



TESTING LABORATORY
CERTIFICATE #4820.01



FCC PART 22, 74 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: YAMPT350PF8

Report Type: Original Report	Product Type: TETRA PORTABLE TERMINAL
Report Number: RDG180926001-00C	
Report Date: 2019-03-11	
Dean Lau	
Reviewed By:	RF Supervisor <i>Dean Lau</i>
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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan). This report must not be used by the customer to claim product certification, approval, or endorsement by A2LA* or any agency of the Federal Government. * This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk “*”.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:		TETRA PORTABLE TERMINAL
EUT Model:		PT350 F8
Multiple Model:		PT310 F8
FCC ID:		YAMPT350PF8
Rated Input Voltage:		3.85V DC from battery
Adapter Information	P/N:	PS2019
	Model:	S024AZM1200200
	Input:	AC 100-240V, 50/60Hz, 600mA
	Output:	DC 12V, 2000mA
External Dimension:		123.5mm(L)*55.5mm(W)*32.5mm(H)
Serial Number:		180926001
EUT Received Date:		2018-10-10

Note: The series products models PT350 F8, PT310 F8 are electrically identical, we selected PT350 F8 for fully testing, the details of the difference between them were explained in the attached declaration letter.

Objective

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

Related Submittal(s)/Grant(s)

FCC Part 15C DSS submissions with FCC ID: YAMPT350PF8.
FCC Part 15C DTS submissions with FCC ID: YAMPT350PF8.

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 90 – Private Land Mobile Radio Service

Applicable Standards: TIA 603-D

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

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	$\pm 5\%$
RF output power, conducted	$\pm 0.61\text{dB}$
Unwanted Emissions, radiated	30MHz ~ 1GHz: 5.85 dB 1G~26.5GHz: 5.23 dB
Unwanted Emissions, conducted	$\pm 1.5\text{ dB}$
Temperature	$\pm 1^\circ\text{C}$
Humidity	$\pm 5\%$
DC and low frequency voltages	$\pm 0.4\%$
Duty Cycle	1%

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062D.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

Equipment Modifications

No modification was made to the EUT tested.

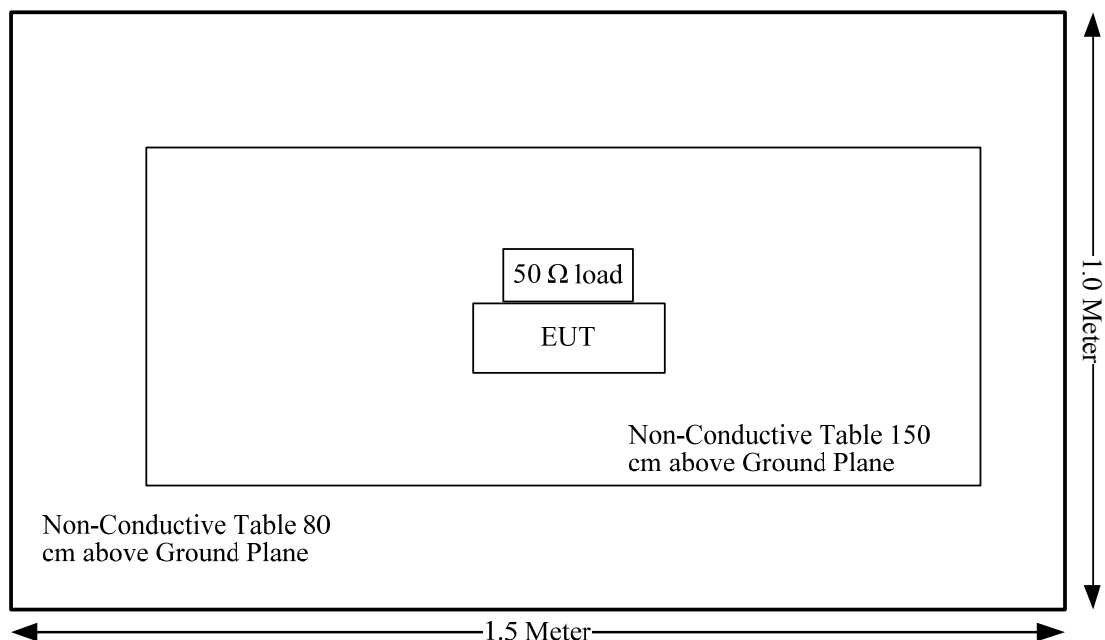
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Unknown	50 Load Teminal	100W	/

External I/O Cable

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
/	/	/	/	/	/

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§1.1310 and §2.1093	RF Exposure	Compliance
§2.1046; § 22.727; §74.461; §90.205	RF Output Power	Compliance
§90.210; §90.221	Adjacent Channel Power	Compliance
§2.1047; §90.207	Modulation Characteristic	Not Applicable*
§2.1049; §22.357; § 22.731; §74.462; §90.209; §90.210	Occupied Bandwidth	Compliance
§2.1051; §22.861; §74.462; §90.210	Spurious Emission at Antenna Terminal	Compliance
§2.1053; §22.861; §74.462; §90.210	Spurious Radiated Emissions	Compliance
§2.1055; § 22.355; §74.464; §90.213	Frequency Stability	Compliance
§90.214	Transient Frequency Behavior	Not Applicable*

Not applicable*: It is not required for tetral device

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
R&S	EMI Test Receiver	ESCI	100224	2017-12-11	2018-12-11
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2018-09-05	2019-09-05
HP	Amplifier	8447D	2727A05902	2018-09-05	2019-09-05
Agilent	Signal Generator	E8247C	MY43321350	2017-12-11	2018-12-11
Agilent	Spectrum Analyzer	E4440A	SG43360054	2018-01-04	2019-01-04
TDK RF	Horn Antenna	HRN-0118	130 084	2016-01-05	2019-01-04
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2018-09-05	2019-09-05
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2018-09-05	2019-09-05
RF Conducted Test					
R&S	Spectrum Analyzer	FSU 26	200256	2018-01-04	2019-01-04
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	2018-09-06	2019-09-06
Weinschel	Coaxial Attenuators	53-20-34	LN749	2018-09-06	2019-09-06
HP	RF Communications Test Set	8920A	00 235	2018-07-11	2019-07-11
Dongzhixu	High Temperature Test Chamber	DP1000	201105083-4	2018-08-25	2019-08-25
UNI-T	Multimeter	UT39A	M130199938	2018-07-24	2019-07-24
Pro instrument	DC Power Supply	pps3300	3300012	N/A	N/A

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

FCC §1.1310 & §2.1093 - RF EXPOSURE

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RDG180926001-20A.

FCC §2.1046 & § 22.727 & §74.461 & §90.205- RF OUTPUT POWER**Applicable Standard**

FCC §2.1046, § 22.727, §74.461 and §90.205

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:

RBW	VBW
100 kHz	300 kHz

Test Data**Environmental Conditions**

Temperature:	27.5°C
Relative Humidity:	46 %
ATM Pressure:	100.7 kPa

The testing was performed by Tiago Huang on 2018-10-24.

Test Mode: Transmitting

Test Result: Compliance. Please refer to following table.

