable Standard**

FCC§2.1047, §74.463, §80.213:

- (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**

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Simon Wang on 2017-09-16.

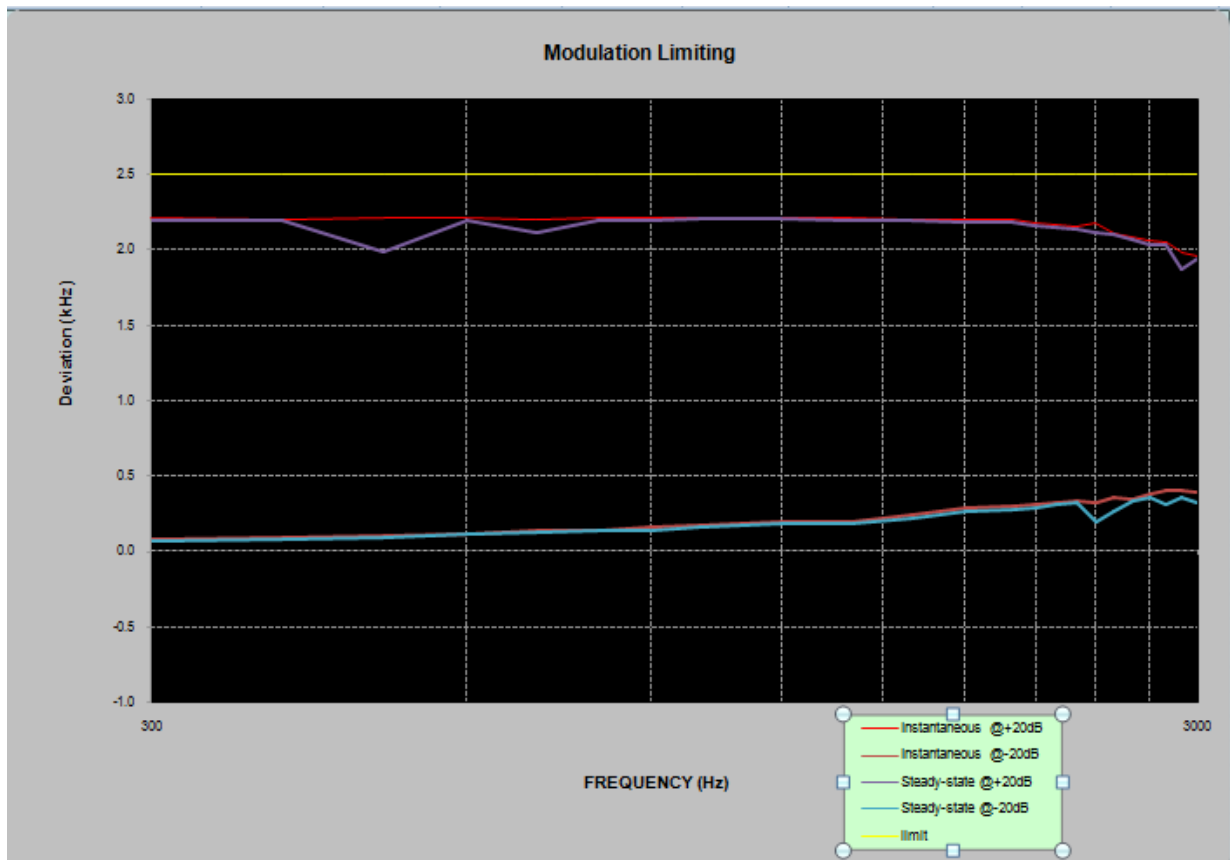
Test Mode: Transmitting

Result: Compliance.

Analog Modulation:**MODULATION LIMITING**

Carrier Frequency: 151.0125 MHz, Channel Separation=12.5 kHz

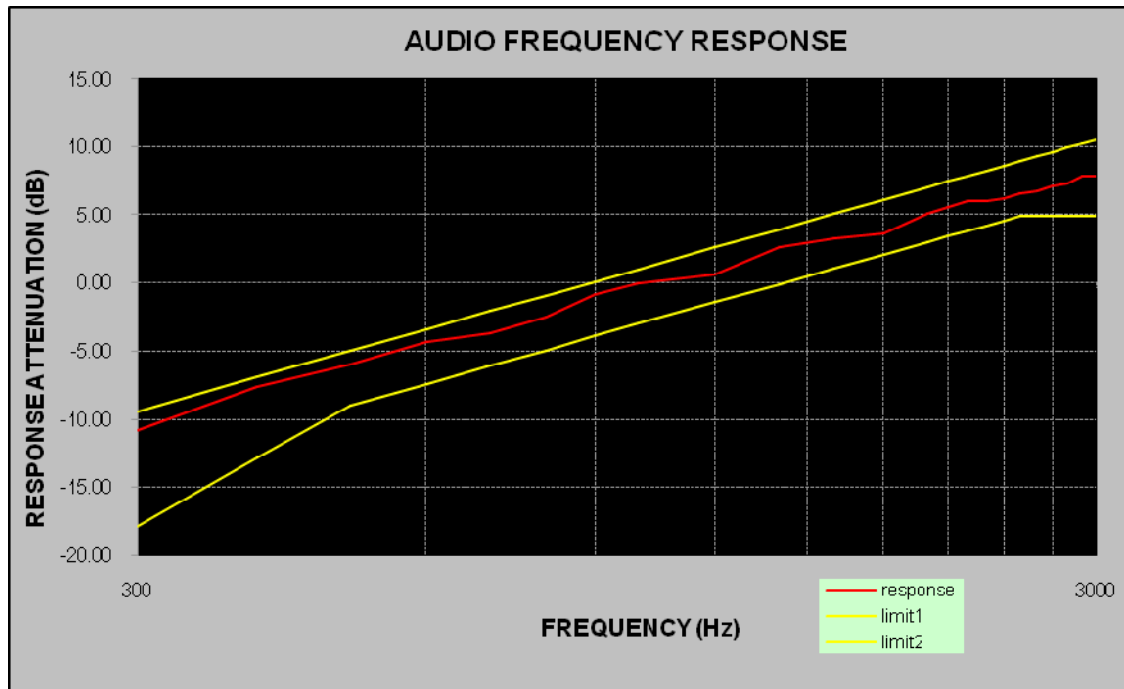
Audio Frequency (Hz)	Instantaneous		Steady-state		FCC Limit [kHz]
	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	
300	2.205	0.073	2.193	0.064	2.5
400	2.202	0.082	2.193	0.073	2.5
500	2.205	0.100	1.987	0.089	2.5
600	2.207	0.115	2.193	0.108	2.5
700	2.199	0.131	2.108	0.124	2.5
800	2.204	0.137	2.193	0.129	2.5
900	2.207	0.153	2.187	0.134	2.5
1000	2.208	0.173	2.199	0.156	2.5
1200	2.212	0.193	2.206	0.178	2.5
1400	2.203	0.189	2.189	0.175	2.5
1600	2.198	0.235	2.188	0.214	2.5
1800	2.198	0.279	2.176	0.256	2.5
2000	2.197	0.294	2.182	0.274	2.5
2100	2.170	0.307	2.159	0.287	2.5
2200	2.158	0.324	2.146	0.304	2.5
2300	2.147	0.327	2.131	0.315	2.5
2400	2.171	0.315	2.108	0.189	2.5
2500	2.106	0.348	2.097	0.256	2.5
2600	2.078	0.345	2.064	0.327	2.5
2700	2.053	0.377	2.031	0.354	2.5
2800	2.042	0.395	2.032	0.311	2.5
2900	1.974	0.398	1.865	0.357	2.5
3000	1.960	0.390	1.941	0.324	2.5



Audio Frequency Response

Carrier Frequency: 151.0125 MHz, Channel Separation=12.5 kHz

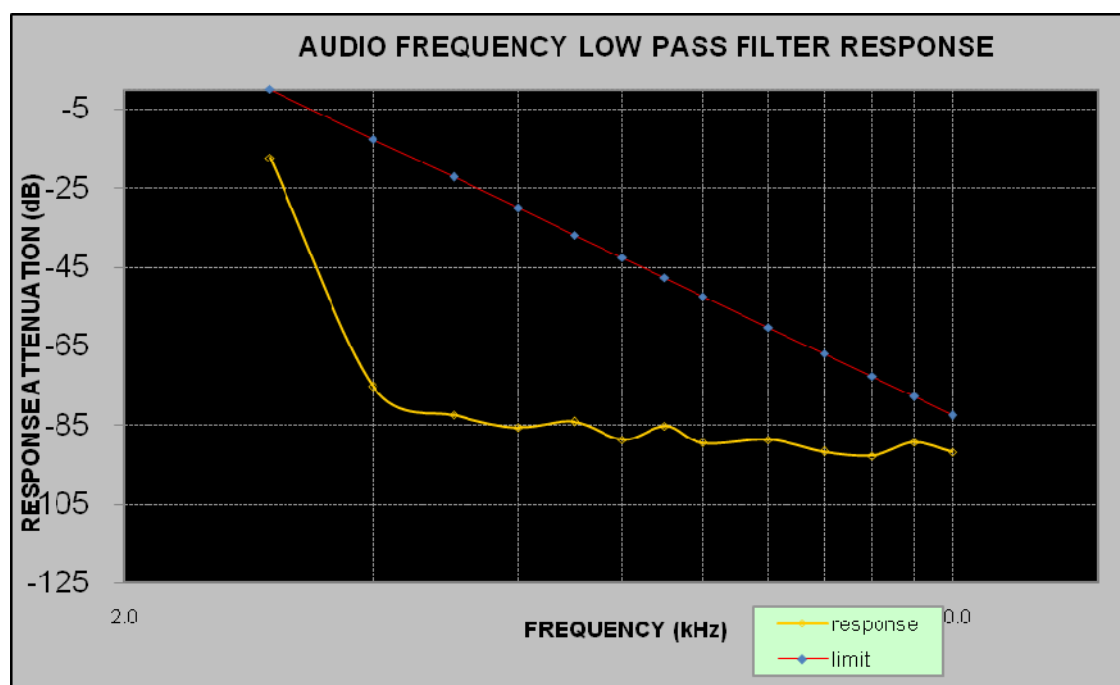
Audio Frequency (Hz)	Response Attenuation (dB)
300	-10.87
400	-7.62
500	-5.99
600	-4.35
700	-3.72
800	-2.52
900	-0.90
1000	0.00
1200	0.62
1400	2.63
1600	3.28
1800	3.65
2000	5.12
2100	5.51
2200	5.99
2300	6.05
2400	6.17
2500	6.55
2600	6.69
2700	7.07
2800	7.29
2900	7.83
3000	7.87



Audio frequency lows pass filter response

Carrier Frequency: 151.0125 MHz, Channel Separation=12.5 kHz

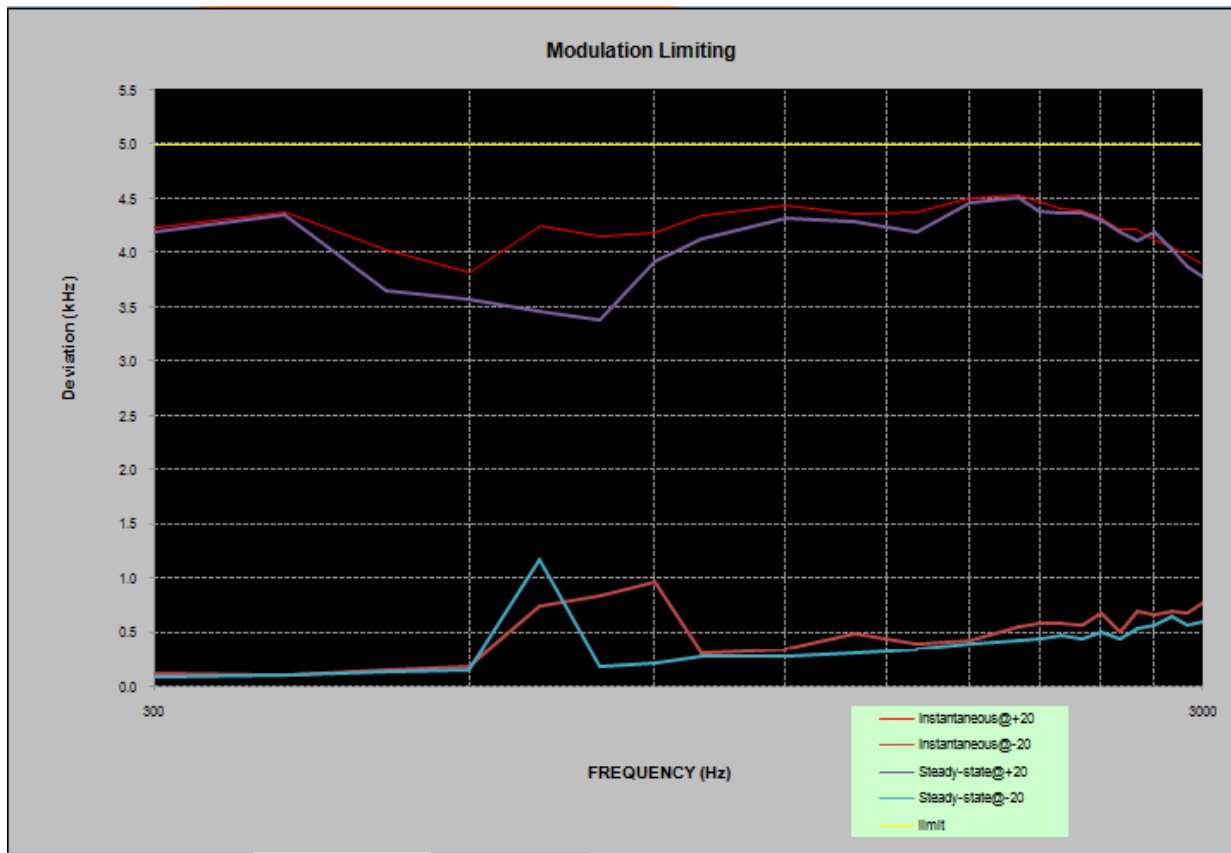
Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1.0	0.0	/
3.0	-17.2	0.0
4.0	-75.3	-12.5
5.0	-82.4	-22.2
6.0	-85.6	-30.1
7.0	-84.1	-36.8
8.0	-88.6	-42.6
9.0	-85.2	-47.7
10.0	-89.5	-52.3
12.0	-88.7	-60.2
14.0	-91.7	-66.9
16.0	-92.7	-72.7
18.0	-89.3	-77.8
20.0	-91.8	-82.5



MODULATION LIMITING

Carrier Frequency: 151.0125 MHz, Channel Separation= 25 kHz

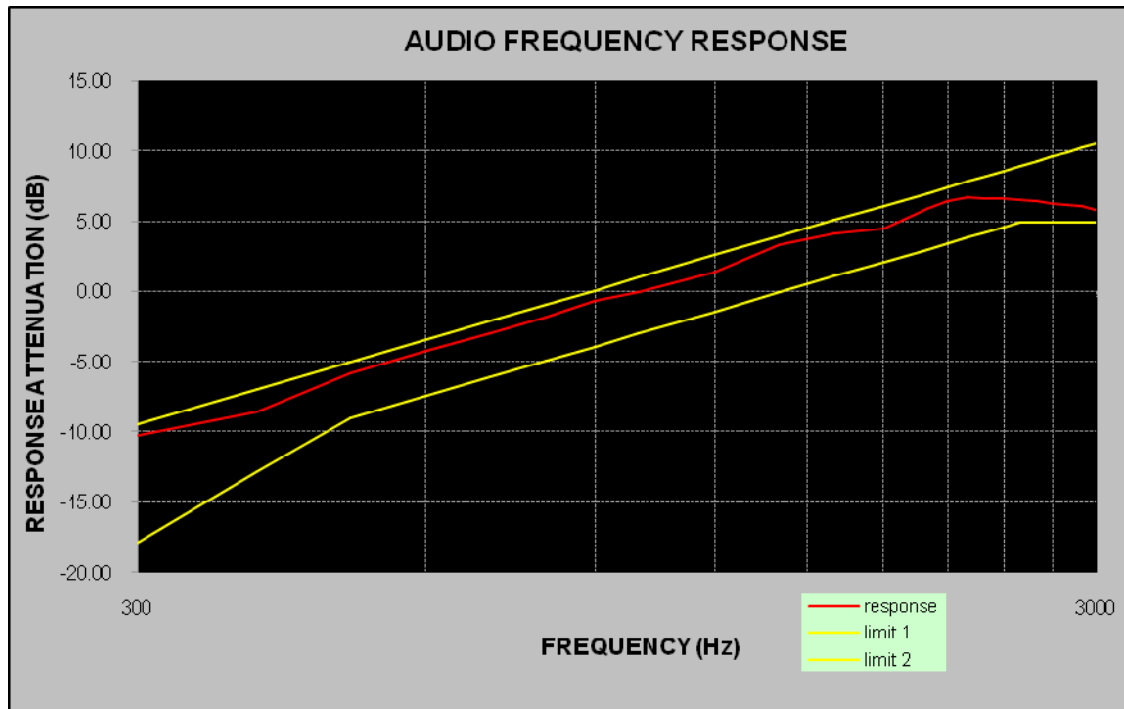
Audio Frequency (Hz)	Instantaneous		Steady-state		FCC Limit [kHz]
	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	
300	4.231	0.125	4.198	0.101	5.000
400	4.382	0.117	4.361	0.108	5.000
500	4.032	0.151	3.654	0.149	5.000
600	3.829	0.197	3.569	0.156	5.000
700	4.244	0.745	3.467	1.170	5.000
800	4.153	0.837	3.387	0.194	5.000
900	4.181	0.975	3.922	0.229	5.000
1000	4.352	0.311	4.136	0.289	5.000
1200	4.436	0.343	4.321	0.287	5.000
1400	4.367	0.496	4.286	0.323	5.000
1600	4.382	0.391	4.194	0.353	5.000
1800	4.504	0.432	4.472	0.404	5.000
2000	4.543	0.558	4.521	0.427	5.000
2100	4.467	0.587	4.385	0.449	5.000
2200	4.408	0.593	4.374	0.479	5.000
2300	4.398	0.564	4.375	0.452	5.000
2400	4.328	0.685	4.306	0.514	5.000
2500	4.223	0.507	4.195	0.445	5.000
2600	4.223	0.705	4.123	0.547	5.000
2700	4.120	0.659	4.198	0.564	5.000
2800	4.057	0.706	4.042	0.657	5.000
2900	3.976	0.678	3.875	0.564	5.000
3000	3.897	0.783	3.785	0.606	5.000



