

Spectrum									
Ref Level	10.00 dB	m Offset	9.86 dB 🖷	RBW 30 k	Hz				. –
Att	20 d	ib 🥃 SWT	10 ms 👄	VBW 100 k	Hz M	ode Auto Swi	eep		
●1Rm Max									
						M1[1]			1.41 dBm
				MI				2.440	083500 GHz
0 dBm				h	Mal.	ndB			20.00 dB
				N	0.1	Bw		842.300	000000 kHz
-10 dBm				N	h	Q factor			2898.0
				TN		12 Vm			
-20 dBm				N		1			
				P		<u></u>			
-30 dBm			1	1		1			
			~			1			
-40 dBm			N			mus			
			S.						
-50 dBm			1				1		
			£				×.	10	
-60 dBm	HAMMAN MAN	4 yourson					Valuemented	Process & processor	the work har help
m far and the set									1 1 1 1 1
-70 dBm									-
-80 dBm		-						-	-
CE 2 441 CI	-17			601	nts			Sna	n 6 0 MHz
Marker	12			071	pts			390	11 0.0 0112
	L Tea 1	M. combra	- 1	M .uslus	1 -	un et le un l	Erme	tion Docul	
M1	1	2 4409	35 GHZ	1 41 dF	m	ndB down	Funi	LION RESUL	842 3 VH7
T1	1	2 44059	19 GHz	-19 04 dF	m	ndB			20 00 dB
T2	1	2.44143	42 GHz	-18.65 dE	m	Q factor			2898.0
						· ·			

Date: 6.APR.2022 11:01:02





Date: 6.APR.2022 11:03:41

Fig. 42 20dB Bandwidth (GFSK, Ch 78)



Spectrum										
Ref Level	10.00 c	Bm Offset 9.	80 dB 🥃	RBW 30 ki	Ηz					`
Att	20	dB 👄 SWT	10 ms 😑	VBW 100 ki	Ηz	Mode A	uto Swe	ер		
●1Rm Max										
						M1[1]			-1.05 dBm
				P	11				2.40	203470 GHz
0 dBm				10	N.A	ndB				20.00 dB
				non	M	Why BW			1.2851	100000 MHz
-10 dBm				Las to 2		Q fa	octor			1869.2
				T 1		12	2			
-20 dBm				7		Y				
				[]						
-30 dBm			1							
			1			-	1			
-40 dBm			- and		-		TA			
		~ ~ ~	d.				0	2		
-50 dBm		1000 hr						A	1	
		ANDRAN						mon	mun	way
760 dBm +****	AN . Mar									hand
W										
-70 dBm										
-80 dBm										
CF 2.402 G	Hz			691	pts				Spa	an 6.0 MHz
Marker										
Type Ref	Trc	X-value		Y-value		Functio	on 📃	Fun	ction Resul	t
M1	1	2.4020347	GHz	-1.05 dB	m	ndB d	own			1.2851 MHz
T1	1	2.4013661	GHz	-20.82 dB	m		ndB			20.00 dB
	1	2.4026512	GHZ	-20.70 dB	m	Q fa	ctor			1869.2
						Measu	ring	Constant of the local division of the local	120	06.04.2022

Date: 6.APR.2022 11:22:01





Date: 6.APR.2022 11:30:03

Fig. 44 20dB Bandwidth (π /4 DQPSK, Ch 39)





Date: 6.APR.2022 11:32:41



Fig. 45 20dB Bandwidth (π /4 DQPSK, Ch 78)

Date: 6.APR.2022 12:47:09

Fig. 46 20dB Bandwidth (8DPSK, Ch 0)





Date: 6.APR.2022 12:24:46



Fig. 47 20dB Bandwidth (8DPSK, Ch 39)

Date: 6.APR.2022 12:39:00

Fig. 48 20dB Bandwidth (8DPSK, Ch 78)



A.6 Time of Occupancy (Dwell Time)

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a)	< 400 ms

Measurement Results:

Mode	Channel	Channel Packet		Dwell Time(ms)			
GFSK	39	DH5	Fig.49	306.10	Ρ		
π/4 DQPSK	39	2-DH5	Fig.50	305.10	Р		
8DPSK	39	3-DH5	Fig.51	305.10	Р		

See below for test graphs.

Conclusion: Pass



Fig. 49 Time of Occupancy (Dwell Time) (GFSK, Ch39)









Fig. 51 Time of Occupancy (Dwell Time) (8DPSK, Ch39)





A.7 Number of Hopping Channels

Measurement Limit:

Standard	Limit			
FCC 47 CFR Part 15.247(a)	At least 15 non-overlapping channels			

Measurement Results:

Mode	Packet	Number of hopping	Test result	Conclusion
GFSK	DH5	Fig.52	79	Р
π/4 DQPSK	2-DH5	Fig.53	79	Р
8DPSK	3-DH5	Fig.54	79	Р

See below for test graphs.

Conclusion: Pass



Fig. 52 Hopping channel ch0~39 (GFSK, Ch39)





Date: 6.APR.2022 17:03:14





Date: 6.APR.2022 17:04:42





A.8 Carrier Frequency Separation

Measurement Limit:

Standard	Limit
	By a minimum of 25 kHz or two-thirds of the 20 dB
FCC 47 CFR Part 15.247(a)	bandwidth of the hopping channel, whichever is
	greater

Measurement Results:

Mode	Channel	Packet	Separation of hopping channels	Test result (MHz)	Conclusion
GFSK	39	DH5	Fig.55	1.00	Р
π/4 DQPSK	39	2-DH5	Fig.56	1.00	Р
8DPSK	39	3-DH5	Fig.57	1.00	Р

See below for test graphs.