Frequency (MHz)	Mode	Output Power (dBm)	Note
350.0125	DMO	32.56	For Federal
453.2125		32.80	FCC Part 90
454.0125		32.73	FCC Part 22
455.0125		32.53	FCC Part 74
474.9875		32.59	FCC Part 90
350.0125	TMO	32.83	For Federal
453.2125		32.63	FCC Part 90
454.0125		32.79	FCC Part 22
455.0125		32.74	FCC Part 74
474.9875		32.41	FCC Part 90

Note: The rated power is 32.5 dBm.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC §90.210& §90.221- ADJACENT CHANNEL POWER**Applicable Standard**

FCC §2.1046, §90.210& §90.221

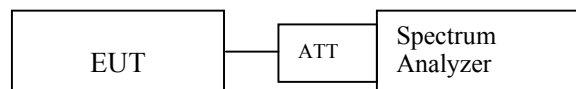
According to FCC§90.221 (b) (1), Maximum adjacent power levels for frequencies in the 450-470 MHz band:

Frequency offset	Maximum ACP (dBc) for devices 1 watt and less	Maximum ACP (dBc) for devices above 1 watt
25 kHz	-55 dBc	-60 dBc
50 kHz	-70 dBc	-70 dBc
75 kHz	-70 dBc	-70 dBc

(2) In any case, no requirement in excess of -36 dBm shall apply

Test Procedure

The EUT was connected to the Spectrum Analyzer with a suitable attenuator.

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

Temperature:	27 °C
Relative Humidity:	56%
ATM Pressure:	100.5 kPa

The testing was performed by Tiago Huang on 2019-03-07.

Test Mode: DMO & TMO Transmitting

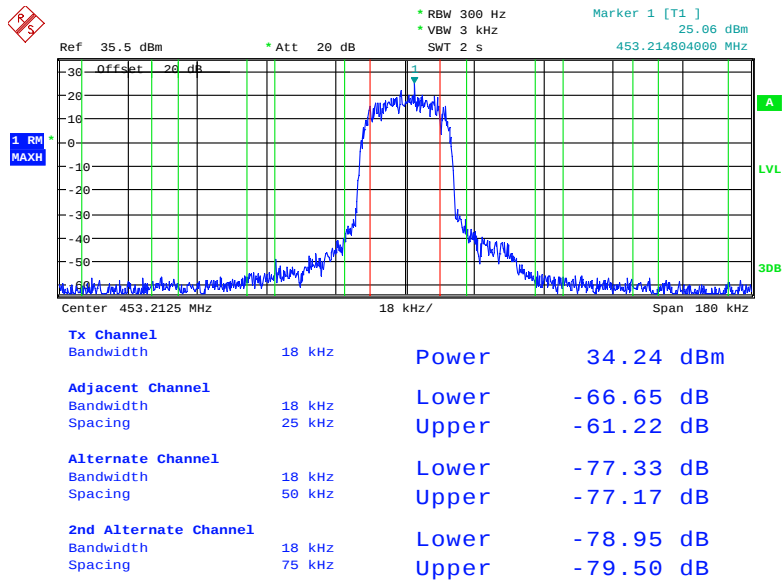
Test Result: Compliance. Please refer to following table and plots.

Mode	Frequency (MHz)	Frequency offset (KHz)	Adjacent Channel Ratio(dB)	Limit (dB)
DMO	453.2125	-75	-78.95	-70
		-50	-77.33	-70
		-25	-66.65	-60
		25	-61.22	-60
		50	-77.17	-70
		75	-79.50	-70
	455.0125	-75	-80.01	-70
		-50	-77.26	-70
		-25	-66.71	-60
		25	-61.90	-60
		50	-77.50	-70
		75	-79.74	-70

Mode	Frequency (MHz)	Frequency offset (KHz)	Adjacent Channel Ratio(dB)	Limit (dB)
TMO	453.2125	-75	-79.62	-70
		-50	-76.79	-70
		-25	-65.18	-60
		25	-60.15	-60
		50	-76.64	-70
		75	-80.02	-70
	455.0125	-75	-79.53	-70
		-50	-76.81	-70
		-25	-67.85	-60
		25	-60.90	-60
		50	-77.02	-70
		75	-79.39	-70

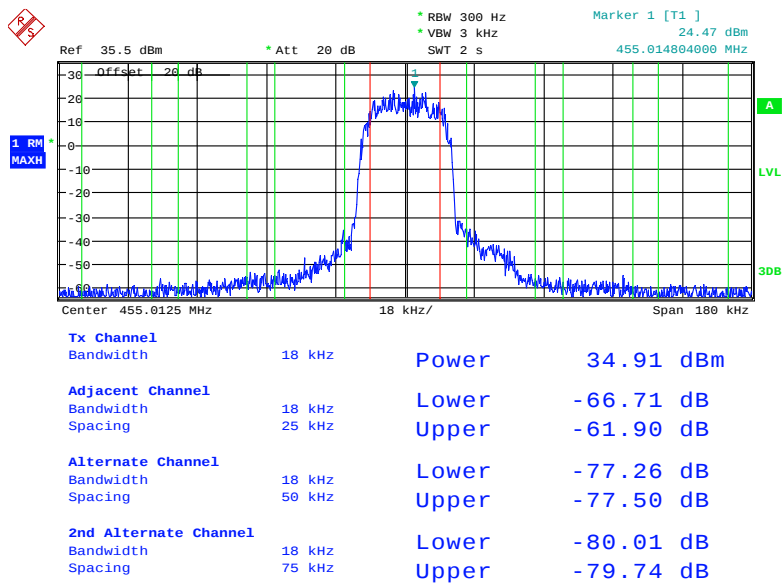
DMO:

Frequency 453.2125 MHz



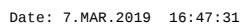
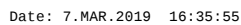
Date: 7.MAR.2019 16:50:21

Frequency 455.0125 MHz



Date: 7.MAR.2019 16:54:21

Frequency 453.2125 MHz



FCC §2.1049 & §22.357 & § 22.731 & §74.462 & §90.209 & §90.210 – OCCUPIED BANDWIDTH

Applicable Standard

FCC §2.1049, §22.357, § 22.731, §74.462, §90.209 and §90.210

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 300 Hz.

Test Data

Environmental Conditions

Temperature:	27~27.5°C
Relative Humidity:	46~56 %
ATM Pressure:	100.7~100.9 kPa

The testing was performed by Tiago Huang on 2018-10-24 & 2018-11-06.

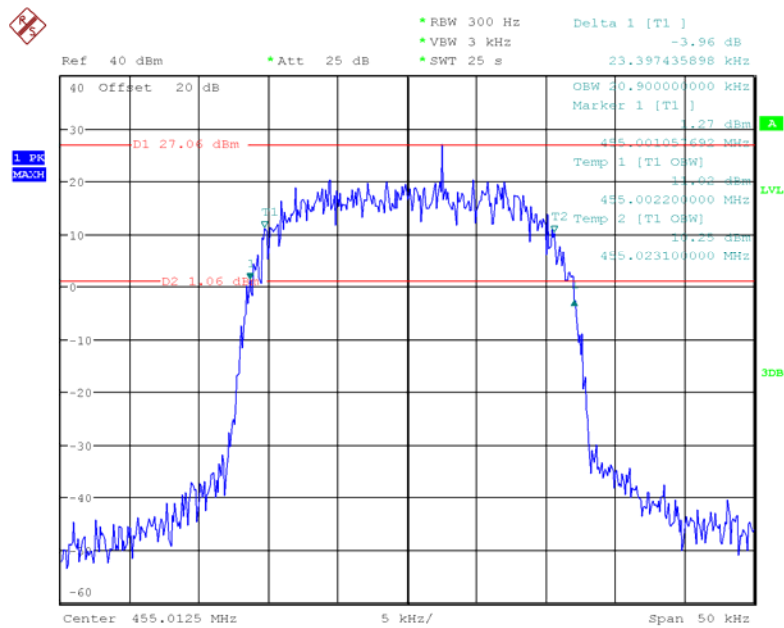
Mode	f_c	99% Occupied Bandwidth	26 dB Bandwidth	Note
	MHz	kHz	kHz	
DMO	453.2125	20.900	23.818	FCC part 90
	454.0125	21.100	23.899	FCC Part 22
	455.0125	20.900	23.397	FCC Part 74
TMO	453.2125	21.300	23.501	FCC part 90
	454.0125	21.000	23.237	FCC Part 22
	455.0125	20.900	23.517	FCC Part 74