Audio Frequency Response

Carrier Frequency: 151.0125 MHz, Channel Separation= 25 kHz

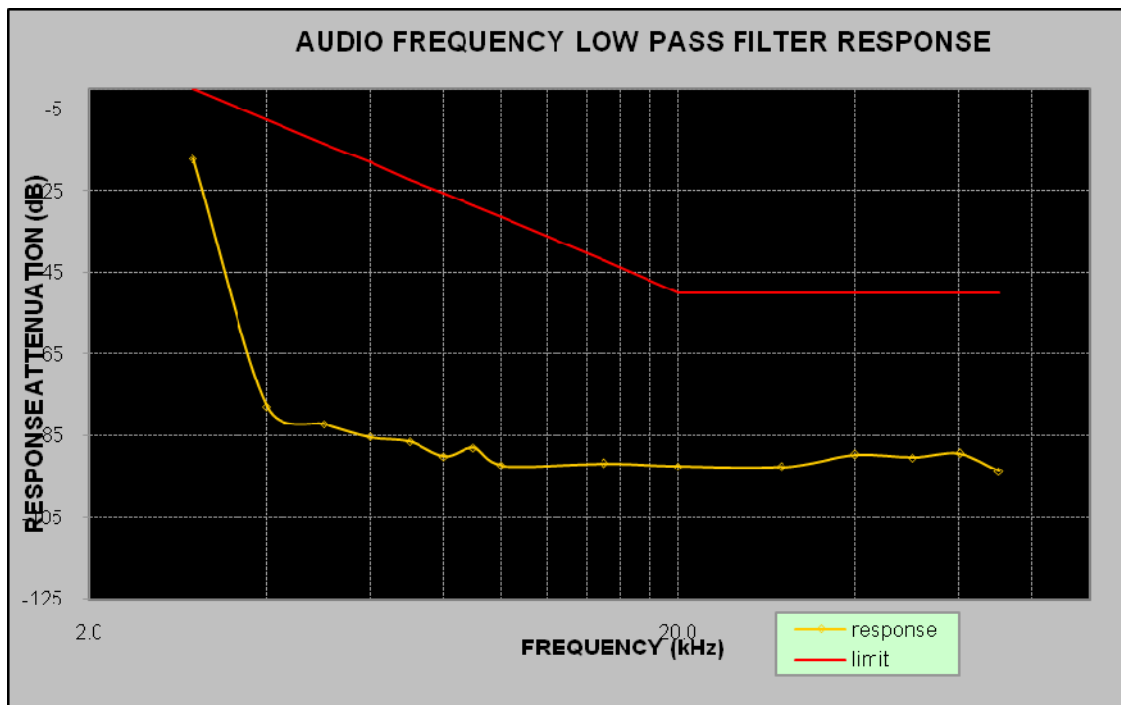
Audio Frequency (Hz)	Response Attenuation (dB)
300	-10.23
400	-8.59
500	-5.80
600	-4.19
700	-2.95
800	-1.85
900	-0.66
1000	0.00
1200	1.39
1400	3.36
1600	4.09
1800	4.51
2000	5.86
2100	6.42
2200	6.70
2300	6.65
2400	6.59
2500	6.49
2600	6.39
2700	6.29
2800	6.20
2900	6.04
3000	5.78



Audio frequency lows pass filter response

Carrier Frequency: 151.0125 MHz, Channel Separation= 25 kHz

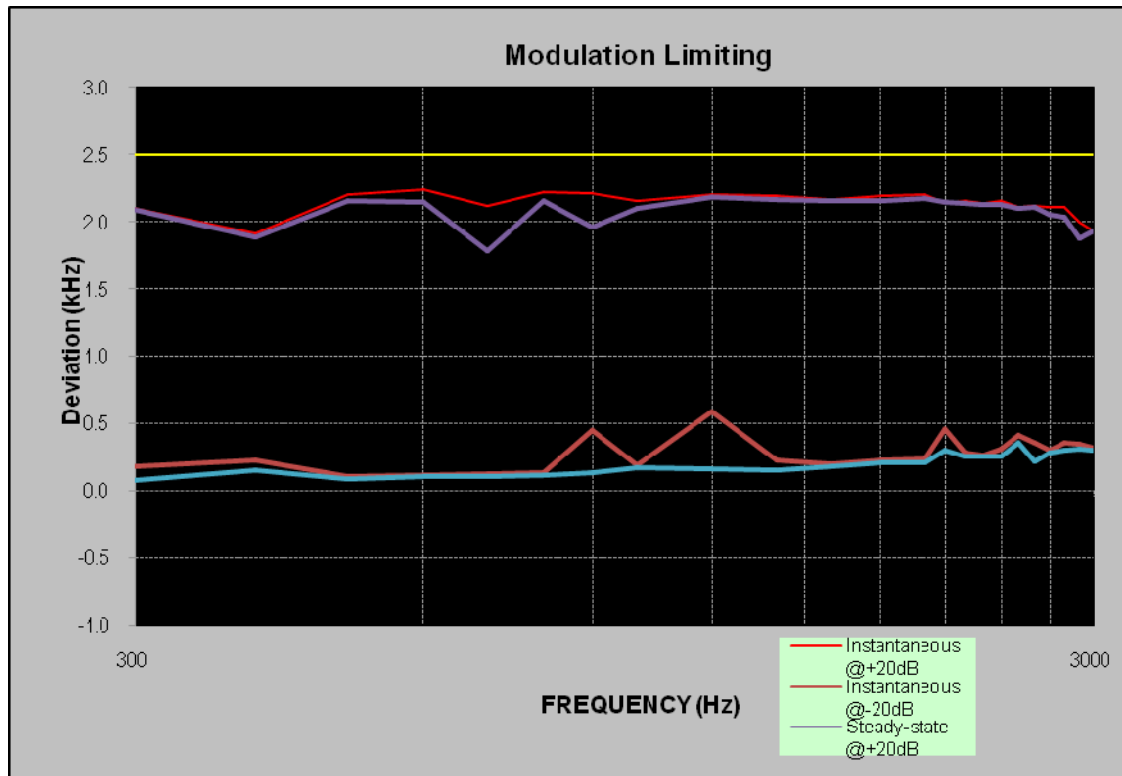
Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1.0	0.0	/
3.0	-17.1	0.0
4.0	-77.9	-7.5
5.0	-82.1	-13.3
6.0	-85.3	-18.1
7.0	-86.4	-22.1
8.0	-90.1	-25.6
9.0	-87.9	-28.6
10.0	-92.3	-31.4
15.0	-91.8	-41.9
20.0	-92.6	-50.0
30.0	-92.7	-50.0
40.0	-89.7	-50.0
50.0	-90.4	-50.0



MODULATION LIMITING

Carrier Frequency: 153.0125 MHz, Channel Separation=12.5 kHz

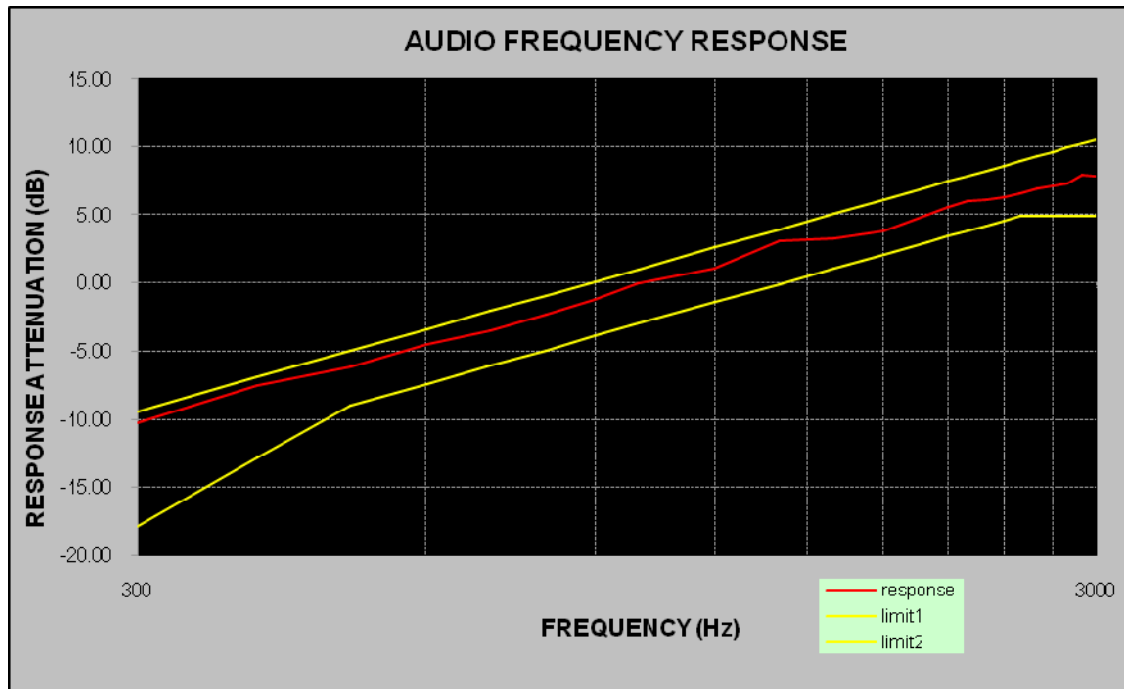
Audio Frequency (Hz)	Instantaneous		Steady-state		FCC Limit [kHz]
	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	
300	2.101	0.179	2.093	0.078	2.5
400	1.913	0.224	1.882	0.156	2.5
500	2.204	0.107	2.154	0.087	2.5
600	2.235	0.113	2.147	0.106	2.5
700	2.119	0.124	1.785	0.105	2.5
800	2.224	0.134	2.157	0.118	2.5
900	2.207	0.452	1.958	0.136	2.5
1000	2.154	0.189	2.098	0.171	2.5
1200	2.203	0.589	2.179	0.162	2.5
1400	2.189	0.222	2.164	0.156	2.5
1600	2.168	0.196	2.154	0.182	2.5
1800	2.189	0.224	2.158	0.208	2.5
2000	2.198	0.237	2.175	0.212	2.5
2100	2.139	0.455	2.145	0.302	2.5
2200	2.154	0.280	2.138	0.256	2.5
2300	2.138	0.261	2.125	0.258	2.5
2400	2.158	0.311	2.124	0.254	2.5
2500	2.112	0.412	2.098	0.352	2.5
2600	2.117	0.354	2.108	0.215	2.5
2700	2.106	0.304	2.054	0.280	2.5
2800	2.112	0.357	2.035	0.296	2.5
2900	1.997	0.346	1.876	0.312	2.5
3000	1.935	0.315	1.928	0.302	2.5



Audio Frequency Response

Carrier Frequency: 153.0125 MHz, Channel Separation=12.5 kHz

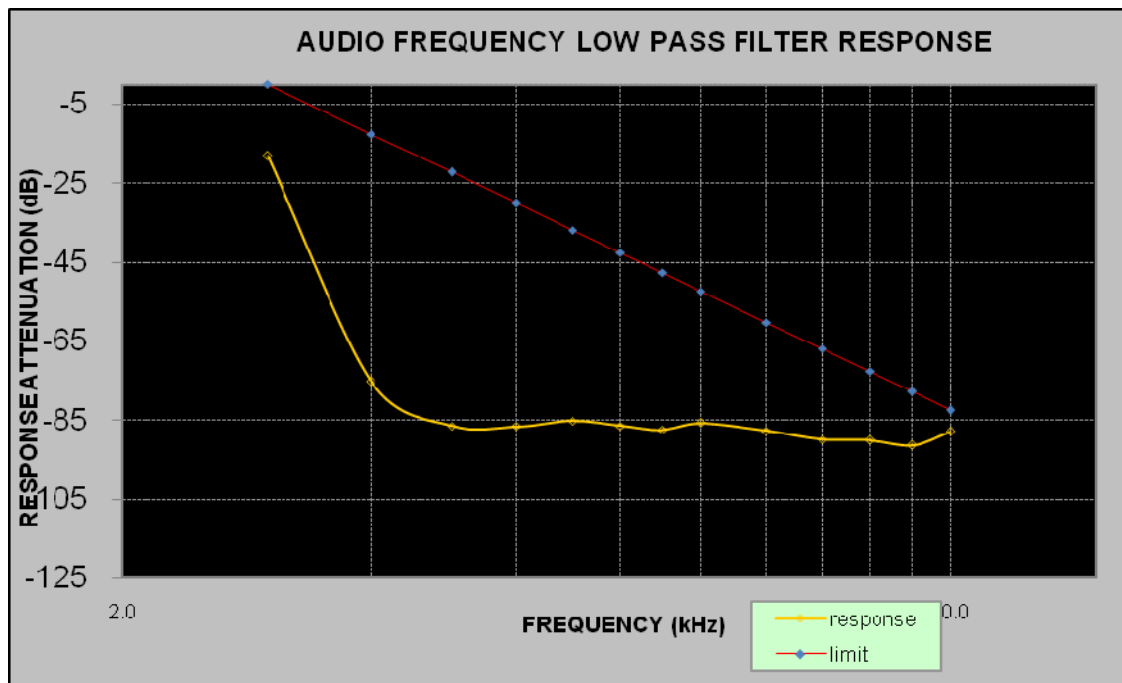
Audio Frequency (Hz)	Response Attenuation (dB)
300	-10.29
400	-7.49
500	-6.13
600	-4.52
700	-3.48
800	-2.34
900	-1.23
1000	0.00
1200	1.03
1400	3.11
1600	3.29
1800	3.78
2000	5.02
2100	5.53
2200	6.05
2300	6.07
2400	6.26
2500	6.57
2600	6.95
2700	7.07
2800	7.29
2900	7.89
3000	7.87



Audio frequency lows pass filter response

Carrier Frequency: 153.0125 MHz, Channel Separation=12.5 kHz

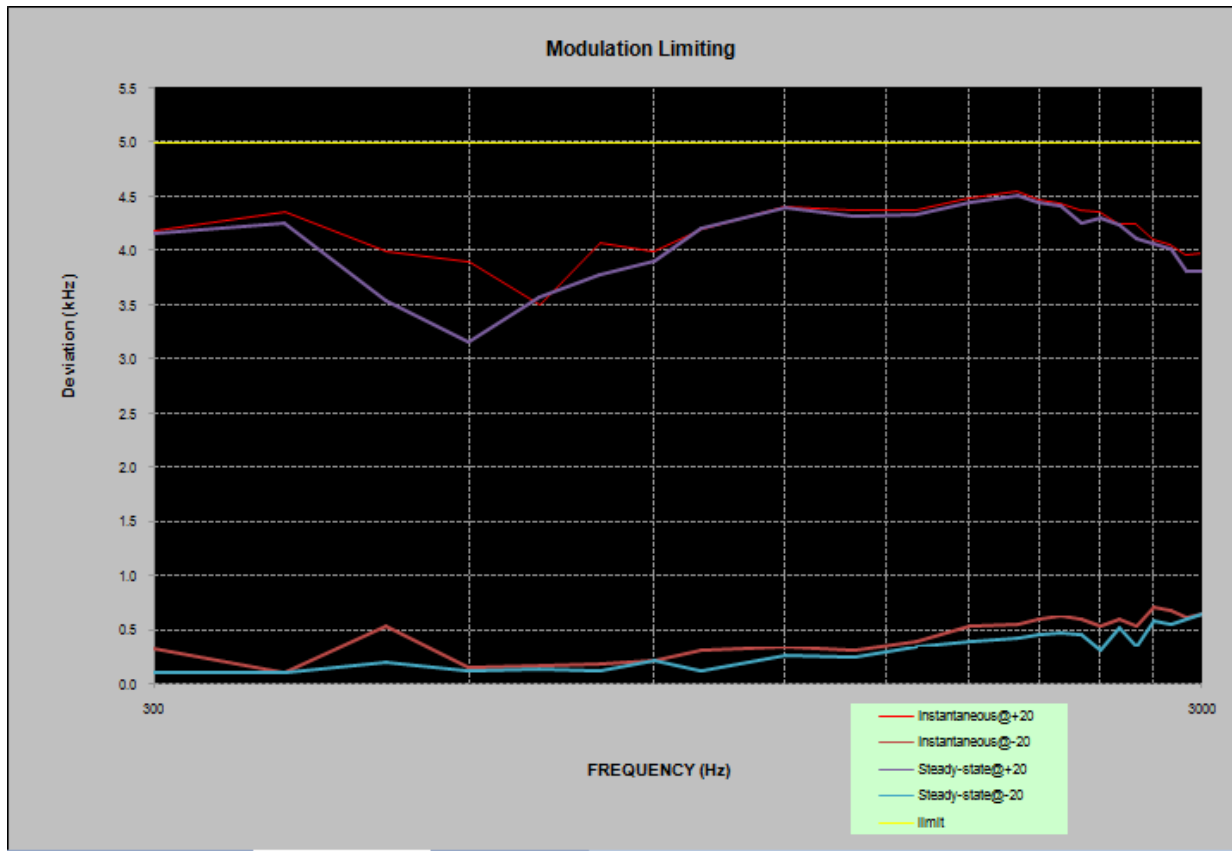
Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1.0	0.0	/
3.0	-18.1	0.0
4.0	-75.3	-12.5
5.0	-86.4	-22.2
6.0	-86.6	-30.1
7.0	-85.2	-36.8
8.0	-86.4	-42.6
9.0	-87.4	-47.7
10.0	-85.7	-52.3
12.0	-87.7	-60.2
14.0	-89.9	-66.9
16.0	-90.1	-72.7
18.0	-91.4	-77.8
20.0	-87.9	-82.5