Conclusion: Pass



Date: 7.APR.2022 11:59:42

Fig. 55 Carrier Frequency Separation (GFSK, Ch39)





Spect	rum						
Ref L	evel	10.00 dBm	👄 RE	3W 300 kHz			
🔵 Att		20 dB	SWT 6.3 µs 👄 VE	3W 1 MHz M	ode Auto FFT		
😑 1Pk M	ах						
0 dBm-					M1[1]		-6.43 dBm 2.44000000 GHz
o ubiii		M1		M2	M2[1]		M3 -7.19 dBm
-10 dBm							2:441000000442
-20 dBm	n						
-30 dBm	י						
-40 dBm	<u>-</u>						
-50 dBm	<u>+</u>						
-60 dBm	\-						
-70 dBm							
-80 dBm	- +-						
<u>CF 2.4</u>	41 GH	z		691 pt	s		Span 3.0 MHz
Marker			~ •	2			
Туре	Ref	Trc	X-value	Y-value	Function	Fun	ction Result
M1		1	2.44 GHz	-6.43 dBm			
M2 M3		1	2.441 GHz	-6.46 dBm			
		1			Measuring		06.04.2022

Date: 6.APR.2022 17:02:29





Date: 6.APR.2022 17:03:52

Fig. 57 Carrier Frequency Separation (8DPSK, Ch39)



A.9 AC Power line Conducted Emission

Test Condition:

Voltage (V)	Frequency (Hz)		
120	60		

Measurement Result and limit:

BT-AE1,AE2

Frequency range	Quasi-peak	asi-peak Average-peak		Result (dBμV)		
(MHz)	Limit (dBµV)	Limit (dBμV)	Traffic	ldle	Conclusion	
0.15 to 0.5	66 to 56	56 to 46			Р	
0.5 to 5	56	46	Fig.58	Fig.59		
5 to 30	60	50				
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15						

MHz to 0.5 MHz.

Note: The measurement results include the L1 and N measurements.

See below for test graphs. Conclusion: Pass





Fig. 58 AC Power line Conducted Emission (Traffic)

Measurement Results: Quasi Peak

Frequency	Quasi Peak	Limit	Margin	Lino	Filtor	Corr.
(MHz)	(dBµV)	(dBµV)	(dB)	Line	Filler	(dB)
0.406000	35.69	57.73	22.04	L1	ON	10
0.610000	39.55	56.00	16.45	L1	ON	10
0.746000	37.12	56.00	18.88	N	ON	10
1.286000	34.24	56.00	21.76	N	ON	10
16.130000	32.67	60.00	27.33	N	ON	11
17.810000	32.44	60.00	27.56	N	ON	10

Measurement Results: Average

Frequency	Average	Limit	Margin	Line	ine Filter	Corr.
(MHz)	(dBµV)	(dBµV)	(dB)			(dB)
0.430000	19.97	47.25	27.28	L1	ON	10
0.642000	27.20	46.00	18.80	N	ON	10
0.970000	21.03	46.00	24.97	N	ON	10
1.286000	19.73	46.00	26.27	N	ON	10
2.258000	15.60	46.00	30.40	N	ON	10
16.438000	23.34	50.00	26.66	N	ON	11





Fig. 59 AC Power line Conducted Emission (Idle)

Measurement Results: Quasi Peak

Frequency	Quasi Peak	Limit	Margin	Line	Filter	Corr.
(MHz)	(dBµV)	(dBµV)	(dB)			(dB)
0.410000	40.34	57.65	17.31	L1	ON	10
0.614000	39.47	56.00	16.53	L1	ON	10
0.746000	39.08	56.00	16.92	N	ON	10
2.578000	33.21	56.00	22.79	N	ON	10
16.526000	36.12	60.00	23.88	N	ON	11
18.974000	36.03	60.00	23.97	L1	ON	10

Measurement Results: Average

Frequency	Average	Limit	Margin	Line	Line Filter	Corr.
(MHz)	(dBµV)	(dBµV)	(dB)			(dB)
0.670000	23.19	46.00	22.81	L1	ON	10
0.742000	25.42	46.00	20.58	N	ON	10
1.254000	22.70	46.00	23.30	N	ON	10
2.454000	20.48	46.00	25.52	N	ON	10
16.706000	25.54	50.00	24.46	N	ON	11
17.898000	26.00	50.00	24.00	N	ON	10

END OF REPORT



ANNEX- Spot Check of Output Power

Company Name: HMD Global Oy Product Name: Smart Phone Model Name: TA-1413 (FCC ID:2AJOTTA-1413); TA-1429 (FCC ID:2AJOTTA-1429)

Differences between models

TA-1429 is the variant of the initial certified product TA-1413, TA-1413 supports 2 SIM slots and TA-1429 supports 1 SIM slot.

Model	Mode	Frequency (MHz)	Conducted Output Power(dBm)	
TA-1413	LE 1M	2440(CH19)	7.66	
	EDR(8DPSK)	2441(CH39)	10.23	
	802.11b	2412 (CH1)	15.67	
	802.11a	5320 (CH64)	14.65	
TA-1429	LE 1M	2440(CH19)	7.69	
	EDR(8DPSK)	2441(CH39)	10.15	
	802.11b	2412 (CH1)	15.52	
	802.11a	5320 (CH64)	14.59	

Spot Check of Different Mode

Note: Spot check test data included for the variants based on worst-case results reported in the original.

From the above data, it can be concluded that the conducted output power of the variant is less than or near to the original. And the variant conducted test data can refer to the original report (*I22N00716*).

This condition applies to the reports *I22N00718*.