Occupied Bandwidth -453.2125 MHz



Date: 24.OCT.2018 21:33:42

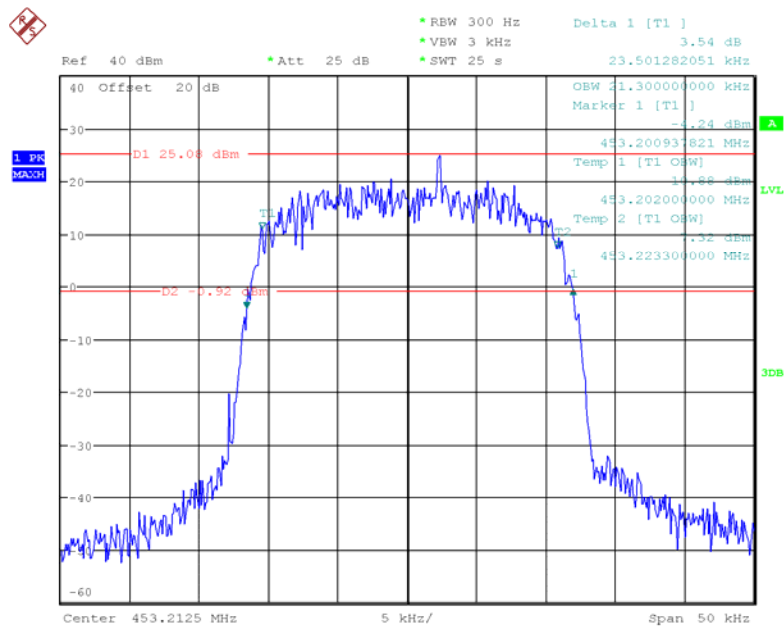
Occupied Bandwidth –455.0125 MHz



Date: 24.OCT.2018 21:38:59

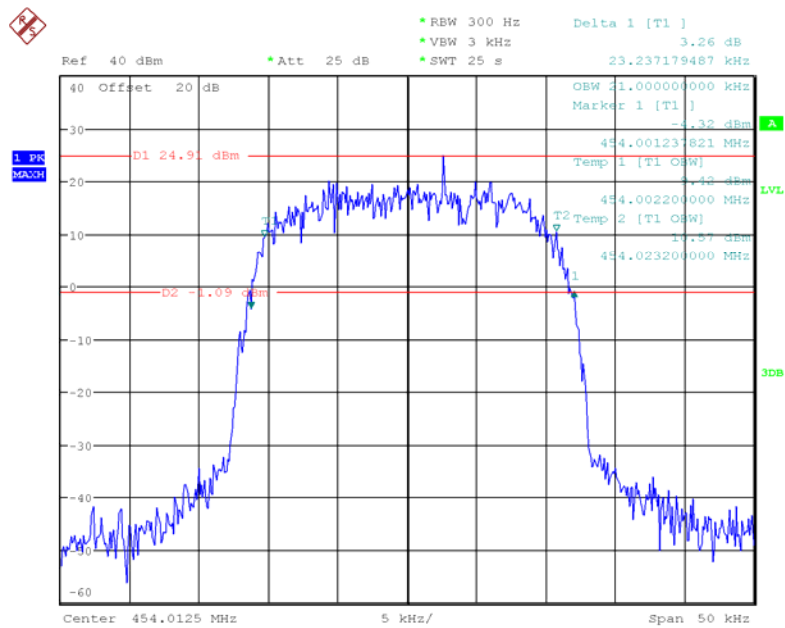
TMO:

Occupied Bandwidth – 453.2125 MHz



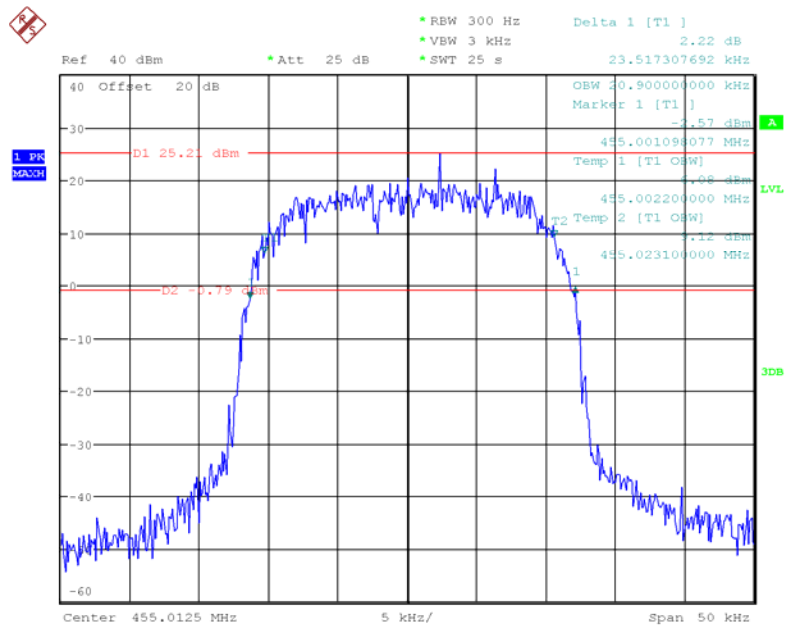
Date: 24.OCT.2018 21:36:45

Occupied Bandwidth –454.0125 MHz



Date: 24.OCT.2018 23:58:22

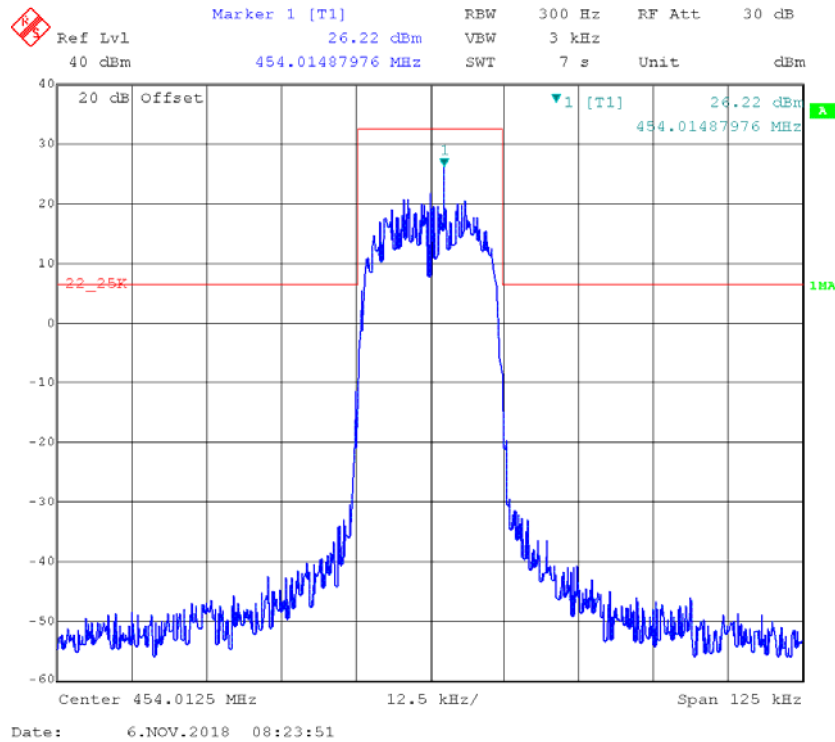
Occupied Bandwidth –455.0125 MHz



Date: 24.OCT.2018 21:40:05

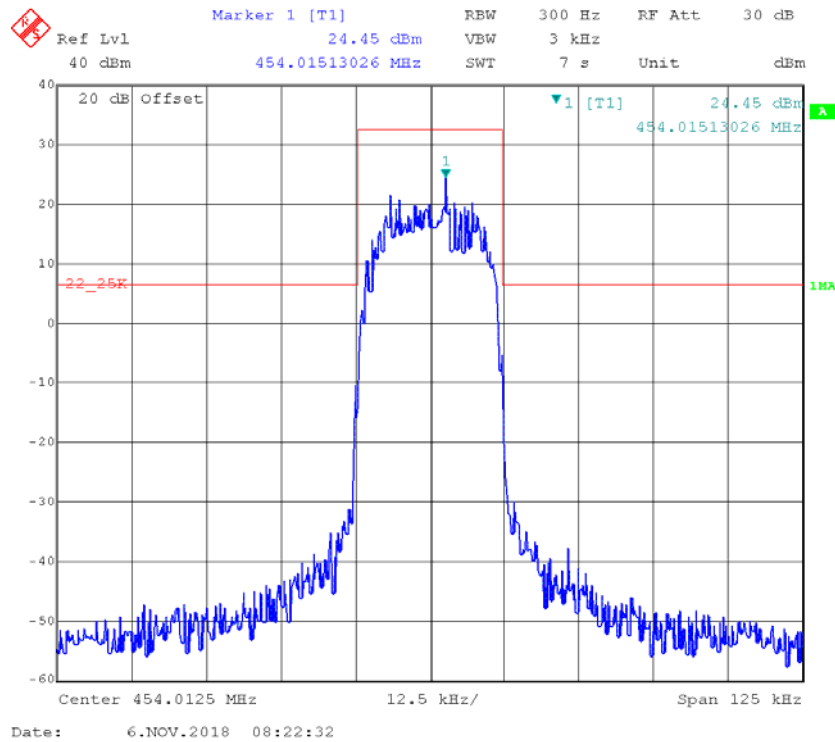
Emission Mask:
DMO:

Emission Mask –454.0125 MHz



TMO:

Emission Mask –454.0125 MHz



FCC §2.1051 & §22.861 & §74.462 & §90.210 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard

FCC §2.1051, §22.861, §74.462 and §90.210

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 10th harmonic.

Test Data**Environmental Conditions**

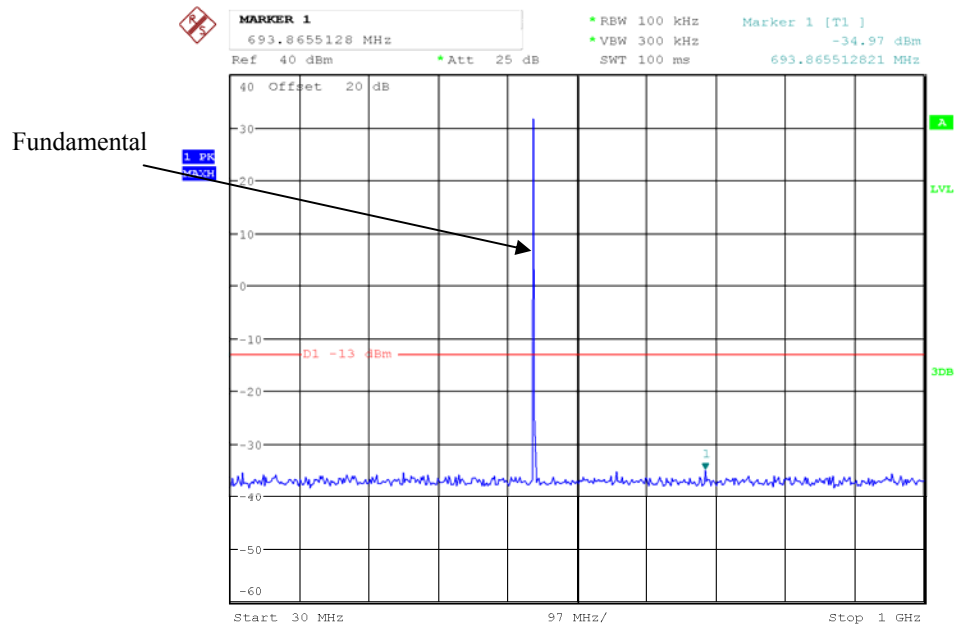
Temperature:	27.5°C
Relative Humidity:	46 %
ATM Pressure:	100.7 kPa

The testing was performed by Tiago Huang on 2018-10-24.