MODULATION LIMITING

Carrier Frequency: 153.0125 MHz, Channel Separation= 25 kHz

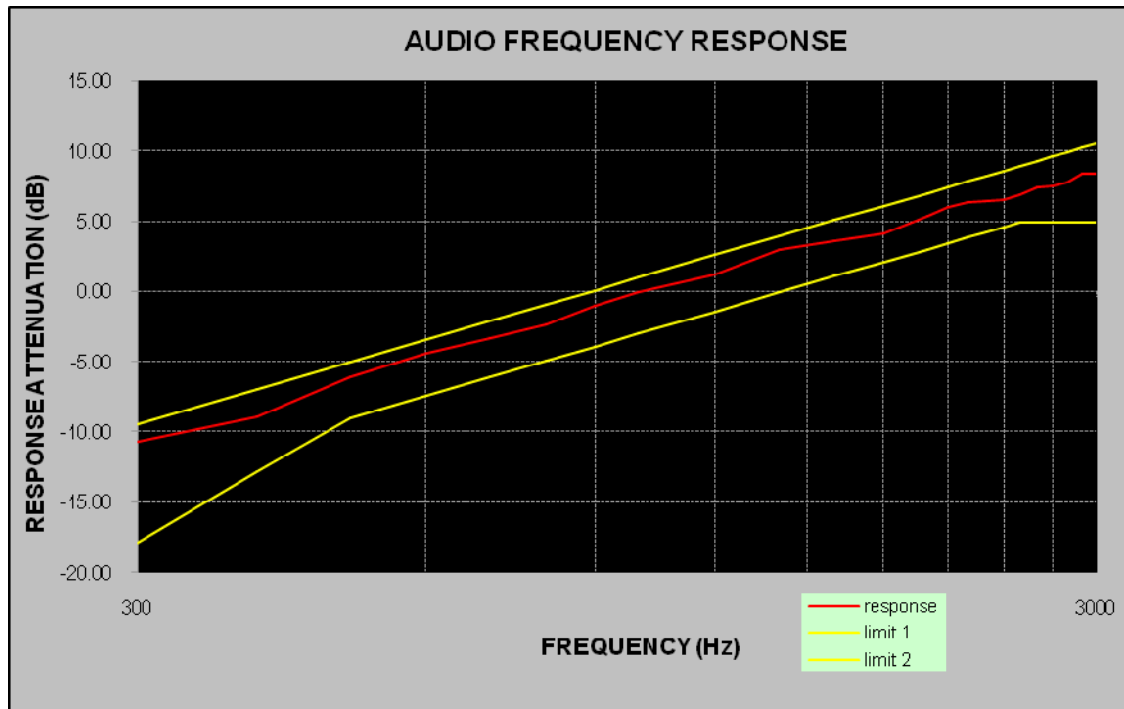
Audio Frequency (Hz)	Instantaneous		Steady-state		FCC Limit [kHz]
	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	
300	4.189	0.328	4.165	0.107	5.000
400	4.356	0.115	4.261	0.105	5.000
500	4.001	0.546	3.548	0.207	5.000
600	3.896	0.154	3.158	0.132	5.000
700	3.498	0.170	3.568	0.136	5.000
800	4.069	0.190	3.785	0.125	5.000
900	4.002	0.223	3.908	0.218	5.000
1000	4.205	0.315	4.211	0.125	5.000
1200	4.405	0.345	4.397	0.277	5.000
1400	4.385	0.323	4.316	0.251	5.000
1600	4.385	0.394	4.342	0.353	5.000
1800	4.496	0.538	4.455	0.400	5.000
2000	4.548	0.559	4.506	0.422	5.000
2100	4.469	0.607	4.454	0.456	5.000
2200	4.442	0.628	4.423	0.478	5.000
2300	4.383	0.596	4.257	0.458	5.000
2400	4.359	0.536	4.307	0.311	5.000
2500	4.254	0.606	4.237	0.524	5.000
2600	4.255	0.535	4.118	0.341	5.000
2700	4.113	0.721	4.064	0.593	5.000
2800	4.053	0.684	4.021	0.554	5.000
2900	3.960	0.627	3.814	0.596	5.000
3000	3.982	0.647	3.814	0.650	5.000



Audio Frequency Response

Carrier Frequency: 153.0125 MHz, Channel Separation= 25 kHz

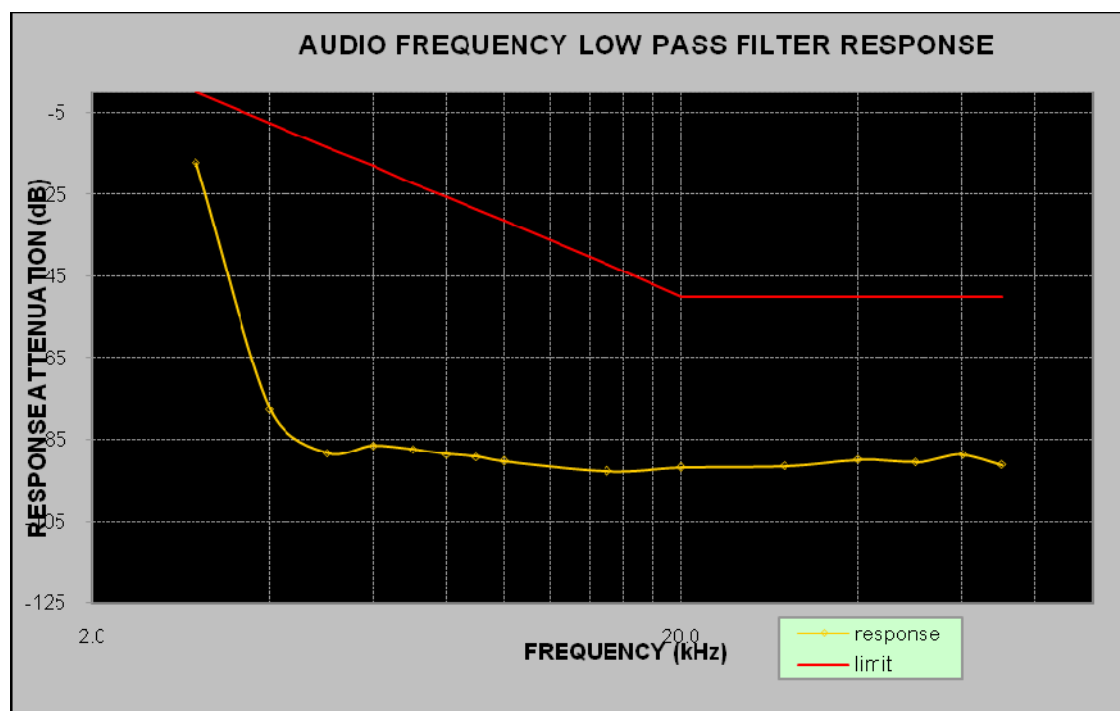
Audio Frequency (Hz)	Response Attenuation (dB)
300	-10.66
400	-8.92
500	-6.09
600	-4.39
700	-3.34
800	-2.34
900	-0.99
1000	0.00
1200	1.22
1400	3.00
1600	3.61
1800	4.10
2000	5.36
2100	5.98
2200	6.33
2300	6.43
2400	6.51
2500	6.88
2600	7.40
2700	7.45
2800	7.72
2900	8.36
3000	8.38



Audio frequency lows pass filter response

Carrier Frequency: 153.0125 MHz, Channel Separation= 25 kHz

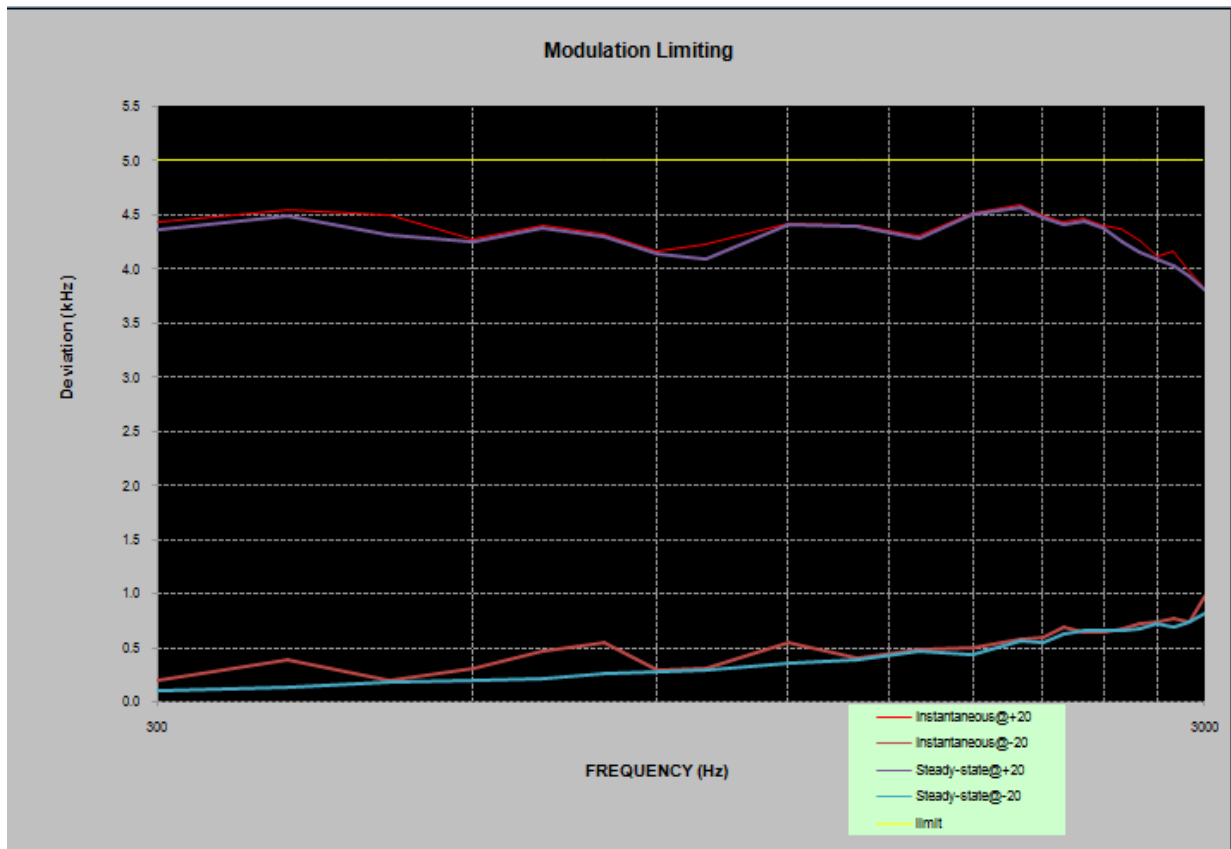
Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1.0	0.0	/
3.0	-17.2	0.0
4.0	-77.6	-7.5
5.0	-88.3	-13.3
6.0	-86.4	-18.1
7.0	-87.4	-22.1
8.0	-88.5	-25.6
9.0	-89.1	-28.6
10.0	-90.3	-31.4
15.0	-92.7	-41.9
20.0	-91.8	-50.0
30.0	-91.4	-50.0
40.0	-89.9	-50.0
50.0	-90.5	-50.0



MODULATION LIMITING

Carrier Frequency: 155.7525 MHz, Channel Separation= 25 kHz

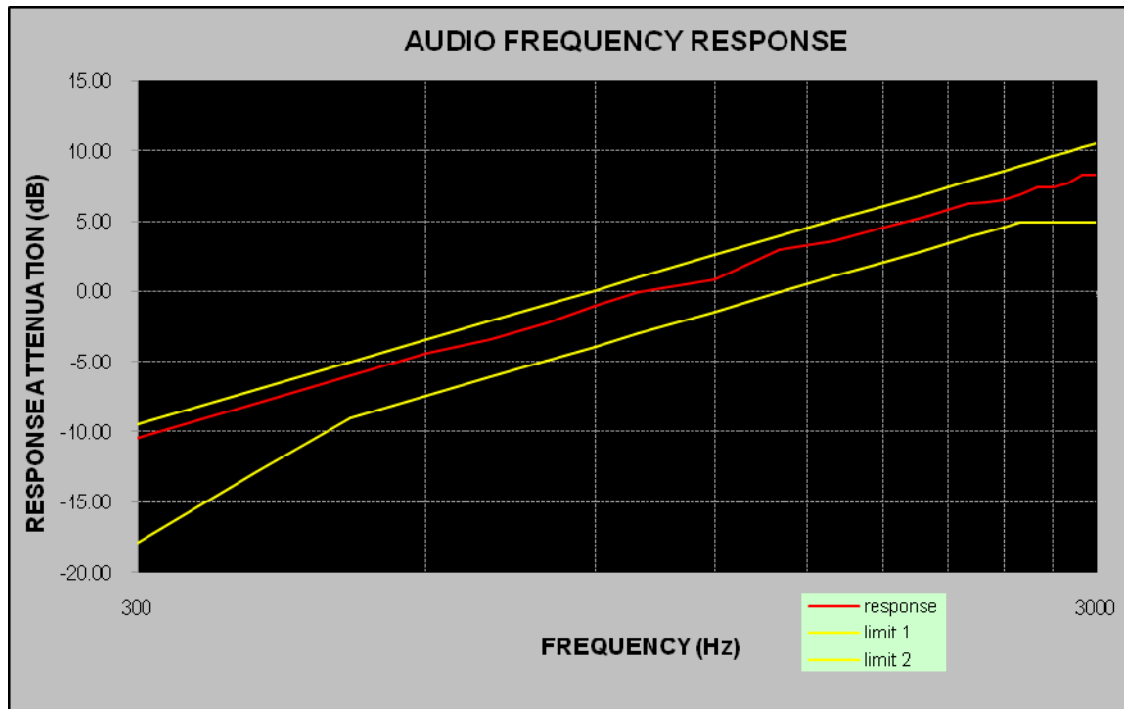
Audio Frequency (Hz)	Instantaneous		Steady-state		FCC Limit [kHz]
	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	DEVIATION (@+20dB) [kHz]	DEVIATION (@-20dB) [kHz]	
300	4.435	0.204	4.356	0.101	5.000
400	4.549	0.383	4.493	0.136	5.000
500	4.496	0.204	4.320	0.176	5.000
600	4.278	0.303	4.256	0.203	5.000
700	4.411	0.464	4.385	0.221	5.000
800	4.329	0.543	4.305	0.256	5.000
900	4.168	0.296	4.134	0.281	5.000
1000	4.235	0.318	4.099	0.302	5.000
1200	4.424	0.549	4.415	0.353	5.000
1400	4.411	0.400	4.402	0.389	5.000
1600	4.305	0.478	4.288	0.464	5.000
1800	4.511	0.504	4.502	0.432	5.000
2000	4.598	0.573	4.576	0.564	5.000
2100	4.496	0.596	4.483	0.543	5.000
2200	4.438	0.698	4.416	0.627	5.000
2300	4.468	0.648	4.442	0.659	5.000
2400	4.396	0.638	4.375	0.654	5.000
2500	4.368	0.673	4.254	0.654	5.000
2600	4.268	0.718	4.157	0.681	5.000
2700	4.111	0.732	4.097	0.721	5.000
2800	4.158	0.768	4.032	0.686	5.000
2900	3.987	0.745	3.935	0.732	5.000
3000	3.837	0.985	3.806	0.813	5.000