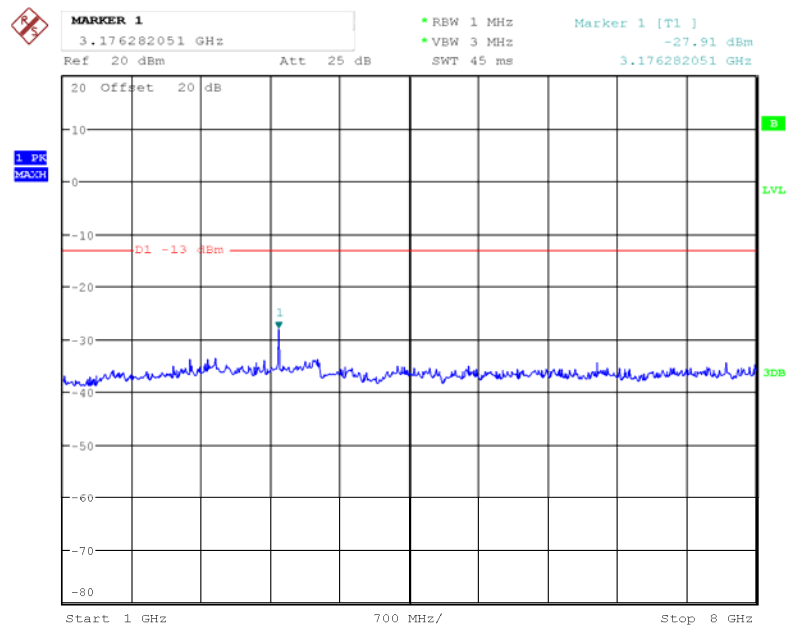
Test Mode: DMO&TMO Transmitting

DMO

453.2125 MHz-FCC part 90

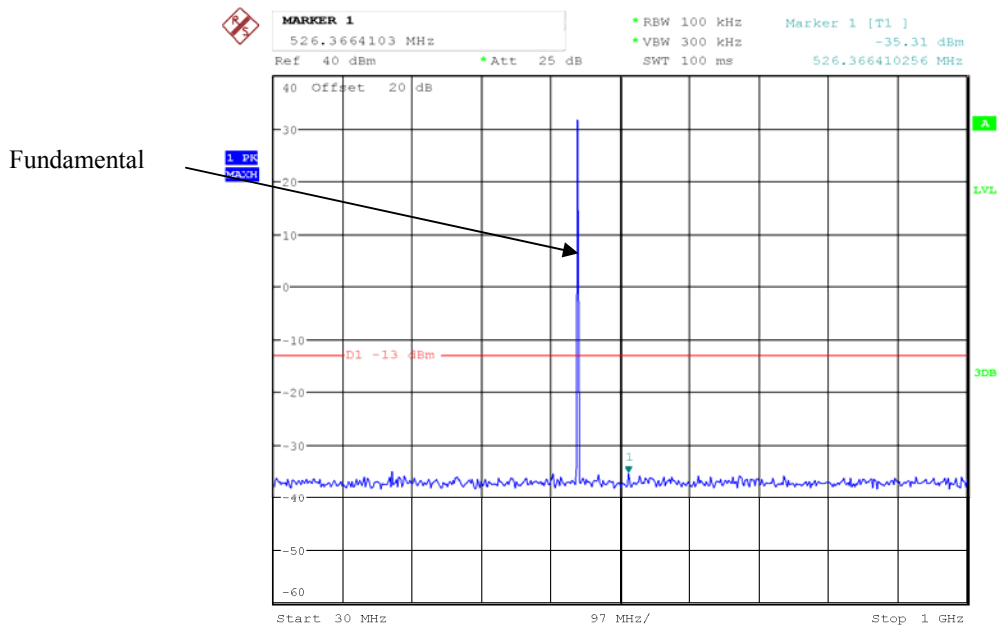


Date: 24.OCT.2018 22:24:39

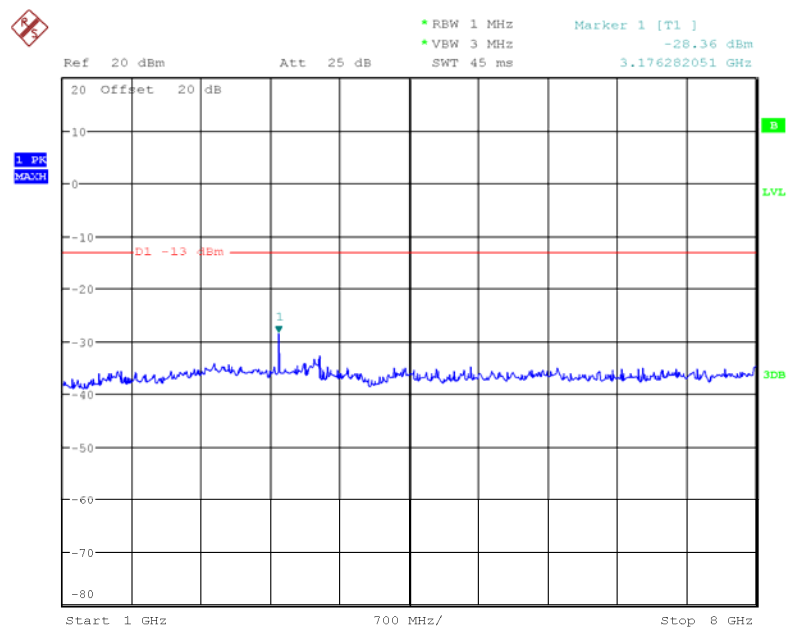


Date: 24.OCT.2018 22:28:02

454.0125 MHz-FCC part 22

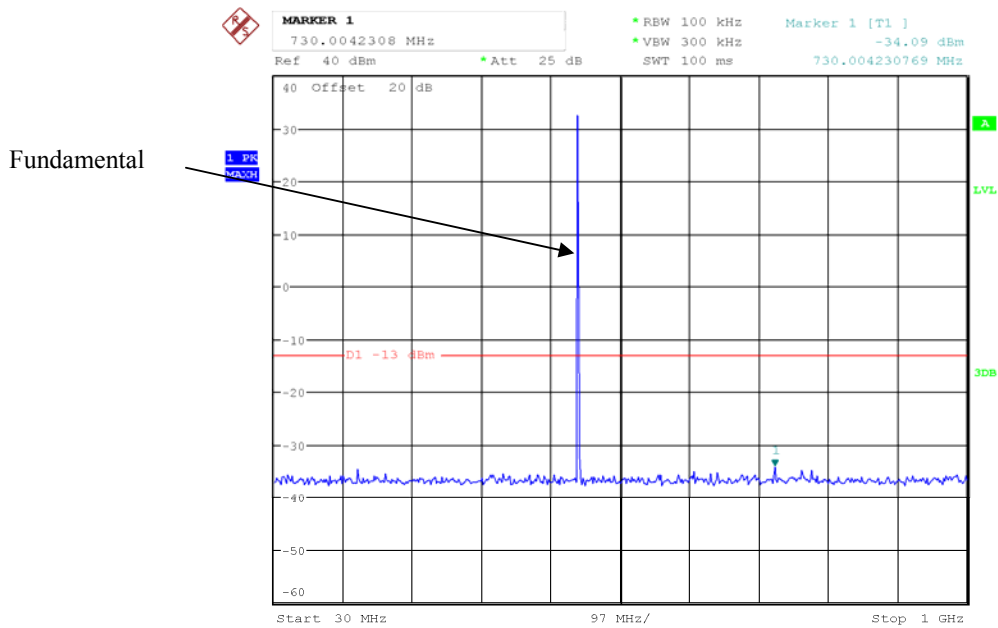


Date: 24.OCT.2018 22:19:17

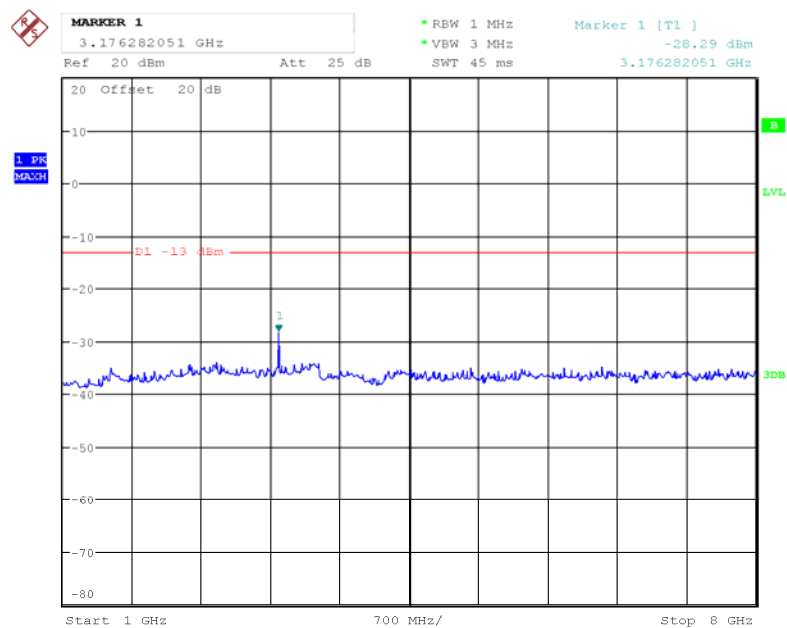


Date: 24.OCT.2018 22:28:31

454.0125 MHz-FCC part 74



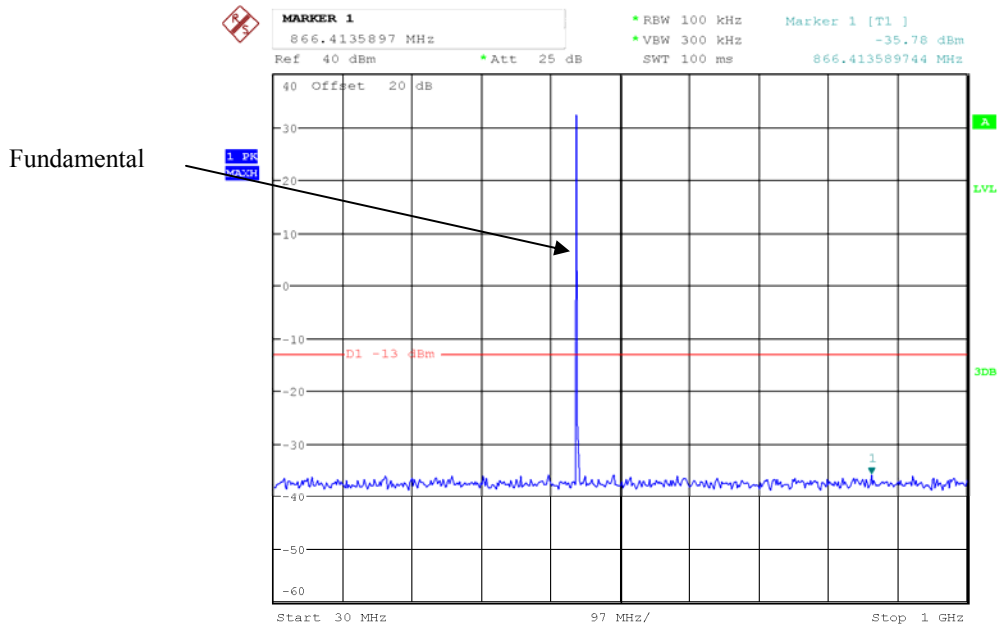
Date: 24.OCT.2018 22:23:34



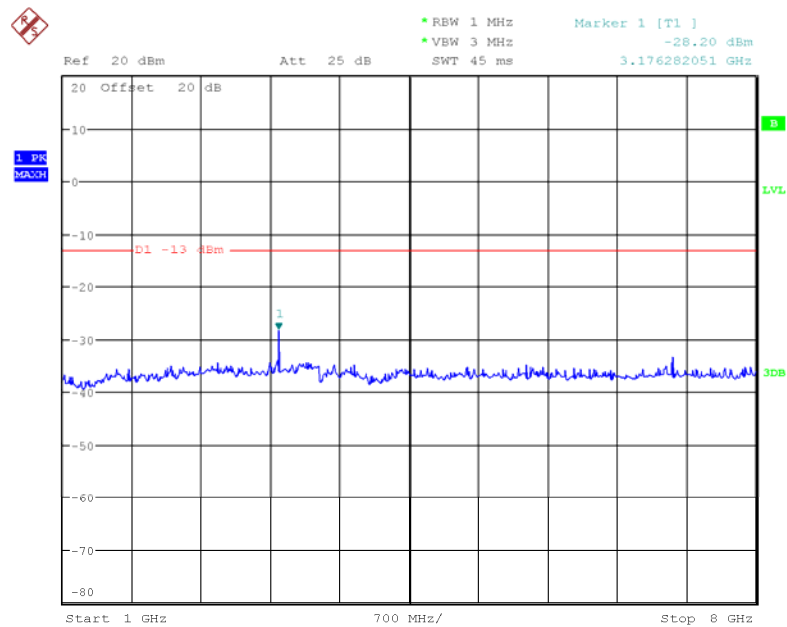
Date: 24.OCT.2018 22:21:57

TMO

453.2125 MHz-FCC part 90

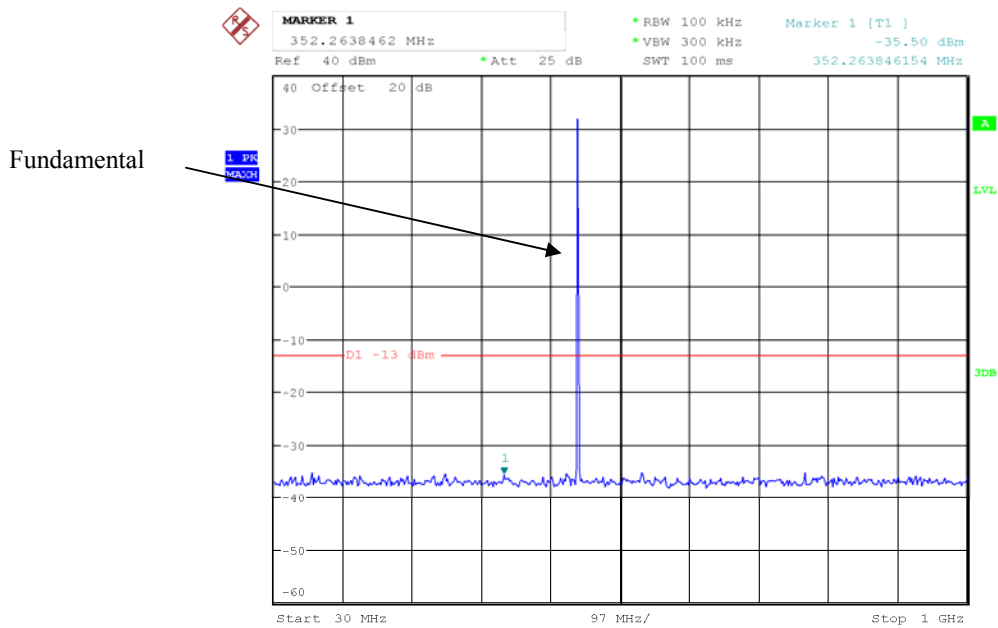


Date: 24.OCT.2018 22:24:55

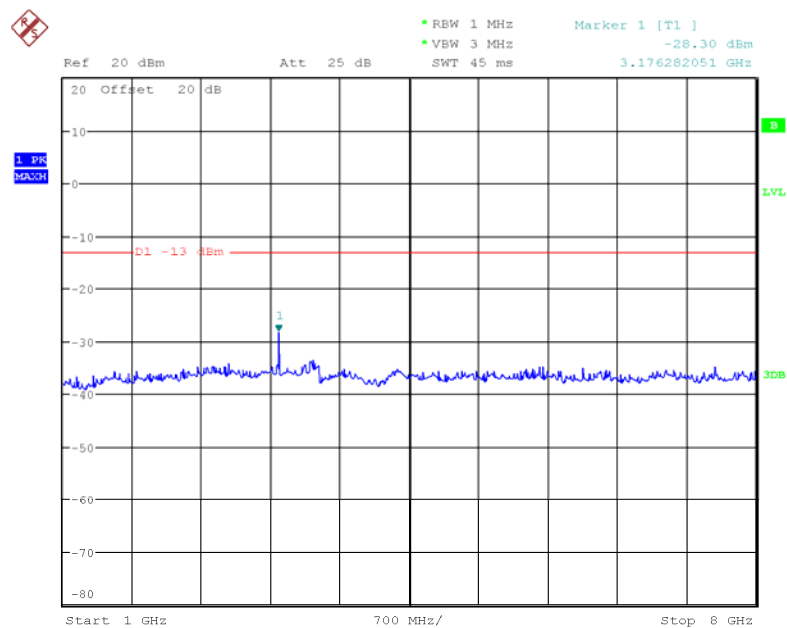


Date: 24.OCT.2018 22:28:15

454.0125 MHz-FCC part 22

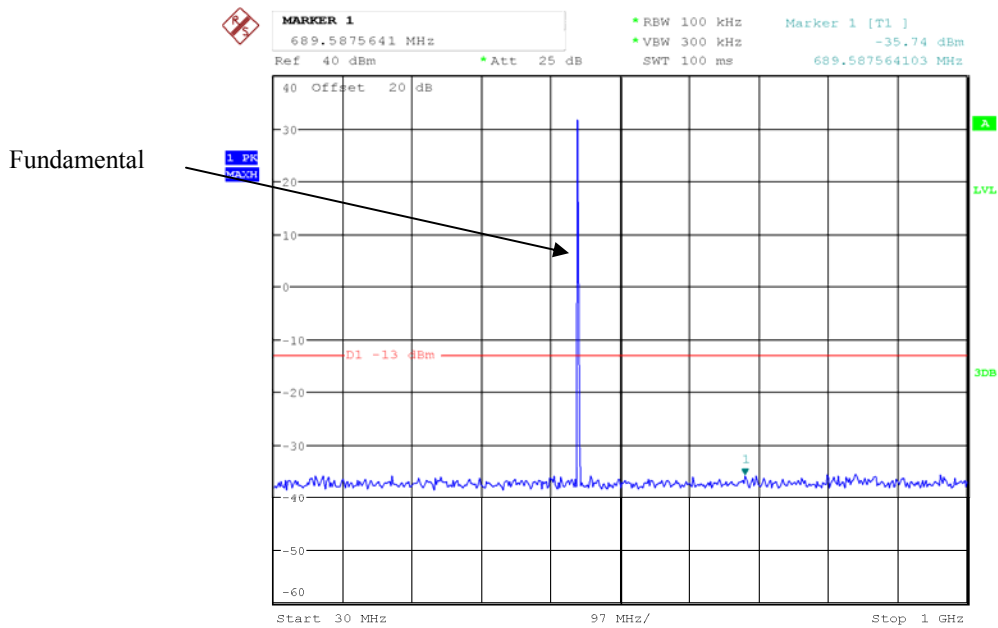


Date: 24.OCT.2018 22:19:59

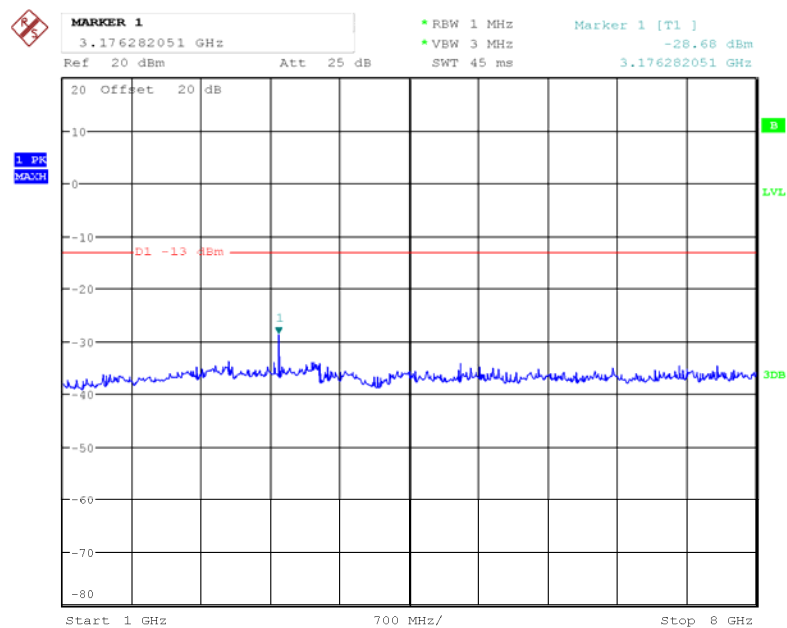


Date: 24.OCT.2018 22:28:40

455.0125 MHz-FCC part 74



Date: 24.OCT.2018 22:23:55



Date: 24.OCT.2018 22:22:08

FCC §2.1053; §22.861; §74.462 & §90.210 - RADIATED SPURIOUS EMISSIONS

Applicable Standard

FCC §2.1053, §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 = 43 + 10 Log₁₀ (power out in Watts) for EUT with a 12.5 kHz channel bandwidth.

Test Data

Environmental Conditions

Temperature:	25.4~26.3℃
Relative Humidity:	31~ 36 %