Audio Frequency Response

Carrier Frequency: 155.7525 MHz, Channel Separation= 25 kHz

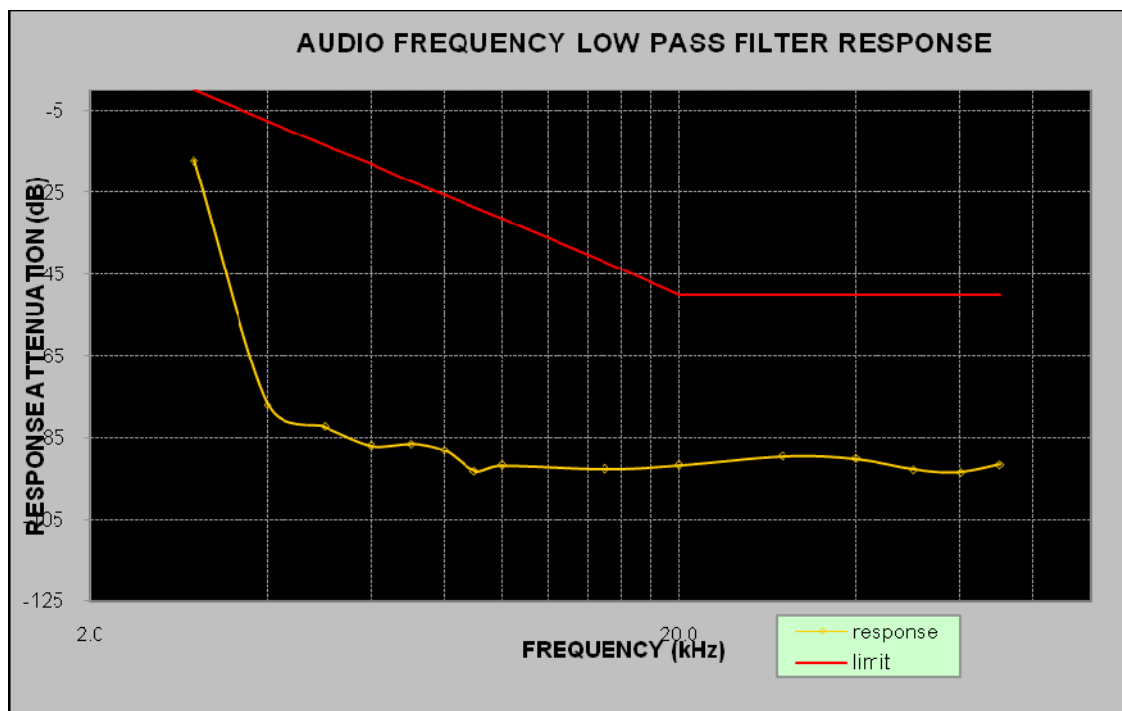
Audio Frequency (Hz)	Response Attenuation (dB)
300	-10.43
400	-7.94
500	-5.99
600	-4.39
700	-3.39
800	-2.30
900	-1.01
1000	0.00
1200	0.84
1400	2.95
1600	3.60
1800	4.55
2000	5.37
2100	5.84
2200	6.29
2300	6.34
2400	6.49
2500	6.87
2600	7.41
2700	7.45
2800	7.67
2900	8.33
3000	8.31



Audio frequency lows pass filter response

Carrier Frequency: 155.7525 MHz, Channel Separation= 25 kHz

Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
1.0	0.0	/
3.0	-17.1	0.0
4.0	-76.9	-7.5
5.0	-82.3	-13.3
6.0	-86.9	-18.1
7.0	-86.4	-22.1
8.0	-88.1	-25.6
9.0	-93.2	-28.6
10.0	-91.8	-31.4
15.0	-92.7	-41.9
20.0	-91.8	-50.0
30.0	-89.6	-50.0
40.0	-90.2	-50.0
50.0	-92.9	-50.0



FCC §2.1049 & §22.357 & § 22.731 & §74.462 & § 80.205 & § 80.207 – OCCUPIED BANDWIDTH & EMISSION MASK

Applicable Standard

FCC §2.1049, §22.357, § 22.731, §74.462, § 80.205, § 80.207

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.

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.

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 and the spectrum was recorded in the frequency band ± 50 kHz from the carrier frequency.

Test Data

Environmental Conditions

Temperature:	24~27 °C
Relative Humidity:	50~57 %
ATM Pressure:	100.0~101.0 kPa

The testing was performed by Simon Wang on 2017-09-16.

Modulation	Channel Separation (kHz)	Frequency (MHz)	Power Level	99% Occupied Bandwidth (kHz)	26 dB Emissions Bandwidth (kHz)	Note
Digital	12.5	151.0125	High	6.89	8.89	For Part 22
	12.5		Low	7.29	8.97	
	12.5	153.0125	High	6.81	8.97	For Part 74
	12.5		Low	7.05	8.89	

For Digital Mode (Channel Spacing: 12.5 kHz)*Emission Designator 7K60F1D and 7K60F1E*

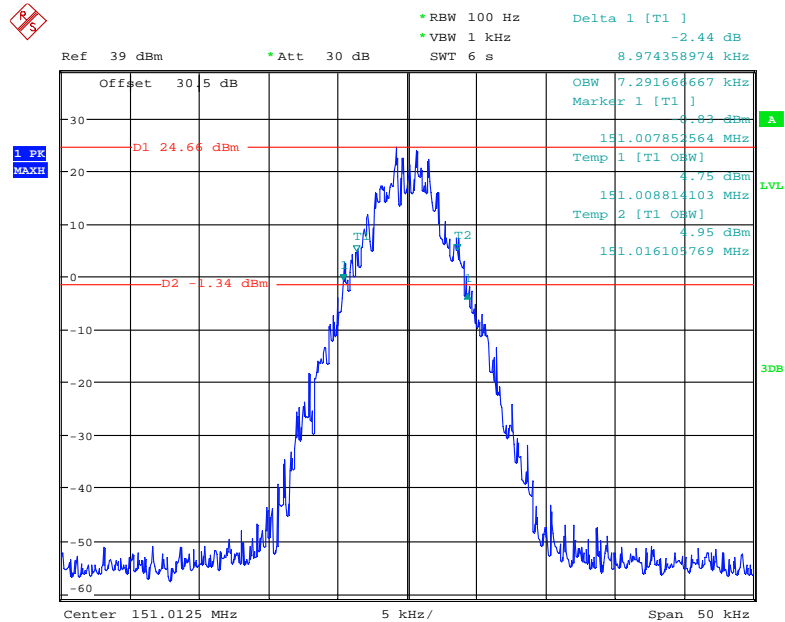
The 99% energy rule (title 47CFR 2.1049) was used for digital mode. It basically states that 99% of the modulation energy falls within X kHz, in this case, 7.29 kHz. The emission mask was obtained from 47CFR 90.210(d).

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.

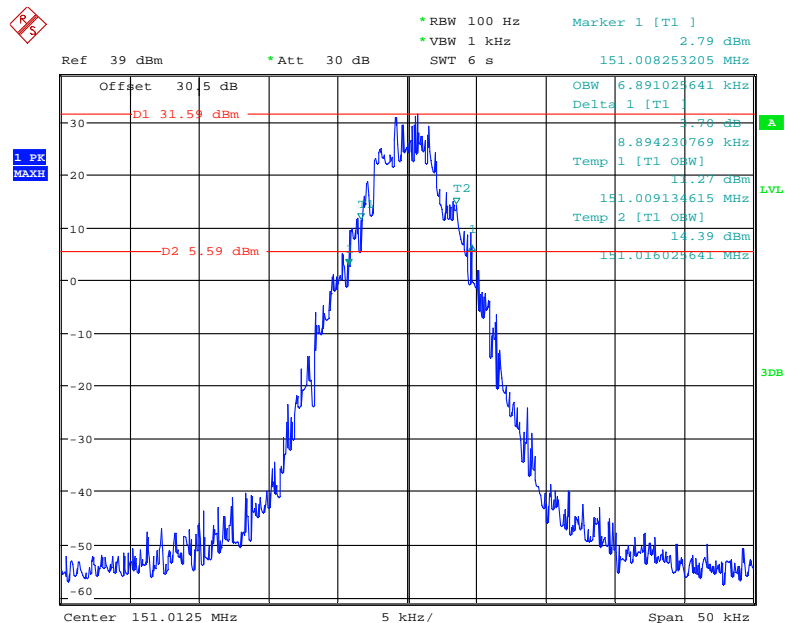
Digital Modulation:

Frequency 151.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



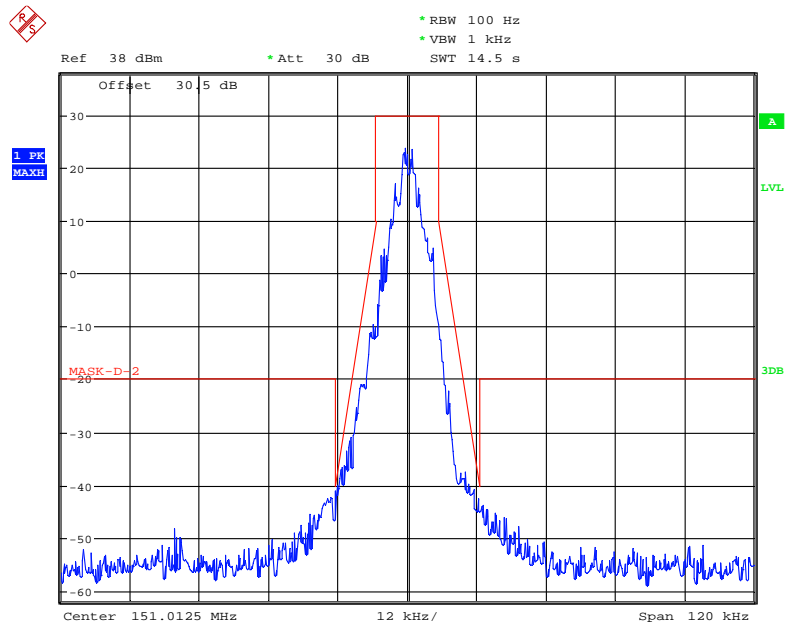
Date: 16.SEP.2017 11:53:48

Frequency 151.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power



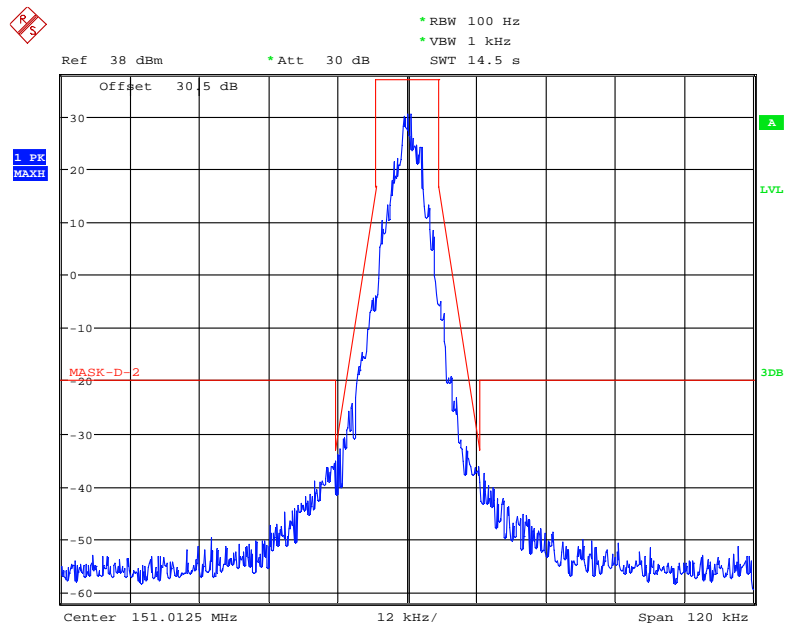
Date: 16.SEP.2017 11:55:45

Frequency 151.0125 MHz: Emission Mask D, Low Power



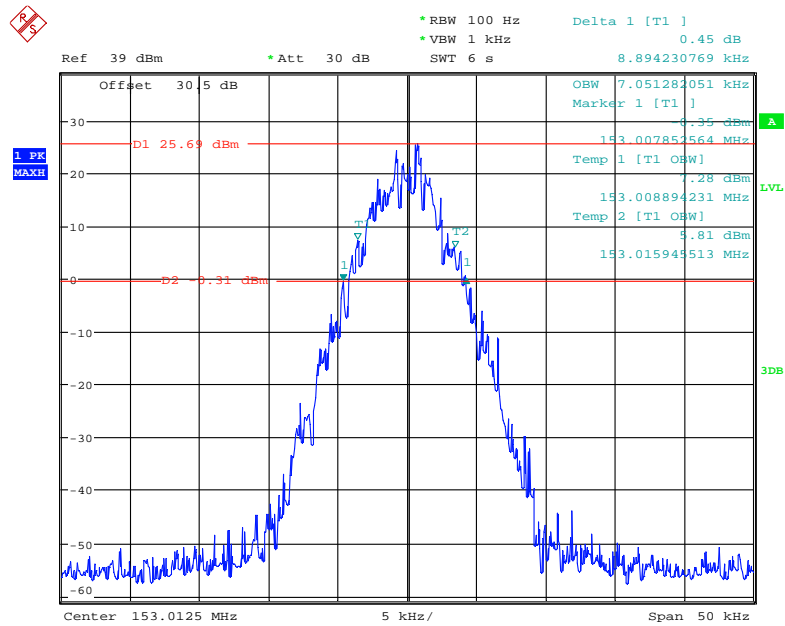
Date: 16.SEP.2017 14:38:22

Frequency 151.0125 MHz: Emission Mask D, High Power



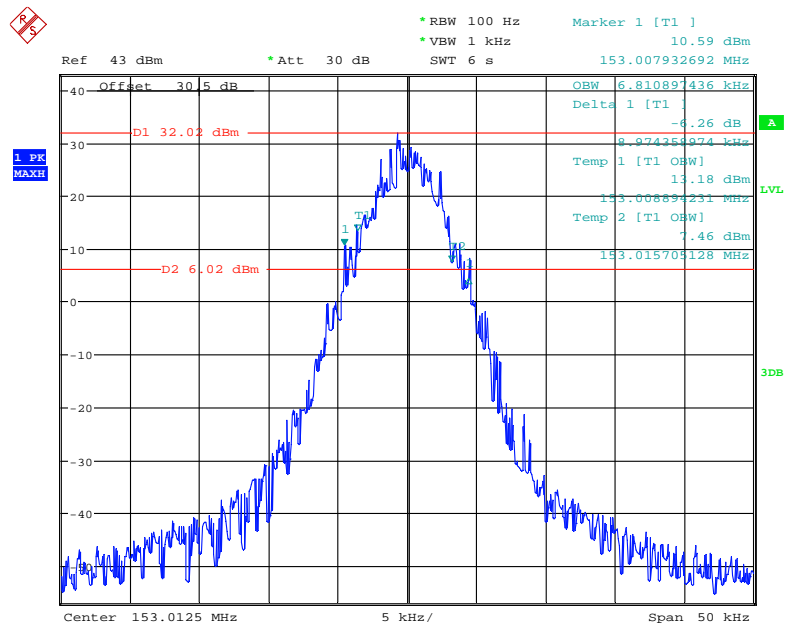
Date: 16.SEP.2017 14:40:50

Frequency 153.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



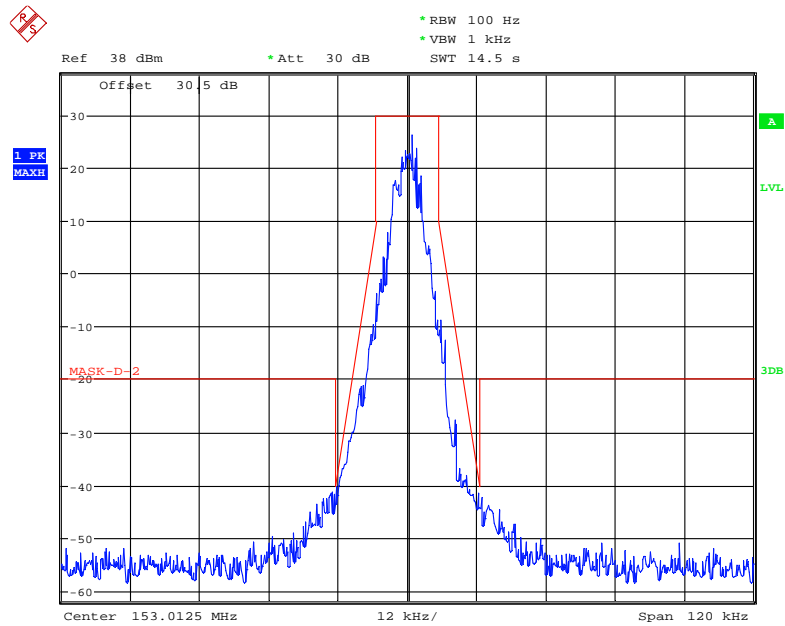
Date: 16.SEP.2017 11:57:51

Frequency 153.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power



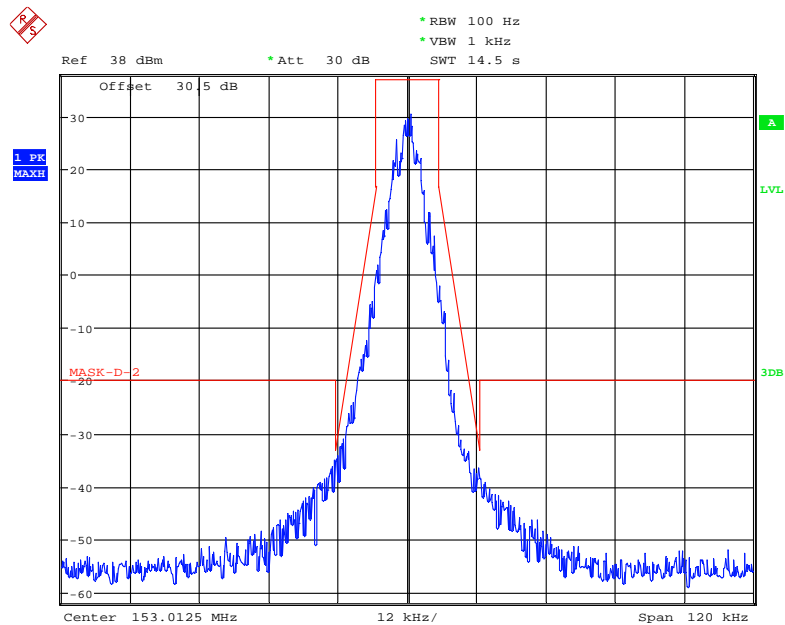
Date: 16.SEP.2017 13:09:22

Frequency 153.0125 MHz: Emission Mask D, Low Power



Date: 16.SEP.2017 14:36:08

Frequency 153.0125 MHz: Emission Mask D, High Power



Date: 16.SEP.2017 14:33:38

Modulation	Channel Separation (kHz)	Frequency (MHz)	Power Level	99% Occupied Bandwidth (kHz)	26 dB Emissions Bandwidth (kHz)	Note
Analog	12.5	151.0125	High	9.94	10.26	For Part 22
	12.5		Low	9.94	10.26	
	12.5	153.0125	High	9.94	10.26	For Part 74
	12.5		Low	9.94	10.26	

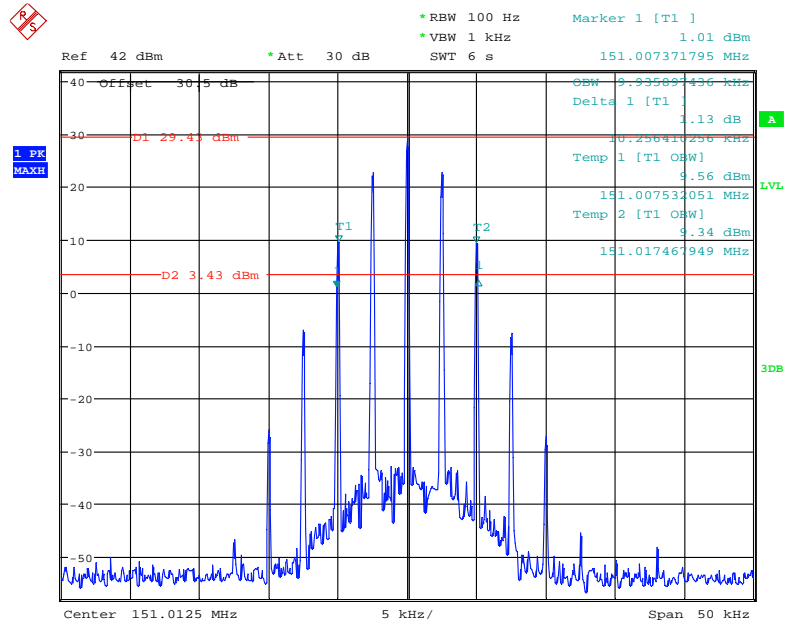
For FM Mode (Channel Spacing: 12.5 kHz)

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.

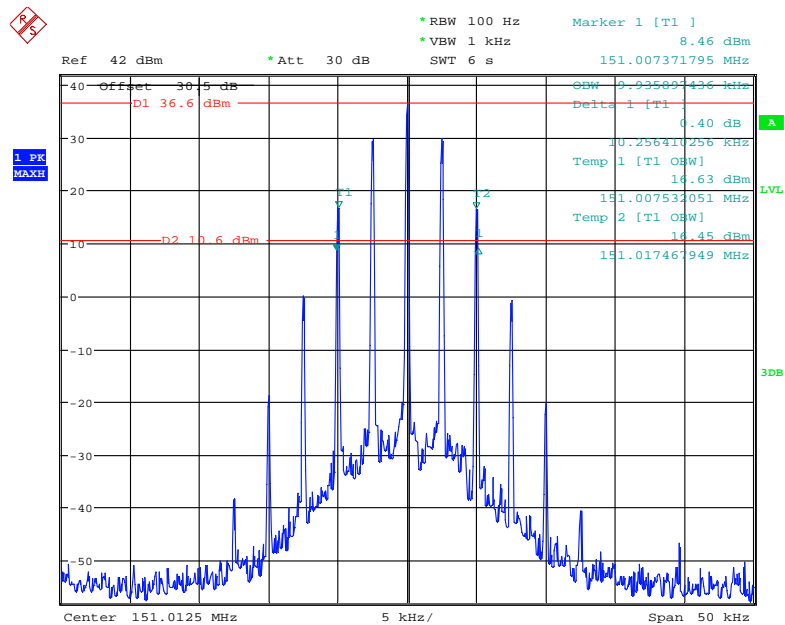
Analog Modulation:

Frequency 151.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



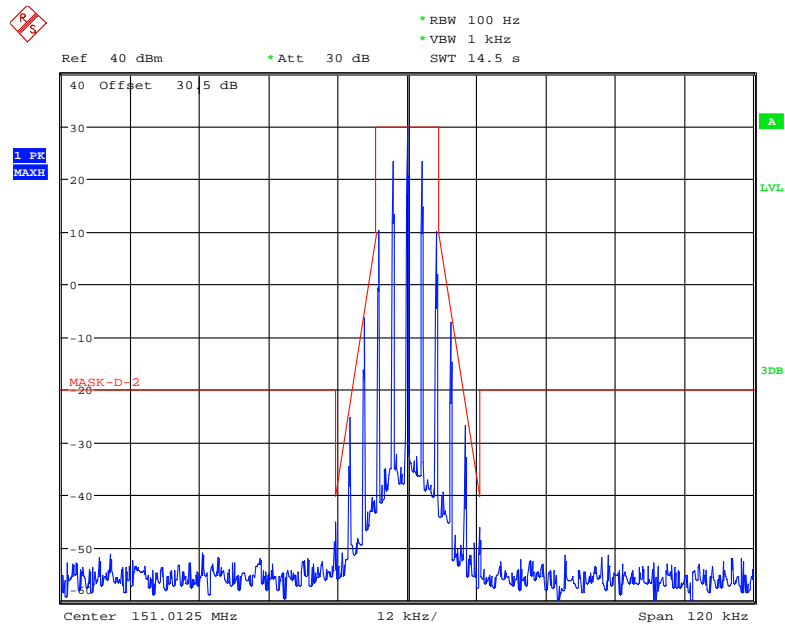
Date: 16.SEP.2017 11:24:35

Frequency 151.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power

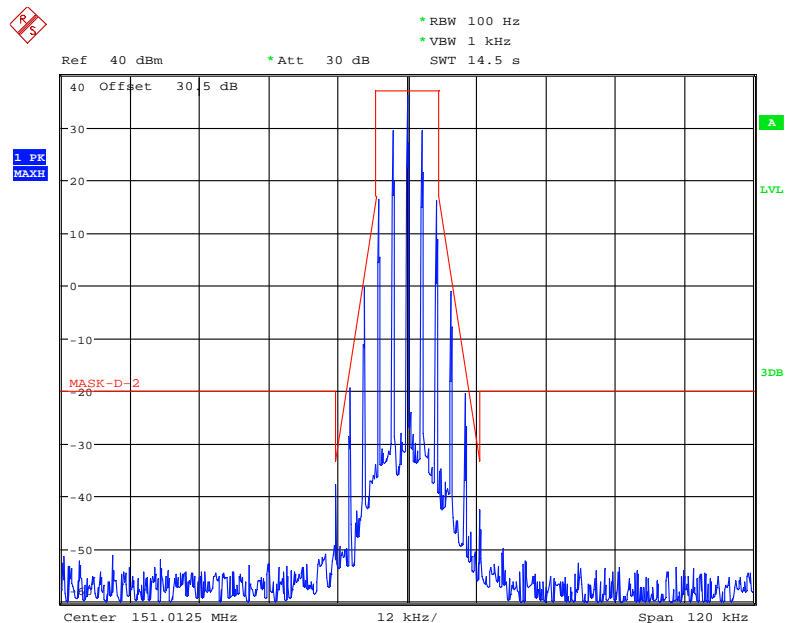


Date: 16.SEP.2017 11:26:16

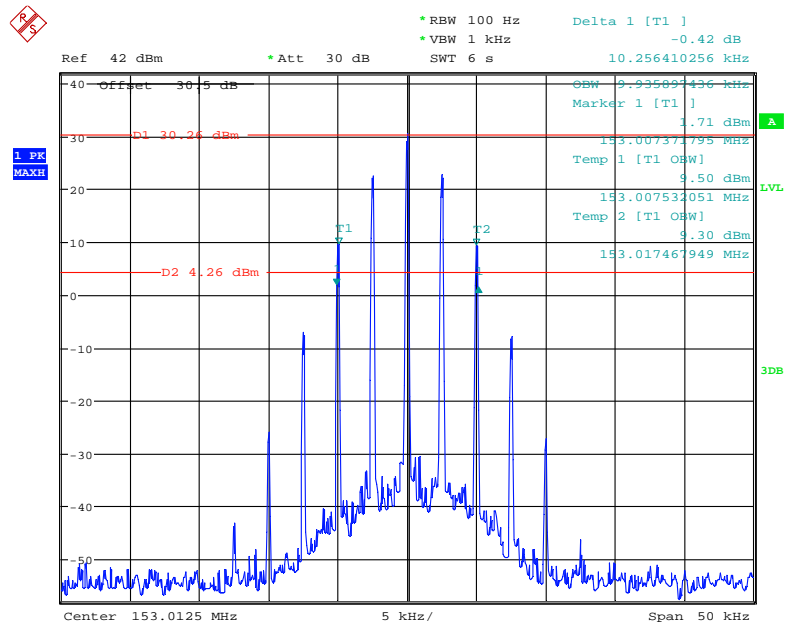
Frequency 151.0125 MHz: Emission Mask D, Low Power



Frequency 151.0125 MHz: Emission Mask D, High Power

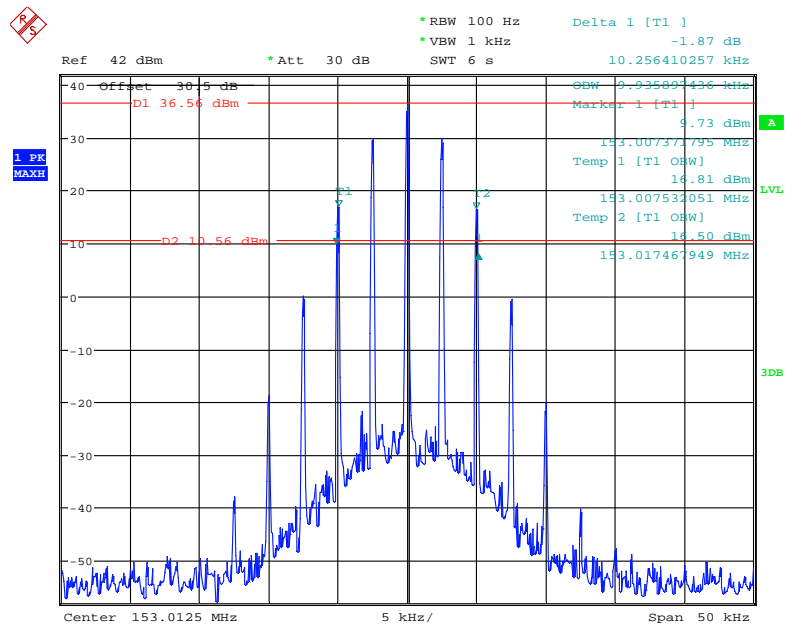


Frequency 153.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



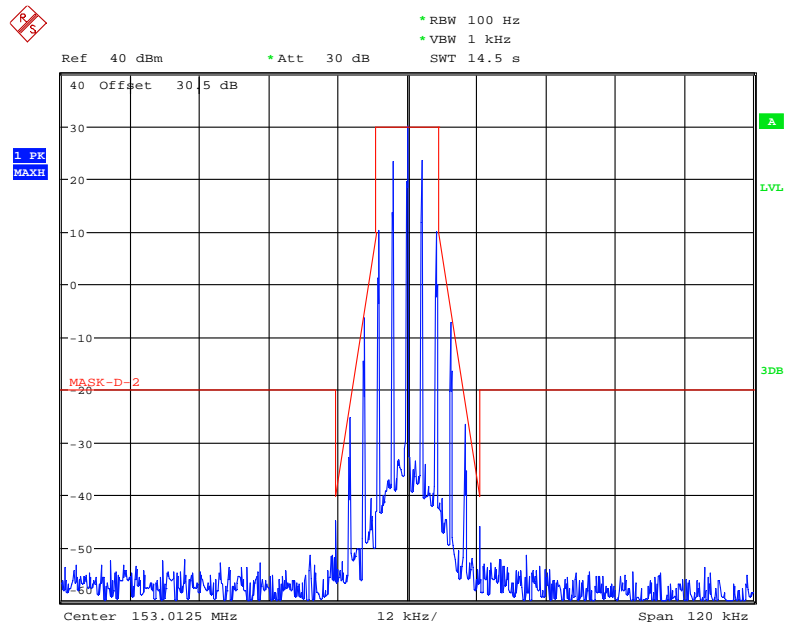
Date: 16.SEP.2017 11:13:13

Frequency 153.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power



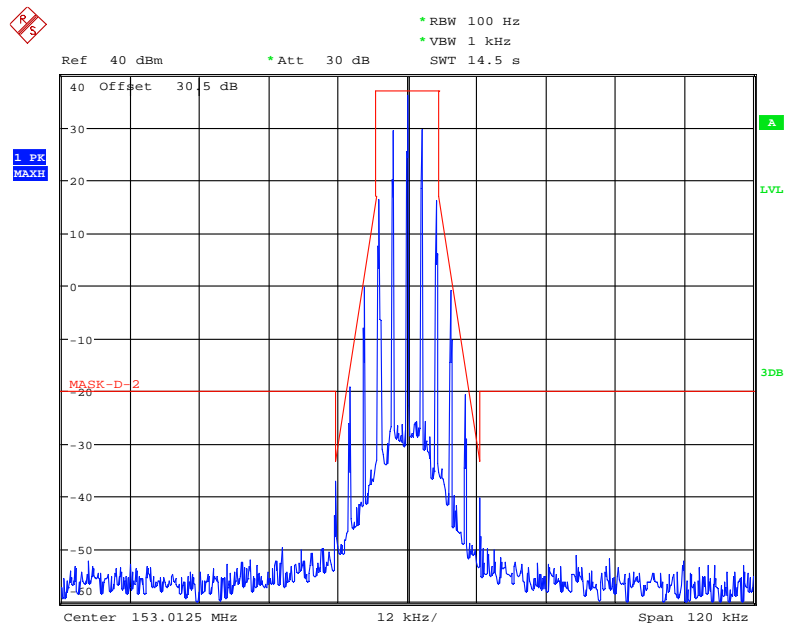
Date: 16.SEP.2017 11:28:46

Frequency 153.0125 MHz: Emission Mask D, Low Power



Date: 16.SEP.2017 13:42:20

Frequency 153.0125 MHz: Emission Mask D, High Power



Date: 16.SEP.2017 13:44:19

Modulation	Channel Separation (kHz)	Frequency (MHz)	Power Level	99% Occupied Bandwidth (kHz)	26 dB Emissions Bandwidth (kHz)	Note
Analog	25	151.0125	High	14.90	15.71	For Part 22
	25		Low	14.90	15.71	
	25	153.0125	High	14.90	15.71	For Part 74
	25		Low	14.90	15.71	
	25	155.7525	High	14.90	15.71	For Part 80
	25		Low	14.90	15.71	

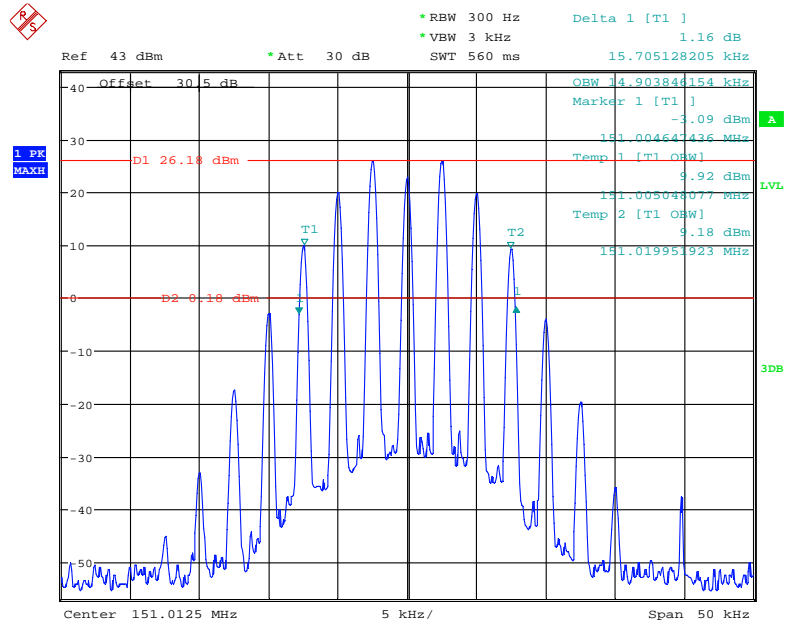
For FM Mode (Channel Spacing: 25 kHz)

Emission Designator 16K0F3E In this case, the maximum modulating frequency is 5.0 kHz with a 3.0 kHz deviation. $BW = 2(M+D) = 2(5.0 \text{ kHz} + 3.0 \text{ kHz}) = 16 \text{ kHz} \rightarrow 16K0$*

F3E portion of the designator represents an FM voice transmission Therefore, the entire designator for 25 kHz channel spacing FM mode is 16K0F3E.