ATM Pressure:	101 kPa

The testing was performed by Vern Shen & Blake Yang on 2018-10-29.

PT350 F8:

Test Mode: Transmitting

30MHz - 10GHz:

DMO

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dB)	Cable Loss (dB)			
Frequency:453.2125 MHz-FCC part 90								
906.43	H	33.60	-63.27	0.00	1.03	-64.30	-13.00	51.30
906.43	V	40.72	-58.12	0.00	1.03	-59.15	-13.00	46.15
1359.64	H	50.68	-62.68	8.72	1.20	-55.16	-13.00	42.16
1359.64	V	55.43	-58.65	8.72	1.20	-51.13	-13.00	38.13
1812.85	H	46.82	-67.36	11.19	0.72	-56.89	-13.00	43.89
1812.85	V	47.25	-67.49	11.19	0.72	-57.02	-13.00	44.02
Frequency:454.0125 MHz-FCC part 22								
908.03	H	34.14	-62.67	0.00	1.03	-63.70	-13.00	50.70
908.03	V	42.48	-56.28	0.00	1.03	-57.31	-13.00	44.31
1362.04	H	53.73	-59.62	8.73	1.20	-52.09	-13.00	39.09
1362.04	V	57.62	-56.45	8.73	1.20	-48.92	-13.00	35.92
1816.05	H	46.53	-67.60	11.21	0.73	-57.12	-13.00	44.12
1816.05	V	46.82	-67.86	11.21	0.73	-57.38	-13.00	44.38
Frequency:455.0125 MHz-FCC part 74								
910.03	H	35.12	-61.60	0.00	1.02	-62.62	-13.00	49.62
910.03	V	39.68	-58.98	0.00	1.02	-60.00	-13.00	47.00
1365.04	H	52.17	-61.17	8.76	1.20	-53.61	-13.00	40.61
1365.04	V	57.36	-56.68	8.76	1.20	-49.12	-13.00	36.12
1820.05	H	46.53	-67.53	11.24	0.75	-57.04	-13.00	44.04
1820.05	V	46.87	-67.73	11.24	0.75	-57.24	-13.00	44.24

Note:

Absolute Level = SG Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

TMO

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dB)	Cable Loss (dB)			
Frequency:453.2125 MHz-FCC part 90								
906.43	H	34.15	-62.72	0.00	1.03	-63.75	-13.00	50.75
906.43	V	41.19	-57.65	0.00	1.03	-58.68	-13.00	45.68
1359.64	H	51.15	-62.21	8.72	1.20	-54.69	-13.00	41.69
1359.64	V	55.85	-58.23	8.72	1.20	-50.71	-13.00	37.71
1812.85	H	47.26	-66.92	11.19	0.72	-56.45	-13.00	43.45
1812.85	V	47.66	-67.08	11.19	0.72	-56.61	-13.00	43.61
Frequency:454.0125 MHz-FCC part 22								
908.03	H	34.25	-62.56	0.00	1.03	-63.59	-13.00	50.59
908.03	V	42.76	-56.00	0.00	1.03	-57.03	-13.00	44.03
1362.04	H	54.02	-59.33	8.73	1.20	-51.80	-13.00	38.80
1362.04	V	57.86	-56.21	8.73	1.20	-48.68	-13.00	35.68
1816.05	H	46.64	-67.49	11.21	0.73	-57.01	-13.00	44.01
1816.05	V	46.95	-67.73	11.21	0.73	-57.25	-13.00	44.25
Frequency:455.0125 MHz-FCC part 74								
910.03	H	35.31	-61.41	0.00	1.02	-62.43	-13.00	49.43
910.03	V	39.94	-58.72	0.00	1.02	-59.74	-13.00	46.74
1365.04	H	52.29	-61.05	8.76	1.20	-53.49	-13.00	40.49
1365.04	V	57.55	-56.49	8.76	1.20	-48.93	-13.00	35.93
1820.05	H	46.78	-67.28	11.24	0.75	-56.79	-13.00	43.79
1820.05	V	47.15	-67.45	11.24	0.75	-56.96	-13.00	43.96

Note:

Absolute Level = SG Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

PT310 F8:

Test Mode: Transmitting

30MHz - 10GHz:

DMO

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dB)	Cable Loss (dB)			
Frequency:453.2125 MHz-FCC part 90								
906.43	H	33.62	-63.25	0.00	1.03	-64.28	-13.00	51.28
906.43	V	40.81	-58.03	0.00	1.03	-59.06	-13.00	46.06
1359.64	H	50.76	-62.60	8.72	1.20	-55.08	-13.00	42.08
1359.64	V	55.22	-58.86	8.72	1.20	-51.34	-13.00	38.34
1812.85	H	46.68	-67.50	11.19	0.72	-57.03	-13.00	44.03
1812.85	V	47.10	-67.64	11.19	0.72	-57.17	-13.00	44.17
Frequency:454.0125 MHz-FCC part 22								
908.03	H	33.90	-62.91	0.00	1.03	-63.94	-13.00	50.94
908.03	V	42.30	-56.46	0.00	1.03	-57.49	-13.00	44.49
1362.04	H	53.78	-59.57	8.73	1.20	-52.04	-13.00	39.04
1362.04	V	57.71	-56.36	8.73	1.20	-48.83	-13.00	35.83
1816.05	H	46.09	-68.04	11.21	0.73	-57.56	-13.00	44.56
1816.05	V	46.82	-67.86	11.21	0.73	-57.38	-13.00	44.38
Frequency:455.0125 MHz-FCC part 74								
910.03	H	35.24	-61.48	0.00	1.02	-62.50	-13.00	49.50
910.03	V	39.33	-59.33	0.00	1.02	-60.35	-13.00	47.35
1365.04	H	52.16	-61.18	8.76	1.20	-53.62	-13.00	40.62
1365.04	V	57.30	-56.74	8.76	1.20	-49.18	-13.00	36.18
1820.05	H	46.12	-67.94	11.24	0.75	-57.45	-13.00	44.45
1820.05	V	46.94	-67.66	11.24	0.75	-57.17	-13.00	44.17

Note:

Absolute Level = SG Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

TMO

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dB)	Cable Loss (dB)			
Frequency:453.2125 MHz-FCC part 90								
906.43	H	33.85	-63.02	0.00	1.03	-64.05	-13.00	51.05
906.43	V	41.1	-57.74	0.00	1.03	-58.77	-13.00	45.77
1359.64	H	50.91	-62.45	8.72	1.20	-54.93	-13.00	41.93
1359.64	V	55.67	-58.41	8.72	1.20	-50.89	-13.00	37.89
1812.85	H	47.35	-66.83	11.19	0.72	-56.36	-13.00	43.36
1812.85	V	47.37	-67.37	11.19	0.72	-56.90	-13.00	43.90
Frequency:454.0125 MHz-FCC part 22								
908.03	H	34.07	-62.74	0.00	1.03	-63.77	-13.00	50.77
908.03	V	42.87	-55.89	0.00	1.03	-56.92	-13.00	43.92
1362.04	H	54.03	-59.32	8.73	1.20	-51.79	-13.00	38.79
1362.04	V	57.87	-56.20	8.73	1.20	-48.67	-13.00	35.67
1816.05	H	46.68	-67.45	11.21	0.73	-56.97	-13.00	43.97
1816.05	V	47.1	-67.58	11.21	0.73	-57.10	-13.00	44.10
Frequency:455.0125 MHz-FCC part 74								
910.03	H	35.44	-61.28	0.00	1.02	-62.30	-13.00	49.30
910.03	V	39.64	-59.02	0.00	1.02	-60.04	-13.00	47.04
1365.04	H	52.35	-60.99	8.76	1.20	-53.43	-13.00	40.43
1365.04	V	57.53	-56.51	8.76	1.20	-48.95	-13.00	35.95
1820.05	H	46.79	-67.27	11.24	0.75	-56.78	-13.00	43.78
1820.05	V	47.1	-67.50	11.24	0.75	-57.01	-13.00	44.01

Note:

Absolute Level = SG Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

FCC §2.1055 & § 22.355 & §74.464 & §90.213- FREQUENCY STABILITY**Applicable Standard**

FCC §2.1055, § 22.355, §74.464, §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**

Temperature:	27.5 °C
Relative Humidity:	46 %
ATM Pressure:	100.7 kPa

The testing was performed by Tiago Huang on 2018-10-24.

Test Mode: DMO Transmitting

DMO

FCC Part 90:

fc =453.2125 MHz, 25 kHz				
Temperature	Voltage	Reading	Frequency Error	Limit
°C	Vdc	MHz	ppm	ppm
-30	3.85	453.21260	0.22	5
-20		453.21283	0.73	
-10		453.21242	-0.18	
0		453.21250	0.00	
10		453.21253	0.07	
20		453.21270	0.44	
30		453.21309	1.30	
40		453.21254	0.09	
50		453.21246	-0.09	
60		453.21291	0.90	
20	3.6	453.21256	0.13	
20	4.35	453.21165	-1.88	

FCC Part 22:

fc =454.0125 MHz, 25 kHz				
Temperature	Voltage	Reading	Frequency Error	Limit
°C	Vdc	MHz	ppm	ppm
-30	3.85	454.01284	0.75	5
-20		454.01237	-0.29	
-10		454.01285	0.77	
0		454.01285	0.77	
10		454.01229	-0.46	
20		454.01240	-0.22	
30		454.01231	-0.42	
40		454.01251	0.02	
50		454.01288	0.84	
60		454.01236	-0.31	
20	3.6	454.01260	0.22	
20	4.35	454.01262	0.26	

FCC Part 74:

fc =455.0125 MHz, 25 kHz				
Temperature	Voltage	Reading	Frequency Error	Limit
°C	Vdc	MHz	ppm	ppm
-30	3.85	455.01251	0.02	5
-20		455.01222	-0.62	
-10		455.01221	-0.64	
0		455.01288	0.84	
10		455.01254	0.09	
20		455.01242	-0.18	
30		455.01212	-0.84	
40		455.01214	-0.79	
50		455.01267	0.37	
60		455.01262	0.26	
20	3.6	455.01239	-0.24	
20	4.35	455.01234	-0.35	

TMO:

FCC Part 90:

fc =453.2125 MHz, 25 kHz				
Temperature	Voltage	Reading	Frequency Error	Limit
°C	Vdc	MHz	ppm	ppm
-30	3.85	453.21242	-0.18	5
-20		453.21243	-0.15	
-10		453.21253	0.07	
0		453.21248	-0.04	
10		453.21289	0.86	
20		453.21298	1.06	
30		453.21285	0.77	
40		453.21286	0.79	
50		453.21284	0.75	
60		453.21271	0.46	
20	3.6	453.21277	0.60	
20	4.35	453.21246	-0.09	

FCC Part 22:

fc =454.0125 MHz, 25 kHz				
Temperature	Voltage	Reading	Frequency Error	Limit
°C	Vdc	MHz	ppm	ppm
-30	3.85	454.01238	-0.26	5
-20		454.01281	0.68	
-10		454.01228	-0.48	
0		454.01229	-0.46	
10		454.01260	0.22	
20		454.01248	-0.04	
30		454.01257	0.15	
40		454.01254	0.09	
50		454.01244	-0.13	
60		454.01237	-0.29	
25	3.6	454.01243	-0.15	
25	4.35	454.01269	0.42	

FCC Part 74:

fc =455.0125 MHz, 25 kHz				
Temperature	Voltage	Reading	Frequency Error	Limit
°C	Vdc	MHz	ppm	ppm
-30	3.85	455.01280	0.66	5
-20		455.01218	-0.70	
-10		455.01251	0.02	
0		455.01279	0.64	
10		455.01286	0.79	
20		455.01305	1.21	
30		455.01214	-0.79	
40		455.01210	-0.88	
50		455.01241	-0.20	
60		455.01227	-0.51	
25	3.6	455.01230	-0.44	
25	4.35	455.01237	-0.29	

FCC §90.214 - TRANSIENT FREQUENCY BEHAVIOR

There is no required for tetra device.

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