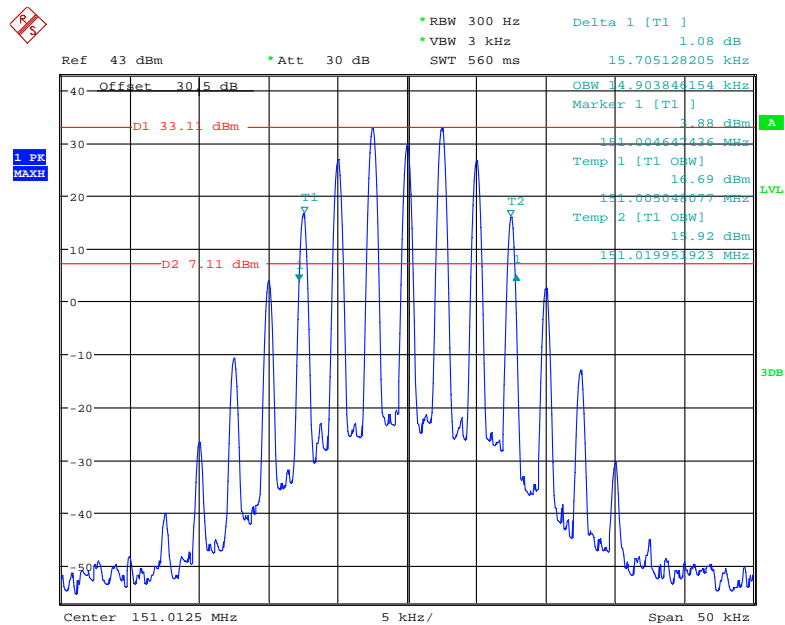
Analog Modulation:

Frequency 151.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



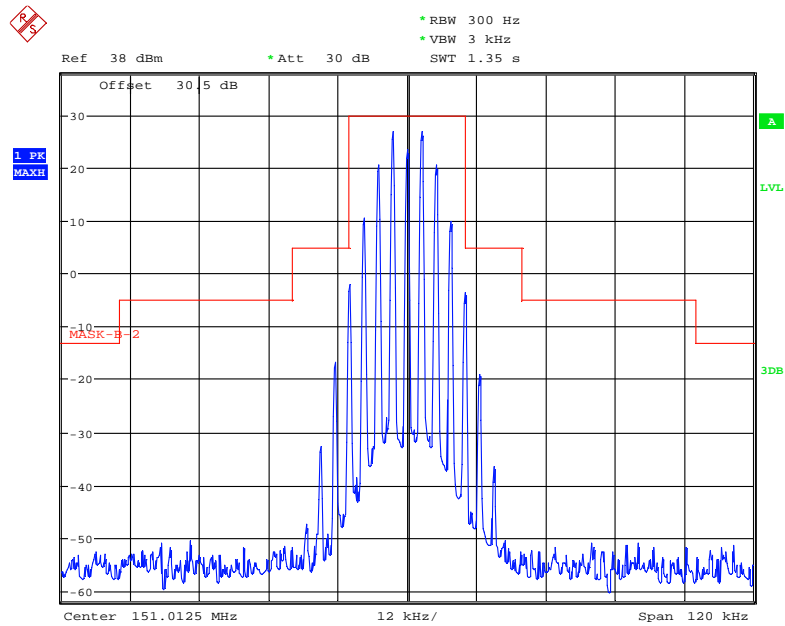
Date: 16.SEP.2017 11:37:39

Frequency 151.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power



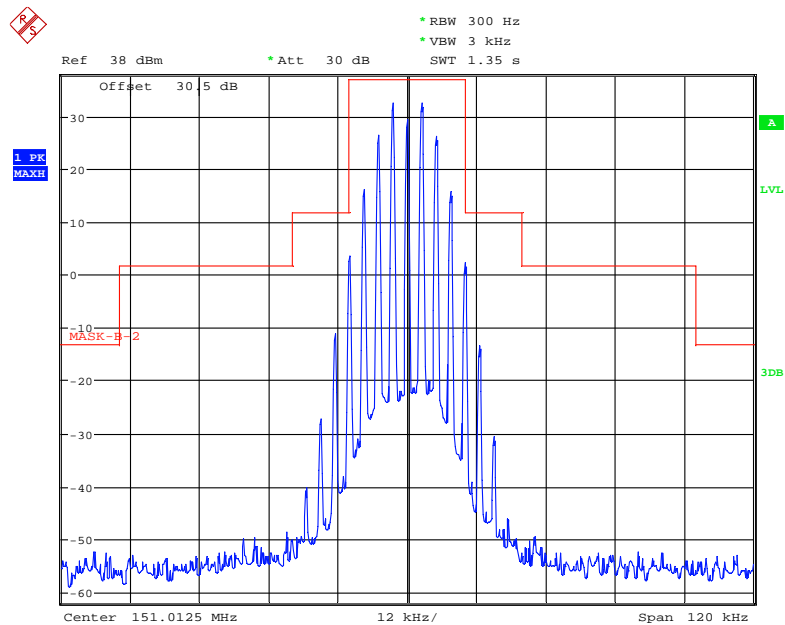
Date: 16.SEP.2017 11:39:21

Frequency 151.0125 MHz: Emission Mask B, Low Power



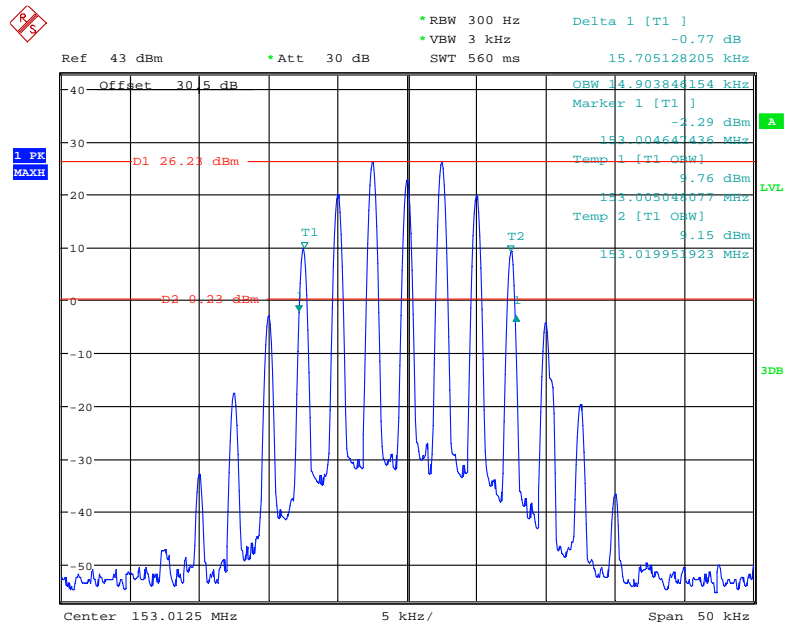
Date: 16.SEP.2017 14:21:29

Frequency 151.0125 MHz: Emission Mask B, High Power



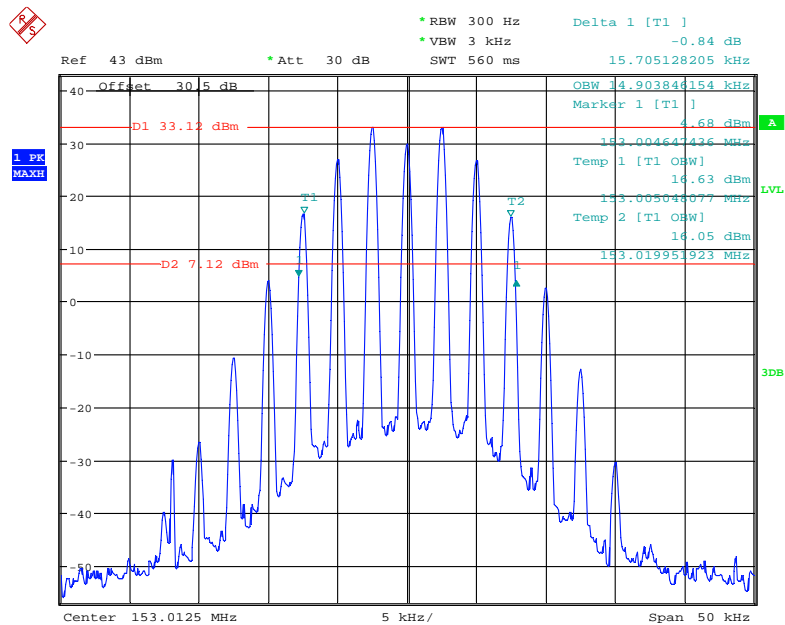
Date: 16.SEP.2017 14:18:31

Frequency 153.0125 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



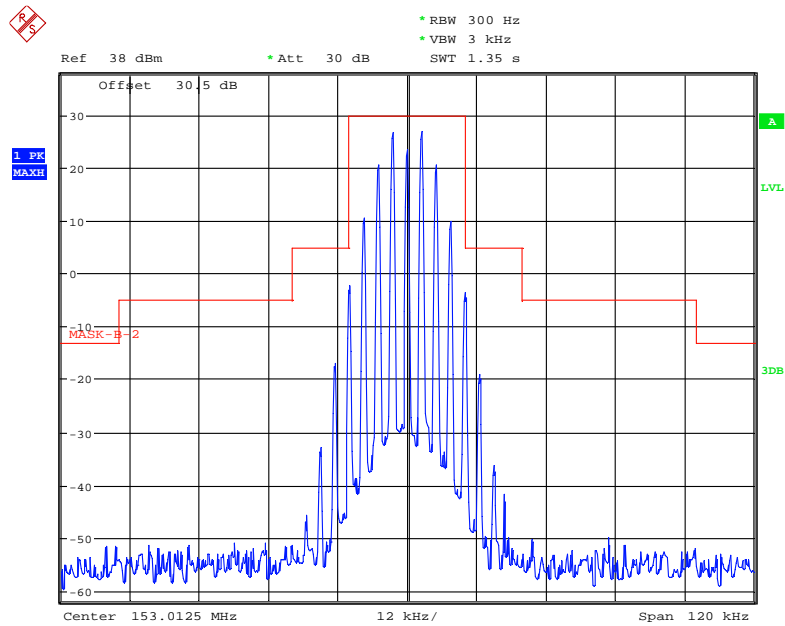
Date: 16.SEP.2017 11:41:35

Frequency 153.0125 MHz: 99% Occupied & 26 dB Bandwidth, High Power



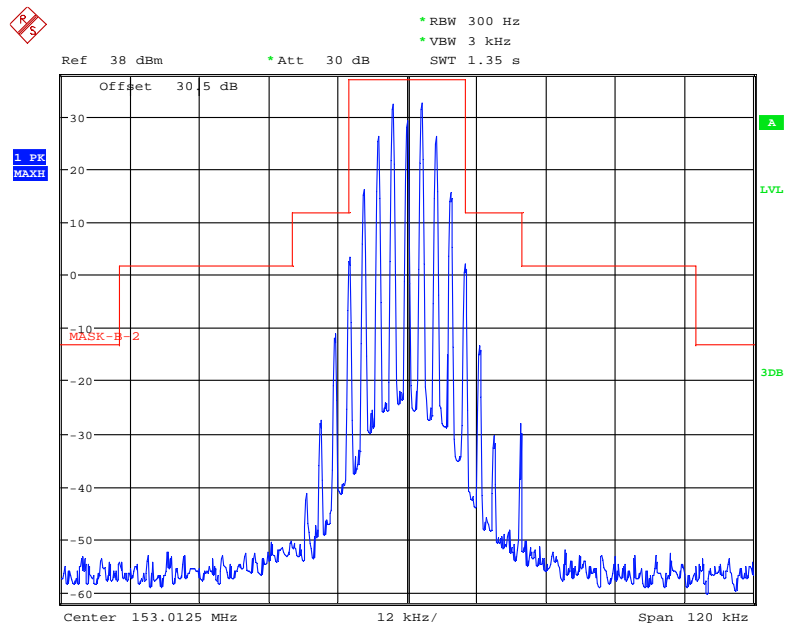
Date: 16.SEP.2017 11:43:16

Frequency 153.0125 MHz: Emission Mask B, Low Power



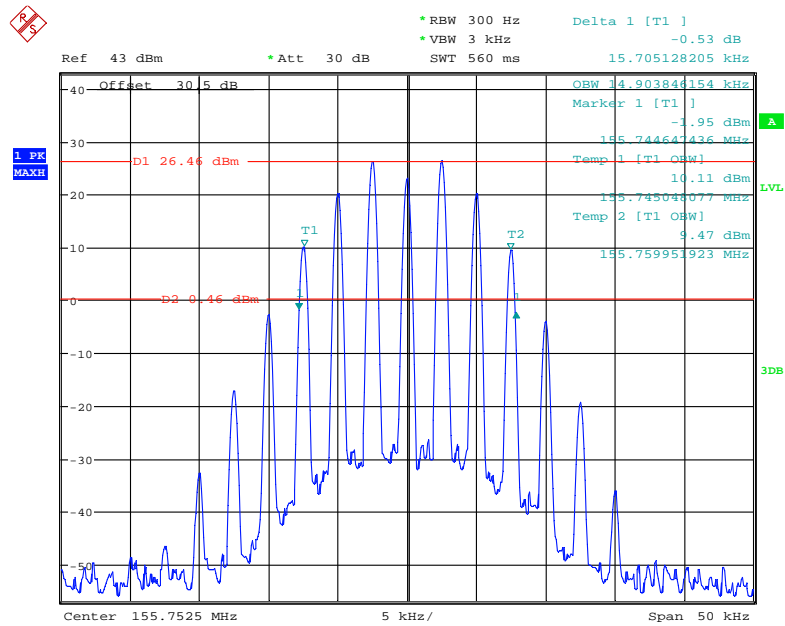
Date: 16.SEP.2017 14:15:43

Frequency 153.0125 MHz: Emission Mask B, High Power



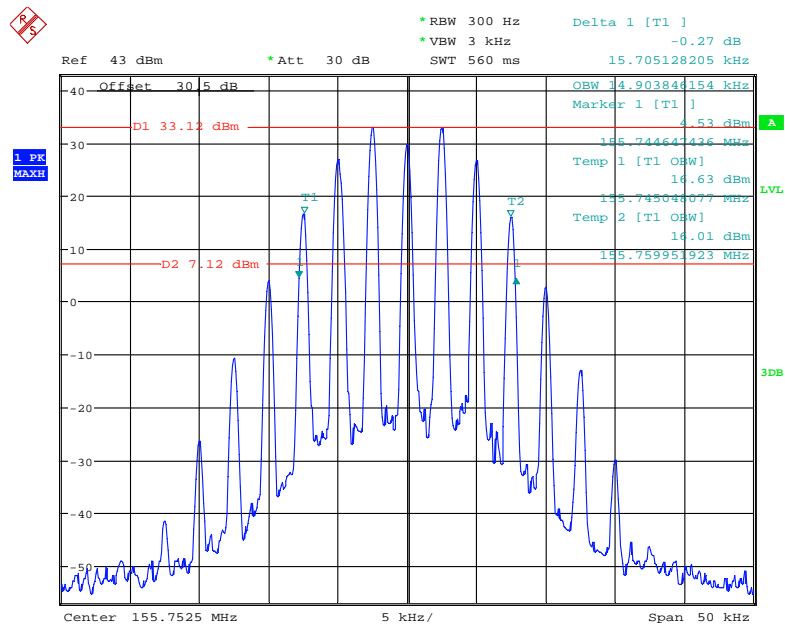
Date: 16.SEP.2017 14:17:04

Frequency 155.7525 MHz: 99% Occupied & 26 dB Bandwidth, Low Power



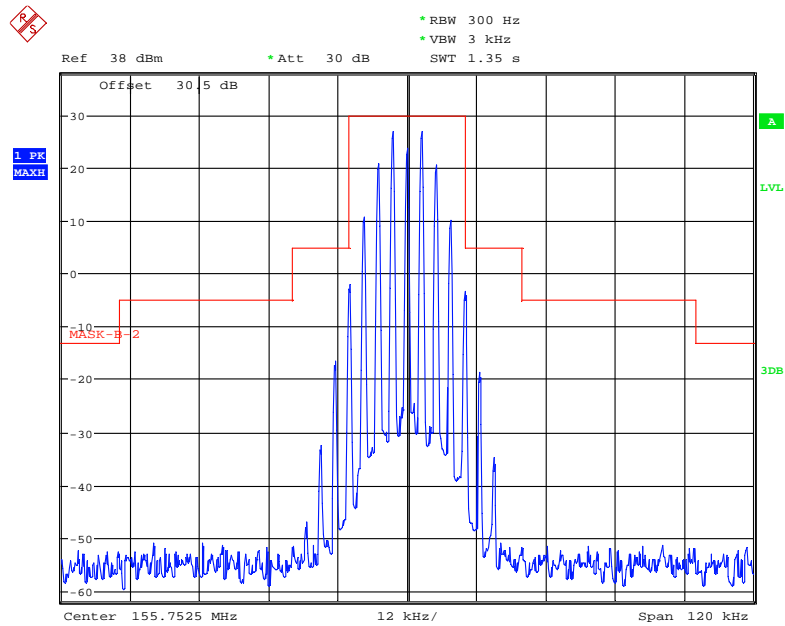
Date: 16.SEP.2017 11:49:57

Frequency 155.7525 MHz: 99% Occupied & 26 dB Bandwidth, High Power



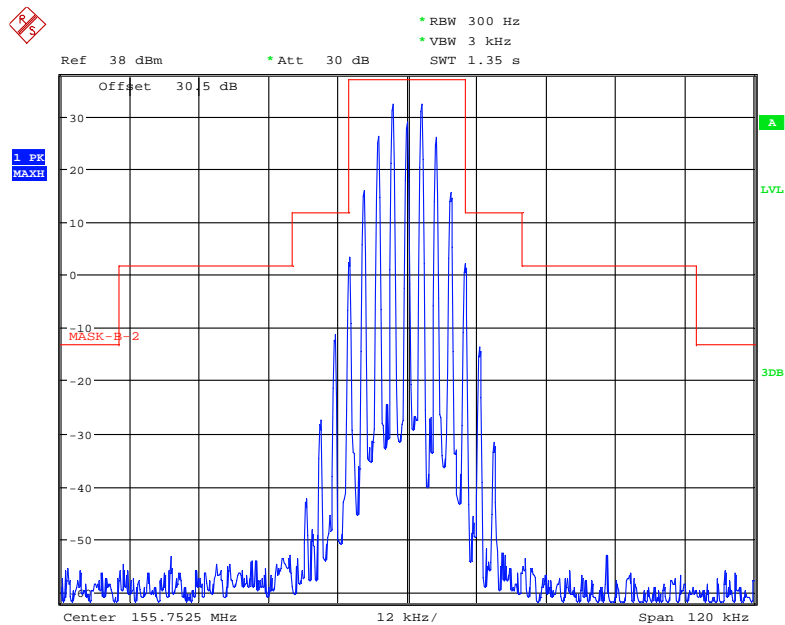
Date: 16.SEP.2017 11:46:59

Frequency 155.7525 MHz: Emission Mask B, Low Power



Date: 16.SEP.2017 14:14:08

Frequency 155.7525 MHz: Emission Mask B, High Power



Date: 16.SEP.2017 14:11:42

FCC §2.1051 & §22.861 & §74.462 & § 80.211 - 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.

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 atleast up to 10th harmonic.

Test Data

Environmental Conditions

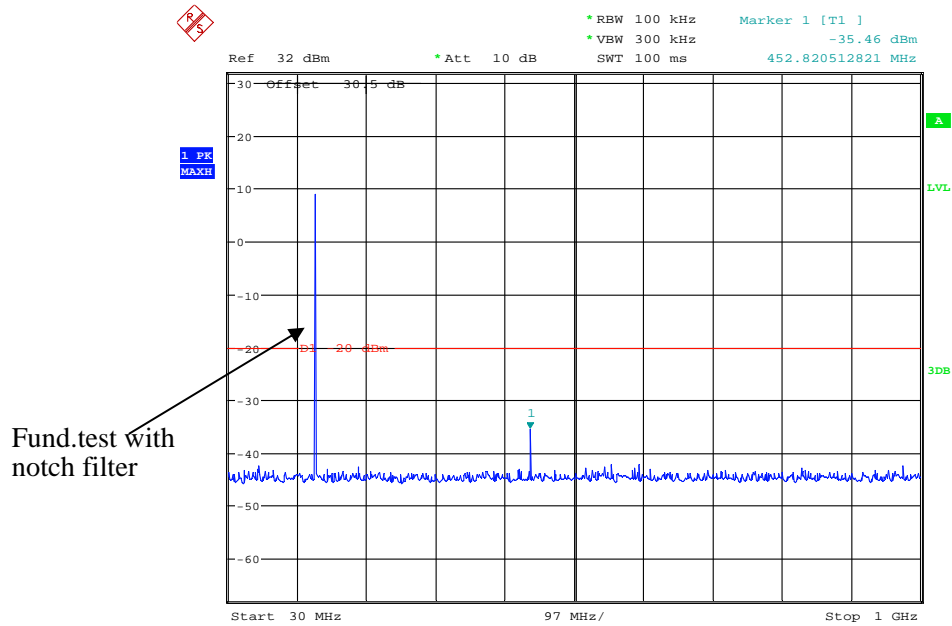
Temperature:	24~27 °C
Relative Humidity:	50~57 %
ATM Pressure:	100.0~101.0 kPa

The testing was performed by Simon Wang on 2017-09-16.

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

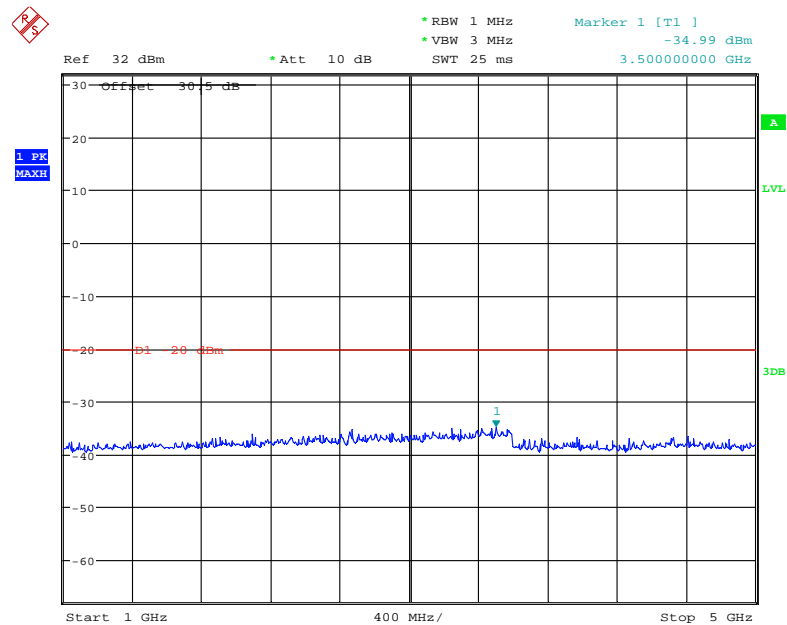
Digital Modulation:

30MHz – 1 GHz, Channel Spacing 12.5 kHz, 151.0125 MHz



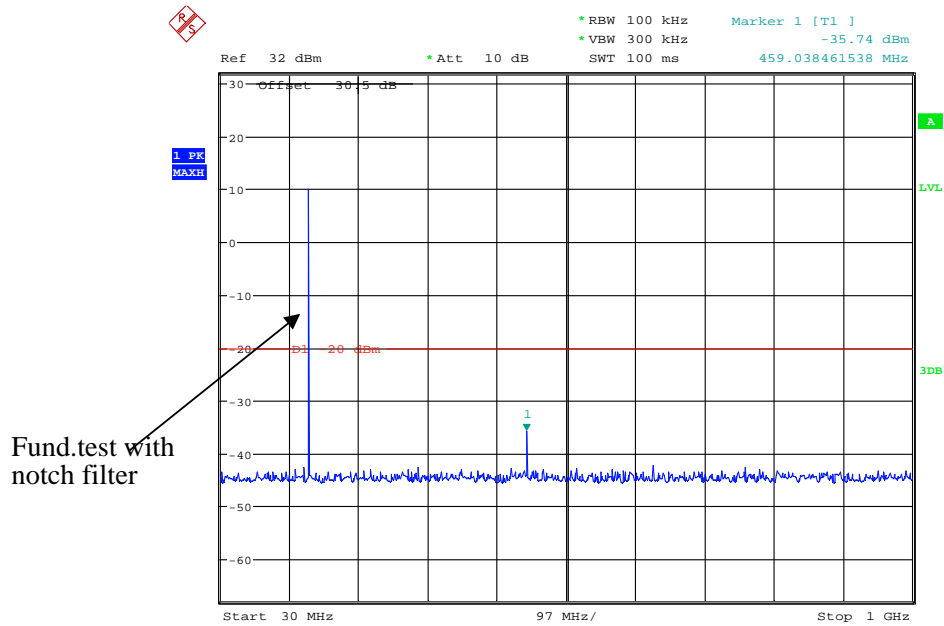
Date: 16.SEP.2017 14:50:53

1 GHz – 5 GHz, Channel Spacing 12.5 kHz, 151.0125 MHz



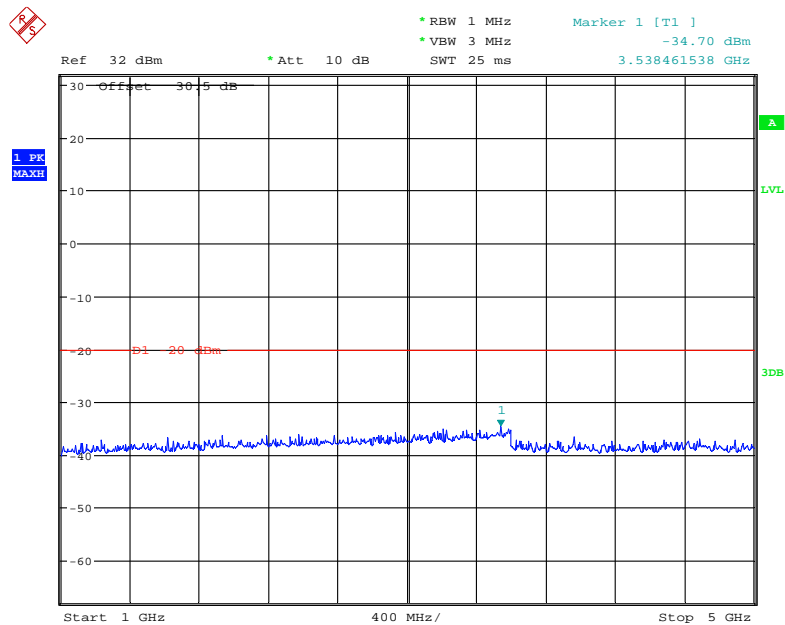
Date: 16.SEP.2017 14:50:11

30MHz – 1 GHz, Channel Spacing 12.5 kHz, 153.0125 MHz



Date: 16.SEP.2017 14:51:46

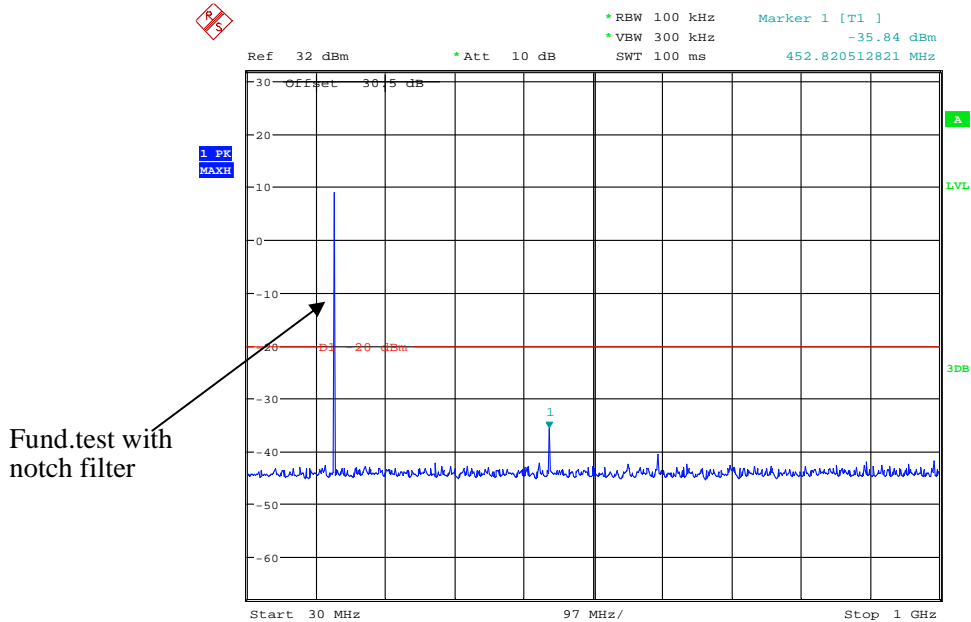
1 GHz – 5 GHz, Channel Spacing 12.5 kHz, 153.0125 MHz



Date: 16.SEP.2017 14:52:20

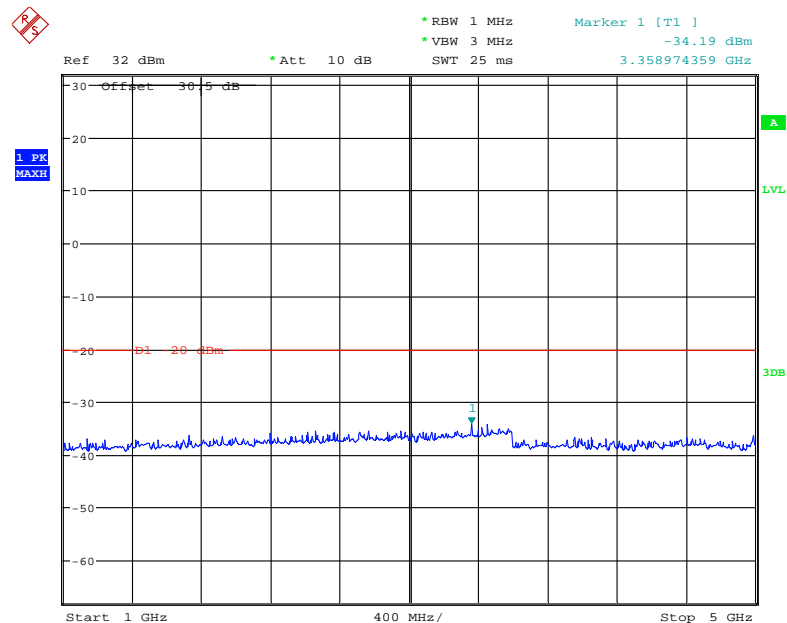
Analog Modulation:

30MHz – 1 GHz, Channel Spacing 12.5 kHz, 151.0125 MHz



Date: 16.SEP.2017 14:46:08

1 GHz – 5 GHz, Channel Spacing 12.5 kHz, 151.0125 MHz



Date: 16.SEP.2017 14:45:02

Ref 32 dBm * Att 10 dB * RBW 100 kHz * VBW 300 kHz * SWT 100 ms Marker 1 [T1] -36.16 dBm 459.038461538 MHz

Offset 30.5 dB

1 PK MAXH

20 dBm

1

Start 30 MHz 97 MHz/ Stop 1 GHz

Fund.test with notch filter

Ref 32 dBm * Att 10 dB

* RBW 1 MHz * VBW 3 MHz

SWT 25 ms

Marker 1 [T1] -34.39 dBm

3.570512821 GHz

Offset 30.5 dB

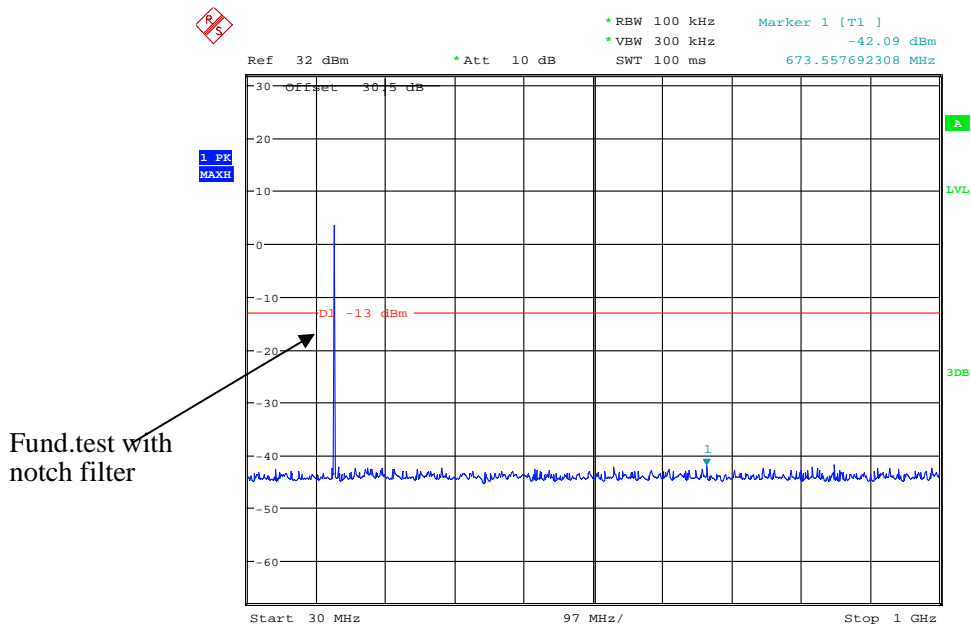
1 PK MAXH

Start 1 GHz 400 MHz/ Stop 5 GHz

FCC Part 22, 74 and 80

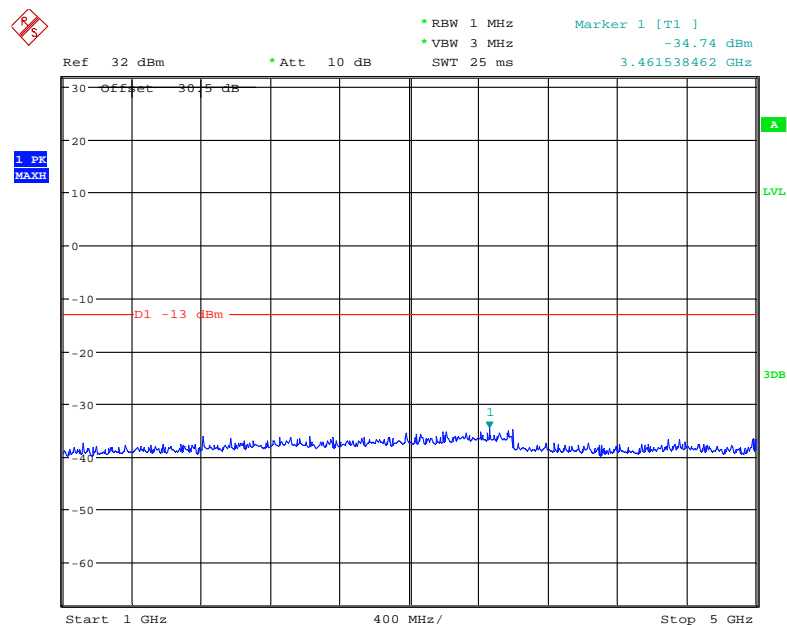
Analog Modulation:

30MHz – 1 GHz, Channel Spacing 25 kHz, 151.0125 MHz



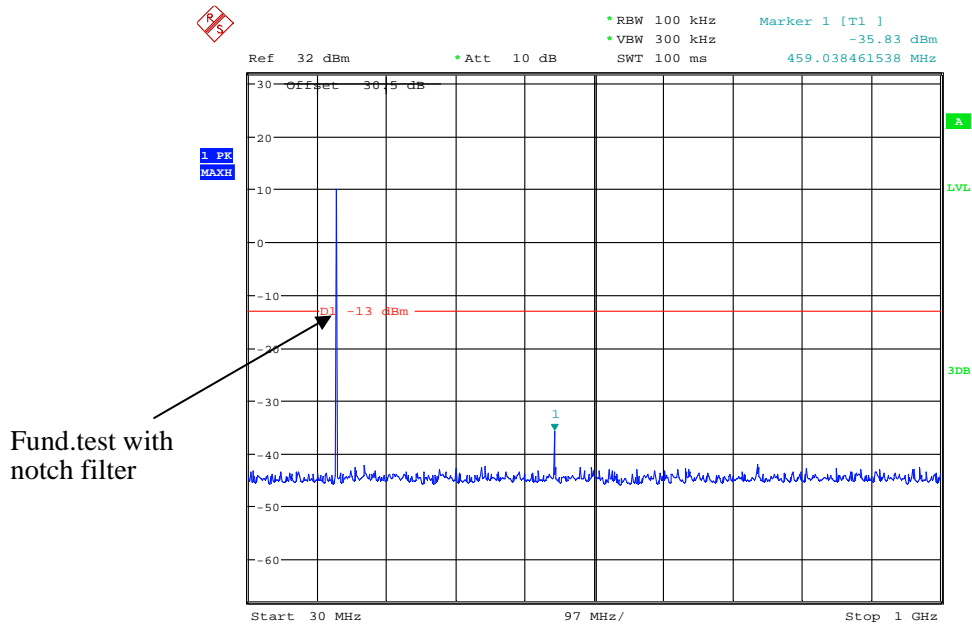
Date: 16.SEP.2017 14:54:30

1 GHz – 5 GHz, Channel Spacing 25 kHz, 151.0125 MHz



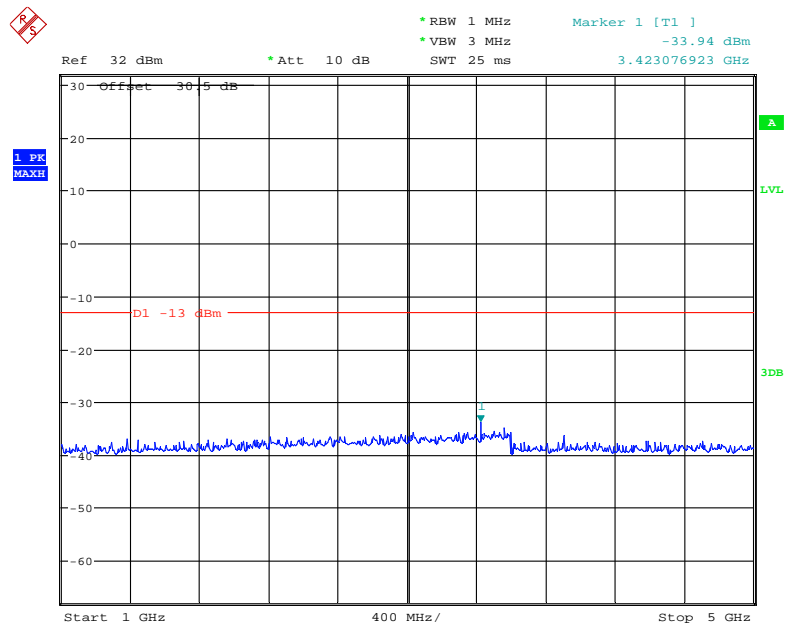
Date: 16.SEP.2017 14:55:06

30MHz – 1 GHz, Channel Spacing 25 kHz, 153.0125 MHz



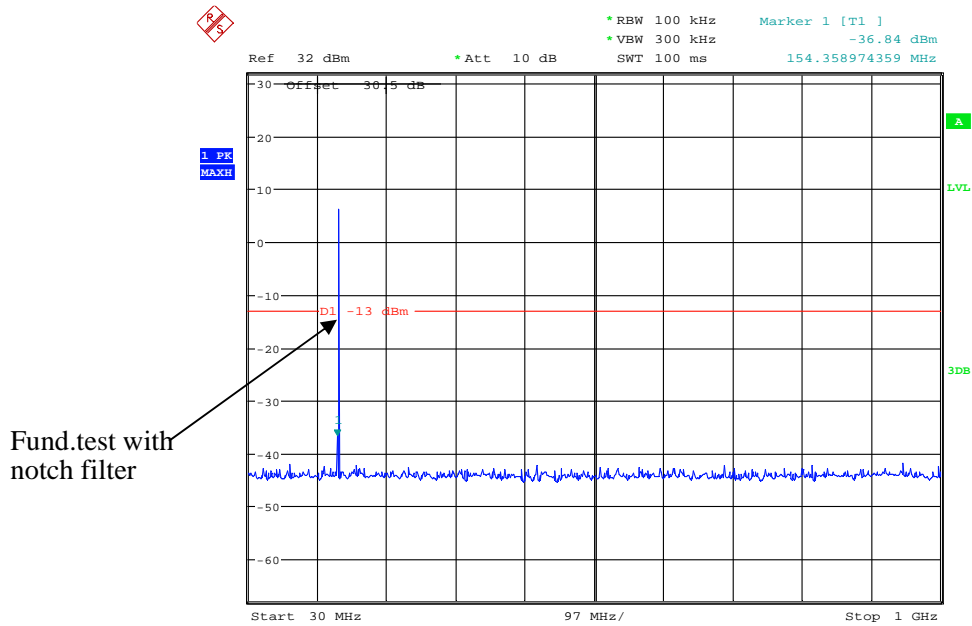
Date: 16.SEP.2017 14:56:01

1 GHz – 5 GHz, Channel Spacing 25 kHz, 153.0125 MHz



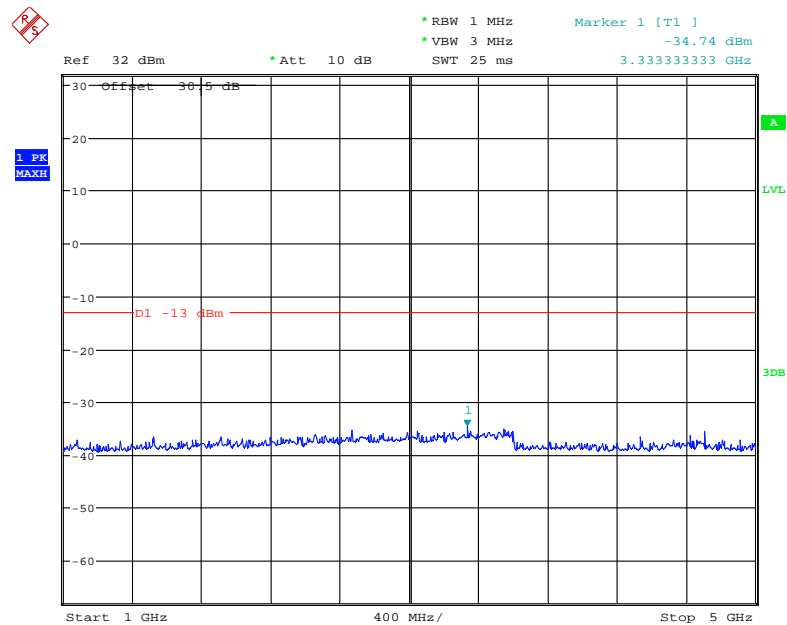
Date: 16.SEP.2017 14:55:32

30MHz – 1 GHz, Channel Spacing 25 kHz, 155.7525 MHz



Date: 16.SEP.2017 14:56:52

1 GHz – 5 GHz, Channel Spacing 25 kHz, 155.7525 MHz



Date: 16.SEP.2017 14:57:34

FCC §2.1053 & §22.861 & §74.462 & § 80.211 - RADIATED SPURIOUS EMISSIONS

Applicable Standard

FCC §2.1053, §22.861, §74.462, § 80.211

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 Log₁₀ (power out in Watts) for EUT with a 12.5 kHz channel bandwidth.

Spurious attenuation limit in dB = 43 + 10 log (P) for EUT with a 25 kHz channel bandwidth.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Simon Wang on 2017-09-23.

Test Mode: Transmitting

30MHz - 2GHz:

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 151.0125MHz-12.5 kHz										
453.04	41.97	201	1.9	H	-55.0	0.47	0	-55.47	-20	35.47
453.04	44.80	107	1.5	V	-52.2	0.47	0	-52.67	-20	32.67
1057.09	43.31	320	1.9	H	-65.2	1.60	6.90	-59.90	-20	39.90
1057.09	42.97	243	1.3	V	-66.4	1.60	6.90	-61.10	-20	41.10
Analog 153.0125MHz-12.5 kHz										
459.04	44.86	169	2.0	H	-52.1	0.47	0	-52.57	-20	32.57
459.04	44.21	36	1.3	V	-52.8	0.47	0	-53.27	-20	33.27
1071.09	43.48	343	1.8	H	-65.1	1.60	6.90	-59.80	-20	39.80
1071.09	43.73	325	1.0	V	-65.7	1.60	6.90	-60.40	-20	40.40
Analog 151.0125MHz-25 kHz										
302.03	54.88	304	1.5	H	-42.1	0.36	0	-42.46	-13	29.46
302.03	55.69	123	1.9	V	-41.3	0.36	0	-41.66	-13	28.66
1057.09	43.87	12	1.2	H	-64.7	1.60	6.90	-59.40	-13	46.4
1057.09	43.78	73	2.1	V	-65.6	1.60	6.90	-60.30	-13	47.3
Analog 153.0125MHz-25 kHz										
306.03	53.63	47	1.7	H	-43.4	0.36	0	-43.76	-13	30.76
306.03	54.05	176	1.4	V	-42.9	0.36	0	-43.26	-13	30.26
1071.09	43.53	278	1.3	H	-65.0	1.60	6.90	-59.70	-13	46.70
1071.09	43.20	274	1.1	V	-66.2	1.60	6.90	-60.90	-13	47.90

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 155.7525MHz-25 kHz										
311.51	52.27	348	2.2	H	-44.7	0.36	0	-45.06	-13	32.06
311.51	51.58	104	2.0	V	-45.4	0.36	0	-45.76	-13	32.76
1090.27	43.80	142	2.4	H	-64.8	1.60	6.90	-59.50	-13	46.5
1090.27	43.36	164	1.7	V	-66.0	1.60	6.90	-60.70	-13	47.7
Digital 151.0125MHz-12.5 kHz										
453.04	44.42	29	1.8	H	-52.6	0.47	0	-53.07	-20	33.07
453.04	44.27	69	1.6	V	-52.7	0.47	0	-53.17	-20	33.17
1057.09	43.27	326	2.2	H	-65.3	1.60	6.90	-60.00	-20	40.00
1057.09	43.22	342	2.2	V	-66.2	1.60	6.90	-60.90	-20	40.90
Digital 153.0125MHz-12.5 kHz										
459.04	43.15	245	1.8	H	-53.8	0.47	0	-54.27	-20	34.27
459.04	43.97	82	2.0	V	-53.0	0.47	0	-53.47	-20	33.47
1071.09	43.52	332	1.8	H	-65.0	1.60	6.90	-59.70	-20	39.70
1071.09	43.31	157	2.4	V	-66.1	1.60	6.90	-60.80	-20	40.80

Note:

Absolute Level = Substituted Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

FCC §2.1055 & § 22.355 & §74.464 & § 80.209 - FREQUENCY STABILITY**Applicable Standard**

FCC §2.1055, § 22.355, §74.464, § 80.209

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**

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Simon Wang on 2017-09-23.

Test Mode: Transmitting

Digital Modulation, Reference Frequency: 151.0125 MHz, Limit: ± 5.0 ppm, 12.5 kHz			
Test Environment		Frequency Measure with Time Elapsed	
Temperature (°C)	Voltage Supplied (V_{DC})	Measured Frequency (MHz)	Frequency Error (ppm)
Frequency Stability versus Input Temperature			
50	7.40	151.012440	-0.3973
40	7.40	151.012411	-0.5894
30	7.40	151.012405	-0.6291
20	7.40	151.012448	-0.3443
10	7.40	151.012430	-0.4635
0	7.40	151.012452	-0.3179
-10	7.40	151.012469	-0.2053
-20	7.40	151.012497	-0.0199
-30	7.40	151.012487	-0.0861
Frequency Stability versus Input Voltage			
20	6.40	151.012469	-0.2053

Digital Modulation, Reference Frequency: 153.0125 MHz, Limit: ± 5.0 ppm, 12.5 kHz			
Test Environment		Frequency Measure with Time Elapsed	
Temperature (°C)	Voltage Supplied (V_{DC})	Measured Frequency (MHz)	Frequency Error (ppm)
Frequency Stability versus Input Temperature			
50	7.40	153.012417	-0.5424
40	7.40	153.012454	-0.3006
30	7.40	153.012474	-0.1699
20	7.40	153.012460	-0.2614
10	7.40	153.012489	-0.0719
0	7.40	153.012456	-0.2876
-10	7.40	153.012463	-0.2418
-20	7.40	153.012455	-0.2941
-30	7.40	153.012442	-0.3791
Frequency Stability versus Input Voltage			
20	6.40	153.012454	-0.3006

Analog Modulation, Reference Frequency: 151.0125 MHz, Limit: ± 5.0 ppm, 12.5 kHz			
Test Environment		Frequency Measure with Time Elapsed	
Temperature (°C)	Voltage Supplied (V _{DC})	Measured Frequency (MHz)	Frequency Error (ppm)
Frequency Stability versus Input Temperature			
50	7.40	151.012509	0.0596
40	7.40	151.012505	0.0331
30	7.40	151.012575	0.4966
20	7.40	151.012555	0.3642
10	7.40	151.012599	0.6556
0	7.40	151.012591	0.6026
-10	7.40	151.012572	0.4768
-20	7.40	151.012527	0.1788
-30	7.40	151.012555	0.3642
Frequency Stability versus Input Voltage			
20	6.40	151.012591	0.6026

Analog Modulation, Reference Frequency: 153.0125 MHz, Limit: ± 5.0 ppm, 12.5 kHz			
Test Environment		Frequency Measure with Time Elapsed	
Temperature (°C)	Voltage Supplied (V _{DC})	Measured Frequency (MHz)	Frequency Error (ppm)
Frequency Stability versus Input Temperature			
50	7.40	153.012528	0.1830
40	7.40	153.012528	0.1830
30	7.40	153.012525	0.1634
20	7.40	153.012563	0.4117
10	7.40	153.012532	0.2091
0	7.40	153.012566	0.4313
-10	7.40	153.012534	0.2222
-20	7.40	153.012597	0.6339
-30	7.40	153.012597	0.6339
Frequency Stability versus Input Voltage			
20	6.40	153.012525	0.1634

Analog Modulation, Reference Frequency: 151.0125 MHz, Limit: ± 5.0 ppm, 25 kHz			
Test Environment		Frequency Measure with Time Elapsed	
Temperature (°C)	Voltage Supplied (V _{DC})	Measured Frequency (MHz)	Frequency Error (ppm)
Frequency Stability versus Input Temperature			
50	7.40	151.012588	0.5827
40	7.40	151.012571	0.4702
30	7.40	151.012509	0.0596
20	7.40	151.012593	0.6158
10	7.40	151.012591	0.6026
0	7.40	151.012511	0.0728
-10	7.40	151.012586	0.5695
-20	7.40	151.012507	0.0464
-30	7.40	151.012524	0.1589
Frequency Stability versus Input Voltage			
20	6.40	151.012593	0.6158

Analog Modulation, Reference Frequency: 153.0125 MHz, Limit: ± 5.0 ppm, 25 kHz			
Test Environment		Frequency Measure with Time Elapsed	
Temperature (°C)	Voltage Supplied (V _{DC})	Measured Frequency (MHz)	Frequency Error (ppm)
Frequency Stability versus Input Temperature			
50	7.40	153.012585	0.5555
40	7.40	153.012576	0.4967
30	7.40	153.012552	0.3398
20	7.40	153.012567	0.4379
10	7.40	153.012531	0.2026
0	7.40	153.012562	0.4052
-10	7.40	153.012523	0.1503
-20	7.40	153.012542	0.2745
-30	7.40	153.012572	0.4705
Frequency Stability versus Input Voltage			
20	6.40	153.012567	0.4379

Analog Modulation, Reference Frequency: 155.7525 MHz, Limit: ± 5.0 ppm, 25 kHz			
Test Environment		Frequency Measure with Time Elapsed	
Temperature (°C)	Voltage Supplied (V _{DC})	Measured Frequency (MHz)	Frequency Error (ppm)
Frequency Stability versus Input Temperature			
50	7.40	155.752571	0.4559
40	7.40	155.752548	0.3082
30	7.40	155.752564	0.4109
20	7.40	155.752534	0.2183
10	7.40	155.752556	0.3595
0	7.40	155.752582	0.5265
-10	7.40	155.752574	0.4751
-20	7.40	155.752514	0.0899
-30	7.40	155.752564	0.4109
Frequency Stability versus Input Voltage			
20	6.40	155.752556	0.3595

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